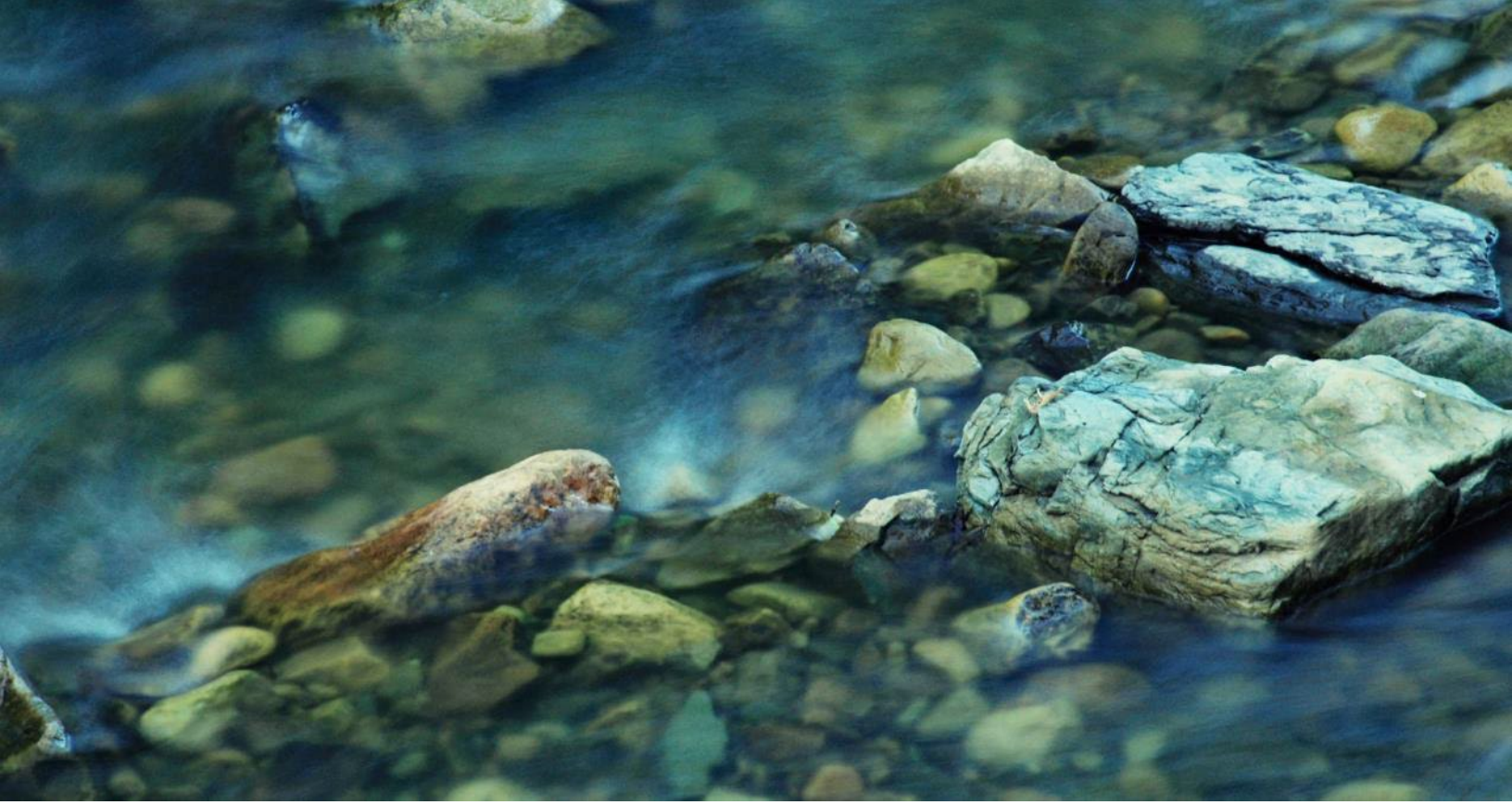


May 2026
Shelton Harbor Sediment Cleanup Unit
Oakland Bay and Shelton Harbor Sediments Cleanup Site (Cleanup Site ID: 13007)

ANCHOR QEA

Year 5 Post-Construction Monitoring Report

Prepared for Simpson Timber Company and the Washington State Department of Ecology

May 2026
Shelton Harbor Sediment Cleanup Unit
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Year 5 Post-Construction Monitoring Report

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APPENDICES

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ABBREVIATIONS

cm	centimeter
cPAH	carcinogenic polycyclic aromatic hydrocarbon
Data Report	*Year 5 Post-Construction Monitoring Report*
D/F	polychlorinated dibenzo-*p*-dioxins/furans
Ecology	Washington State Department of Ecology
PAH	polycyclic aromatic hydrocarbon
RI	Remedial Investigation
SCU	Sediment Cleanup Unit
SMA	sediment management area
SQAPP Addendum No. 3	*Sampling and Quality Assurance Project Plan Addendum No. 3*
TEQ	toxicity equivalent quotient
TOC	total organic carbon

1 Introduction

In accordance with Agreed Order DE 14091 and under oversight by the Washington State Department of Ecology (Ecology), in 2018 and 2019 Simpson Timber Company (Simpson) performed interim actions within the 196-acre Shelton Harbor Sediment Cleanup Unit (SCU), part of the 1,600-acre Oakland Bay Site (Figure 1; Anchor QEA 2022). Interim actions in sediment management area (SMA)-1 to -3 resulted in the placement of 24 inches or more of engineered cap material (a mixture of sand, gravel, and cobble) over 13 acres of the Shelton Harbor SCU that previously contained the highest surface sediment contaminant concentrations (Figure 2). Coordinated habitat restoration in Shelton Harbor was performed through 2020 by the South Puget Sound Salmon Enhancement Group, Squaxin Island Tribe, and Simpson.

The first round of post-construction performance monitoring was performed in 2020, and the results incorporated into the Shelton Harbor SCU Remedial Investigation (RI; Anchor QEA 2022). Interim action caps were determined to be stable and protective. As discussed in the RI, because of dynamic equilibrium sediment exchange throughout the Oakland Bay Site, performing additional sediment cleanup actions in the Shelton Harbor SCU will likely not result in further meaningful risk reduction. The RI recommended additional post-construction surface sediment monitoring in the Shelton Harbor SCU in Year 5 (2024) and Year 10 (2029) to verify that the interim action caps continue to remain stable and protective and to assess post-construction changes in sediment contaminant concentrations, if any.

In accordance with the Ecology-approved *Sampling and Quality Assurance Project Plan Addendum No. 3* (SQAPP Addendum No. 3; Anchor QEA 2024), Simpson performed the Year 5 post-construction monitoring in April/May 2024. This *Year 5 Post-Construction Monitoring Report* (Data Report) summarizes field sample collection activities and analytical results focused on the following objectives:

- The continued integrity of the SMA-1 to -3 interim action caps was assessed by performing bathymetric and probing surveys. In addition, sediment that accumulated on the post-construction surface of the SMA-1 and SMA-3 caps was sampled and analyzed to characterize concentrations in recently deposited sediments.
- Surface sediment sampling and analysis was performed throughout the Shelton Harbor SCU to assess post-construction changes in sediment contaminant concentrations, if any.

1.1 Document Organization

This Data Report is organized as follows:

- Section 2 – Data Collection
- Section 3 – Analytical Data Quality
- Section 4 – Data Summary
- Section 5 – References

2 Data Collection

Year 5 post-construction monitoring was conducted in April/May 2024 and included bathymetric surveys and collection of 60 surface sediment samples (Figure 3). Samples were analyzed as soon as possible upon receipt by the laboratory except for samples labeled for archive. Tables 1a and 1b present the collected coordinates of the tested and archived locations for composite samples and discrete samples, respectively. Field sample collection forms are provided in Appendix A.

2.1 Bathymetric and Probing Surveys

As described in the SQAPP Addendum No. 3 (Anchor QEA 2024), in April 2024 a multibeam bathymetric survey was performed in capped areas within and immediately adjacent to SMAs 1 through 3. The survey was conducted at higher tidal elevations to maximize the coverage area. The survey was performed by a qualified subcontractor under the direction of Anchor QEA. Bathymetric changes within SMAs 1 to 3 compared to the Year 0 as-built survey (Figures 4a and b) and Year 1 post-construction survey (Figures 5a and b; Anchor QEA 2020) were reviewed with Ecology in early May 2024, prior to implementation of the surface sediment sampling program.

The Year 5 bathymetric survey data identified two areas of potential cap thinning in the southeast and northwest portions of SMA-3 (Figures 4b and 5b). In coordination with Ecology, a probing survey was performed in both areas. As depicted on Figures 4b and 5b, 24-inches or more of cap material was measured at all probe locations.

2.2 SMA-1 Sediment Sampling

In May 2024, surface (0- to 10-centimeter [cm]) sediment samples were collected from SMA-1 at seven locations (Figure 3). Consistent with the SQAPP Addendum No. 3 (Anchor QEA 2024), depositional material greater than 1 cm thick was collected. Samples of relatively fine-grained depositional material were collected at all seven of the SMA-1 target locations (Table 1). Surface sediment samples and depositional material samples collected at the target locations were composited into a single surface sediment (0- to 10-cm) composite sample and a single depositional material (average 0 to 7-cm) composite sample. Each composite sample was submitted for analyses of polychlorinated dibenzo-*p*-dioxins/furans (D/F), polycyclic aromatic hydrocarbons (PAHs), and total organic carbon (TOC).

2.3 SMA-2 Sediment Sampling

In May 2024, surface sediment samples were collected from SMA-2 at two target locations (Figure 3). Surface sediment samples collected at each target location were composited together and submitted for D/F, PAH, tributyltin, copper, and TOC analyses. Both locations had more than 10 cm of relatively fine-grained depositional material overlying the coarser cap surface.

2.4 SMA-3 Sediment Sampling

In May 2024, surface sediment samples were collected from SMA-3 at five locations (Figure 3). Consistent with the SQAPP Addendum No. 3 (Anchor QEA 2024), depositional material greater than 1 cm thick was collected at four of the five SMA-3 locations. Surface sediment samples and depositional material samples collected at the target locations were composited into a single surface sediment (0- to 10-cm) composite sample and a single depositional material (average 0 to 8-cm) composite sample. Each composite sample was submitted for D/F, PAH, and TOC analyses.

2.5 SCU-Wide Sediment Sampling

Surface sediment samples were collected throughout the Shelton Harbor SCU at 49 target locations for composite sampling and 30 target locations for discrete sampling. The 49 target locations for composite sampling were divided into nine composite samples as described in SQAPP Addendum No. 3 (Anchor QEA 2024) and depicted in Figure 3. Surface sediment samples collected at each composite target location were composited together and submitted for D/F and/or PAH analyses as shown in Table 1. Surface sediment samples collected at each discrete target location were submitted for the specific analytes shown in Table 1.

3 Analytical Data Quality

This section describes the quality and management aspects of the data acquired during field sample collection activities.

3.1 Analytical Data Quality

Data quality objectives and quality assurance procedures are summarized and referenced in the SQAPP (Anchor QEA 2024). D/F analyses were performed by SGS AXYS Analytical Services Ltd. in Sidney, British Columbia, Canada; all other chemical analyses were performed by Analytical Resources, Inc., in Tukwila, Washington. Stage 2B and/or Stage 4 (D/F) data validation was performed on all data (EPA 2009). During the validation process, analytical data were evaluated for method quality control and laboratory quality control compliance, and their validity and applicability for program purposes was determined. Based on the findings of the validation process, data validation qualifiers were assigned.

The data package was validated by Laboratory Data Consultants and Anchor QEA. Laboratory data reports have been separately provided to Ecology, and data validation reports are provided in Appendix B. All qualifiers applied to the data during final validation have been incorporated into the database for this project. Data qualifiers assigned during data validation included the following:

- "J" indicates that the result is an estimated concentration.
- "U" indicates a method detection limit below which the analyte was not detected.
- "UJ" indicates an estimated method detection limit below which the analyte was not detected.

The validation process resulted in some J-qualified data (estimated values) based on a specified protocol or technical advisory, as discussed in the attached data validation reports (Appendix B. Overall, all reporting limits were acceptable and met the SQAPP objectives (Anchor QEA 2024). All data are considered useable for site characterization as reported or as qualified.

3.2 Field Data Quality

Field duplicate results were evaluated using a control limit of less than or equal to 50% relative percent difference when both reported results were greater than the reporting limit. For some PAHs in one duplicate set, duplicate precision was above the control limit of 50%. One rinse blank sample was collected and analyzed for this project; target analytes were rarely detected. All sample results were significantly (greater than five times) more than the levels detected in the rinse blank, so the data are useable as reported.

3.3 Data Management

The validated project data, including qualifiers, were entered into the Anchor QEA project database. Validated data will be submitted to Ecology's Environmental Information Management database prior to approval of this Data Report.

4 Data Summary

As discussed in Section 2.1, multibeam bathymetric and probing surveys confirmed that 24-inches or more of cap material remains throughout SMAs-1 to -3. The cap design thickness is a minimum of 18 inches to provide combined chemical isolation, filtering, armoring, and habitat functions (Anchor QEA 2022). The Year 5 survey thus confirmed the continued integrity of the interim action caps. Comparisons of multibeam surveys between monitoring events continue to be influenced by subgrade sediment consolidation below the caps.

During the Year 1 (2020) post-construction monitoring, approximately 3 cm of recent fine-grained sediment had deposited onto and was incorporated into the surface of the SMA-1 to -3 caps (Anchor QEA 2022). During the Year 5 (2024) post-construction monitoring, fine-grained substrate thickness increased to approximately 8 cm. Recent depositional sediments were largely composed of silt-sized materials, with total solids and total organic carbon concentrations similar to Oakland Bay intertidal mudflats (Table 2; Anchor QEA 2022). Composite D/F concentrations in these depositional materials averaged 48 ± 6 nanograms per kilogram toxicity equivalent quotient (ng/kg TEQ), not statistically different than the average surface sediment D/F TEQ concentration measured in intertidal mudflats of Oakland Bay (37 ± 5 ng/kg TEQ; $P>0.05$).

As discussed in the RI (Anchor QEA 2022), sediments in nearshore intertidal zones (above approximately -5 feet mean lower low water) throughout the Oakland Bay and Shelton Harbor Sediments Site are subject to periodic resuspension from wind waves. During wind events, regular breaking wave conditions on the intertidal bed of Oakland Bay and Shelton Harbor resuspend surface sediments, resulting in small (millimeter-scale) bed level changes during the tidal cycle. Resuspended intertidal mudflat fines (silt and clay) are dispersed by wind waves and tidal currents, exchanging within Oakland Bay and Shelton Harbor and between these systems through dynamic equilibrium processes.

Figure 6 summarizes the rapid sediment grain size equilibrium (percent fines) in the top 10-cm of the SMA-1 and -3 caps from the placed sand/gravel/cobble to the current silt substrate. The observed equilibrium half-time of 1.2 ± 0.2 years is similar to post-construction monitoring results from other Puget Sound sediment remediation areas, likely attributable to a combination of wind-wave resuspension and biological transfer across the sediment-water interface (e.g., suspension and deposit feeding by benthic macroinvertebrates; Patmont and Healy 2024). Based on the grain size data summarized in Figure 6, surface sediments in SMA-1 and -3 have now largely equilibrated with the larger Oakland Bay Site.

Figures 7 and 8 summarize surface sediment (0 to 10-cm) D/F and cPAH TEQ concentrations, respectively, across the Shelton Harbor SCU. The 2024 surface weighted average concentrations (SWACs) of dioxins/furans and cPAHs are presented in Table 3 along with SWACs from the Shelton

Harbor SCU from 2017 (pre-interim action) and 2020 (1-year post-interim action), as well as from the Oakland Bay Site sampled in 2008.

Table 3
Shelton Harbor SCU and Oakland Bay Site SWACs

Site (Year)	Dioxin/Furan TEQ SWAC (ng/kg TEQ)	cPAH TEQ SWAC (µg/kg TEQ)
Oakland Bay (2008)	31 ± 5	15 ± 5
Shelton Harbor SCU (2017)	43 ± 5	130 ± 60
Shelton Harbor SCU (2020)	32 ± 5	120 ± 50
Shelton Harbor SCU (2024)	33 ± 3	210 ± 200

Notes:
Values are mean ± standard error

Like the grain size data summarized in Figure 6, surface sediment D/F TEQ concentrations are not significantly different ($P>0.05$) from concentrations reported throughout the larger Oakland Bay Site (SWAC of 31 ± 5 ng/kg TEQ), consistent with dynamic equilibrium processes as discussed above. The sediment data (Figure 7) do not reveal any ongoing source of D/F within Shelton Harbor; gradients in D/F concentrations are consistent with grain size and TOC patterns attributable to sediment sorting within the Harbor. Surface sediment cPAH TEQ concentrations (Figure 8) in Shelton Harbor have also largely stabilized and appear to continue to be influenced by remaining creosote piling in the Harbor (Anchor QEA 2022).

5 Next Steps

5.1 Sampling Schedule

This Data Report summarizes the data collected in support of the Year 5 post-construction surface sediment monitoring in the Shelton Harbor SCU. A final post-construction surface sediment monitoring event will be conducted in Year 10 (2029) to verify that the interim action caps continue to remain stable and protective and to assess post-construction changes in sediment contaminant concentrations, if any. The results of the Year 5 post-construction surface sediment monitoring indicate that dioxin/furan concentrations in surface sediments of the Shelton Harbor SCU have likely reached equilibrium with the greater Oakland Bay Site. Therefore, a final Year 10 post-construction surface sediment monitoring event is reasonable to verify that the interim action caps continue to remain stable and protective.

5.2 Sampling Modification

The upcoming Year 10 sampling event will reoccupy all sampling locations identified in the SQAPP Addendum No. 3 (Anchor QEA 2024), and the following modifications will be made to the sampling program:

- **Discrete Sampling:** All samples will be collected and analyzed as discrete samples.
- **Depth Interval:** All previous surface sampling efforts in Oakland Bay and Shelton Harbor have been collected from the 0 to 10-cm depth interval. This depth interval will be retained to support temporal evaluations. However, an additional 0 to 45-cm depth interval sample will be used for intertidal locations as requested by Ecology.

6 References

Anchor QEA (Anchor QEA, LLC), 2020. *Remedial Investigation/Feasibility Study Work Plan Addendum No. 1*. Shelton Harbor Sediment Cleanup Unit, Oakland Bay and Shelton Harbor Sediments Cleanup Site (Cleanup Site ID: 13007). Prepared for Simpson Timber Company, Manke Lumber Company, and Washington State Department of Ecology. June 2020.

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Tables

Table 1a

As-Collected 2024 Shelton Harbor Composite Surface Sediment Sampling Locations

Location ID	Latitude	Longitude	Elevation (ft MLLW)	Surface Sediment Sample (0–10 cm)	Dioxins/Furans Analyses	PAHs Analyses	Copper Analyses	Tributyltin Analyses	TS and TOC Analyses	Sample Archive
SMA-1 Composite Sample (7-Point)										
OMMP-SMA1-SG01	47.211776	-123.089485	4.47	1	--	--	--	--	--	X
OMMP-SMA1-SG02	47.212377	-123.089514	6.00	1	--	--	--	--	--	X
OMMP-SMA1-SG03	47.213185	-123.089419	0.60	1	--	--	--	--	--	X
OMMP-SMA1-SG04	47.212830	-123.091168	1.00	1	--	--	--	--	--	X
OMMP-SMA1-SG05	47.212226	-123.091273	0.30	1	--	--	--	--	--	X
OMMP-SMA1-SG06	47.212864	-123.089828	8.06	1	--	--	--	--	--	X
OMMP-SMA1-SG07	47.212648	-123.090239	6.19	1	--	--	--	--	--	X
OMMP-SMA1-SG-COMP-01	--	--	--	--	1	1	--	--	1	--
SMA-2 Composite Sample (2-Point)										
OMMP-SMA2-SG01	47.213455	-123.087815	4.11	1	--	--	--	--	--	X
OMMP-SMA2-SG02	47.213402	-123.087483	2.89	1	--	--	--	--	--	X
OMMP-SMA2-SG-COMP-02	--	--	--	--	1	1	1	1	1	
SMA-3 Composite Sample (5-Point)										
OMMP-SMA3-SG01	47.207408	-123.093668	0.73	1	--	--	--	--	--	X
OMMP-SMA3-SG02	47.207123	-123.092768	4.49	1	--	--	--	--	--	X
OMMP-SMA3-SG03	47.206850	-123.091983	-4.45	1	--	--	--	--	--	X
OMMP-SMA3-SG04	47.207532	-123.092718	-3.11	1	--	--	--	--	--	X
OMMP-SMA3-SG05	47.207686	-123.093900	-4.74	1	--	--	--	--	--	X
OMMP-SMA3-SG-COMP-03	--	--	--	--	1	1	--	--	1	--
NHRA Composite Sample (5-Point)										
NHRA-SMA5-SG01	47.211544	-123.091674	14.54	1	--	--	--	--	--	X
NHRA-SMA5-SG02	47.210549	-123.091911	13.69	1	--	--	--	--	--	X
NHRA-SMA5-SG03	47.211357	-123.090902	11.17	1	--	--	--	--	--	X
NHRA-SMA5-SG04	47.210897	-123.090955	12.62	1	--	--	--	--	--	X
NHRA-SMA5-SG05	47.209945	-123.090205	14.21	1	--	--	--	--	--	X
NHRA-SMA5-SG-COMP-04	--	--	--	--	1	1	--	--	1	--
SMA-5 East Dioxin Composite Sample (6-Point)										
RIFS-SMA5-SG15	47.212182	-123.086237	-2.30	1	--	--	--	--	--	X
RIFS-SMA5-SG19	47.212228	-123.084234	-2.73	1	--	--	--	--	--	X
RIFS-SMA5-SG21	47.210871	-123.084152	-1.52	1	--	--	--	--	--	X
RIFS-SMA5-SG22	47.210827	-123.086156	1.30	1	--	--	--	--	--	X
RIFS-SMA5-SG24	47.209458	-123.086071	1.80	1	--	--	--	--	--	X
RIFS-SMA5-SG25	47.209494	-123.084064	-2.20	1	--	--	--	--	--	X
RIFS-SMA5-SG-COMP-05	--	--	--	--	1	--	--	--	1	--
North Outer Harbor PAH Composite Sample (5-Point)										
RIFS-SMA5-SG13	47.212471	-123.088417	1.71	1	--	--	--	--	--	X
RIFS-SMA5-SG14	47.212858	-123.087157	0.36	1	--	--	--	--	--	X
RIFS-SMA5-SG15	47.212197	-123.086222	-2.30	1	--	--	--	--	--	X
RIFS-SMA5-SG17	47.214424	-123.085762	-1.77	1	--	--	--	--	--	X
RIFS-SMA5-SG18	47.212950	-123.085590	-8.44	1	--	--	--	--	--	X
RIFS-SMA5-SG-COMP-06	--	--	--	--	--	1	--	--	1	--
Central Outer Harbor PAH Composite Sample (10-Point)										
RIFS-SMA5-SG19	47.212228	-123.084234	-2.73	1	--	--	--	--	--	X
RIFS-SMA5-SG20	47.210912	-123.082141	-10.83	1	--	--	--	--	--	X
RIFS-SMA5-SG21	47.210871	-123.084152	-1.52	1	--	--	--	--	--	X
RIFS-SMA5-SG22	47.210827	-123.086156	1.30	1	--	--	--	--	--	X
RIFS-SMA5-SG23	47.210782	-123.088166	4.50	1	--	--	--	--	--	X
RIFS-SMA5-SG25	47.209494	-123.084064	-2.20	1	--	--	--	--	--	X
RIFS-SMA5-SG26	47.209531	-123.082068	-9.53	1	--	--	--	--	--	X

Table 1a

As-Collected 2024 Shelton Harbor Composite Surface Sediment Sampling Locations

Location ID	Latitude	Longitude	Elevation (ft MLLW)	Surface Sediment Sample (0–10 cm)	Dioxins/Furans Analyses	PAHs Analyses	Copper Analyses	Tributyltin Analyses	TS and TOC Analyses	Sample Archive
RIFS-SMA5-SG27	47.209596	-123.080023	-13.76	1	--	--	--	--	--	X
RIFS-SMA5-SG31	47.208212	-123.079966	-15.40	1	--	--	--	--	--	X
RIFS-SMA5-SG32	47.208270	-123.077971	-24.69	1	--	--	--	--	--	X
RIFS-SMA5-SG-COMP-07	--	--	--	--	--	1	--	--	1	--
Southern Outer Harbor PAH Composite Sample (5-Point)										
RIFS-SMA5-SG29	47.208129	-123.084057	-5.75	1	--	--	--	--	--	X
RIFS-SMA5-SG30	47.208163	-123.082026	-10.38	1	--	--	--	--	--	X
RIFS-SMA5-SG33	47.206721	-123.085948	-3.98	1	--	--	--	--	--	X
RIFS-SMA5-SG34	47.206762	-123.083941	-2.37	1	--	--	--	--	--	X
RIFS-SMA5-SG35	47.206807	-123.081937	0.16	1	--	--	--	--	--	X
RIFS-SMA5-SG-COMP-08	--	--	--	--	--	1	--	--	1	--
Inner Harbor PAH Composite Sample (4-Point)										
RIFS-SMA5-SG01	47.207970	-123.094953	-7.61	1	--	--	--	--	--	X
RIFS-SMA5-SG02	47.208469	-123.094460	-7.12	1	--	--	--	--	--	X
RIFS-SMA5-SG03	47.208017	-123.093280	-6.03	1	--	--	--	--	--	X
RIFS-SMA5-SG04	47.208871	-123.092377	-4.24	1	--	--	--	--	--	X
RIFS-SMA5-SG-COMP-09	--	--	--	--	--	1	--	--	1	--
Totals				**49**	**5**	**8**	**1**	**1**	**9**	**49**

Notes:

--: not applicable

cm: centimeter

ft: feet

MLLW: mean lower low water

NHRA: Northern Habitat Restoration Area

OMMP: *Interim Action Operations, Monitoring, and Maintenance Plan*

PAH: polycyclic aromatic hydrocarbon

RI/FS: Remedial Investigation/Feasibility Study

SMA: sediment management area

X: sub-sample to be archived

Table 1b

As-Collected 2024 Shelton Harbor Discrete Surface Sediment Sampling Locations

Location ID	Latitude	Longitude	Elevation (ft MLLW)	Surface Sediment Sample (0–10 cm)	Dioxin/Furan Analysis	PAHs Analyses	TS and TOC Analyses	Sample Archive
SMA-5 Discrete Samples								
RIFS-SMA5-SG01	47.207970	123.094953	-7.61	1	1	--	1	X
RIFS-SMA5-SG02	47.208469	-123.094460	-7.12	1	1	--	1	X
RIFS-SMA5-SG03	47.213201	-123.089386	-6.03	1	1	--	1	X
RIFS-SMA5-SG04	47.208871	-123.092377	-4.24	1	1	1	1	X
RIFS-SMA5-SG05	47.207559	-123.091464	-5.74	1	1	1	1	X
RIFS-SMA5-SG06	47.206404	-123.091612	-2.79	1	1	1	1	X
RIFS-SMA5-SG07	47.208629	-123.090518	-1.53	1	1	1	1	X
RIFS-SMA5-SG08	47.207403	-123.089517	-9.33	1	1	--	1	X
RIFS-SMA5-SG09	47.209451	-123.089002	0.58	1	1	1	1	X
RIFS-SMA5-SG10	47.208072	-123.088024	1.77	1	1	1	1	X
RIFS-SMA5-SG11	47.206541	-123.087299	-3.70	1	1	1	1	X
RIFS-SMA5-SG12	47.206528	-123.087310	6.94	1	1	1	1	X
RIFS-SMA5-SG13	47.212471	-123.088417	1.71	1	1	--	1	X
RIFS-SMA5-SG14	47.212858	-123.087157	0.36	1	1	--	1	X
RIFS-SMA5-SG16	47.213614	-123.086559	-0.79	1	1	--	1	X
RIFS-SMA5-SG17	47.214424	-123.085762	-1.77	1	1	--	1	X
RIFS-SMA5-SG18	47.212950	-123.085590	-8.44	1	1	--	1	X
RIFS-SMA5-SG20	47.210912	-123.082141	-10.83	1	1	--	1	X
RIFS-SMA5-SG23	47.210782	-123.088166	4.50	1	1	--	1	X
RIFS-SMA5-SG24	47.209458	-123.086071	1.80	1	--	1	1	X
RIFS-SMA5-SG26	47.209531	-123.082068	-9.53	1	1	--	1	X
RIFS-SMA5-SG27	47.209596	-123.080023	-13.76	1	1	--	1	X
RIFS-SMA5-SG28	47.208078	-123.086023	-1.36	1	1	1	1	X
RIFS-SMA5-SG29	47.208129	-123.084057	-5.75	1	1	--	1	X
RIFS-SMA5-SG30	47.208163	-123.082026	-10.38	1	1	--	1	X
RIFS-SMA5-SG31	47.208212	-123.079966	-15.40	1	1	--	1	X
RIFS-SMA5-SG32	47.208270	-123.077971	-24.69	1	1	--	1	X
RIFS-SMA5-SG33	47.206721	-123.085948	-3.98	1	1	--	1	X
RIFS-SMA5-SG34	47.206762	-123.083941	-2.37	1	1	--	1	X
RIFS-SMA5-SG35	47.206807	-123.081937	0.16	1	1	--	1	X
RIFS-SMA5-SG40	47.209424	-123.087540	2.00	1	--	1	1	X
Totals				**31**	**29**	**11**	**31**	**31**

Notes:

--: not applicable

cm: centimeter

ft: feet

MLLW: mean lower low water

NHRA: Northern Habitat Restoration Area

OMMP: *Interim Action Operations, Monitoring, and Maintenance Plan*

PAH: polycyclic aromatic hydrocarbon

RI/FS: Remedial Investigation/Feasibility Study

SMA: sediment management area

X: sub-sample to be archived

Table 2
2024 Shelton Harbor Surface Sediment Analysis Results

Chemical	SheltonRI_OMMP_2024 OMMP-SMA1-SG-DCOMP-1 OMMP-SMA1-SG-DCOMP-240508 5/8/2024 0 - 7 cm N SE	SheltonRI_OMMP_2024 OMMPSMA2-SG-COMP-02 OMMP-SMA2-SG-COMP-02-240506 5/6/2024 0 - 10 cm N SE	SheltonRI_OMMP_2024 OMMP-SMA3-SG-COMP-03 OMMP-SMA3-SG-COMP-03-240509 5/9/2024 0 - 10 cm N SE	SheltonRI_OMMP_2024 OMMP-SMA3-SG-DCOMP-3 OMMP-SMA3-SG-DCOMP-240509 5/9/2024 0 - 8 cm N SE
Conventional Parameters (pct)				
Total organic carbon	**2.06**	**3.11**	**2.58**	**5.65 J**
Total solids	**57.4**	**38.8**	**44.6**	**33.8**
Grain Size (pct)				
Clay, coarse	**4.2**	--	--	**8.6**
Clay, fine	**7**	--	--	**10.9**
Clay, medium	**2.5**	--	--	**5.4**
Gravel, coarse	**1.5**	--	--	**0.6**
Gravel, medium	**3.5**	--	--	**1.7**
Gravel, very coarse	**13.0**	--	--	**2.8**
Sand, coarse	**1.6**	--	--	**1.9**
Sand, fine	**0.6**	--	--	**0.8**
Sand, medium	**1.3**	--	--	**1.9**
Sand, very coarse	**3**	--	--	**1.3**
Sand, very fine	**1.7**	--	--	**2.6**
Silt, coarse	**41.2**	--	--	**28.0**
Silt, fine	**6.3**	--	--	**12.3**
Silt, medium	**8.2**	--	--	**12.2**
Silt, very fine	**4.6**	--	--	**9.1**
Metals (mg/kg)				
Copper	--	**35.1 J**	--	--
Organometals (µg/kg)				
Tributyltin (ion)	--	**2.09 J**	--	--

Table 2
2024 Shelton Harbor Surface Sediment Analysis Results

Chemical	SheltonRI_OMMP_2024 OMMP-SMA1-SG-DCOMP-1 OMMP-SMA1-SG-DCOMP-240508 5/8/2024 0 - 7 cm N SE	SheltonRI_OMMP_2024 OMMPSMA2-SG-COMP-02 OMMP-SMA2-SG-COMP-02-240506 5/6/2024 0 - 10 cm N SE	SheltonRI_OMMP_2024 OMMP-SMA3-SG-COMP-03 OMMP-SMA3-SG-COMP-03-240509 5/9/2024 0 - 10 cm N SE	SheltonRI_OMMP_2024 OMMP-SMA3-SG-DCOMP-3 OMMP-SMA3-SG-DCOMP-240509 5/9/2024 0 - 8 cm N SE
Polycyclic Aromatic Hydrocarbons (µg/kg)				
1-Methylphenanthrene	--	**27.9**	**10.3**	**16.4**
2,3,5-Trimethylnaphthalene (1,6,7-Trimethylnaphthalene)	--	**20.0**	**7.96**	**12.9**
2,6-Dimethylnaphthalene	--	**17.3**	**8.62**	**13.1**
2-Methylnaphthalene	--	**14.8**	**10.8**	**13.3**
Acenaphthene	--	**9.48**	**12.0**	**15.1**
Acenaphthylene	--	**15.1**	**13.1**	**23.1**
Anthracene	--	**39.0**	**35.1**	**52.7**
Benzo(a)anthracene	--	**79.6 J**	**55.8 J**	**97.4**
Benzo(a)pyrene	--	**81.6**	**59.6**	**99.9**
Benzo(b)fluoranthene	--	**84.9**	**67.6**	**117**
Benzo(e)pyrene	--	**78.4**	**60.9**	**99.0**
Benzo(g,h,i)perylene	--	**66.6**	**52.6**	**78.9**
Benzo(j,k)fluoranthene	--	**74.3**	**56.5**	**93.1**
Chrysene	--	**128**	**92.6**	**202**
Dibenzo(a,h)anthracene	--	**11.4 J**	**7.66 J**	**14.1**
Dibenzothiophene	--	**8.20**	**5.84**	**8.23**
Fluoranthene	--	**259**	**207**	**317**
Fluorene	--	**11.6**	**10.1**	**15.4**
Indeno(1,2,3-c,d)pyrene	--	**49.7**	**36.8**	**60.5**
Naphthalene	--	**75.6**	**68.3**	**78.0**
Perylene	--	**73.0**	**38.6**	**51.1**
Phenanthrene	--	**121**	**99.0**	**164**
Pyrene	--	**285**	**225**	**318**
Total Benzofluoranthenes (b,j,k) (U = 0 max limit)	--	**159**	**124**	**210**
Total HPAH (SMS) (U = 0 max limit)	--	**1120 J**	**861 J**	**1400**
Total LPAH (SMS) (U = 0 max limit)	--	**272**	**238**	**348**
Total cPAH TEQ (7 minimum CAEPA 2005) (U = 0 max limit)	--	**113 J**	**83.0 J**	**140**
Total cPAH TEQ (7 minimum CAEPA 2005) (U = 1/2 max limit)	--	**113 J**	**83.0 J**	**140**

Table 2
2024 Shelton Harbor Surface Sediment Analysis Results

Chemical	SheltonRI_OMMP_2024 OMMP-SMA1-SG-DCOMP-1 OMMP-SMA1-SG-DCOMP-240508 5/8/2024 0 - 7 cm N SE	SheltonRI_OMMP_2024 OMMPSMA2-SG-COMP-02 OMMP-SMA2-SG-COMP-02-240506 5/6/2024 0 - 10 cm N SE	SheltonRI_OMMP_2024 OMMP-SMA3-SG-COMP-03 OMMP-SMA3-SG-COMP-03-240509 5/9/2024 0 - 10 cm N SE	SheltonRI_OMMP_2024 OMMP-SMA3-SG-DCOMP-3 OMMP-SMA3-SG-DCOMP-240509 5/9/2024 0 - 8 cm N SE
Dioxin Furans (ng/kg)				
1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	--	**1130**	**725**	**1370**
1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)	--	**8230**	**5670**	**9450**
1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	--	**411**	**257**	**422**
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	--	**1180**	**729**	**1210**
1,2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)	--	**22.3**	**13.6**	**21.2**
1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	--	**29.8**	**18.4**	**31.6**
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	--	**21.5**	**8.59**	**12.1**
1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)	--	**12.2**	**7.45**	**11.8**
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	--	**60.6**	**32.1**	**48.2**
1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	--	**1.07 J**	**0.680 J**	**0.971 J**
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (HxCDD)	--	**33.9**	**15.5**	**24.9**
1,2,3,7,8-Pentachlorodibenzofuran (PeCDF)	--	**4.78**	**3.24**	**4.71**
1,2,3,7,8-Pentachlorodibenzo-p-dioxin (PeCDD)	--	**8.62**	**4.25**	**6.34**
2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)	--	**9.14**	**5.59**	**8.84**
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	--	**6.62**	**4.31**	**6.60**
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	--	**3.97**	**3.23**	**4.46**
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	--	**1.25**	**0.761**	**1.26**
Total Heptachlorodibenzofuran (HpCDF)	--	**1350**	**875**	**1480**
Total Heptachlorodibenzo-p-dioxin (HpCDD)	--	**2660**	**1860**	**3170**
Total Hexachlorodibenzofuran (HxCDF)	--	**500**	**289**	**541**
Total Hexachlorodibenzo-p-dioxin (HxCDD)	--	**1330**	**559**	**853**
Total Pentachlorodibenzofuran (PeCDF)	--	**137**	**55.1**	**150**
Total Pentachlorodibenzo-p-dioxin (PeCDD)	--	**847**	**271**	**430**
Total Tetrachlorodibenzofuran (TCDF)	--	**95.5**	**54.9**	**109**
Total Tetrachlorodibenzo-p-dioxin (TCDD)	--	**744**	**160**	**357**
Total Dioxin/Furan TEQ 2005 (Mammal) (U = 0 max limit)	--	**48.2 J**	**27.5 J**	**43.8 J**
Total Dioxin/Furan TEQ 2005 (Mammal) (U = 1/2 max limit)	--	**48.2 J**	**27.5 J**	**43.8 J**

Table 2
2024 Shelton Harbor Surface Sediment Analysis Results

Chemical	SheltonRI_OMMP_2024 RIFS-SMA5-SG01 RIFS-SMA5-SG01-240508 5/8/2024 0 - 10 cm N SE 995552.24 694245.65	SheltonRI_OMMP_2024 RIFS-SMA5-SG02 RIFS-SMA5-SG02-240508 5/8/2024 0 - 10 cm N SE 995685.51 694423.68	SheltonRI_OMMP_2024 RIFS-SMA5-SG03 RIFS-SMA5-SG03-240508 5/8/2024 0 - 10 cm N SE 995968.83 694247.61	SheltonRI_OMMP_2024 RIFS-SMA5-SG04 RIFS-SMA5-SG04-240508 5/8/2024 0 - 10 cm N SE 996206.76 694553.53	SheltonRI_OMMP_2024 RIFS-SMA5-SG05 RIFS-SMA5-SG05-240508 5/8/2024 0 - 10 cm N SE 996417.36 694063.72
Conventional Parameters (pct)					
Total organic carbon	**5.69**	**12**	**4.96**	**5.56**	**5.25**
Total solids	**30.0**	**34.3**	**30.9**	**30.2**	**31.0**
Grain Size (pct)					
Clay, coarse	--	--	--	--	--
Clay, fine	--	--	--	--	--
Clay, medium	--	--	--	--	--
Gravel, coarse	--	--	--	--	--
Gravel, medium	--	--	--	--	--
Gravel, very coarse	--	--	--	--	--
Sand, coarse	--	--	--	--	--
Sand, fine	--	--	--	--	--
Sand, medium	--	--	--	--	--
Sand, very coarse	--	--	--	--	--
Sand, very fine	--	--	--	--	--
Silt, coarse	--	--	--	--	--
Silt, fine	--	--	--	--	--
Silt, medium	--	--	--	--	--
Silt, very fine	--	--	--	--	--
Metals (mg/kg)					
Copper	--	--	--	--	--
Organometals (µg/kg)					
Tributyltin (ion)	--	--	--	--	--

Table 2
2024 Shelton Harbor Surface Sediment Analysis Results

Chemical	SheltonRI_OMMP_2024 RIFS-SMA5-SG01 RIFS-SMA5-SG01-240508 5/8/2024 0 - 10 cm N SE 995552.24 694245.65	SheltonRI_OMMP_2024 RIFS-SMA5-SG02 RIFS-SMA5-SG02-240508 5/8/2024 0 - 10 cm N SE 995685.51 694423.68	SheltonRI_OMMP_2024 RIFS-SMA5-SG03 RIFS-SMA5-SG03-240508 5/8/2024 0 - 10 cm N SE 995968.83 694247.61	SheltonRI_OMMP_2024 RIFS-SMA5-SG04 RIFS-SMA5-SG04-240508 5/8/2024 0 - 10 cm N SE 996206.76 694553.53	SheltonRI_OMMP_2024 RIFS-SMA5-SG05 RIFS-SMA5-SG05-240508 5/8/2024 0 - 10 cm N SE 996417.36 694063.72
Polycyclic Aromatic Hydrocarbons (µg/kg)					
1-Methylphenanthrene	--	--	--	**16.8**	**15.6**
2,3,5-Trimethylnaphthalene (1,6,7-Trimethylnaphthalene)	--	--	--	**13.2**	**13.4**
2,6-Dimethylnaphthalene	--	--	--	**18.9**	**27.8**
2-Methylnaphthalene	--	--	--	**17.2**	**17.1**
Acenaphthene	--	--	--	**15.1**	**10.7**
Acenaphthylene	--	--	--	**15.7**	**14.1**
Anthracene	--	--	--	**41.6**	**41.0**
Benzo(a)anthracene	--	--	--	**79.2 J**	**70.4 J**
Benzo(a)pyrene	--	--	--	**87.8**	**71.1**
Benzo(b)fluoranthene	--	--	--	**104**	**81.1**
Benzo(e)pyrene	--	--	--	**93.3**	**72.5**
Benzo(g,h,i)perylene	--	--	--	**71.0**	**57.6**
Benzo(j,k)fluoranthene	--	--	--	**85.2**	**71.1**
Chrysene	--	--	--	**158**	**162**
Dibenzo(a,h)anthracene	--	--	--	**12.6 J**	**9.76 J**
Dibenzothiophene	--	--	--	**8.18**	**6.08**
Fluoranthene	--	--	--	**276**	**228**
Fluorene	--	--	--	**13.5**	**14.5**
Indeno(1,2,3-c,d)pyrene	--	--	--	**49.4**	**40.4**
Naphthalene	--	--	--	**97.2**	**113**
Perylene	--	--	--	**58.3**	**48.9**
Phenanthrene	--	--	--	**129**	**116**
Pyrene	--	--	--	**326**	**249**
Total Benzofluoranthenes (b,j,k) (U = 0 max limit)	--	--	--	**189**	**152**
Total HPAH (SMS) (U = 0 max limit)	--	--	--	**1250 J**	**1040 J**
Total LPAH (SMS) (U = 0 max limit)	--	--	--	**312**	**309**
Total cPAH TEQ (7 minimum CAEPA 2005) (U = 0 max limit)	--	--	--	**122 J**	**100 J**
Total cPAH TEQ (7 minimum CAEPA 2005) (U = 1/2 max limit)	--	--	--	**122 J**	**100 J**

Table 2
2024 Shelton Harbor Surface Sediment Analysis Results

Chemical	SheltonRI_OMMP_2024 RIFS-SMA5-SG01 RIFS-SMA5-SG01-240508 5/8/2024 0 - 10 cm N SE 995552.24 694245.65	SheltonRI_OMMP_2024 RIFS-SMA5-SG02 RIFS-SMA5-SG02-240508 5/8/2024 0 - 10 cm N SE 995685.51 694423.68	SheltonRI_OMMP_2024 RIFS-SMA5-SG03 RIFS-SMA5-SG03-240508 5/8/2024 0 - 10 cm N SE 995968.83 694247.61	SheltonRI_OMMP_2024 RIFS-SMA5-SG04 RIFS-SMA5-SG04-240508 5/8/2024 0 - 10 cm N SE 996206.76 694553.53	SheltonRI_OMMP_2024 RIFS-SMA5-SG05 RIFS-SMA5-SG05-240508 5/8/2024 0 - 10 cm N SE 996417.36 694063.72
Dioxin Furans (ng/kg)					
1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	**1810**	**2050**	**1410**	**1420 J**	**1310**
1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)	**11400**	**15500**	**10800**	**9680 J**	**8890**
1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	**531**	**693**	**505**	**428 J**	**422**
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	**1390**	**1920**	**1440**	**1230 J**	**1130**
1,2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)	**23.9**	**40.9**	**28.1**	**25.9 J**	**21.5**
1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	**34.6**	**65.4**	**38.2**	**29.3 J**	**32.0**
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	**14.8**	**20.3**	**17.2**	**13.5 J**	**11.4**
1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)	**13.8**	**23.2**	**15.2**	**12.1 J**	**11.3**
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	**57.7**	**93.7**	**63.5**	**52.1 J**	**48.2**
1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	**1.13 J**	**1.89**	**1.32 J**	**1.08 J**	**0.976 J**
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (HxCDD)	**26.4**	**35.0**	**34.9**	**22.5 J**	**22.0**
1,2,3,7,8-Pentachlorodibenzofuran (PeCDF)	**6.27**	**10.7**	**6.75**	**4.58 J**	**4.74**
1,2,3,7,8-Pentachlorodibenzo-p-dioxin (PeCDD)	**8.01**	**13.0**	**8.43**	**6.12 J**	**6.00**
2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)	**10.4**	**15.7**	**10.8**	**8.87 J**	**8.42**
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	**8.27**	**18.2**	**9.37**	**6.16 J**	**6.60**
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	**6.69**	**12.8**	**6.76**	**4.07 J**	**3.97**
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	**1.60**	**3.07**	**1.79**	**0.966 J**	**1.04**
Total Heptachlorodibenzofuran (HpCDF)	**2060**	**2590**	**1740**	**1580 J**	**1540**
Total Heptachlorodibenzo-p-dioxin (HpCDD)	**3540**	**4540**	**3510**	**3150 J**	**2780**
Total Hexachlorodibenzofuran (HxCDF)	**648**	**1060**	**657**	**610 J**	**529**
Total Hexachlorodibenzo-p-dioxin (HxCDD)	**973**	**1100**	**1100**	**806 J**	**759**
Total Pentachlorodibenzofuran (PeCDF)	**163**	**287**	**181**	**232 J**	**143**
Total Pentachlorodibenzo-p-dioxin (PeCDD)	**518**	**644**	**586**	**369 J**	**347**
Total Tetrachlorodibenzofuran (TCDF)	**150**	**293**	**143**	**120 J**	**89.0**
Total Tetrachlorodibenzo-p-dioxin (TCDD)	**426**	**628**	**528**	**499 J**	**297**
Total Dioxin/Furan TEQ 2005 (Mammal) (U = 0 max limit)	**52.2 J**	**80.5**	**55.4 J**	**43.6 J**	**41.8 J**
Total Dioxin/Furan TEQ 2005 (Mammal) (U = 1/2 max limit)	**52.2 J**	**80.5**	**55.4 J**	**43.6 J**	**41.8 J**

Table 2
2024 Shelton Harbor Surface Sediment Analysis Results

Chemical	SheltonRI_OMMP_2024 RIFS-SMA5-SG06 RIFS-SMA5-SG06-240508 5/8/2024 0 - 10 cm N SE 996358.49 693651.21	SheltonRI_OMMP_2024 RIFS-SMA5-SG07 RIFS-SMA5-SG07-240508 5/8/2024 0 - 10 cm N SE 996663.72 694448.35	SheltonRI_OMMP_2024 RIFS-SMA5-SG08 RIFS-SMA5-SG08-240508 5/8/2024 0 - 10 cm N SE 996900.35 693993.09	SheltonRI_OMMP_2024 RIFS-SMA5-SG09 RIFS-SMA5-SG09-240508 5/8/2024 0 - 10 cm N SE 997061.97 694746.86	SheltonRI_OMMP_2024 RIFS-SMA5-SG10 RIFS-SMA5-SG10-240508 5/8/2024 0 - 10 cm N SE 997281.19 694219.91
Conventional Parameters (pct)					
Total organic carbon	**4.85**	**5.46**	**3.8**	**5.6**	**6.85**
Total solids	**30.5**	**32.3**	**37.7**	**38.2**	**42.6**
Grain Size (pct)					
Clay, coarse	--	--	--	--	--
Clay, fine	--	--	--	--	--
Clay, medium	--	--	--	--	--
Gravel, coarse	--	--	--	--	--
Gravel, medium	--	--	--	--	--
Gravel, very coarse	--	--	--	--	--
Sand, coarse	--	--	--	--	--
Sand, fine	--	--	--	--	--
Sand, medium	--	--	--	--	--
Sand, very coarse	--	--	--	--	--
Sand, very fine	--	--	--	--	--
Silt, coarse	--	--	--	--	--
Silt, fine	--	--	--	--	--
Silt, medium	--	--	--	--	--
Silt, very fine	--	--	--	--	--
Metals (mg/kg)					
Copper	--	--	--	--	--
Organometals (µg/kg)					
Tributyltin (ion)	--	--	--	--	--

Table 2
2024 Shelton Harbor Surface Sediment Analysis Results

Chemical	SheltonRI_OMMP_2024 RIFS-SMA5-SG06 RIFS-SMA5-SG06-240508 5/8/2024 0 - 10 cm N SE 996358.49 693651.21	SheltonRI_OMMP_2024 RIFS-SMA5-SG07 RIFS-SMA5-SG07-240508 5/8/2024 0 - 10 cm N SE 996663.72 694448.35	SheltonRI_OMMP_2024 RIFS-SMA5-SG08 RIFS-SMA5-SG08-240508 5/8/2024 0 - 10 cm N SE 996900.35 693993.09	SheltonRI_OMMP_2024 RIFS-SMA5-SG09 RIFS-SMA5-SG09-240508 5/8/2024 0 - 10 cm N SE 997061.97 694746.86	SheltonRI_OMMP_2024 RIFS-SMA5-SG10 RIFS-SMA5-SG10-240508 5/8/2024 0 - 10 cm N SE 997281.19 694219.91
Polycyclic Aromatic Hydrocarbons (µg/kg)					
1-Methylphenanthrene	**12.8**	**33.6**	**--**	**262**	**67.9**
2,3,5-Trimethylnaphthalene (1,6,7-Trimethylnaphthalene)	**12.7**	**21.7**	**--**	**31.3**	**26.7**
2,6-Dimethylnaphthalene	**12.0**	**21.0**	**--**	**26.7**	**22.8**
2-Methylnaphthalene	**11.7**	**18.5**	**--**	**30.4**	**29.5**
Acenaphthene	**8.80**	**28.3**	**--**	**35.0**	**42.2**
Acenaphthylene	**12.0**	**19.5**	**--**	**367**	**64.3**
Anthracene	**27.0**	**79.0**	**--**	**1110**	**117**
Benzo(a)anthracene	**58.7 J**	**144**	**--**	**4580**	**288**
Benzo(a)pyrene	**67.1**	**113**	**--**	**2310**	**228**
Benzo(b)fluoranthene	**69.0**	**192**	**--**	**4760**	**488**
Benzo(e)pyrene	**66.5**	**139**	**--**	**2890**	**321**
Benzo(g,h,i)perylene	**57.8**	**72.7**	**--**	**974**	**124**
Benzo(j,k)fluoranthene	**58.8**	**172**	**--**	**4090**	**469**
Chrysene	**126**	**345**	**--**	**10600**	**1150**
Dibenzo(a,h)anthracene	**9.31**	**15.9**	**--**	**305**	**28.2**
Dibenzothiophene	**4.82 J**	**17.3**	**--**	**43.7**	**50.9**
Fluoranthene	**188**	**989**	**--**	**14900**	**3260**
Fluorene	**7.91**	**34.6**	**--**	**47.2**	**32.8**
Indeno(1,2,3-c,d)pyrene	**38.7**	**65.5**	**--**	**1210**	**140**
Naphthalene	**61.3**	**119**	**--**	**89.4**	**220**
Perylene	**45.7**	**73.4**	**--**	**536**	**86.6**
Phenanthrene	**96.1**	**186**	**--**	**980**	**857**
Pyrene	**219**	**827**	**--**	**11200**	**2530**
Total Benzofluoranthenes (b,j,k) (U = 0 max limit)	**128**	**364**	**--**	**8850**	**957**
Total HPAH (SMS) (U = 0 max limit)	**892 J**	**2940**	**--**	**54900**	**8700**
Total LPAH (SMS) (U = 0 max limit)	**213**	**466**	**--**	**2600**	**1300**
Total cPAH TEQ (7 minimum CAEPA 2005) (U = 0 max limit)	**91.8 J**	**175**	**--**	**3910**	**380**
Total cPAH TEQ (7 minimum CAEPA 2005) (U = 1/2 max limit)	**91.8 J**	**175**	**--**	**3910**	**380**

Table 2
2024 Shelton Harbor Surface Sediment Analysis Results

Chemical	SheltonRI_OMMP_2024 RIFS-SMA5-SG06 RIFS-SMA5-SG06-240508 5/8/2024 0 - 10 cm N SE 996358.49 693651.21	SheltonRI_OMMP_2024 RIFS-SMA5-SG07 RIFS-SMA5-SG07-240508 5/8/2024 0 - 10 cm N SE 996663.72 694448.35	SheltonRI_OMMP_2024 RIFS-SMA5-SG08 RIFS-SMA5-SG08-240508 5/8/2024 0 - 10 cm N SE 996900.35 693993.09	SheltonRI_OMMP_2024 RIFS-SMA5-SG09 RIFS-SMA5-SG09-240508 5/8/2024 0 - 10 cm N SE 997061.97 694746.86	SheltonRI_OMMP_2024 RIFS-SMA5-SG10 RIFS-SMA5-SG10-240508 5/8/2024 0 - 10 cm N SE 997281.19 694219.91
Dioxin Furans (ng/kg)					
1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	**1240**	**1040**	**922**	**1040**	**488 J**
1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)	**8930**	**8620**	**7050**	**21800**	**9360 J**
1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	**372**	**345**	**317**	**416**	**190 J**
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	**1110**	**1180**	**927**	**2590**	**1410 J**
1,2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)	**20.6**	**17.3**	**15.7**	**20.0**	**10.1 J**
1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	**28.7**	**27.7**	**23.3**	**32.1**	**15.6 J**
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	**11.5**	**11.5**	**9.70**	**18.1**	**8.06 J**
1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)	**11.2**	**10.3**	**9.35**	**12.9**	**6.06 J**
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	**46.1**	**47.3**	**38.6**	**82.3**	**39.2 J**
1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	**0.943 J**	**0.873 J**	**0.738 J**	**1.37 J**	**0.607 J**
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (HxCDD)	**21.8**	**21.7**	**17.4**	**31.7**	**14.8 J**
1,2,3,7,8-Pentachlorodibenzofuran (PeCDF)	**4.46**	**4.41**	**3.65**	**7.74**	**3.11 J**
1,2,3,7,8-Pentachlorodibenzo-p-dioxin (PeCDD)	**5.72**	**5.75**	**4.60**	**8.13**	**2.98 J**
2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)	**8.53**	**8.80**	**7.11**	**12.3**	**5.37 J**
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	**6.31**	**6.16**	**5.18**	**8.99**	**3.92 J**
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	**4.07**	**3.81**	**3.27**	**5.99**	**2.35 J**
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	**1.04**	**0.972**	**1.12**	**2.45**	**0.686 J**
Total Heptachlorodibenzofuran (HpCDF)	**1380**	**1190**	**1070**	**1370**	**630 J**
Total Heptachlorodibenzo-p-dioxin (HpCDD)	**2730**	**3230**	**2270**	**9260**	**6790 J**
Total Hexachlorodibenzofuran (HxCDF)	**505**	**454**	**405**	**588**	**341 J**
Total Hexachlorodibenzo-p-dioxin (HxCDD)	**731**	**812**	**668**	**1310**	**724 J**
Total Pentachlorodibenzofuran (PeCDF)	**127**	**132**	**116**	**160**	**109 J**
Total Pentachlorodibenzo-p-dioxin (PeCDD)	**341**	**352**	**303**	**507**	**135 J**
Total Tetrachlorodibenzofuran (TCDF)	**88.1**	**81.8**	**71.1**	**114**	**59.3 J**
Total Tetrachlorodibenzo-p-dioxin (TCDD)	**259**	**278**	**264**	**466**	**141 J**
Total Dioxin/Furan TEQ 2005 (Mammal) (U = 0 max limit)	**40.1 J**	**40.2 J**	**33.3 J**	**70.3 J**	**33 J**
Total Dioxin/Furan TEQ 2005 (Mammal) (U = 1/2 max limit)	**40.1 J**	**40.2 J**	**33.3 J**	**70.3 J**	**33 J**

Table 2
2024 Shelton Harbor Surface Sediment Analysis Results

Chemical	SheltonRI_OMMP_2024 RIFS-SMA5-SG11 RIFS-SMA5-SG11-240508 5/8/2024 0 - 10 cm N SE 997440.11 693661.54	SheltonRI_OMMP_2024 RIFS-SMA5-SG12 RIFS-SMA5-SG12-240506 5/6/2024 0 - 10 cm N SE 997233.364758 696134.702336	SheltonRI_OMMP_2024 RIFS-SMA5-SG13 RIFS-SMA5-SG13-240507 5/7/2024 0 - 10 cm N SE 997207.08 695842.87	SheltonRI_OMMP_2024 RIFS-SMA5-SG14 RIFS-SMA5-SG14-240507 5/7/2024 0 - 10 cm N SE 997551.47 695963.43	SheltonRI_OMMP_2024 RIFS-SMA5-SG16 RIFS-SMA5-SG16-240509 5/9/2024 0 - 10 cm N SE 997707.49 696232.76
Conventional Parameters (pct)					
Total organic carbon	**8.12**	**2.02**	**3.86**	**2.8**	**2.8**
Total solids	**30.9**	**65.6**	**46.4**	**48.3**	**46.2**
Grain Size (pct)					
Clay, coarse	--	--	--	--	--
Clay, fine	--	--	--	--	--
Clay, medium	--	--	--	--	--
Gravel, coarse	--	--	--	--	--
Gravel, medium	--	--	--	--	--
Gravel, very coarse	--	--	--	--	--
Sand, coarse	--	--	--	--	--
Sand, fine	--	--	--	--	--
Sand, medium	--	--	--	--	--
Sand, very coarse	--	--	--	--	--
Sand, very fine	--	--	--	--	--
Silt, coarse	--	--	--	--	--
Silt, fine	--	--	--	--	--
Silt, medium	--	--	--	--	--
Silt, very fine	--	--	--	--	--
Metals (mg/kg)					
Copper	--	--	--	--	--
Organometals (µg/kg)					
Tributyltin (ion)	--	--	--	--	--

Table 2
2024 Shelton Harbor Surface Sediment Analysis Results

Chemical	SheltonRI_OMMP_2024 RIFS-SMA5-SG11 RIFS-SMA5-SG11-240508 5/8/2024 0 - 10 cm N SE 997440.11 693661.54	SheltonRI_OMMP_2024 RIFS-SMA5-SG12 RIFS-SMA5-SG12-240506 5/6/2024 0 - 10 cm N SE 997233.364758 696134.702336	SheltonRI_OMMP_2024 RIFS-SMA5-SG13 RIFS-SMA5-SG13-240507 5/7/2024 0 - 10 cm N SE 997207.08 695842.87	SheltonRI_OMMP_2024 RIFS-SMA5-SG14 RIFS-SMA5-SG14-240507 5/7/2024 0 - 10 cm N SE 997551.47 695963.43	SheltonRI_OMMP_2024 RIFS-SMA5-SG16 RIFS-SMA5-SG16-240509 5/9/2024 0 - 10 cm N SE 997707.49 696232.76
Polycyclic Aromatic Hydrocarbons (µg/kg)					
1-Methylphenanthrene	**45.6**	**93.5**	--	--	--
2,3,5-Trimethylnaphthalene (1,6,7-Trimethylnaphthalene)	**12.8**	**27.2**	--	--	--
2,6-Dimethylnaphthalene	**13.4**	**14.9**	--	--	--
2-Methylnaphthalene	**8.65**	**20.8**	--	--	--
Acenaphthene	**8.48**	**15.8**	--	--	--
Acenaphthylene	**7.40**	**53.8**	--	--	--
Anthracene	**37.5**	**73.3**	--	--	--
Benzo(a)anthracene	**71.1**	**244 J**	--	--	--
Benzo(a)pyrene	**75.2**	**284**	--	--	--
Benzo(b)fluoranthene	**86.8**	**169**	--	--	--
Benzo(e)pyrene	**72.7**	**170**	--	--	--
Benzo(g,h,i)perylene	**50.7**	**154**	--	--	--
Benzo(j,k)fluoranthene	**80.4**	**212**	--	--	--
Chrysene	**157**	**313 J**	--	--	--
Dibenzo(a,h)anthracene	**10.9 J**	**34.2**	--	--	--
Dibenzothiophene	**6.44 J**	**24.4**	--	--	--
Fluoranthene	**225**	**596**	--	--	--
Fluorene	**11.5**	**33.9**	--	--	--
Indeno(1,2,3-c,d)pyrene	**41.5**	**149**	--	--	--
Naphthalene	**41.7**	**70.2**	--	--	--
Perylene	**73.4**	**71.0**	--	--	--
Phenanthrene	**73.4**	**596 J**	--	--	--
Pyrene	**211**	**648**	--	--	--
Total Benzofluoranthenes (b,j,k) (U = 0 max limit)	**167**	**381**	--	--	--
Total HPAH (SMS) (U = 0 max limit)	**1010 J**	**2800 J**	--	--	--
Total LPAH (SMS) (U = 0 max limit)	**180**	**843 J**	--	--	--
Total cPAH TEQ (7 minimum CAEPA 2005) (U = 0 max limit)	**106 J**	**368 J**	--	--	--
Total cPAH TEQ (7 minimum CAEPA 2005) (U = 1/2 max limit)	**106 J**	**368 J**	--	--	--

Table 2
2024 Shelton Harbor Surface Sediment Analysis Results

Chemical	SheltonRI_OMMP_2024 RIFS-SMA5-SG11 RIFS-SMA5-SG11-240508 5/8/2024 0 - 10 cm N SE 997440.11 693661.54	SheltonRI_OMMP_2024 RIFS-SMA5-SG12 RIFS-SMA5-SG12-240506 5/6/2024 0 - 10 cm N SE 997233.364758 696134.702336	SheltonRI_OMMP_2024 RIFS-SMA5-SG13 RIFS-SMA5-SG13-240507 5/7/2024 0 - 10 cm N SE 997207.08 695842.87	SheltonRI_OMMP_2024 RIFS-SMA5-SG14 RIFS-SMA5-SG14-240507 5/7/2024 0 - 10 cm N SE 997551.47 695963.43	SheltonRI_OMMP_2024 RIFS-SMA5-SG16 RIFS-SMA5-SG16-240509 5/9/2024 0 - 10 cm N SE 997707.49 696232.76
Dioxin Furans (ng/kg)					
1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	**1080**	**275**	**1730**	**1010 J**	**1290**
1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)	**7840**	**1680**	**13500**	**6400**	**8600**
1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	**371**	**91.8**	**543**	**338**	**457**
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	**960**	**246**	**1670**	**923**	**1380**
1,2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)	**18.7**	**5.18**	**27.9**	**20.7**	**26.4**
1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	**28.5**	**6.14**	**53.0**	**24.2**	**38.4**
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	**10.0**	**4.17**	**20.8**	**12.7**	**30.2**
1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)	**10.2**	**2.78**	**17.6**	**9.14**	**15.2**
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	**41.8**	**12.0**	**76.0**	**41.1**	**91.2**
1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	**0.850 J**	**0.221 J**	**1.33 J**	**0.748 J**	**1.31 J**
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (HxCDD)	**20.1**	**9.79**	**36.5**	**22.8**	**53.3**
1,2,3,7,8-Pentachlorodibenzofuran (PeCDF)	**3.95**	**1.22 J**	**5.90**	**3.91**	**7.88**
1,2,3,7,8-Pentachlorodibenzo-p-dioxin (PeCDD)	**5.03**	**1.94**	**10.1**	**6.77**	**14.6**
2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)	**7.78**	**2.23**	**12.4**	**6.96**	**11.4**
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	**5.48**	**1.55 J**	**10.5**	**5.80**	**12.2**
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	**3.32**	**1.60**	**4.77**	**3.84**	**7.85**
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	**0.860**	**0.542 J**	**2.10**	**1.51**	**2.43**
Total Heptachlorodibenzofuran (HpCDF)	**1270**	**329**	**2020**	**1150**	**1610**
Total Heptachlorodibenzo-p-dioxin (HpCDD)	**2280**	**555**	**3830**	**2060**	**3250**
Total Hexachlorodibenzofuran (HxCDF)	**461**	**111**	**818**	**407**	**670**
Total Hexachlorodibenzo-p-dioxin (HxCDD)	**694**	**256**	**1310**	**765**	**2440**
Total Pentachlorodibenzofuran (PeCDF)	**121**	**30.7**	**188**	**123**	**235**
Total Pentachlorodibenzo-p-dioxin (PeCDD)	**313**	**169**	**938**	**546**	**2200**
Total Tetrachlorodibenzofuran (TCDF)	**68.1**	**29.8**	**115**	**93.9**	**216**
Total Tetrachlorodibenzo-p-dioxin (TCDD)	**241**	**148**	**765**	**536**	**2630**
Total Dioxin/Furan TEQ 2005 (Mammal) (U = 0 max limit)	**36 J**	**10.9 J**	**64.7 J**	**37 J**	**67 J**
Total Dioxin/Furan TEQ 2005 (Mammal) (U = 1/2 max limit)	**36 J**	**10.9 J**	**64.7 J**	**37 J**	**67 J**

Table 2
2024 Shelton Harbor Surface Sediment Analysis Results

Chemical	SheltonRI_OMMP_2024 RIFS-SMA5-SG17 RIFS-SMA5-SG117-240509 5/9/2024 0 - 10 cm FD SE 997913.62 696522.78	SheltonRI_OMMP_2024 RIFS-SMA5-SG17 RIFS-SMA5-SG17-240509 5/9/2024 0 - 10 cm N SE 997913.62 696522.78	SheltonRI_OMMP_2024 RIFS-SMA5-SG18 RIFS-SMA5-SG18-240509 5/9/2024 0 - 10 cm N SE 997946.92 695986.69	SheltonRI_OMMP_2024 RIFS-SMA5-SG20 RIFS-SMA5-SG20-240509 5/9/2024 0 - 10 cm N SE 998773.22 695213.73	SheltonRI_OMMP_2024 RIFS-SMA5-SG23 RIFS-SMA5-SG23-240507 5/7/2024 0 - 10 cm N SE 997276.12 695214.3
Conventional Parameters (pct)					
Total organic carbon	**4.98 J**	**3.69**	**0.197**	**2.34**	**1.72**
Total solids	**53.1**	**54.1**	**63.3**	**59.8**	**55.0**
Grain Size (pct)					
Clay, coarse	--	--	--	--	--
Clay, fine	--	--	--	--	--
Clay, medium	--	--	--	--	--
Gravel, coarse	--	--	--	--	--
Gravel, medium	--	--	--	--	--
Gravel, very coarse	--	--	--	--	--
Sand, coarse	--	--	--	--	--
Sand, fine	--	--	--	--	--
Sand, medium	--	--	--	--	--
Sand, very coarse	--	--	--	--	--
Sand, very fine	--	--	--	--	--
Silt, coarse	--	--	--	--	--
Silt, fine	--	--	--	--	--
Silt, medium	--	--	--	--	--
Silt, very fine	--	--	--	--	--
Metals (mg/kg)					
Copper	--	--	--	--	--
Organometals (µg/kg)					
Tributyltin (ion)	--	--	--	--	--

Table 2
2024 Shelton Harbor Surface Sediment Analysis Results

Chemical	SheltonRI_OMMP_2024 RIFS-SMA5-SG17 RIFS-SMA5-SG117-240509 5/9/2024 0 - 10 cm FD SE 997913.62 696522.78	SheltonRI_OMMP_2024 RIFS-SMA5-SG17 RIFS-SMA5-SG17-240509 5/9/2024 0 - 10 cm N SE 997913.62 696522.78	SheltonRI_OMMP_2024 RIFS-SMA5-SG18 RIFS-SMA5-SG18-240509 5/9/2024 0 - 10 cm N SE 997946.92 695986.69	SheltonRI_OMMP_2024 RIFS-SMA5-SG20 RIFS-SMA5-SG20-240509 5/9/2024 0 - 10 cm N SE 998773.22 695213.73	SheltonRI_OMMP_2024 RIFS-SMA5-SG23 RIFS-SMA5-SG23-240507 5/7/2024 0 - 10 cm N SE 997276.12 695214.3
Polycyclic Aromatic Hydrocarbons (µg/kg)					
1-Methylphenanthrene	--	--	--	--	--
2,3,5-Trimethylnaphthalene (1,6,7-Trimethylnaphthalene)	--	--	--	--	--
2,6-Dimethylnaphthalene	--	--	--	--	--
2-Methylnaphthalene	--	--	--	--	--
Acenaphthene	--	--	--	--	--
Acenaphthylene	--	--	--	--	--
Anthracene	--	--	--	--	--
Benzo(a)anthracene	--	--	--	--	--
Benzo(a)pyrene	--	--	--	--	--
Benzo(b)fluoranthene	--	--	--	--	--
Benzo(e)pyrene	--	--	--	--	--
Benzo(g,h,i)perylene	--	--	--	--	--
Benzo(j,k)fluoranthene	--	--	--	--	--
Chrysene	--	--	--	--	--
Dibenzo(a,h)anthracene	--	--	--	--	--
Dibenzothiophene	--	--	--	--	--
Fluoranthene	--	--	--	--	--
Fluorene	--	--	--	--	--
Indeno(1,2,3-c,d)pyrene	--	--	--	--	--
Naphthalene	--	--	--	--	--
Perylene	--	--	--	--	--
Phenanthrene	--	--	--	--	--
Pyrene	--	--	--	--	--
Total Benzofluoranthenes (b,j,k) (U = 0 max limit)	--	--	--	--	--
Total HPAH (SMS) (U = 0 max limit)	--	--	--	--	--
Total LPAH (SMS) (U = 0 max limit)	--	--	--	--	--
Total cPAH TEQ (7 minimum CAEPA 2005) (U = 0 max limit)	--	--	--	--	--
Total cPAH TEQ (7 minimum CAEPA 2005) (U = 1/2 max limit)	--	--	--	--	--

Table 2
2024 Shelton Harbor Surface Sediment Analysis Results

Chemical	SheltonRI_OMMP_2024 RIFS-SMA5-SG17 RIFS-SMA5-SG117-240509 5/9/2024 0 - 10 cm FD SE 997913.62 696522.78	SheltonRI_OMMP_2024 RIFS-SMA5-SG17 RIFS-SMA5-SG17-240509 5/9/2024 0 - 10 cm N SE 997913.62 696522.78	SheltonRI_OMMP_2024 RIFS-SMA5-SG18 RIFS-SMA5-SG18-240509 5/9/2024 0 - 10 cm N SE 997946.92 695986.69	SheltonRI_OMMP_2024 RIFS-SMA5-SG20 RIFS-SMA5-SG20-240509 5/9/2024 0 - 10 cm N SE 998773.22 695213.73	SheltonRI_OMMP_2024 RIFS-SMA5-SG23 RIFS-SMA5-SG23-240507 5/7/2024 0 - 10 cm N SE 997276.12 695214.3
Dioxin Furans (ng/kg)					
1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	**591**	**457**	**23.7**	**480**	**319**
1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)	**9960**	**11800**	**226**	**4000**	**3020**
1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	**301**	**287**	**10.7**	**197**	**109**
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	**1400**	**1410**	**27.8**	**552**	**313**
1,2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)	**19.8**	**19.0**	**0.572 J**	**10.8**	**5.83**
1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	**33.5**	**28.2**	**0.875 J**	**20.2**	**7.58**
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	**18.4**	**21.1**	**0.395 J**	**5.52**	**3.29**
1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)	**14.1**	**12.9**	**0.375 J**	**7.00**	2.97 U
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	**76.5**	**78.6**	**1.32 J**	**31.2**	**12.5**
1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	**1.50 J**	**1.61 J**	**0.046 J**	**0.603 J**	0.248 U
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (HxCDD)	**37.2**	**34.7**	**0.827 J**	**12.7**	**7.60**
1,2,3,7,8-Pentachlorodibenzofuran (PeCDF)	**6.33**	**7.75**	0.209 U	**3.68**	1.06 U
1,2,3,7,8-Pentachlorodibenzo-p-dioxin (PeCDD)	**10.3**	**10.6**	**0.206 J**	**3.95**	**1.63 J**
2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)	**9.61**	**9.96**	**0.256 J**	**5.08**	2.27 U
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	**9.87**	**11.5**	**0.207 J**	**6.18**	1.42 U
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	**6.20**	**7.19**	**0.245 J**	**4.61**	**0.862**
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	**1.65**	**1.40**	**0.067 J**	**0.965**	**0.249 J**
Total Heptachlorodibenzofuran (HpCDF)	**1040**	**984**	**32.1**	**674**	**364**
Total Heptachlorodibenzo-p-dioxin (HpCDD)	**3810**	**3270**	**61.4**	**1570**	**728**
Total Hexachlorodibenzofuran (HxCDF)	**622**	**552**	**14.1**	**370**	**134**
Total Hexachlorodibenzo-p-dioxin (HxCDD)	**1270**	**1480**	**22.9**	**602**	**238**
Total Pentachlorodibenzofuran (PeCDF)	**206**	**221**	**4.27**	**134**	**34.4**
Total Pentachlorodibenzo-p-dioxin (PeCDD)	**734**	**862**	**11.0**	**186**	**96.3**
Total Tetrachlorodibenzofuran (TCDF)	**182**	**176**	**2.86**	**118**	**21.2**
Total Tetrachlorodibenzo-p-dioxin (TCDD)	**653**	**723**	**8.77**	**152**	**69.1**
Total Dioxin/Furan TEQ 2005 (Mammal) (U = 0 max limit)	**55 J**	**55.9 J**	**1.2 J**	**25 J**	**10.3 J**
Total Dioxin/Furan TEQ 2005 (Mammal) (U = 1/2 max limit)	**55 J**	**55.9 J**	**1.2 J**	**25 J**	**10.8 J**

Table 2
2024 Shelton Harbor Surface Sediment Analysis Results

Chemical	SheltonRI_OMMP_2024 RIFS-SMA5-SG24 RIFS-SMA5-SG124-240509 5/9/2024 0 - 10 cm FD SE 997779.92 694714.11	SheltonRI_OMMP_2024 RIFS-SMA5-SG24 RIFS-SMA5-SG24-240509 5/9/2024 0 - 10 cm N SE 997779.92 694714.11	SheltonRI_OMMP_2024 RIFS-SMA5-SG26 RIFS-SMA5-SG26-240509 5/9/2024 0 - 10 cm N SE 998772.72 694710.12	SheltonRI_OMMP_2024 RIFS-SMA5-SG27 RIFS-SMA5-SG27-240509 5/9/2024 0 - 10 cm N SE 999282.36 694717.19	SheltonRI_OMMP_2024 RIFS-SMA5-SG28 RIFS-SMA5-SG28-240508 5/8/2024 0 - 10 cm N SE 997773.82 694215.17
Conventional Parameters (pct)					
Total organic carbon	--	**1.97**	**4.56**	**2.6**	**3.81**
Total solids	--	**56.6**	**48.2**	**56.3**	**34.0**
Grain Size (pct)					
Clay, coarse	--	--	--	--	--
Clay, fine	--	--	--	--	--
Clay, medium	--	--	--	--	--
Gravel, coarse	--	--	--	--	--
Gravel, medium	--	--	--	--	--
Gravel, very coarse	--	--	--	--	--
Sand, coarse	--	--	--	--	--
Sand, fine	--	--	--	--	--
Sand, medium	--	--	--	--	--
Sand, very coarse	--	--	--	--	--
Sand, very fine	--	--	--	--	--
Silt, coarse	--	--	--	--	--
Silt, fine	--	--	--	--	--
Silt, medium	--	--	--	--	--
Silt, very fine	--	--	--	--	--
Metals (mg/kg)					
Copper	--	--	--	--	--
Organometals (µg/kg)					
Tributyltin (ion)	--	--	--	--	--

Table 2
2024 Shelton Harbor Surface Sediment Analysis Results

Chemical	SheltonRI_OMMP_2024 RIFS-SMA5-SG24 RIFS-SMA5-SG124-240509 5/9/2024 0 - 10 cm FD SE 997779.92 694714.11	SheltonRI_OMMP_2024 RIFS-SMA5-SG24 RIFS-SMA5-SG24-240509 5/9/2024 0 - 10 cm N SE 997779.92 694714.11	SheltonRI_OMMP_2024 RIFS-SMA5-SG26 RIFS-SMA5-SG26-240509 5/9/2024 0 - 10 cm N SE 998772.72 694710.12	SheltonRI_OMMP_2024 RIFS-SMA5-SG27 RIFS-SMA5-SG27-240509 5/9/2024 0 - 10 cm N SE 999282.36 694717.19	SheltonRI_OMMP_2024 RIFS-SMA5-SG28 RIFS-SMA5-SG28-240508 5/8/2024 0 - 10 cm N SE 997773.82 694215.17
Polycyclic Aromatic Hydrocarbons (µg/kg)					
1-Methylphenanthrene	**28.5**	**45.0**	--	--	**23.1**
2,3,5-Trimethylnaphthalene (1,6,7-Trimethylnaphthalene)	**9.19 J**	**11.8 J**	--	--	**14.6**
2,6-Dimethylnaphthalene	**9.23**	**9.28**	--	--	**13.8**
2-Methylnaphthalene	**10.6**	**8.98**	--	--	**12.0**
Acenaphthene	**11.7**	**16.1**	--	--	**12.0**
Acenaphthylene	**16.1**	**27.9**	--	--	**18.9**
Anthracene	**42.9**	**74.6**	--	--	**40.3**
Benzo(a)anthracene	**116**	**238**	--	--	**99.7**
Benzo(a)pyrene	**118**	**215**	--	--	**107**
Benzo(b)fluoranthene	**227 J**	**458 J**	--	--	**176**
Benzo(e)pyrene	**157**	**300**	--	--	**130**
Benzo(g,h,i)perylene	**72.0**	**123**	--	--	**68.4**
Benzo(j,k)fluoranthene	**202 J**	**361 J**	--	--	**161**
Chrysene	**400 J**	**823 J**	--	--	**283**
Dibenzo(a,h)anthracene	**17.1**	**34.4**	--	--	**15.1**
Dibenzothiophene	**9.64**	**11.6**	--	--	**7.57**
Fluoranthene	**804**	**1220**	--	--	**639**
Fluorene	**8.89**	**11.3**	--	--	**8.66**
Indeno(1,2,3-c,d)pyrene	**71.2**	**130**	--	--	**63.2**
Naphthalene	**44.3**	**31.5**	--	--	**84.2**
Perylene	**53.4**	**89.5**	--	--	**58.0**
Phenanthrene	**158**	**200**	--	--	**127**
Pyrene	**761**	**1160**	--	--	**606**
Total Benzofluoranthenes (b,j,k) (U = 0 max limit)	**429 J**	**819 J**	--	--	**337**
Total HPAH (SMS) (U = 0 max limit)	**2800 J**	**4800 J**	--	--	**2220**
Total LPAH (SMS) (U = 0 max limit)	**282**	**360**	--	--	**291**
Total cPAH TEQ (7 minimum CAEPA 2005) (U = 0 max limit)	**190 J**	**350 J**	--	--	**161**
Total cPAH TEQ (7 minimum CAEPA 2005) (U = 1/2 max limit)	**190 J**	**350 J**	--	--	**161**

Table 2
2024 Shelton Harbor Surface Sediment Analysis Results

Chemical	SheltonRI_OMMP_2024 RIFS-SMA5-SG24 RIFS-SMA5-SG124-240509 5/9/2024 0 - 10 cm FD SE 997779.92 694714.11	SheltonRI_OMMP_2024 RIFS-SMA5-SG24 RIFS-SMA5-SG24-240509 5/9/2024 0 - 10 cm N SE 997779.92 694714.11	SheltonRI_OMMP_2024 RIFS-SMA5-SG26 RIFS-SMA5-SG26-240509 5/9/2024 0 - 10 cm N SE 998772.72 694710.12	SheltonRI_OMMP_2024 RIFS-SMA5-SG27 RIFS-SMA5-SG27-240509 5/9/2024 0 - 10 cm N SE 999282.36 694717.19	SheltonRI_OMMP_2024 RIFS-SMA5-SG28 RIFS-SMA5-SG28-240508 5/8/2024 0 - 10 cm N SE 997773.82 694215.17
Dioxin Furans (ng/kg)					
1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	--	--	**572**	**322**	**957**
1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)	--	--	**5000**	**3080**	**8090**
1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	--	--	**240**	**159**	**361**
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	--	--	**698**	**476**	**1070**
1,2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)	--	--	**12.9**	**10.6**	**18.4**
1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	--	--	**22.3**	**15.7**	**27.2**
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	--	--	**9.56**	**7.96 J**	**10.4**
1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)	--	--	**8.40**	**6.23 J**	**10.1**
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	--	--	**40.3**	**25.3**	**45.4**
1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	--	--	**0.699 J**	**0.475 J**	**0.859 J**
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (HxCDD)	--	--	**20.6**	**10.3**	**22.1**
1,2,3,7,8-Pentachlorodibenzofuran (PeCDF)	--	--	**4.05**	**2.49 J**	**3.96**
1,2,3,7,8-Pentachlorodibenzo-p-dioxin (PeCDD)	--	--	**5.51**	**3.92 J**	**5.30**
2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)	--	--	**6.18**	**4.69 J**	**7.98**
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	--	--	**6.49**	**4.06 J**	**5.91**
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	--	--	**4.08**	**2.53**	**3.41**
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	--	--	**1.13**	**0.693 J**	**0.886**
Total Heptachlorodibenzofuran (HpCDF)	--	--	**811**	**494**	**1210**
Total Heptachlorodibenzo-p-dioxin (HpCDD)	--	--	**1830**	**1220**	**3340**
Total Hexachlorodibenzofuran (HxCDF)	--	--	**396**	**265**	**481**
Total Hexachlorodibenzo-p-dioxin (HxCDD)	--	--	**900**	**423**	**808**
Total Pentachlorodibenzofuran (PeCDF)	--	--	**140**	**87.3**	**136**
Total Pentachlorodibenzo-p-dioxin (PeCDD)	--	--	**552**	**177**	**348**
Total Tetrachlorodibenzofuran (TCDF)	--	--	**120**	**62.4**	**88.8**
Total Tetrachlorodibenzo-p-dioxin (TCDD)	--	--	**513**	**122**	**276**
Total Dioxin/Furan TEQ 2005 (Mammal) (U = 0 max limit)	--	--	**31 J**	**20.7 J**	**38.0 J**
Total Dioxin/Furan TEQ 2005 (Mammal) (U = 1/2 max limit)	--	--	**31 J**	**20.7 J**	**38.0 J**

Table 2
2024 Shelton Harbor Surface Sediment Analysis Results

Chemical	SheltonRI_OMMP_2024 RIFS-SMA5-SG29 RIFS-SMA5-SG29-240508 5/8/2024 0 - 10 cm N SE 998265.07 694212.52	SheltonRI_OMMP_2024 RIFS-SMA5-SG30 RIFS-SMA5-SG30-240508 5/8/2024 0 - 10 cm N SE 998769.88 694214.11	SheltonRI_OMMP_2024 RIFS-SMA5-SG31 RIFS-SMA5-SG31-240508 5/8/2024 0 - 10 cm N SE 999278.08 694216.08	SheltonRI_OMMP_2024 RIFS-SMA5-SG32 RIFS-SMA5-SG32-240509 5/9/2024 0 - 10 cm N SE 999777 694215.35	SheltonRI_OMMP_2024 RIFS-SMA5-SG33 RIFS-SMA5-SG33-240508 5/8/2024 0 - 10 cm N SE 997779.65 693715.02
Conventional Parameters (pct)					
Total organic carbon	**3.34**	**4.24**	**3.03**	**2.35**	**3.67**
Total solids	**44.4**	**45.0**	**41.9**	**55.9**	**37.7**
Grain Size (pct)					
Clay, coarse	--	--	--	--	--
Clay, fine	--	--	--	--	--
Clay, medium	--	--	--	--	--
Gravel, coarse	--	--	--	--	--
Gravel, medium	--	--	--	--	--
Gravel, very coarse	--	--	--	--	--
Sand, coarse	--	--	--	--	--
Sand, fine	--	--	--	--	--
Sand, medium	--	--	--	--	--
Sand, very coarse	--	--	--	--	--
Sand, very fine	--	--	--	--	--
Silt, coarse	--	--	--	--	--
Silt, fine	--	--	--	--	--
Silt, medium	--	--	--	--	--
Silt, very fine	--	--	--	--	--
Metals (mg/kg)					
Copper	--	--	--	--	--
Organometals (µg/kg)					
Tributyltin (ion)	--	--	--	--	--

Table 2
2024 Shelton Harbor Surface Sediment Analysis Results

Chemical	SheltonRI_OMMP_2024 RIFS-SMA5-SG29 RIFS-SMA5-SG29-240508 5/8/2024 0 - 10 cm N SE 998265.07 694212.52	SheltonRI_OMMP_2024 RIFS-SMA5-SG30 RIFS-SMA5-SG30-240508 5/8/2024 0 - 10 cm N SE 998769.88 694214.11	SheltonRI_OMMP_2024 RIFS-SMA5-SG31 RIFS-SMA5-SG31-240508 5/8/2024 0 - 10 cm N SE 999278.08 694216.08	SheltonRI_OMMP_2024 RIFS-SMA5-SG32 RIFS-SMA5-SG32-240509 5/9/2024 0 - 10 cm N SE 999777 694215.35	SheltonRI_OMMP_2024 RIFS-SMA5-SG33 RIFS-SMA5-SG33-240508 5/8/2024 0 - 10 cm N SE 997779.65 693715.02
Polycyclic Aromatic Hydrocarbons (µg/kg)					
1-Methylphenanthrene	--	--	--	--	--
2,3,5-Trimethylnaphthalene (1,6,7-Trimethylnaphthalene)	--	--	--	--	--
2,6-Dimethylnaphthalene	--	--	--	--	--
2-Methylnaphthalene	--	--	--	--	--
Acenaphthene	--	--	--	--	--
Acenaphthylene	--	--	--	--	--
Anthracene	--	--	--	--	--
Benzo(a)anthracene	--	--	--	--	--
Benzo(a)pyrene	--	--	--	--	--
Benzo(b)fluoranthene	--	--	--	--	--
Benzo(e)pyrene	--	--	--	--	--
Benzo(g,h,i)perylene	--	--	--	--	--
Benzo(j,k)fluoranthene	--	--	--	--	--
Chrysene	--	--	--	--	--
Dibenzo(a,h)anthracene	--	--	--	--	--
Dibenzothiophene	--	--	--	--	--
Fluoranthene	--	--	--	--	--
Fluorene	--	--	--	--	--
Indeno(1,2,3-c,d)pyrene	--	--	--	--	--
Naphthalene	--	--	--	--	--
Perylene	--	--	--	--	--
Phenanthrene	--	--	--	--	--
Pyrene	--	--	--	--	--
Total Benzofluoranthenes (b,j,k) (U = 0 max limit)	--	--	--	--	--
Total HPAH (SMS) (U = 0 max limit)	--	--	--	--	--
Total LPAH (SMS) (U = 0 max limit)	--	--	--	--	--
Total cPAH TEQ (7 minimum CAEPA 2005) (U = 0 max limit)	--	--	--	--	--
Total cPAH TEQ (7 minimum CAEPA 2005) (U = 1/2 max limit)	--	--	--	--	--

Table 2
2024 Shelton Harbor Surface Sediment Analysis Results

Chemical	SheltonRI_OMMP_2024 RIFS-SMA5-SG29 RIFS-SMA5-SG29-240508 5/8/2024 0 - 10 cm N SE 998265.07 694212.52	SheltonRI_OMMP_2024 RIFS-SMA5-SG30 RIFS-SMA5-SG30-240508 5/8/2024 0 - 10 cm N SE 998769.88 694214.11	SheltonRI_OMMP_2024 RIFS-SMA5-SG31 RIFS-SMA5-SG31-240508 5/8/2024 0 - 10 cm N SE 999278.08 694216.08	SheltonRI_OMMP_2024 RIFS-SMA5-SG32 RIFS-SMA5-SG32-240509 5/9/2024 0 - 10 cm N SE 999777 694215.35	SheltonRI_OMMP_2024 RIFS-SMA5-SG33 RIFS-SMA5-SG33-240508 5/8/2024 0 - 10 cm N SE 997779.65 693715.02
Dioxin Furans (ng/kg)					
1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	**1040**	**3100**	**1260**	**707**	**777**
1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)	**8450**	**17400**	**9240**	**5260**	**6230**
1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	**378**	**1250**	**452**	**284**	**313**
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	**1080**	**2460**	**1110**	**693**	**810**
1,2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)	**19.3**	**58.1**	**21.7**	**14.1**	**14.7**
1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	**32.2**	**97.0**	**28.7**	**21.4**	**24.4**
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	**12.5**	**17.8**	**8.42**	**7.01**	**8.88**
1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)	**11.9**	**26.1**	**10.1**	**7.65**	**8.83**
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	**51.9**	**140**	**43.5**	**31.3**	**36.8**
1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	**1.01 J**	**1.85**	**0.811 J**	**0.613 J**	**0.729 J**
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (HxCDD)	**25.8**	**45.4**	**52.3**	**24.2**	**19.6**
1,2,3,7,8-Pentachlorodibenzofuran (PeCDF)	**4.97**	**11.0**	**3.67**	**2.88**	**3.61**
1,2,3,7,8-Pentachlorodibenzo-p-dioxin (PeCDD)	**6.77**	**13.3**	**4.35**	**3.86**	**4.56**
2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)	**8.29**	**21.0**	**7.20**	**5.56**	**6.73**
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	**7.72**	**21.2**	**5.54**	**4.28**	**5.07**
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	**4.42**	**10.6**	**3.00**	**2.34**	**2.80**
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	**1.27**	**2.62**	**0.726 J**	**0.706**	**0.712**
Total Heptachlorodibenzofuran (HpCDF)	**1320**	**4480**	**1560**	**963**	**1010**
Total Heptachlorodibenzo-p-dioxin (HpCDD)	**2900**	**6110**	**2860**	**1710**	**1970**
Total Hexachlorodibenzofuran (HxCDF)	**574**	**2030**	**540**	**382**	**400**
Total Hexachlorodibenzo-p-dioxin (HxCDD)	**960**	**1350**	**667**	**540**	**662**
Total Pentachlorodibenzofuran (PeCDF)	**167**	**521**	**141**	**98.5**	**110**
Total Pentachlorodibenzo-p-dioxin (PeCDD)	**490**	**468**	**204**	**209**	**286**
Total Tetrachlorodibenzofuran (TCDF)	**120**	**326**	**87.3**	**58.6**	**67.5**
Total Tetrachlorodibenzo-p-dioxin (TCDD)	**439**	**407**	**167**	**159**	**206**
Total Dioxin/Furan TEQ 2005 (Mammal) (U = 0 max limit)	**42.9 J**	**100**	**41.2 J**	**27.6 J**	**31 J**
Total Dioxin/Furan TEQ 2005 (Mammal) (U = 1/2 max limit)	**42.9 J**	**100**	**41.2 J**	**27.6 J**	**31 J**

Table 2
2024 Shelton Harbor Surface Sediment Analysis Results

Chemical	SheltonRI_OMMP_2024 RIFS-SMA5-SG34 RIFS-SMA5-SG34-240508 5/8/2024 0 - 10 cm N SE 998278.49 693712.92	SheltonRI_OMMP_2024 RIFS-SMA5-SG35 RIFS-SMA5-SG35-240508 5/8/2024 0 - 10 cm N SE 998773.84 693696.29	SheltonRI_OMMP_2024 RIFS-SMA5-SG40 RIFS-SMA5-SG40-240509 5/9/2024 0 - 10 cm N SE 997327.71 694762.11	SheltonRI_OMMP_2024 RIFS-SMA5-SG-COMP-05 RIFS-SMA5-SG-COMP-05-240509 5/9/2024 0 - 10 cm N SE 997679.230008 696005.289865	SheltonRI_OMMP_2024 RIFS-SMA5-SG-COMP-06 RIFS-SMA5-SG-COMP-06-240509 5/9/2024 0 - 10 cm N SE
Conventional Parameters (pct)					
Total organic carbon	**3.61**	**3.18**	**3.37**	**1.82**	**2.53**
Total solids	**38.3**	**55.6**	**47.1**	**57.7**	**59.0**
Grain Size (pct)					
Clay, coarse	--	--	--	--	--
Clay, fine	--	--	--	--	--
Clay, medium	--	--	--	--	--
Gravel, coarse	--	--	--	--	--
Gravel, medium	--	--	--	--	--
Gravel, very coarse	--	--	--	--	--
Sand, coarse	--	--	--	--	--
Sand, fine	--	--	--	--	--
Sand, medium	--	--	--	--	--
Sand, very coarse	--	--	--	--	--
Sand, very fine	--	--	--	--	--
Silt, coarse	--	--	--	--	--
Silt, fine	--	--	--	--	--
Silt, medium	--	--	--	--	--
Silt, very fine	--	--	--	--	--
Metals (mg/kg)					
Copper	--	--	--	--	--
Organometals (µg/kg)					
Tributyltin (ion)	--	--	--	--	--

Table 2
2024 Shelton Harbor Surface Sediment Analysis Results

Chemical	SheltonRI_OMMP_2024 RIFS-SMA5-SG34 RIFS-SMA5-SG34-240508 5/8/2024 0 - 10 cm N SE 998278.49 693712.92	SheltonRI_OMMP_2024 RIFS-SMA5-SG35 RIFS-SMA5-SG35-240508 5/8/2024 0 - 10 cm N SE 998773.84 693696.29	SheltonRI_OMMP_2024 RIFS-SMA5-SG40 RIFS-SMA5-SG40-240509 5/9/2024 0 - 10 cm N SE 997327.71 694762.11	SheltonRI_OMMP_2024 RIFS-SMA5-SG-COMP-05 RIFS-SMA5-SG-COMP-05-240509 5/9/2024 0 - 10 cm N SE 997679.230008 696005.289865	SheltonRI_OMMP_2024 RIFS-SMA5-SG-COMP-06 RIFS-SMA5-SG-COMP-06-240509 5/9/2024 0 - 10 cm N SE
Polycyclic Aromatic Hydrocarbons (µg/kg)					
1-Methylphenanthrene	--	--	**54.6**	--	**57.0**
2,3,5-Trimethylnaphthalene (1,6,7-Trimethylnaphthalene)	--	--	**16.8**	--	**21.8**
2,6-Dimethylnaphthalene	--	--	**17.5**	--	**34.7**
2-Methylnaphthalene	--	--	**21.7**	--	**48.0**
Acenaphthene	--	--	**38.1**	--	**69.3**
Acenaphthylene	--	--	**56.6**	--	**33.9**
Anthracene	--	--	**118**	--	**89.4**
Benzo(a)anthracene	--	--	**440**	--	**198**
Benzo(a)pyrene	--	--	**393**	--	**198**
Benzo(b)fluoranthene	--	--	**705**	--	**364**
Benzo(e)pyrene	--	--	**469**	--	**281**
Benzo(g,h,i)perylene	--	--	**199**	--	**142**
Benzo(j,k)fluoranthene	--	--	**604**	--	**314**
Chrysene	--	--	**1110**	--	**957**
Dibenzo(a,h)anthracene	--	--	**54.2**	--	**27.3**
Dibenzothiophene	--	--	**30.1**	--	**48.1**
Fluoranthene	--	--	**1950**	--	**1680**
Fluorene	--	--	**26.3**	--	**56.8**
Indeno(1,2,3-c,d)pyrene	--	--	**221**	--	**138**
Naphthalene	--	--	**110**	--	**195**
Perylene	--	--	**124**	--	**92.5**
Phenanthrene	--	--	**488**	--	**616**
Pyrene	--	--	**1820**	--	**1490**
Total Benzofluoranthenes (b,j,k) (U = 0 max limit)	--	--	**1310**	--	**678**
Total HPAH (SMS) (U = 0 max limit)	--	--	**7500**	--	**5510**
Total LPAH (SMS) (U = 0 max limit)	--	--	**840**	--	**1060**
Total cPAH TEQ (7 minimum CAEPA 2005) (U = 0 max limit)	--	--	**610**	--	**312**
Total cPAH TEQ (7 minimum CAEPA 2005) (U = 1/2 max limit)	--	--	**610**	--	**312**

Table 2
2024 Shelton Harbor Surface Sediment Analysis Results

Chemical	SheltonRI_OMMP_2024 RIFS-SMA5-SG34 RIFS-SMA5-SG34-240508 5/8/2024 0 - 10 cm N SE 998278.49 693712.92	SheltonRI_OMMP_2024 RIFS-SMA5-SG35 RIFS-SMA5-SG35-240508 5/8/2024 0 - 10 cm N SE 998773.84 693696.29	SheltonRI_OMMP_2024 RIFS-SMA5-SG40 RIFS-SMA5-SG40-240509 5/9/2024 0 - 10 cm N SE 997327.71 694762.11	SheltonRI_OMMP_2024 RIFS-SMA5-SG-COMP-05 RIFS-SMA5-SG-COMP-05-240509 5/9/2024 0 - 10 cm N SE 997679.230008 696005.289865	SheltonRI_OMMP_2024 RIFS-SMA5-SG-COMP-06 RIFS-SMA5-SG-COMP-06-240509 5/9/2024 0 - 10 cm N SE
Dioxin Furans (ng/kg)					
1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	**1370**	**835**	--	**348**	--
1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)	**8610**	**5920**	--	**3160**	--
1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	**443**	**294**	--	**134**	--
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	**1150**	**741**	--	**412**	--
1,2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)	**22.2**	**14.7**	--	**8.09**	--
1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	**32.2**	**21.3**	--	**10.2**	--
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	**13.4**	**9.16**	--	**5.61**	--
1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)	**11.4**	**8.25**	--	**3.98**	--
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	**53.9**	**35.2**	--	**19.1**	--
1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	**0.959 J**	**0.690 J**	--	**0.384 J**	--
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (HxCDD)	**33.1**	**19.6**	--	**10.3**	--
1,2,3,7,8-Pentachlorodibenzofuran (PeCDF)	**4.46**	**3.50**	--	**1.65 J**	--
1,2,3,7,8-Pentachlorodibenzo-p-dioxin (PeCDD)	**6.38**	**5.13**	--	**2.33**	--
2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)	**8.41**	**6.82**	--	**2.89**	--
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	**7.03**	**5.12**	--	**2.37**	--
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	**3.95**	**3.57**	--	**1.36**	--
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	**1.14**	**1.13**	--	**0.401 J**	--
Total Heptachlorodibenzofuran (HpCDF)	**1560**	**988**	--	**454**	--
Total Heptachlorodibenzo-p-dioxin (HpCDD)	**2660**	**1800**	--	**1090**	--
Total Hexachlorodibenzofuran (HxCDF)	**571**	**379**	--	**177**	--
Total Hexachlorodibenzo-p-dioxin (HxCDD)	**1040**	**595**	--	**350**	--
Total Pentachlorodibenzofuran (PeCDF)	**152**	**112**	--	**48.1**	--
Total Pentachlorodibenzo-p-dioxin (PeCDD)	**530**	**334**	--	**180**	--
Total Tetrachlorodibenzofuran (TCDF)	**107**	**92.9**	--	**31.1**	--
Total Tetrachlorodibenzo-p-dioxin (TCDD)	**423**	**269**	--	**163**	--
Total Dioxin/Furan TEQ 2005 (Mammal) (U = 0 max limit)	**44.6 J**	**30.9 J**	--	**15.5 J**	--
Total Dioxin/Furan TEQ 2005 (Mammal) (U = 1/2 max limit)	**44.6 J**	**30.9 J**	--	**15.5 J**	--

Table 2
2024 Shelton Harbor Surface Sediment Analysis Results

Chemical	SheltonRI_OMMP_2024 RIFS-SMA5-SG-COMP-07 RIFS-SMA5-SG-COMP-07-240509 5/9/2024 0 - 10 cm N SE 998202.953042 694068.591311	SheltonRI_OMMP_2024 RIFS-SMA5-SG-COMP-08 RIFS-SMA5-SG-COMP-08-240509 5/9/2024 0 - 10 cm N SE	SheltonRI_OMMP_2024 RIFS-SMA5-SG-COMP-09 RIFS-SMA5-SG-COMP-09-240509 5/9/2024 0 - 10 cm N SE
Conventional Parameters (pct)			
Total organic carbon	**2.31**	**4.47**	**8.05**
Total solids	**55.1**	**42.5**	**30.4**
Grain Size (pct)			
Clay, coarse	--	--	--
Clay, fine	--	--	--
Clay, medium	--	--	--
Gravel, coarse	--	--	--
Gravel, medium	--	--	--
Gravel, very coarse	--	--	--
Sand, coarse	--	--	--
Sand, fine	--	--	--
Sand, medium	--	--	--
Sand, very coarse	--	--	--
Sand, very fine	--	--	--
Silt, coarse	--	--	--
Silt, fine	--	--	--
Silt, medium	--	--	--
Silt, very fine	--	--	--
Metals (mg/kg)			
Copper	--	--	--
Organometals (µg/kg)			
Tributyltin (ion)	--	--	--

Table 2
2024 Shelton Harbor Surface Sediment Analysis Results

Chemical	SheltonRI_OMMP_2024 RIFS-SMA5-SG-COMP-07 RIFS-SMA5-SG-COMP-07-240509 5/9/2024 0 - 10 cm N SE 998202.953042 694068.591311	SheltonRI_OMMP_2024 RIFS-SMA5-SG-COMP-08 RIFS-SMA5-SG-COMP-08-240509 5/9/2024 0 - 10 cm N SE	SheltonRI_OMMP_2024 RIFS-SMA5-SG-COMP-09 RIFS-SMA5-SG-COMP-09-240509 5/9/2024 0 - 10 cm N SE
Polycyclic Aromatic Hydrocarbons (µg/kg)			
1-Methylphenanthrene	**10.5**	**26.6**	**84.7**
2,3,5-Trimethylnaphthalene (1,6,7-Trimethylnaphthalene)	**10.0**	**28.8**	**64.6**
2,6-Dimethylnaphthalene	**13.3**	**37.9**	**118**
2-Methylnaphthalene	**10.8**	**42.2**	**196**
Acenaphthene	**9.58**	**27.5**	**339**
Acenaphthylene	**10.5**	**23.3**	**66.0**
Anthracene	**17.0**	**46.0**	**254**
Benzo(a)anthracene	**18.7 J**	**43.4 J**	**513 J**
Benzo(a)pyrene	**20.9**	**51.6**	**366**
Benzo(b)fluoranthene	**22.7**	**47.6**	**415**
Benzo(e)pyrene	**24.2**	**54.3**	**346**
Benzo(g,h,i)perylene	**20.6**	**47.1**	**188**
Benzo(j,k)fluoranthene	**17.2**	**40.4**	**385**
Chrysene	**32.0**	**84.4**	**602**
Dibenzo(a,h)anthracene	**3.02 J**	**6.76 J**	**47.0**
Dibenzothiophene	**5.29 J**	**12.4**	**107**
Fluoranthene	**128**	**237**	**1260**
Fluorene	**7.84**	**24.2**	**170**
Indeno(1,2,3-c,d)pyrene	**11.9**	**29.5**	**170**
Naphthalene	**144**	**327**	**1110**
Perylene	**32.8**	**69.6**	**149**
Phenanthrene	**84.8**	**185**	**962**
Pyrene	**135**	**267**	**1120**
Total Benzofluoranthenes (b,j,k) (U = 0 max limit)	**39.9**	**88.0**	**800**
Total HPAH (SMS) (U = 0 max limit)	**410 J**	**855 J**	**5100 J**
Total LPAH (SMS) (U = 0 max limit)	**274**	**633**	**2900**
Total cPAH TEQ (7 minimum CAEPA 2005) (U = 0 max limit)	**28.6 J**	**69.2 J**	**530 J**
Total cPAH TEQ (7 minimum CAEPA 2005) (U = 1/2 max limit)	**28.6 J**	**69.2 J**	**530 J**

Table 2
2024 Shelton Harbor Surface Sediment Analysis Results

Chemical	SheltonRI_OMMP_2024 RIFS-SMA5-SG-COMP-07 RIFS-SMA5-SG-COMP-07-240509 5/9/2024 0 - 10 cm N SE 998202.953042 694068.591311	SheltonRI_OMMP_2024 RIFS-SMA5-SG-COMP-08 RIFS-SMA5-SG-COMP-08-240509 5/9/2024 0 - 10 cm N SE	SheltonRI_OMMP_2024 RIFS-SMA5-SG-COMP-09 RIFS-SMA5-SG-COMP-09-240509 5/9/2024 0 - 10 cm N SE
Dioxin Furans (ng/kg)			
1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	--	--	--
1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)	--	--	--
1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	--	--	--
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	--	--	--
1,2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)	--	--	--
1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	--	--	--
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	--	--	--
1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)	--	--	--
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	--	--	--
1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	--	--	--
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (HxCDD)	--	--	--
1,2,3,7,8-Pentachlorodibenzofuran (PeCDF)	--	--	--
1,2,3,7,8-Pentachlorodibenzo-p-dioxin (PeCDD)	--	--	--
2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)	--	--	--
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	--	--	--
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	--	--	--
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	--	--	--
Total Heptachlorodibenzofuran (HpCDF)	--	--	--
Total Heptachlorodibenzo-p-dioxin (HpCDD)	--	--	--
Total Hexachlorodibenzofuran (HxCDF)	--	--	--
Total Hexachlorodibenzo-p-dioxin (HxCDD)	--	--	--
Total Pentachlorodibenzofuran (PeCDF)	--	--	--
Total Pentachlorodibenzo-p-dioxin (PeCDD)	--	--	--
Total Tetrachlorodibenzofuran (TCDF)	--	--	--
Total Tetrachlorodibenzo-p-dioxin (TCDD)	--	--	--
Total Dioxin/Furan TEQ 2005 (Mammal) (U = 0 max limit)	--	--	--
Total Dioxin/Furan TEQ 2005 (Mammal) (U = 1/2 max limit)	--	--	--

Table 2
2024 Shelton Harbor Surface Sediment Analysis Results

Notes:

TOC in range (0.5% - 3.5%)

Detected concentration is greater than SMS Marine CSL screening level

Detected concentration is greater than SMS Marine SCO screening level

TOC out of range

Detected concentration is greater than AET Marine CSL screening level

Detected concentration is greater than AET Marine SCO screening level

Bold: Detected result

USEPA Stage 2B and USEPA Stage4 data validation was completed by Laboratory Data Consultants, Inc. (LDC).

Calculated values have been rounded to laboratory-reported significant digits

Organic Carbon Normalized results are not reported if TOC concentration of the sample is outside of 0.5% - 3.5%.

J: Estimated value

U: Compound analyzed for, but not detected above detection limit

UJ: Compound analyzed for, but not detected above estimated detection limit

Non detected results are reported at the reporting detection limit

pct: percent

mg/kg = milligrams per kilogram

µg/kg = micrograms per kilogram

ng/kg = nanograms per kilogram

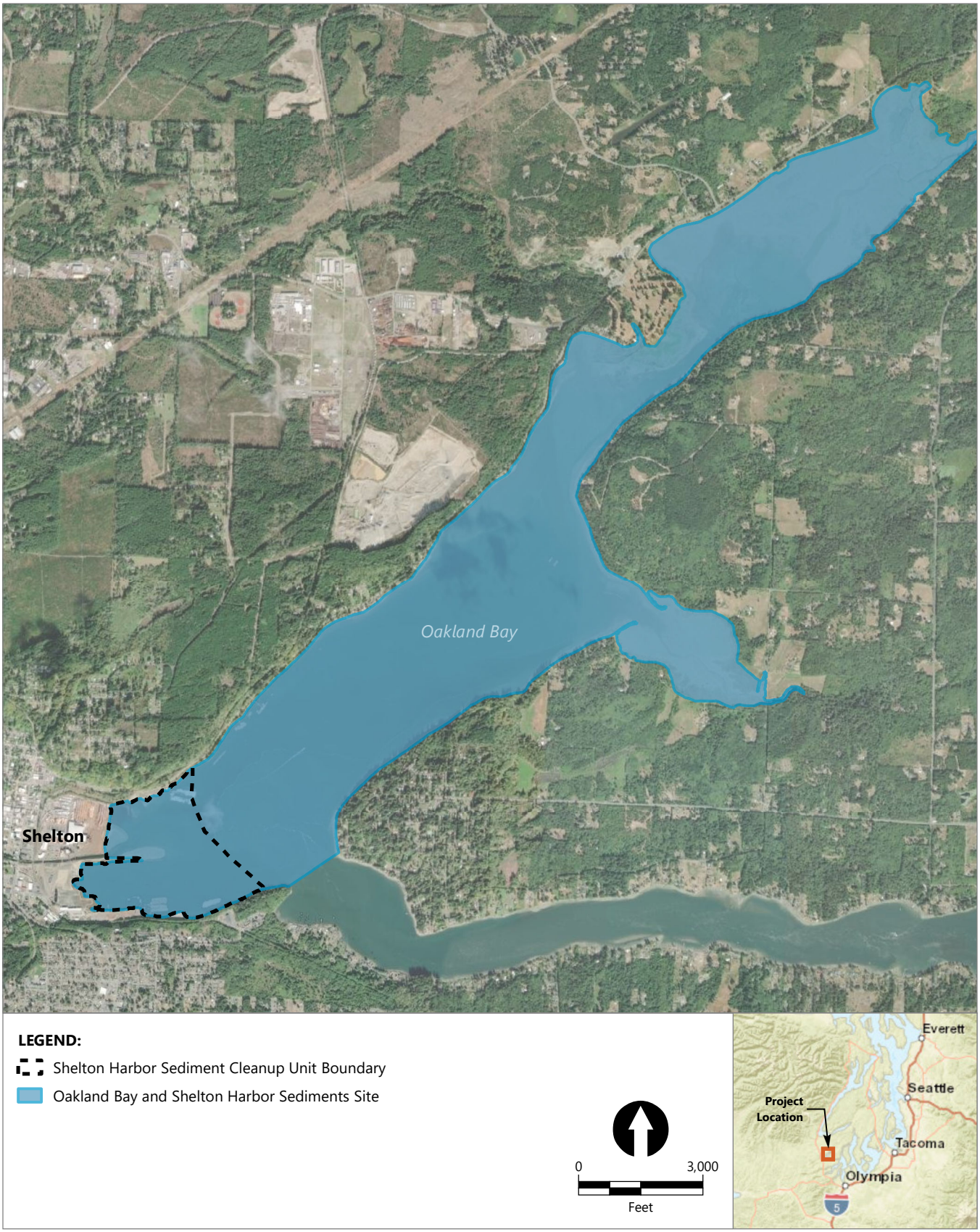
Total HPAH are the total of benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, chrysene, dibenzo(a,h)anthracene, fluoranthene, indeno(1,2,3-c,d)pyrene, and pyrene.

Total LPAH are the total of acenaphthene, acenaphthylene, anthracene, fluorene, naphthalene, and phenanthrene. 2-Methylnapthalene is not included in the sum of LPAHs.

Total Benzofluoranthenes (b,j,k) are the total of Benzo(b)fluoranthene and Benzo(j,k)fluoranthene

Total cPAH TEQ (7 minimum CAEPA 2005) calculation includes benzo(a)pyrene, benzo(a)anthracene, benzo(b)fluoranthene, chrysene, dibenzo(a,h)anthracene and indeno(1,2,3-c,d)pyrene. Per MTCA cleanup Regulation, Table 708-2 "Toxicity Equivalency Factors for Minimum Required Carcinogenic Polyaromatic Hydrocarbons (cPAHs) under WAC 173-340-708(e).

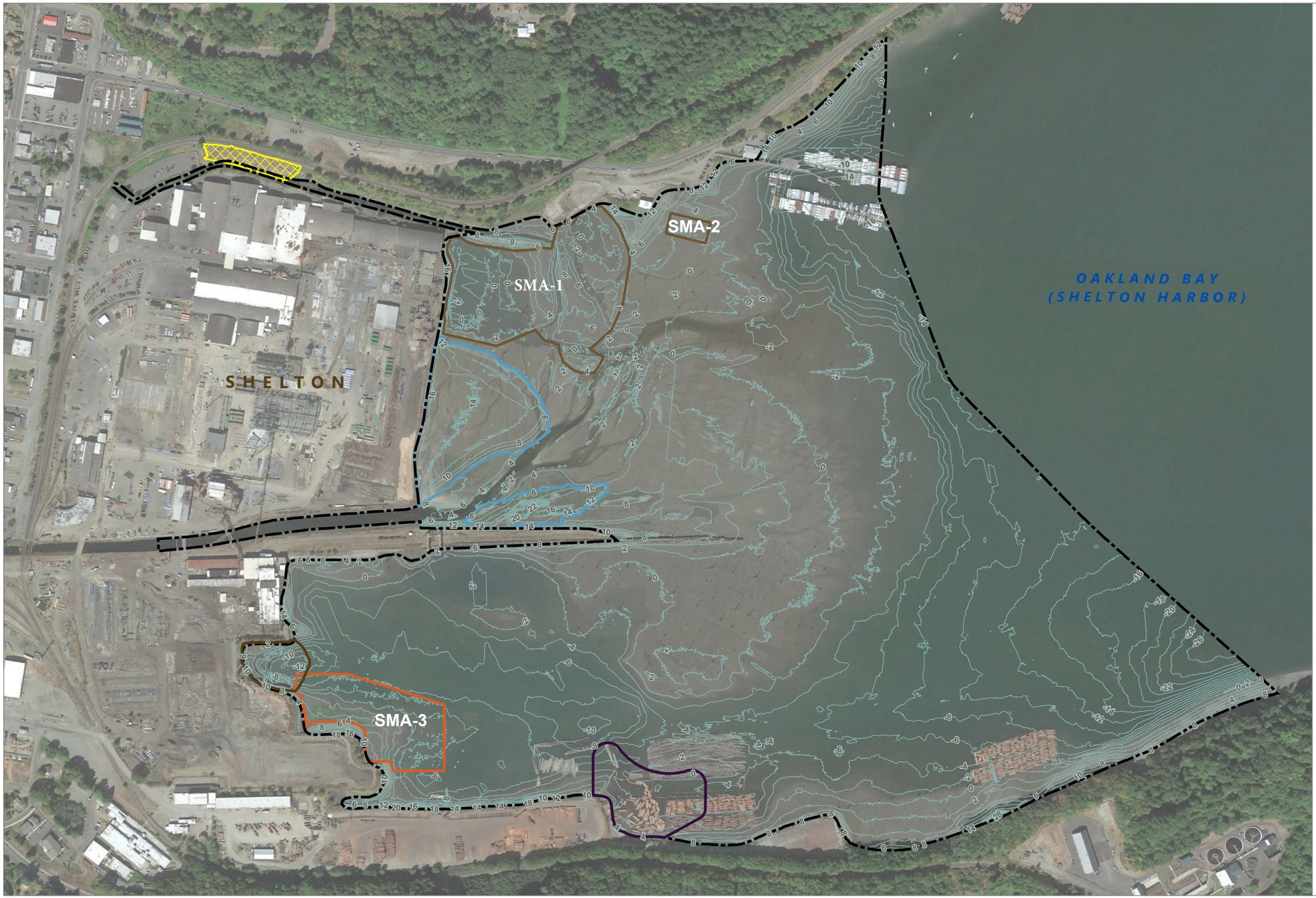
Figures



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ANCHOR QEA

Figure 1
Oakland Bay and Shelton Harbor Sediments Site
ear ost Constru tion Monitoring eport
Oakland Bay and Shelton Harbor Sediments Cleanup Site



Bathymetric Contours 1-Foot Interval (MLLW)
Clinker Deposit
Sediment Cleanup Unit Boundary
Season 1 Capping Areas (SMA-1 and -2)
Season 2 Capping Area (SMA-3)
Constructed Habitat Lobes
Approximate Extent of SMA-4
Potential Habitat/Disposal Area

NOTE:
1. Background orthoimagery provided by Google Earth.

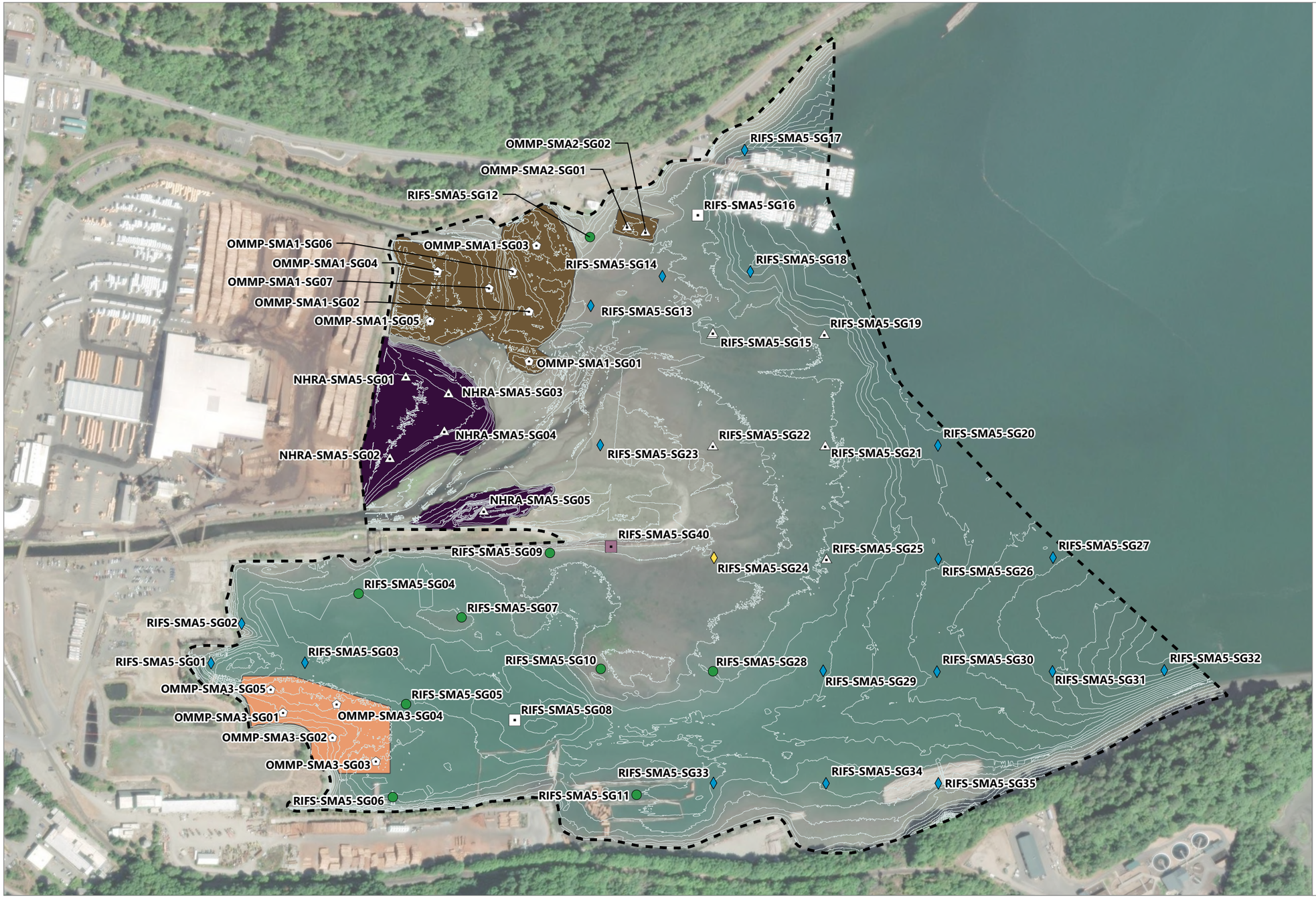
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Figure 2
Shelton Harbor Bathymetry and Constructed Caps/Habitat Lobes
ear ost Constru tion Monitoring eport
Oakland Bay and Shelton Harbor Sediments Cleanup Site

DRAFT



LEGEND:

2024 Sampling Actuals

- D/F and cPAH Composite Surface Sediment and Depositional Sediment Sample
- D/F and cPAH Composite Sample
- D/F Composite and cPAH Discrete Sample
- cPAH Composite and D/F Discrete Sample
- D/F and cPAH Discrete Sample
- D/F Discrete Sample
- cPAH Discrete Sample
- Contour (2-feet)
- Sediment Cleanup Unit Boundary
- Season 1 Capping Area (SMA-1 and -2)
- Season 2 Capping Area (SMA-3)
- Constructed Habitat Lobes

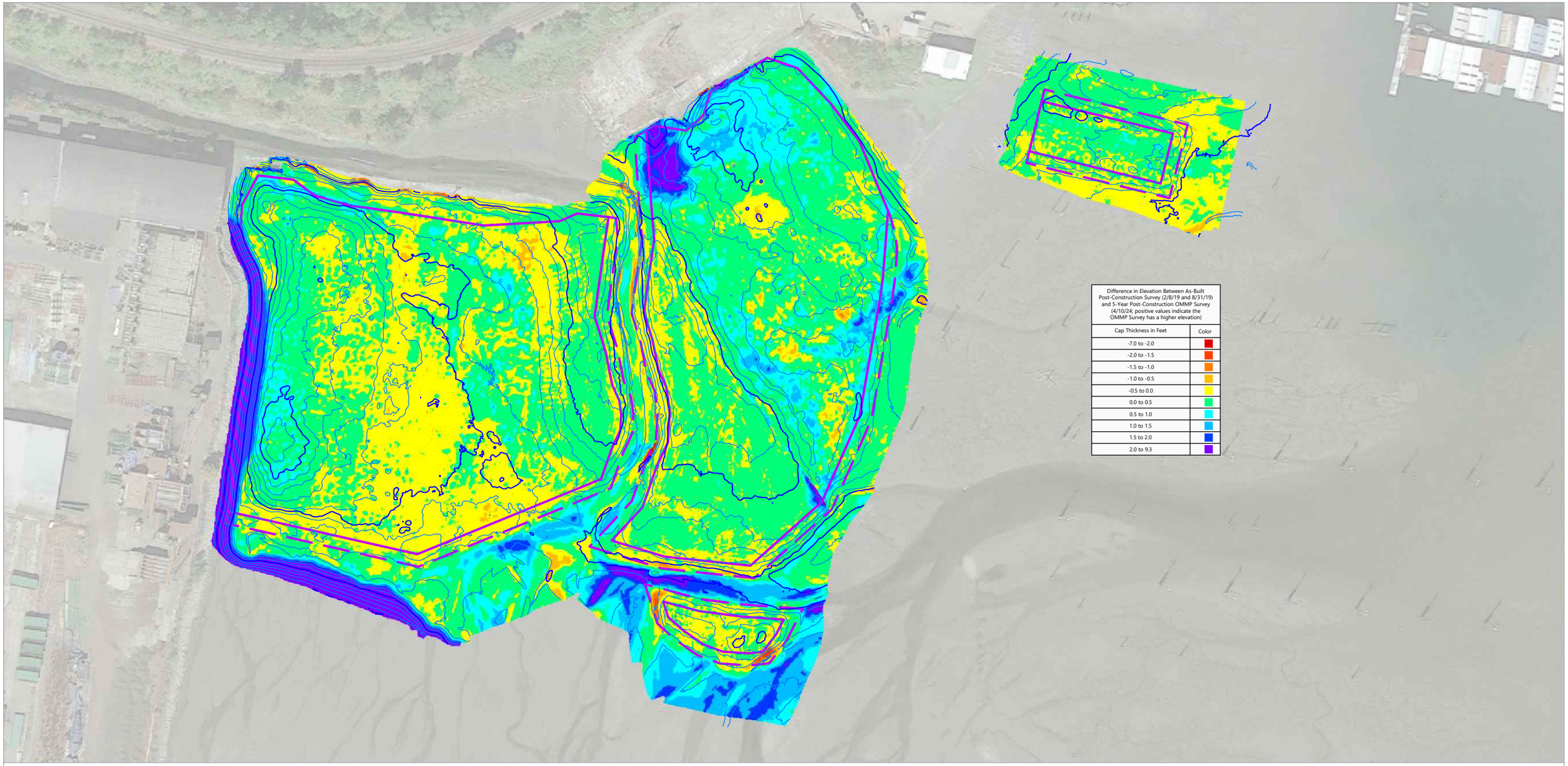
NOTE:
1. Aerial imagery: Esri (2024)

0 500
Feet

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ANCHOR QEA

Figure 3
2024 Shelton Harbor SCU Sediment Sampling Locations
Year 5 Post-Construction Monitoring Report
Oakland Bay and Shelton Harbor Sediments Cleanup Site



SOURCE: Post-construction bathymetric surveys by Quigg Brothers performed on February 8, 2019, and August 31, 2019, and by eTrac performed April 10, 2024.

HORIZONTAL DATUM: Washington State Plane South, North American Datum of 1983 (NAD83), U.S. Feet
VERTICAL DATUM: Mean Lower Low Water (MLLW)

LEGEND:

As-Built Post-Construction Survey Contours (2/8/19 and 8/31/19, 1' and 5' Intervals)

5-Year Post-Construction OMMP Survey Contours (4/10/24, 1' and 5' Intervals)

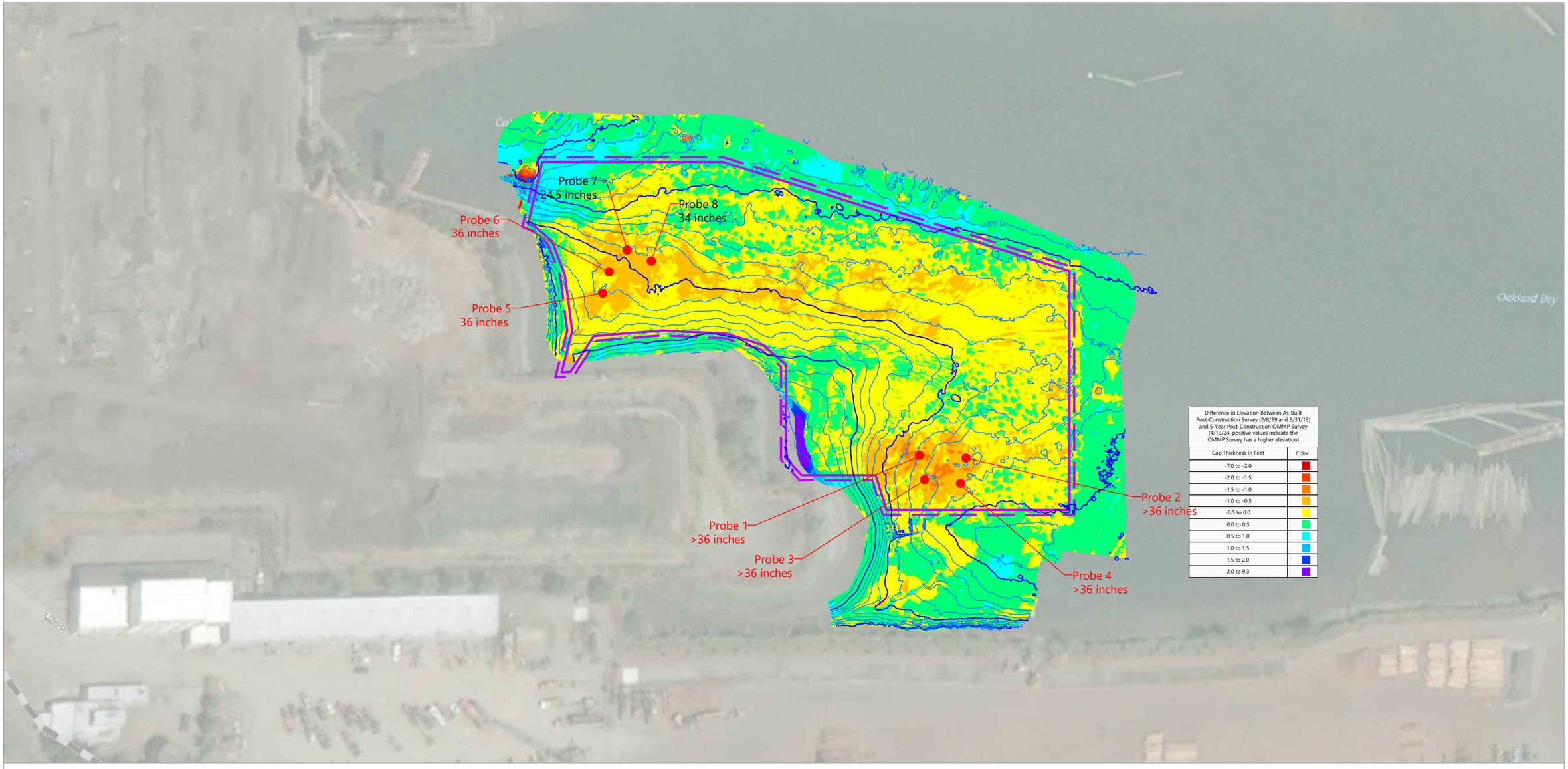
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Feet

Publish Date: 2025/02/05 11:57 AM | User: dholmer
Filepath: K:\Projects\0008-Simpson Timber Company\Shelton Harbor Sediment Remediation\0008-RP-019 2024 Cap Isopach.dwg Figure 2

ANCHOR QEA

Figure 4a
Year 0 vs. Year 5 SMA Bathymetric Comparison (SMA-1 and SMA-2)

Year 5 Post-Construction Monitoring Report
Oakland Bay and Shelton Harbor Sediments Cleanup Site



Difference in Elevation Between As-Built Post-Construction Survey (2/8/19 and 8/31/19) and 5-Year Post-Construction OMMP Survey (4/10/24; positive values indicate the OMMP Survey has a higher elevation)

Cap Thickness in Feet	Color
-7.0 to -2.0	
-2.0 to -1.5	
-1.5 to -1.0	
-1.0 to -0.5	
-0.5 to 0.0	
0.0 to 0.5	
0.5 to 1.0	
1.0 to 1.5	
1.5 to 2.0	
2.0 to 9.3	

SOURCE: Post-construction bathymetric surveys by Quigg Brothers performed on February 8, 2019, and August 31, 2019, and by eTrac performed April 10, 2024.

HORIZONTAL DATUM: Washington State Plane South, North American Datum of 1983 (NAD83), U.S. Feet
VERTICAL DATUM: Mean Lower Low Water (MLLW)

LEGEND:

5 — As-Built Post-Construction Survey Contours (2/8/19 and 8/31/19, 1' and 5' Intervals)

5 — 5-Year Post-Construction OMMP Survey Contours (4/10/24, 1' and 5' Intervals)

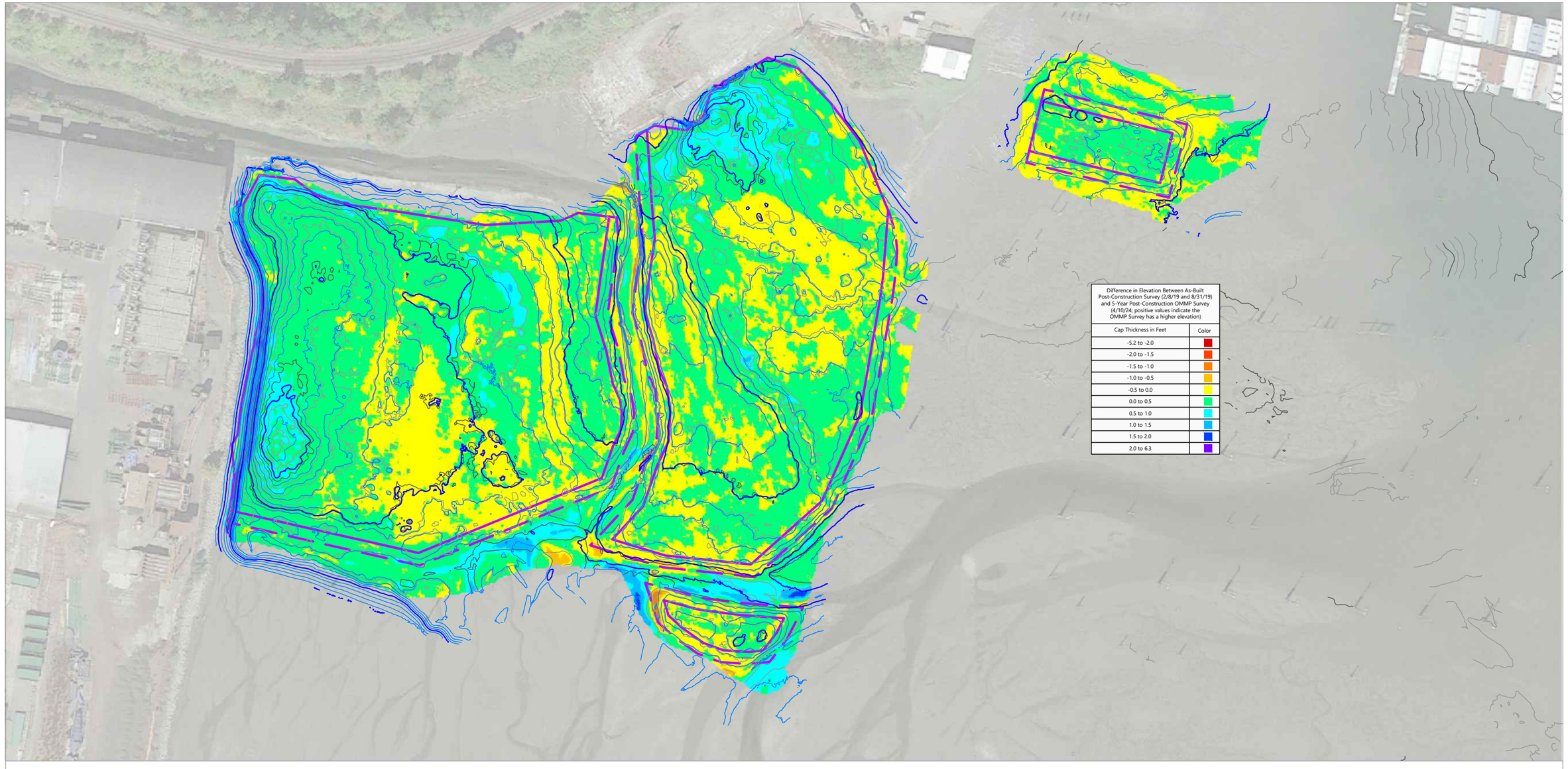
0 125
Feet

Publish Date: 2025/02/05 11:57 AM | User: dholmer
Filepath: K:\Projects\0008-Simpson Timber Company\Shelton Harbor Sediment Remediation\0008-RP-019 2024 Cap Isopach.dwg Figure 3

ANCHOR QEA

Figure 4b
Year 0 vs. Year 5 SMA Bathymetric Comparison (SMA-3)

Year 5 Post-Construction Monitoring Report
Oakland Bay and Shelton Harbor Sediments Cleanup Site



SOURCE: Post-construction bathymetric survey by eTrac performed on April 09, 2020, and by eTrac performed April 10, 2024.

HORIZONTAL DATUM: Washington State Plane South, North American Datum of 1983 (NAD83), U.S. Feet
VERTICAL DATUM: Mean Lower Low Water (MLLW)

LEGEND:

1-Year Post-Construction Survey Contours (04/09/20, 1' and 5' Intervals)

5-Year Post-Construction OMMP Survey Contours (4/10/24, 1' and 5' Intervals)

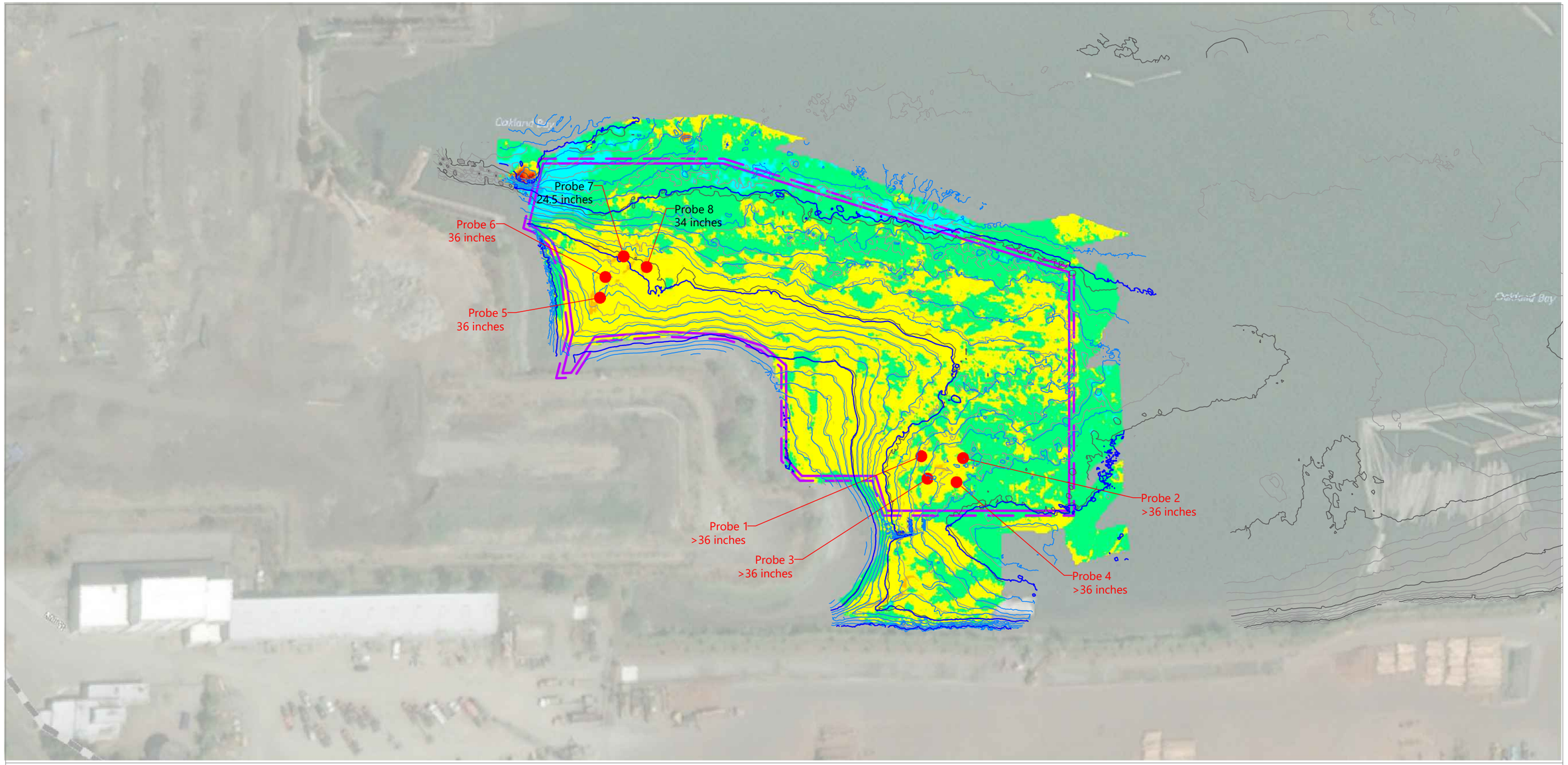
0 125
Feet

Publish Date: 2025/02/06 2:25 PM | User: dholmer
Filepath: K:\Projects\0008-Simpson Timber Company\Shelton Harbor Sediment Remediation\0008-RP-019 2024 Cap Isopach vs 2020.dwg Figure 2

ANCHOR QEA

Figure 5a
Year 1 vs. Year 5 SMA Bathymetric Comparison (SMA-1 and SMA-2)

Year 5 Post-Construction Monitoring Report
Oakland Bay and Shelton Harbor Sediments Cleanup Site



SOURCE: Post-construction bathymetric survey by eTrac performed on April 09, 2020, and by eTrac performed April 10, 2024.

HORIZONTAL DATUM: Washington State Plane South, North American Datum of 1983 (NAD83), U.S. Feet
VERTICAL DATUM: Mean Lower Low Water (MLLW)

LEGEND:

5 — 1-Year Post-Construction Survey Contours (04/09/20, 1' and 5' Intervals)

5 — 5-Year Post-Construction OMMP Survey Contours (4/10/24, 1' and 5' Intervals)

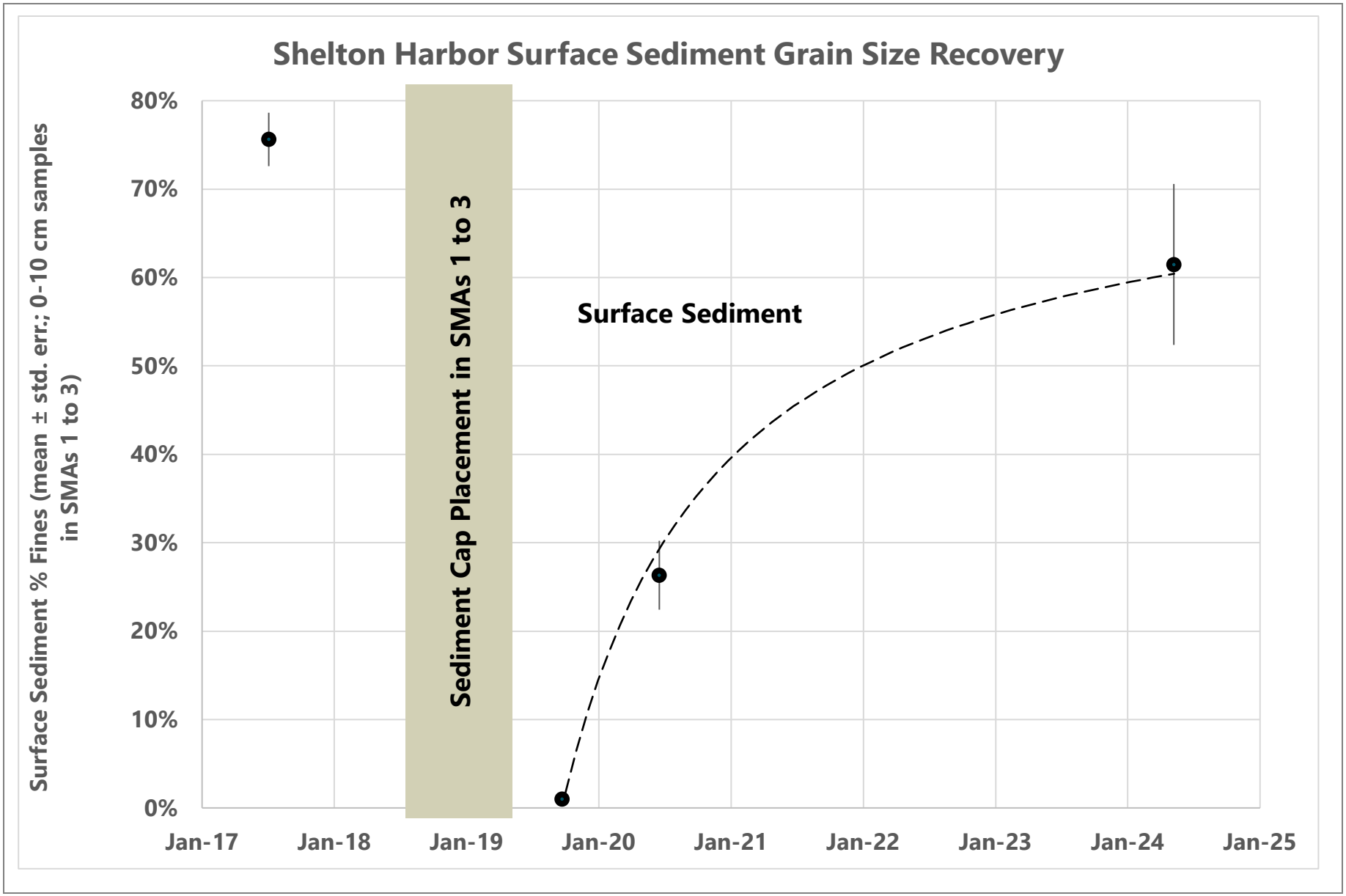
0 125
Feet

Publish Date: 2025/02/06 2:25 PM | User: dholmer
Filepath: K:\Projects\0008-Simpson Timber Company\Shelton Harbor Sediment Remediation\0008-RP-019 2024 Cap Isopach vs 2020.dwg Figure 3

ANCHOR QEA

Figure 5b
Year 1 vs. Year 5 SMA Bathymetric Comparison (SMA-3)

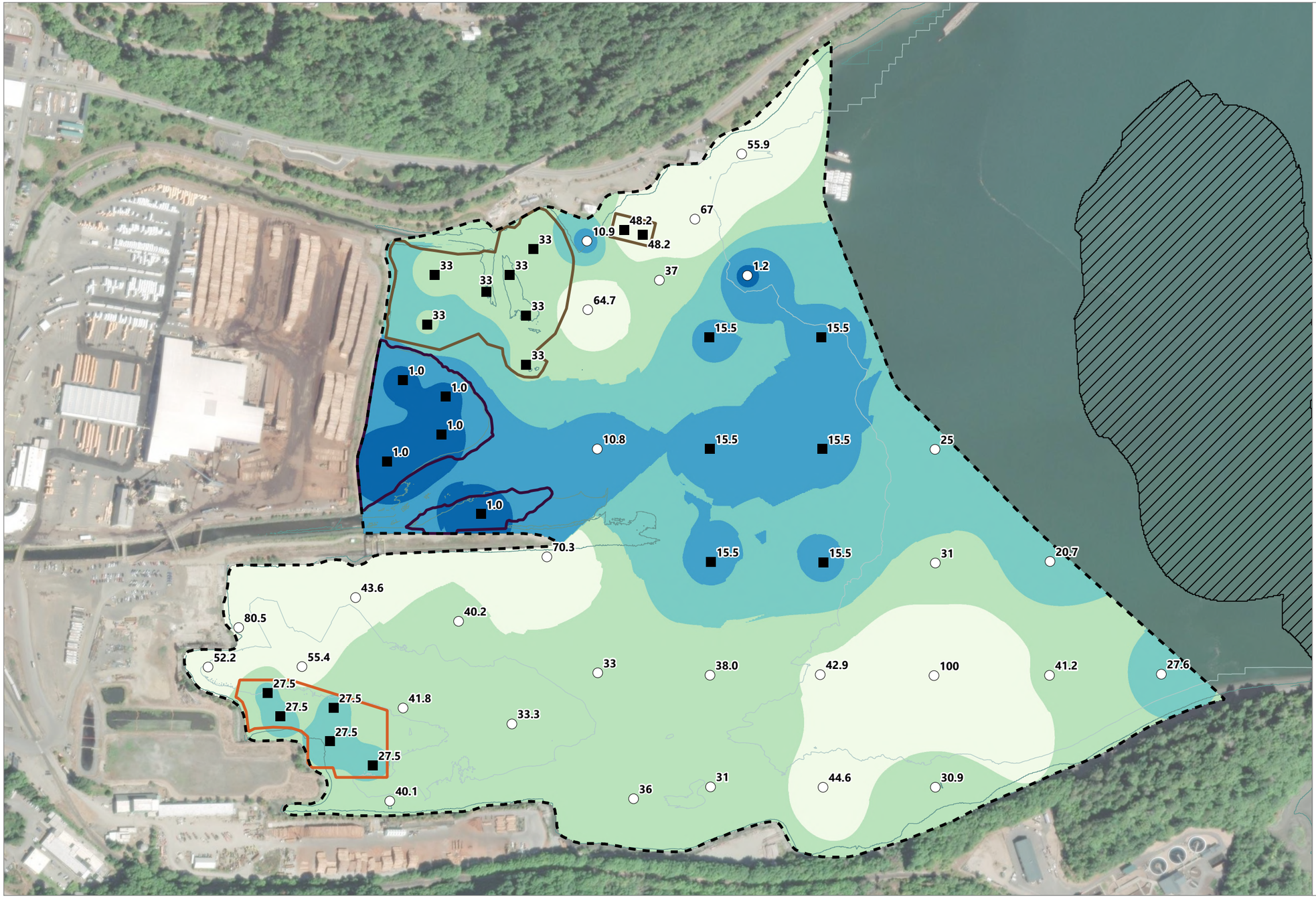
Year 5 Post-Construction Monitoring Report
Oakland Bay and Shelton Harbor Sediments Cleanup Site



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ANCHOR QEA

Figure 6
Grain Size Reocvery
Year 5 Post-Construction Monitoring Report
Oakland Bay and Shelton Harbor Sediments Cleanup Site



LEGEND:

2024 Sampling Location

- Discrete
- Composite
- -5 MLLW Contour
- +6 MLLW Contour
- Sediment Cleanup Unit Boundary
- Coarse Surface Sediments (< 10% fines) Not Included in Interpolation
- Season 1 Capping Area (SMA-1 and -2)
- Season 2 Capping Area (SMA-3)
- Constructed Habitat Lobes

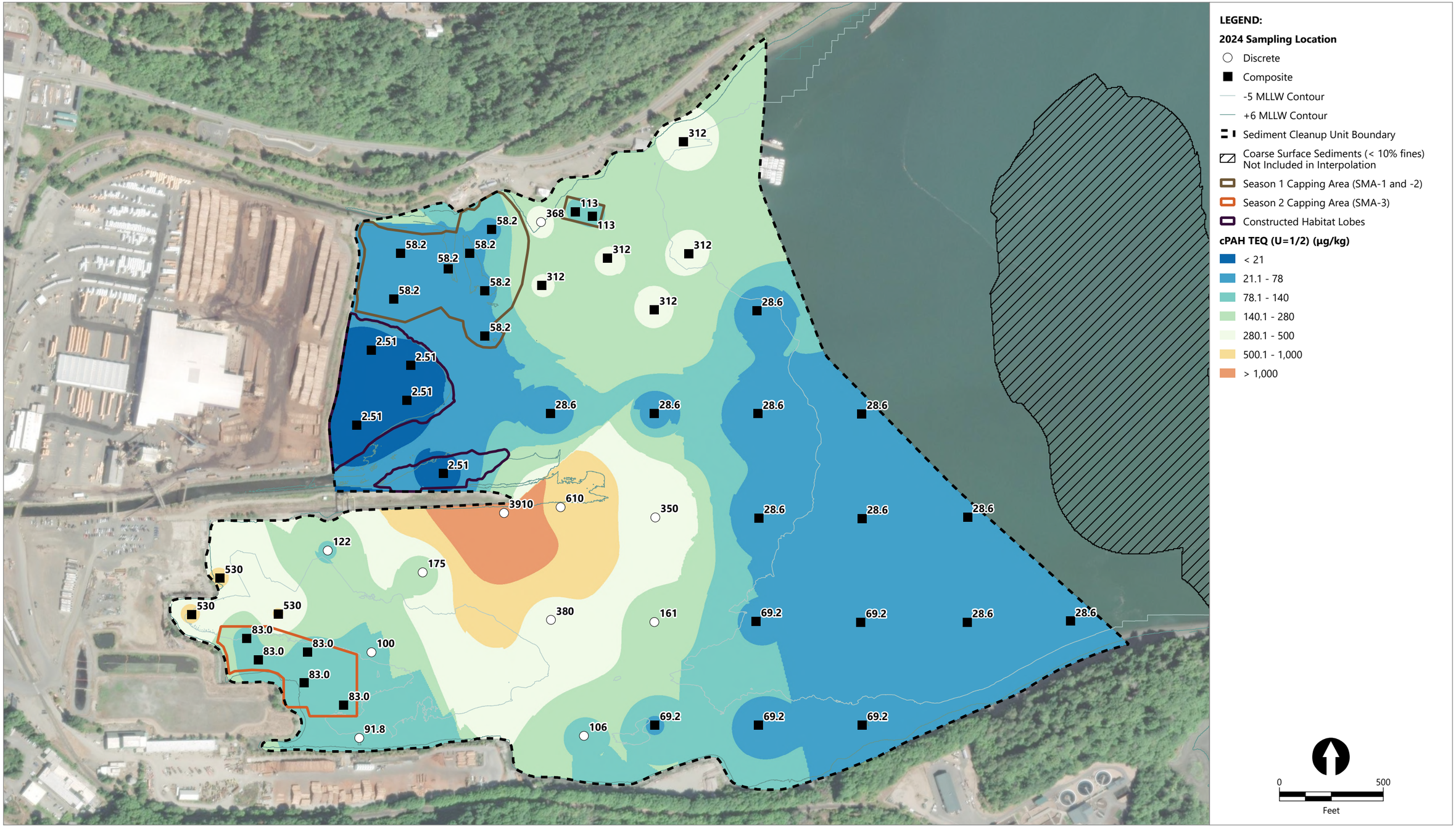
Total Dioxin/Furan TEQ 2005 (Mammal) (U = 1/2) (ng/kg)

- < 5
- 5.1 - 19
- 19.1 - 31
- 31.1 - 42
- > 42

Publish Date: 2026/01/20, 2:16 PM | User: tweldy
Filepath: \\GSTFile01\GIS\Jobs\Simpson_Timber_0008\SheltonHarbor\Maps\RIFS\RIFS_2024\Draft_Interpolation\RIFS_2024.aprx | AQ_RIFS_Fig7_DioxinFuran

ANCHOR QEA

Figure 7
Shelton Harbor Surface Sediment Dioxin/Furan TEQ
ear ost Constru tion Monitoring eport
Oakland Bay and Shelton Harbor Sediments Cleanup Site



Publish Date: 2026/01/20, 2:27 PM | User: tweldy
Filepath: \\GSTFile01\GIS\Jobs\Simpson_Timber_0008\SheltonHarbor\Maps\RIFS\RIFS_2024\Draft_Interpolation\RIFS_2024.aprx | AQ_RIFS_Fig8_cPAH

ANCHOR QEA

Figure 8
Shelton Harbor Surface Sediment cPAH TEQ
ear ost Constru tion Monitoring eport
Oakland Bay and Shelton Harbor Sediments Cleanup Site

Appendix A
Field Collection Forms

Daily Log

ANCHOR QEA

Anchor QEA, LLC
720 Olive Way, Suite 1900
Seattle, WA 98101
Phone 206.287.9130 Fax 206.287.9131

PROJECT NAME: Shelton Harbor RI/FS and OMMP Sampling **DATE:** May 7, 2024

SITE ADDRESS: Shelton, WA **PERSONNEL:** NM, HS, SZ, KV, AW, AW, CW

WEATHER: **WIND FROM:** N | NE | E | SE | S | SW | W | NW | ? (circle one)

SUNNY | CLOUDY | RAIN (circle one)

LIGHT | MEDIUM | HEAVY (circle one)

TEMPERATURE: °F / °C [Circle appropriate units]

TIME	COMMENTS
0830	N. Maas, H. Sharkey arrive on site, troubleshoot GPS
0900	KV, SZ, AW, AS, CW arrive on site
	Begin set up processing area & health & safety meeting
0915	Jar inventory, Sampling Prep
1030	AW, AS off-site to Collect Sampling Gear
1120	HS, NM flagging Available Sample locations
1145	SMA1-SG02 and SMA1-SG06 Collected → depositional
1207	SMA1-SG07 Collected → depositional sample from 0-3cm — Samples collected 0-5cm
1215	SMA5-SG13 Collected
1245	SMA5-SG14 Collected
1303	SMA1-SG01 Collected
1330	SMA5-SG22 Collected
1325	SMA5-SG23 Collected
1345	Discovered error in sampling SMA5-SG13 (22) HS and SMA5-SG14 (23) HS re-mobilized to those locations to re-sample
1400	SMA5-SG13 and SMA5-SG14 recollected
1415	processing Samples and Cleaning processing Area
1430	AQ demobilized from processing Area

Signature: _____

Daily Log

ANCHOR QEA

Anchor QEA, LLC
720 Olive Way, Suite 1900
Seattle, WA 98101
Phone 206.287.9130 Fax 206.287.9131

PROJECT NAME: Shelton Harbor RI/FS and OMMP Sampling
DATE: May 8, 2024
SITE ADDRESS: Shelton, WA
PERSONNEL: NM, CW

WEATHER: **WIND FROM:** N | NE | E | SE | S | SW | W | NW | ?
SUNNY | CLOUDY | RAIN

LIGHT | MEDIUM | HEAVY

TEMPERATURE: °F 50 . °C
[Circle appropriate units]

TIME	COMMENTS
0600	N. Maas, C. Woodward arrive @ Oakland Bay Marina
	Load vessel and begin health & safety meeting (Pete Pierce)
0645	Depart marina for SMA5
0703	Attempt 1 @ SMA5-SG01, overpenetrated
0708	Attempt 2 @ SMA5-SG01, overpenetrated
0710	Remove lead weights from grab
0714	Attempt 3 @ SMA5-SG01, ACCEPT w/ 27cm recovery
0731	Attempt 1 @ SMA5-SG02, ACCEPT w/ 14cm recovery
0745	Attempt 1 @ SMA5-SG03, ACCEPT w/ 25cm recovery
0800	Mobilize to pick up Audrey White @ manna
0805	Pick up Audrey White & H.S. head to SMA1
0808	Attempt 1 @ SMA1-SG03, rock in jaw, reject
0811	Attempt 2 @ SMA1-SG03, rock in jaw, reject
0813	Attempt 3 @ SMA1-SG03, ACCEPT w/ 12.2cm recovery
	Depositional material ~3cm, collect sample
0829	Attempt 1 @ SMA1-SG04, ACCEPT w/ 28.5cm recovery
0843	Attempt 1 @ SMA1-SG05, rock in jaw, reject
0855	Attempt 2 @ SMA1-SG05, ACCEPT 18cm recovery
	Depositional material ~8cm, collect sample
09:20	Attempt 1 @ SMA5-SG04, ACCEPT 28cm recovery
09:33	Attempt 1 @ SMA5-SG05, ACCEPT 32cm recovery
09:46	Attempt 1 @ SMA5-SG06, ACCEPT 31cm recovery
09:59	Attempt 1 @ SMA5-SG08, Accept 27cm recovery
10:08	Attempt 1 @ SMA5-SG07, Accept 27cm recovery
	~~Attempt~~ Mobelized to SMA5-SG09 to see if there is enough water
10:21	Attempt 1 @ SMA5-SG09 - cobble, wood debris, jaws not closed reject
10:24	Attempt 2 @ SMA5-SG09, reject is on a slope, relocate ~11 ft away
10:27	Attempt 3 @ SMA5-SG09, ACCEPT 25cm recovery (14 ft from 09)

Signature: _____ 1/2

Daily Log

ANCHOR QEA

Anchor QEA, LLC
720 Olive Way, Suite 1900
Seattle, WA 98101
Phone 206.287.9130 Fax 206.287.9131

PROJECT NAME: Shelton Harbor RI/FS and OMMP Sampling **DATE:** May 8, 2024

SITE ADDRESS: Shelton, WA **PERSONNEL:** NM, CW, AW

WEATHER: **WIND FROM:** N | NE | E | SE | S | SW | W | NW

(SUNNY) CLOUDY RAIN ?

LIGHT | MEDIUM | HEAVY

TEMPERATURE: °F . °C [Circle appropriate units]

TIME	COMMENTS
10:41	Attempt 1 @ SMA5-SG10, ACCEPT 16cm recovery
10:51	Back to Marina for bathroom break
11:12	Head back out to continue sampling
11:26	Attempt 1 @ SMA5-SG11, accepted, 20 cm recovery
11:44	Attempt 1 @ SMA5-SG33, wood debris/washed out, rejected
11:45	Attempt 2 @ SMA5-SG33, wood debris/wash-jaws closed, accepted, 20 cm recovery
11:54	Attempt 1 @ SMA5-SG34, accepted, 20 cm recovered
12:08	Attempt 1 @ SMA-SG29, accepted, 17 cm recovered
12:23	Attempt 1 @ SMA5-SG28, accepted, 29 cm recovered
12:34	Attempt 1 @ SMA5-SG30, accepted, 26 cm recovered
12:42	Mobilized to SMA3 12:55 NM, AW, CW disembark vessel to attempt collection of SMA3-1thru5
13:00	Collected SG of SMA3-SG02, SG01 couldnt reach SG 3,4,5 13:10 NM, AW, CW reboard vessel
13:16	Mobilized to SMA5-SG31
13:27	Attempt 1 @ SMA5-SG31, accepted, 20 cm recovered
13:40	NM disembarks vessel to collect SMA5-SG35
13:45	~~NM returns to vessel~~ AW SMA5-SG35 collected by NM
13:52	NM returns to vessel
	Begin homogonizing and sampling SMA3-01, SMA3-02, SMA5-35
	Mobilize back to marina
1415	Unload vessel, organize samples for compositing
1450	Composite SMA2-Comp at truck 3 Completed duplicate
1505	End field day, AW to Tacoma

Signature: _____ 2/2

Daily Log

ANCHOR QEA

Anchor QEA, LLC
720 Olive Way, Suite 1900
Seattle, WA 98101
Phone 206.287.9130 Fax 206.287.9131

PROJECT NAME: Shelton Harbor RI/FS and OMMP Sampling **DATE:** May 9, 2024

SITE ADDRESS: Shelton, WA **PERSONNEL:** 45, CW, AW

WEATHER: **WIND FROM:** N | NE | E | SE | S | SW | W | NW

SUNNY | CLOUDY | RAIN | ?

LIGHT | MEDIUM | HEAVY

TEMPERATURE: °F . °C [Circle appropriate units]

TIME	COMMENTS	
630	Arrive at marina	
645	Mobilize Gear to Boat	
700	Health + Safety meeting	SG03- SG04, SG05 add depositional material
705	mobilize to SMA3 - SG03	
715	Collecting SMA3- SG03	ACCEPTED
725	mobilize to SMA3- SG04	
731	Collecting SMA3- SG04	ACCEPTED
	mobilize.	
743	Collecting SMA3- SG05	ACCEPTED
753	mobilize to SMA5- SG17	
803	Collecting SMA5- SG 17	ACCEPTED
	↳ FD for TS/TOC + DIF SG117	
822 ~~mob~~	mobilize to SMA5- SG16	
826	Collected SMA5 - SG16	ACCEPTED
835	mobilize to SM5- SG 18	
843	Collected SG18 → Rocks in Jaws	REJECTED
846	Collected SG18 Attempt2	ACCEPTED
855	mobilize to SG15	
901	collected SMA5- SG15 - stick in Jaws	REJECTED
904	Collected SMA5- SG15 Attempt2	ACCEPTED
910	mobilize to SMA5 - SG24	
918	Collected SMA5- SG 24→ Collected FD +MS/MSD for PAH	ACCEPTED
925	mobilize to SMA5 - SG25	
937	Collected SMA5- SG25	ACCEPTED
945	mobilize to SMA5- SG21	
951	Collected SMA5- SG25	ACCEPTED
955	mobilize to SMA5- SG19	
1001	collected SMA5- SG19	ACCEPTED
1010	mobilize to SMA5 -SG40	

Signature: _____

1/2

Daily Log

ANCHOR QEA

Anchor QEA, LLC
720 Olive Way, Suite 1900
Seattle, WA 98101
Phone 206.287.9130 Fax 206.287.9131

PROJECT NAME: Shelton Harbor RI/FS and OMMP Sampling **DATE:** May 9 , 2024

SITE ADDRESS: Shelton, WA **PERSONNEL:** HS, CW, AW

WEATHER: **WIND FROM:** N | NE | E | SE | S | SW | W | NW

SUNNY | CLOUDY | RAIN | ?

LIGHT | MEDIUM | HEAVY

TEMPERATURE: °F . °C [Circle appropriate units]

TIME	COMMENTS
1130	back to marina
1200	moving to process
1240	comp 08
1257	Comp 03
1315	Comp 09
1335	Comp 06
1350	Comp 05
1400	comp 07
1410	clean up site

Signature: HS

2/2

ANCHOR QEA

Surface Sediment Field Log

Job: Shelton Harbor RI/FS and OMMP Sampling
Station: SMA1-SG01
Job No:11008-01.03
Date: May 7, 2024
Field Staff: AW, CV
Sample Method: Hand Grab
Contractor: N/A
Proposed Coordinates: Lat. —
Horizontal Datum:
Long. —

Water Height
DTM Depth Sounder: N/A
DTM Lead Line: N/A

Tide Measurements
Time: —
Height: 0

Sample Acceptability Criteria:
1) Overlying water is present
2) Water has low turbidity
3) Sampler is not overfilled
4) Surface is flat
5) Desired penetration depth

Notes: Mudline Elevation (lower low water-large tides): calculated after sampling

Grab #	Time	Confirmed Coordinates (datum) WGS 84 (N)	Confirmed Coordinates (datum) WGS 84 (E)	Sample Accept (Y/N)	Recovery Depth (in) cm	Comments: jaws close, good seal, winnowing, overlying water, surface intact, etc
0-10 cm	~~1103~~ 1303			Y	10	N/A

Sample Description: surface cover, (density), moisture, color, minor modifier, MAJOR modifier, other constituents, odor, sheen, layering, anoxic layer, debris,.plant matter, shells, biota

0-10cm: sandy SILT, soft, moist-saturated, olive grey to olive brown interbedded red streaks, minor shell fragments, no odor, no sheen + black trace gravel

Sample Containers: See SQAPP

Analyses:

ANCHOR QEA

Surface Sediment Field Log

Job: Shelton Harbor RI/FS and OMMP Sampling
Station: SMAI - SG02
Job No:11008-01.03
Date: May 7, 2024
Field Staff: Samson
Sample Method: grab sample (hand)
Contractor: N/A
Proposed Coordinates: Lat. —
Horizontal Datum: —
Long. —

Water Height
DTM Depth Sounder: N/A
DTM Lead Line: N/A

Tide Measurements
Time: N/A
Height: 0

Sample Acceptability Criteria:
1) Overlying water is present
2) Water has low turbidity
3) Sampler is not overfilled
4) Surface is flat
5) Desired penetration depth

Notes: Mudline Elevation (lower low water-large tides): calculated after sampling

Grab #	Time	Confirmed Coordinates (datum) WGS 84 (N)	Confirmed Coordinates (datum) WGS 84 (E)	Sample Accept (Y/N)	Recovery Depth (in) cm	Comments: jaws close, good seal, winnowing, overlying water, surface intact, etc
0-10 cm	11:45			Y	10	N/A

Sample Description: surface cover, (density), moisture, color, minor modifier, MAJOR modifier, other constituents, odor, sheen, layering, anoxic layer, debris, plant matter, shells, biota

Black, red, sandy silt, wet, dark grey (black and red interbedded layers), shell chunks, sand SILT, no odour, 0-5 cm (very silt), 5-10 cm more sediments & rocks, no plant matter noted

Sample Containers:

Analyses:

ANCHOR QEA

Surface Sediment Field Log

Job: Shelton Harbor RI/FS and OMMP Sampling
Station: OMMP-SMA1-SG03
Job No:11008-01.03
Date: May 8, 2024
Field Staff: CW, AW, NM
Sample Method: Power Grab
Contractor: Gravity
Proposed Coordinates: Lat. see FSP
Horizontal Datum: Long. see FSP

Water Height
DTM Depth Sounder: 8.9
DTM Lead Line: —

Tide Measurements
Time: —
Height: —

Sample Acceptability Criteria:
1) Overlying water is present
2) Water has low turbidity
3) Sampler is not overfilled
4) Surface is flat
5) Desired penetration depth

Notes: Mudline Elevation (lower low water-large tides): calculated after sampling

Grab #	Time	Confirmed Coordinates (datum) WGS 84 (N)	Confirmed Coordinates (datum) WGS 84 (E)	Sample Accept (Y/N)	Recovery Depth (in)	Comments: jaws close, good seal, winnowing, overlying water, surface intact, etc
1	0808	996993.58	696103.54	N	-	washed out cobble in jaw
2	0811	996989.96	696105.27	N	—	washed out cobble in jaw
3	0813	997001.45	696106.48	Y	12.5	small rock in jaw but little wash out

Sample Description: surface cover, (density), moisture, color, minor modifier, MAJOR modifier, other constituents, odor, sheen, layering, anoxic layer, debris, plant matter, shells, biota

Dep: 3cm brown silty with sand, some dark grey sand & shell fragments

3: Brown silty surface, grey sandy silt, wet, med to large gravel w/ cobble and shell fragments, 2" wood fragment

Sample Containers:

Analyses:

ANCHOR QEA

Surface Sediment Field Log

Job: Shelton Harbor RI/FS and OMMP Sampling
Station: SMA1-SG04
Job No:11008-01.03
Date: May 8 2024
Field Staff: NM, AW, CW
Sample Method: Peer Grab
Contractor: Gravity
Proposed Coordinates: Lat. –
Horizontal Datum: –
Long. –

Water Height
DTM Depth Sounder: 10.2
DTM Lead Line: –

Tide Measurements
Time: –
Height: –

Sample Acceptability Criteria:
1) Overlying water is present
2) Water has low turbidity
3) Sampler is not overfilled
4) Surface is flat
5) Desired penetration depth

Notes: Mudline Elevation (lower low water-large tides): calculated after sampling

Grab #	Time	Confirmed Coordinates (datum)		Sample Accept (Y/N)	Recovery Depth (in)	Comments: jaws close, good seal, winnowing, overlying water, surface intact, etc
		WGS 84 (N)	WGS 84 (E)			
1	0829	996517.53	695988.39	Y	28.5	jaws closed overlying water

Sample Description: surface cover, (density), moisture, color, minor modifier, MAJOR modifier, other constituents, odor, sheen, layering, anoxic layer, debris, plant matter, shells, biota

Brown silty surface, wet interbedded dark grey layers, some shell fragments and wood (moderate)

NO CAP MATERIAL OBSERVED IN GRAB

Sample Containers:

Analyses:

ANCHOR QEA

Surface Sediment Field Log

Job: Shelton Harbor RI/FS and OMMP Sampling
Station: OMMP-SMA1-SG05
Job No:11008-01.03
Date: May 8 2024
Field Staff: NM, AW, CW
Sample Method: Ekker Grab
Contractor: Gravity
Proposed Coordinates: Lat. –
Horizontal Datum: –
Long. –

Water Height
DTM Depth Sounder: 9.2
DTM Lead Line: –

Tide Measurements
Time: –
Height: –

Sample Acceptability Criteria:
1) Overlying water is present
2) Water has low turbidity
3) Sampler is not overfilled
4) Surface is flat
5) Desired penetration depth

Notes: Mudline Elevation (lower low water-large tides): calculated after sampling

Grab #	Time	Confirmed Coordinates (datum) WGS 84 (N)	Confirmed Coordinates (datum) WGS 84 (E)	Sample Accept (Y/N)	Recovery Depth (in)	Comments: jaws close, good seal, winnowing, overlying water, surface intact, etc
1	0843	996520.95	695761.35	N	-	Rock in jaw, washed out
2	0846	996520.80	695765.98	N	-	Rock in jaw washed out
3	0849	996515.79	695757.56	N	-	Rock in jaw washed out
4	0852	996520.37	695770.26	N	-	Rock in jaw washed out
5	0855	996527.26	695768.27	Y		small rock in jaw little to no wash out, jaws closed
depth 10.5						

Sample Description: surface cover, (density), moisture, color, minor modifier, MAJOR modifier, other constituents, odor, sheen, layering, anoxic layer, debris, plant matter, shells, biota

Depositional: brown silt surface, grey/brown sandy silt, trace shell/woody fragments ~~3 00~~

Brown silty surface, grey/brown sandy silt, trace shell fragments/ wood fragments. small to medium gravel

Sample Containers:

Analyses:

ANCHOR QEA

Surface Sediment Field Log

Job: Shelton Harbor RI/FS and OMMP Sampling
Station: SHA1 - SG016
Job No:11008-01.03
Date: May 7, 2024
Field Staff: AW
Sample Method: Grab (hand)
Contractor: N/A
Proposed Coordinates: Lat. –
Horizontal Datum: –
Long. –

Water Height
DTM Depth Sounder: N/A
DTM Lead Line: N/A

Tide Measurements
Time: –
Height: 0

Sample Acceptability Criteria:
1) Overlying water is present
2) Water has low turbidity
3) Sampler is not overfilled
4) Surface is flat
5) Desired penetration depth

Notes: Mudline Elevation (lower low water-large tides): calculated after sampling

Grab #	Time	Confirmed Coordinates (datum)		Sample Accept (Y/N)	Recovery Depth (in) cm	Comments: jaws close, good seal, winnowing, overlying water, surface intact, etc
		WGS 84 (N)	WGS 84 (E)			
0-10 cm	11:45			Y	10	n/a

Sample Description: surface cover, (density), moisture, color, minor modifier, MAJOR modifier, other constituents, odor, sheen, layering, anoxic layer, debris, plant matter, shells, biota

0-5cm: sandy SILT, soft, moist, brown with interbedded black + red, no odor, no sheen, minor shells + marine life (worms)

5-10 cm: sand with silt and gravel, loose to medium dense, moist, dark brown-grey, no odor, no sheen, minor shells, rocks to 2.5"

Sample Containers: See SQAPP

Analyses:

ANCHOR QEA

Surface Sediment Field Log

Job: Shelton Harbor RI/FS and OMMP Sampling
Station: SHA01-SG07
Job No: 11008-01.03
Date: May 7 2024
Field Staff: CW
Sample Method: Grab (hand)
Contractor: N/A
Proposed Coordinates: Lat. –
Horizontal Datum: –
Long. –

Water Height
DTM Depth Sounder: –
DTM Lead Line: –

Tide Measurements
Time: –
Height: 0

Sample Acceptability Criteria:
1) Overlying water is present
2) Water has low turbidity
3) Sampler is not overfilled
4) Surface is flat
5) Desired penetration depth

Notes: Mudline Elevation (lower low water-large tides): calculated after sampling

Grab #	Time	Confirmed Coordinates (datum)		Sample Accept (Y/N)	Recovery Depth (in)	Comments: jaws close, good seal, winnowing, overlying water, surface intact, etc
		WGS 84 (N)	WGS 84 (E)			
0-10	12:07			Y	10cm	N/A

Sample Description: surface cover, (density), moisture, color, minor modifier, MAJOR modifier, other constituents, odor, sheen, layering, anoxic layer, debris, plant matter, shells, biota

0-3cm Sandy silt w/ gravel, moist, dark grey w/ areas of black tred, no odor, no sheen, ~~[illegible]~~ minor shells, barnacles + marine life (worms)

3-10cm sandy silt w/ lots of gravel, loose to med dense, moist dark brown w/ red, minor shells w/ barnacles + worms, rocks up to 3", no odor, no sheen

Sample Containers: See SQAPP

Analyses:

ANCHOR QEA

Surface Sediment Field Log

Job: Shelton Harbor RI/FS and OMMP Sampling
Station: SMA2
Job No:11008-01.03
Date: May 6, 2024
Field Staff: NM, EP, KV
Sample Method: hand Grab
Contractor: N/A
Proposed Coordinates: Lat. –
Horizontal Datum: –
Long. –

Water Height
DTM Depth Sounder: N/A
DTM Lead Line: N/A

Tide Measurements
Time: –
Height: 0

Sample Acceptability Criteria:
1) Overlying water is present
2) Water has low turbidity
3) Sampler is not overfilled
4) Surface is flat
5) Desired penetration depth

Notes: Mudline Elevation (lower low water-large tides): calculated after sampling

Grab #	Time	Confirmed Coordinates (datum) WGS 84 (N)	Confirmed Coordinates (datum) WGS 84 (E)	Sample Accept (Y/N)	Recovery Depth (~~in~~ cm)	Comments: jaws close, good seal, winnowing, overlying water, surface intact, etc
SG01 1	1135			Y	10	–
SG02 2	1330			Y	10	–

Sample Description: surface cover, (density), moisture, color, minor modifier, MAJOR modifier, other constituents, odor, sheen, layering, anoxic layer, debris, plant matter, shells, biota

01: 6" depositional sediment, grey silty surface with sand, dark gray & rust colored layers, shell fragments & clam

02: 10 cm depositional sediment, grey silty surface with sand (fine), fiberous organic fragments, shell fragments & small gravel

Sample Containers:

Analyses:

ANCHOR QEA

Surface Sediment Field Log OMMP-SMA3-SG01

Job: Shelton Harbor RI/FS and OMMP Sampling
Station: [redacted] AW
Job No:11008-01.03
Date: May 8, 2024
Field Staff: NM, AW, CW
Sample Method: Surface grab
Contractor:
Proposed Coordinates: Lat.
Horizontal Datum:
Long.

Water Height
DTM Depth Sounder: _____
DTM Lead Line: _____

Tide Measurements
Time: _____
Height: _____

Sample Acceptability Criteria:
1) Overlying water is present
2) Water has low turbidity
3) Sampler is not overfilled
4) Surface is flat
5) Desired penetration depth

Notes: Mudline Elevation (lower low water-large tides): calculated after sampling

Grab #	Time	Confirmed Coordinates (datum)		Sample Accept (Y/N)	Recovery Depth (in)	Comments: jaws close, good seal, winnowing, overlying water, surface intact, etc
		WGS 84 (N)	WGS 84 (E)			
1	1300			Y	10	n/a

Sample Description: surface cover, (density), moisture, color, minor modifier, MAJOR modifier, other constituents, odor, sheen, layering, anoxic layer, debris, plant matter, shells, biota

0-10cm: Brown sandy silt with dark grey interbedded lenses, soft, moist, no odor, no sheen, no biota, trace shell fragments, no plant matter

Sample Containers:

Analyses:

ANCHOR QEA

Surface Sediment Field Log OMMP

Job: Shelton Harbor RI/FS and OMMP Sampling | Station: ~~RFS~~ - SMA 3 - SG02

Job No: 11008-01.03 | Date: May 8, 2024

Field Staff: NM, AW, CW | Sample Method: Surface grab

Contractor: | Proposed Coordinates: Lat.

Horizontal Datum: | Long.

Water Height

DTM Depth Sounder:

DTM Lead Line:

Tide Measurements

Time:

Height:

Sample Acceptability Criteria:

1) Overlying water is present
2) Water has low turbidity
3) Sampler is not overfilled
4) Surface is flat
5) Desired penetration depth

Notes: Mudline Elevation (lower low water-large tides): calculated after sampling

Grab #	Time	Confirmed Coordinates (datum)		Sample Accept (Y/N)	Recovery Depth (in)	Comments: jaws close, good seal, winnowing, overlying water, surface intact, etc
		WGS 84 (N)	WGS 84 (E)			
1	1300			Y	10	n/a

Sample Description: surface cover, (density), moisture, color, minor modifier, MAJOR modifier, other constituents, odor, sheen, layering, anoxic layer, debris, plant matter, shells, biota

0-10cm: brown-tan Gravel with sand and silt, medium dense, moist, negligible deposited silt layer on top <1cm, no odor no sheen, no plant matter, worm and crab present

Sample Containers: 1x 4oz AG, 1x 8oz AG

Analyses:

ANCHOR QEA

Surface Sediment Field Log

Job: Shelton Harbor RI/FS and OMMP Sampling
Station: OMMP-SMA3-SG03
Job No:11008-01.03
Date: May 9, 2024
Field Staff: HS, AW, CW
Sample Method: Power Grab
Contractor: Gravity
Proposed Coordinates: Lat. see FSP
Horizontal Datum:
Long. see FSP

Water Height
DTM Depth Sounder: 16
DTM Lead Line: —

Tide Measurements
Time: 713
Height: ✓

Sample Acceptability Criteria:
1) Overlying water is present
2) Water has low turbidity
3) Sampler is not overfilled
4) Surface is flat
5) Desired penetration depth

Notes: Mudline Elevation (lower low water-large tides): calculated after sampling

Grab #	Time	Confirmed Coordinates (datum) WGS 84 (N)	Confirmed Coordinates (datum) WGS 84 (E)	Sample Accept (Y/N)	Recovery Depth (in)	Comments: jaws close, good seal, winnowing, overlying water, surface intact, etc
1	716	996290.50	693814.99	Y	26cm	Jaws closed overlaying water

Sample Description: surface cover, (density), moisture, color, minor modifier, MAJOR modifier, other constituents, odor, sheen, layering, anoxic layer, debris, plant matter, shells, biota

Brown silt surface, wet, dark gray sandy silt, no gravel/pebble, no odor, no sheen, surface layer of Ulvaria, plant matter, minor wood debris, minor shell frags, no biota

Sample Containers: see FSP

Analyses: see FSP

ANCHOR QEA

Surface Sediment Field Log

Job: Shelton Harbor RI/FS and OMMP Sampling
Station: OMMP-SMA3-SG03 HS 4
Job No:11008-01.03
Date: May 9, 2024
Field Staff: HS, CW, AW
Sample Method: grab
Contractor: Gravity
Proposed Coordinates: Lat. see FSP
Horizontal Datum: —
Long. see FSP

Water Height
DTM Depth Sounder: 15.4
DTM Lead Line: —

Tide Measurements
Time: 731
Height: —

Sample Acceptability Criteria:
1) Overlying water is present
2) Water has low turbidity
3) Sampler is not overfilled
4) Surface is flat
5) Desired penetration depth

Notes: Mudline Elevation (lower low water-large tides): calculated after sampling

Grab #	Time	Confirmed Coordinates (datum) WGS 84 (N)	Confirmed Coordinates (datum) WGS 84 (E)	Sample Accept (Y/N)	Recovery Depth (in)	Comments: jaws close, good seal, winnowing, overlying water, surface intact, etc
1	731	996065.14	694016.27	Y	19 cm	Jaws closed overlaying water
					HS	

Sample Description: surface cover, (density), moisture, color, minor modifier, MAJOR modifier, other constituents, odor, sheen, layering, anoxic layer, debris, plant matter, shells, biota

brown silt surface, wet, dark gray sandy silt, 1 clay layer @ 11(cm), trace shell fragments, small gravel ¼ inch traces, no odor no sheen, no seed no biota

Sample Containers: see FSP

Analyses: see FSP

ANCHOR QEA

Surface Sediment Field Log

Job: Shelton Harbor RI/FS and OMMP Sampling
Station: SMA3-SG05
Job No:11008-01.03
Date: May 1, 2024
Field Staff: HS, CW, AW
Sample Method: Grab
Contractor: Gravity
Proposed Coordinates: Lat. -
Horizontal Datum: —
Long. -

Water Height
DTM Depth Sounder:
DTM Lead Line: —

Tide Measurements
Time:
Height:

Sample Acceptability Criteria:
1) Overlying water is present
2) Water has low turbidity
3) Sampler is not overfilled
4) Surface is flat
5) Desired penetration depth

Mudline Elevation (lower low water-large tides): calculated after sampling

Notes:

Grab #	Time	Confirmed Coordinates (datum) WGS 84 (N)	Confirmed Coordinates (datum) WGS 84 (E)	Sample Accept (Y/N)	Recovery Depth (in)	Comments: jaws close, good seal, winnowing, overlying water, surface intact, etc
1	743	995821.0	694094.2	Y	18cm	Jaws closed overlaying water
						CW

Sample Description: surface cover, (density), moisture, color, minor modifier, MAJOR modifier, other constituents, odor, sheen, layering, anoxic layer, debris, plant matter, shells, biota

Brown silt surface, wet, dark gray, sandy silt, trace gravel, >1 inch, no odor, no sheen, trace wood debris, no shells, no biota

Sample Containers:

Analyses:

ANCHOR QEA

Surface Sediment Field Log

Job: Shelton Harbor RI/FS and OMMP Sampling
Station: NARH-SMA5 ~~SG02~~
Job No:11008-01.03
Date: May 6, 2024
Field Staff: HS, SZ, AW, EP
Sample Method: hand grab
Contractor: —
Proposed Coordinates: Lat.
Horizontal Datum:
Long.

Water Height
DTM Depth Sounder: —
DTM Lead Line: —

Tide Measurements
Time:
Height:

Sample Acceptability Criteria:
1) Overlying water is present
2) Water has low turbidity
3) Sampler is not overfilled
4) Surface is flat
5) Desired penetration depth

Mudline Elevation (lower low water-large tides): calculated after sampling

Notes:

Grab #	Time	Confirmed Coordinates (datum) WGS 84 (N)	Confirmed Coordinates (datum) WGS 84 (E)	Sample Accept (Y/N)	Recovery Depth ~~(in)~~ cm	Comments: jaws close, good seal, winnowing, overlying water, surface intact, etc
SG02 02	1155			Y	10	—
SG01 01	1155			Y	10	Brown silty sand moist small to med gravel throughout - few 2" gravel
SG03 03	1155			Y	10	surface algae growth, moist brown silty sand w/ interbedded layers of rust colored & dark grey, small/med gravel near 10cm
SG04 04	1155					Brown silty sand moist small to med gravel throughout few 2" gravel
SG05 05	1250					Red brown sand with silt well graded gravel some 2" gravel, shell fragm

Sample Description: surface cover, (density), moisture, color, minor modifier, MAJOR modifier, other constituents, odor, sheen, layering, anoxic layer, debris, plant matter, shells, biota

02: Brown silty sand, small to medium gravel throughout

Sample Containers:

Analyses:

ANCHOR QEA

Surface Sediment Field Log

Job: Shelton Harbor RI/FS and OMMP Sampling
Station: RIFS-SMAS-SG01
Job No:11008-01.03
Date: May 8, 2024
Field Staff: N M, CW
Sample Method: Power Grab
Contractor: Gravity
Proposed Coordinates: Lat. -
Horizontal Datum:
Long. -

Water Height
DTM Depth Sounder: ~~23.1~~ 22.4
DTM Lead Line: -

Tide Measurements
Time: -
Height: -

Sample Acceptability Criteria:
1) Overlying water is present
2) Water has low turbidity
3) Sampler is not overfilled
4) Surface is flat
5) Desired penetration depth

Notes: Mudline Elevation (lower low water-large tides): calculated after sampling

Grab #	Time	Confirmed Coordinates (datum) WGS 84 (N)	Confirmed Coordinates (datum) WGS 84 (E)	Sample Accept (Y/N)	Recovery Depth (in/cm)	Comments: jaws close, good seal, winnowing, overlying water, surface intact, etc
1	0703	995554856	694244.98	N	33+	overpenetrated
2	0708	995550.37	694241.61	N	33+	overpenetrated
3	0714	9955582	694244.82	Y	27	jaws closed overlying water

Sample Description: surface cover, (density), moisture, color, minor modifier, MAJOR modifier, other constituents, odor, sheen, layering, anoxic layer, debris, plant matter, shells, biota

Brown silty surface, live crab 3 clam on surface, wet, brown/grey sandy silt with few wood & shell fragments

Sample Containers:

Analyses:

ANCHOR QEA

Surface Sediment Field Log

Job: Shelton Harbor RI/FS and OMMP Sampling
Station: RIFS-SMA5-SG02
Job No:11008-01.03
Date: May 8 2024
Field Staff: NM, CW
Sample Method: Power Grab
Contractor: Gravit
Proposed Coordinates: Lat.
Horizontal Datum:
Long.

Water Height
DTM Depth Sounder: 15.5
DTM Lead Line:

Tide Measurements
Time:
Height:

Sample Acceptability Criteria:
1) Overlying water is present
2) Water has low turbidity
3) Sampler is not overfilled
4) Surface is flat
5) Desired penetration depth

Notes: Mudline Elevation (lower low water-large tides): calculated after sampling

Grab #	Time	Confirmed Coordinates (datum) WGS 84 (N)	Confirmed Coordinates (datum) WGS 84 (E)	Sample Accept (Y/N)	Recovery Depth ~~(in)~~ cm	Comments: jaws close, good seal, winnowing, overlying water, surface intact, etc
1	0731	995684.34	694427.66	Y	14	jaws closed wood in jaws

Sample Description: surface cover, (density), moisture, color, minor modifier, MAJOR modifier, other constituents, odor, sheen, layering, anoxic layer, debris, plant matter, shells, biota

Large oysters and woody debris on surface, brown silty surface grey silty sand and shell fragments, live crab wet

Sample Containers:

Analyses:

ANCHOR QEA

Surface Sediment Field Log

Job: Shelton Harbor RI/FS and OMMP Sampling
Station: RIFS-SMA5-SG03
Job No:11008-01.03
Date: May 8, 2024
Field Staff: NM, CW
Sample Method: Power Grab
Contractor: Gravity
Proposed Coordinates: Lat.
Horizontal Datum: Long.

Water Height
DTM Depth Sounder: 17.7
DTM Lead Line:

Tide Measurements
Time:
Height:

Sample Acceptability Criteria:
1) Overlying water is present
2) Water has low turbidity
3) Sampler is not overfilled
4) Surface is flat
5) Desired penetration depth

Notes: Mudline Elevation (lower low water-large tides): calculated after sampling

Grab #	Time	Confirmed Coordinates (datum) WGS 84 (N)	Confirmed Coordinates (datum) WGS 84 (E)	Sample Accept (Y/N)	Recovery Depth (in/cm)	Comments: jaws close, good seal, winnowing, overlying water, surface intact, etc
1	0745	995971.94	694248.845	Y	25	jaws closed, overlying water

Sample Description: surface cover, (density), moisture, color, minor modifier, MAJOR modifier, other constituents, odor, sheen, layering, anoxic layer, debris, plant matter, shells, biota

Brown silty surface, grey/brown sandy silt. wet, trace fibrous woody material/organics

Sample Containers:

Analyses:

ANCHOR QEA

Surface Sediment Field Log

Job: Shelton Harbor RI/FS and OMMP Sampling
Station: RIFS-SMAS-SG04
Job No:11008-01.03
Date: May 8 2024
Field Staff: CW, NM, AW
Sample Method: Power Grab
Contractor: Gravity
Proposed Coordinates: Lat.
Horizontal Datum:
Long.

Water Height
DTM Depth Sounder: 11.9
DTM Lead Line:

Tide Measurements
Time:
Height:

Sample Acceptability Criteria:
1) Overlying water is present
2) Water has low turbidity
3) Sampler is not overfilled
4) Surface is flat
5) Desired penetration depth

Mudline Elevation (lower low water-large tides): calculated after sampling

Notes:

Grab #	Time	Confirmed Coordinates (datum) WGS 84 (N)	Confirmed Coordinates (datum) WGS 84 (E)	Sample Accept (Y/N)	Recovery Depth (in)	Comments: jaws close, good seal, winnowing, overlying water, surface intact, etc
1	9:21	996206.53	694552.22	Y	28cm	Jaws closed, overlying water

Sample Description: surface cover, (density), moisture, color, minor modifier, MAJOR modifier, other constituents, odor, sheen, layering, anoxic layer, debris, plant matter, shells, biota

brown silty surface, wet, very dark grey, sandy silt, No odor, No sheen, No debris, no biota, No plant

Sample Containers:

Analyses:

ANCHOR QEA

Surface Sediment Field Log

Job: Shelton Harbor RI/FS and OMMP Sampling
Station: SMA5-SG05
Job No:11008-01.03
Date: May 8, 2024
Field Staff: NM, CW, AW
Sample Method: Power Grab
Contractor: Gravity
Proposed Coordinates: Lat.
Horizontal Datum:
Long.

Water Height
DTM Depth Sounder: 13.1
DTM Lead Line:

Tide Measurements
Time:
Height:

Sample Acceptability Criteria:
1) Overlying water is present
2) Water has low turbidity
3) Sampler is not overfilled
4) Surface is flat
5) Desired penetration depth

Notes: Mudline Elevation (lower low water-large tides): calculated after sampling

Grab #	Time	Confirmed Coordinates (datum) WGS 84 (N)	Confirmed Coordinates (datum) WGS 84 (E)	Sample Accept (Y/N)	Recovery Depth (in)	Comments: jaws close, good seal, winnowing, overlying water, surface intact, etc
1	9:33	996417.49	6944066.63	Y	32cm	Jaws closed, overlying water

Sample Description: surface cover, (density), moisture, color, minor modifier, MAJOR modifier, other constituents, odor, sheen, layering, anoxic layer, debris, plant matter, shells, biota

brown silty surface, wet, dark grey sandy silt, no odor, no sheen, trace plant matter, no biota

Sample Containers:

Analyses:

ANCHOR QEA

Surface Sediment Field Log

Job: Shelton Harbor RI/FS and OMMP Sampling
Station: SMA5-SG06
Job No:11008-01.03
Date: May 8, 2024
Field Staff: NM, AW, CW
Sample Method: Power Grab
Contractor: Gravity
Proposed Coordinates: Lat.
Horizontal Datum:
Long.

Water Height
DTM Depth Sounder: 11.2
DTM Lead Line:

Tide Measurements
Time:
Height:

Sample Acceptability Criteria:
1) Overlying water is present
2) Water has low turbidity
3) Sampler is not overfilled
4) Surface is flat
5) Desired penetration depth

Notes: Mudline Elevation (lower low water-large tides): calculated after sampling

Grab #	Time	Confirmed Coordinates (datum) WGS 84 (N)	Confirmed Coordinates (datum) WGS 84 (E)	Sample Accept (Y/N)	Recovery Depth (in)	Comments: jaws close, good seal, winnowing, overlying water, surface intact, etc
1	9:46	996366087	693646.61	Y	31 cm	Jaws closed overlying water

Sample Description: surface cover, (density), moisture, color, minor modifier, MAJOR modifier, other constituents, odor, sheen, layering, anoxic layer, debris, plant matter, shells, biota

brown silty surface, wet, dark gray, sandy silt, no odor, no sheen, live shrimp, bivalve shell, moderate plant debris

Sample Containers:

Analyses:

ANCHOR QEA

Surface Sediment Field Log

Job: Shelton Harbor RI/FS and OMMP Sampling
Station: SHA5-SG07
Job No:11008-01.03
Date: May 8, 2024
Field Staff: NM, CW, AH
Sample Method: Power Grab
Contractor: Gravity
Proposed Coordinates: Lat.
Horizontal Datum:
Long.

Water Height
DTM Depth Sounder: 6.2
DTM Lead Line:

Tide Measurements
Time:
Height:

Sample Acceptability Criteria:
1) Overlying water is present
2) Water has low turbidity
3) Sampler is not overfilled
4) Surface is flat
5) Desired penetration depth

Notes: Mudline Elevation (lower low water-large tides): calculated after sampling

Grab #	Time	Confirmed Coordinates (datum) WGS 84 (N)	Confirmed Coordinates (datum) WGS 84 (E)	Sample Accept (Y/N)	Recovery Depth (in)	Comments: jaws close, good seal, winnowing, overlying water, surface intact, etc
1	10:08	99665.44	694448.79	Y	27cm	wood debris w/ jaws closed overlying water

Sample Description: surface cover, (density), moisture, color, minor modifier, MAJOR modifier, other constituents, odor, sheen, layering, anoxic layer, debris, plant matter, shells, biota

brown silty surface, wet, light hydrogen sulfide smell, sandy silt, dk gray no sheen, trace plant matter, trace woody debris, no shell, no biota

Sample Containers:

Analyses:

ANCHOR QEA

Surface Sediment Field Log

Job: Shelton Harbor RI/FS and OMMP Sampling
Station: SMA5-SG08
Job No:11008-01.03
Date: May 8, 2024
Field Staff: NM, CW, AW
Sample Method: Power Grab
Contractor: Gravity
Proposed Coordinates: Lat.
Horizontal Datum:
Long.

Water Height
DTM Depth Sounder: 14.8
DTM Lead Line:

Tide Measurements
Time:
Height:

Sample Acceptability Criteria:
1) Overlying water is present
2) Water has low turbidity
3) Sampler is not overfilled
4) Surface is flat
5) Desired penetration depth

Notes: Mudline Elevation (lower low water-large tides): calculated after sampling

Grab #	Time	Confirmed Coordinates (datum) WGS 84 (N)	WGS 84 (E)	Sample Accept (Y/N)	Recovery Depth (in)	Comments: jaws close, good seal, winnowing, overlying water, surface intact, etc
1	9:59	996889.51	683993.76	Y	27	Woody debris in Jaws, Jaws fully closed, overlying water

Sample Description: surface cover, (density), moisture, color, minor modifier, MAJOR modifier, other constituents, odor, sheen, layering, anoxic layer, debris, plant matter, shells, biota

brown silty surface, wet, dark gray, sandy silt, abundant wood fragments (one large (8" wide) piece of wood, no odor, no sheen, no shells, no biota

Sample Containers:

Analyses:

ANCHOR QEA

Surface Sediment Field Log

Job: Shelton Harbor RI/FS and OMMP Sampling
Station: SHA5-SG09
Job No:11008-01.03
Date: May 8, 2024
Field Staff: NM, CW, AW
Sample Method: Power Grab
Contractor: Gravity
Proposed Coordinates: Lat.
Horizontal Datum: Long.

Water Height
DTM Depth Sounder: 4.1
DTM Lead Line:

Tide Measurements
Time:
Height:

Sample Acceptability Criteria:
1) Overlying water is present
2) Water has low turbidity
3) Sampler is not overfilled
4) Surface is flat
5) Desired penetration depth

Notes: Mudline Elevation (lower low water-large tides): calculated after sampling

Grab #	Time	Confirmed Coordinates (datum) WGS 84 (N)	Confirmed Coordinates (datum) WGS 84 (E)	Sample Accept (Y/N)	Recovery Depth (in)	Comments: jaws close, good seal, winnowing, overlying water, surface intact, etc
1	10:21	997059.58	694747.63	N	—	cobble, wood debris, Jaws not closed, reject, on a slope
2	10:24	997062.71	694735.94	N	—	wood debris Jaws not closed reject,
3	10:27	997051.84	694736.25	Y	25 cm	Jaws closed overlying water

Sample Description: surface cover, (density), moisture, color, minor modifier, MAJOR modifier, other constituents, odor, sheen, layering, anoxic layer, debris, plant matter, shells, biota

brown silty layer, wet, dark gray, sandy silt, whole shells, no odor no sheen, moderate wood debris (<2 cm), small shrimp (>1 cm)

Sample Containers:

Analyses:

ANCHOR QEA

Surface Sediment Field Log

Job: Shelton Harbor RI/FS and OMMP Sampling
Station: FIFS-SMA5-SG10
Job No:11008-01.03
Date: May 8, 2024
Field Staff: NM, CW, AW
Sample Method: Power Grab
Contractor: Gravity
Proposed Coordinates: Lat.
Horizontal Datum:
Long.

Water Height
DTM Depth Sounder: 41.1
DTM Lead Line:

Tide Measurements
Time:
Height:

Sample Acceptability Criteria:
1) Overlying water is present
2) Water has low turbidity
3) Sampler is not overfilled
4) Surface is flat
5) Desired penetration depth

Notes: Mudline Elevation (lower low water-large tides): calculated after sampling

Grab #	Time	Confirmed Coordinates (datum) WGS 84 (N)	Confirmed Coordinates (datum) WGS 84 (E)	Sample Accept (Y/N)	Recovery Depth (in)	Comments: jaws close, good seal, winnowing, overlying water, surface intact, etc
1	10:41	997278.26	694225.59	Y	16	Jaws closed overlaying water

Sample Description: surface cover, (density), moisture, color, minor modifier, MAJOR modifier, other constituents, odor, sheen, layering, anoxic layer, debris, plant matter, shells, biota

brown silty surface, wet, dark gray, sandy silt, no odor, no sheen, wood debris, abundant, no plant matter, whole shells, no biota

Sample Containers:

Analyses:

ANCHOR QEA

Surface Sediment Field Log

Job: Shelton Harbor RI/FS and OMMP Sampling
Station: RIFS - SMAS - SG11
Job No:11008-01.03
Date: May 8, 2024
Field Staff: NM, AW, CW
Sample Method: surface grab
Contractor:
Proposed Coordinates: Lat. 997437.21
Horizontal Datum:
Long. 693656.85

Water Height
DTM Depth Sounder: 5.9
DTM Lead Line:

Tide Measurements
Time:
Height:

Sample Acceptability Criteria:
1) Overlying water is present
2) Water has low turbidity
3) Sampler is not overfilled
4) Surface is flat
5) Desired penetration depth

Notes: Mudline Elevation (lower low water-large tides): calculated after sampling

Grab #	Time	Confirmed Coordinates (datum)		Sample Accept (Y/N)	Recovery Depth (in)	Comments: jaws close, good seal, winnowing, overlying water, surface intact, etc
		WGS 84 (N)	WGS 84 (E)			
1	11:26	997437.21	693656.85	Y	20	Debris in jaw, closed
						AW

Sample Description: surface cover, (density), moisture, color, minor modifier, MAJOR modifier, other constituents, odor, sheen, layering, anoxic layer, debris, plant matter, shells, biota

0-10 cm: brown overlying silt layer with dark grey sandy SILT interbedded layers, soft, moist, abundant woody debris, few shells, no odor, no sheen, no biota

Sample Containers: 3 x 4oz AG, 1 x 8oz AG

Analyses:

ANCHOR QEA

Surface Sediment Field Log

Job: Shelton Harbor RI/FS and OMMP Sampling
Station: SMA5-SG13
Job No:11008-01.03
Date: May 7, 2024
Field Staff: AS, AW
Sample Method: surface grab
Contractor: Gravity
Proposed Coordinates: Lat. -
Horizontal Datum: -
Long. -

Water Height
DTM Depth Sounder: -
DTM Lead Line: -

Tide Measurements
Time: -
Height:

Sample Acceptability Criteria:
1) Overlying water is present
2) Water has low turbidity
3) Sampler is not overfilled
4) Surface is flat
5) Desired penetration depth

Mudline Elevation (lower low water-large tides): calculated after sampling

Notes:

Grab #	Time	Confirmed Coordinates (datum) WGS 84 (N)	Confirmed Coordinates (datum) WGS 84 (E)	Sample Accept (Y/N)	Recovery Depth ~~(in)~~ cm	Comments: jaws close, good seal, winnowing, overlying water, surface intact, etc
0-10 cm	14:00			Y	10	n/a

Sample Description: surface cover, (density), moisture, color, minor modifier, MAJOR modifier, other constituents, odor, sheen, layering, anoxic layer, debris, plant matter, shells, biota

0-10cm: sandy SILT, soft, moist, olive grey to olive brown, no odor, no sheen, trace plant matter (sticks), trace shell fragments

Sample Containers: see SQAPP

Analyses:

ANCHOR QEA

Surface Sediment Field Log

Job: Shelton Harbor RI/FS and OMMP Sampling
Station: SMA5 - SG14
Job No:11008-01.03
Date: May 7, 2024
Field Staff: CW, AW
Sample Method: sample grab (hand)
Contractor: Gravity
Proposed Coordinates: Lat. –
Horizontal Datum: –
Long. –

Water Height
DTM Depth Sounder: –
DTM Lead Line: –

Tide Measurements
Time: –
Height: –

Sample Acceptability Criteria:
1) Overlying water is present
2) Water has low turbidity
3) Sampler is not overfilled
4) Surface is flat
5) Desired penetration depth

Notes: Mudline Elevation (lower low water-large tides): calculated after sampling

Grab #	Time	Confirmed Coordinates (datum)		Sample Accept (Y/N)	Recovery Depth (~~ft~~ cm)	Comments: jaws close, good seal, winnowing, overlying water, surface intact, etc
		WGS 84 (N)	WGS 84 (E)			
0-10 cm	14:00			Y	10	n/a

Sample Description: surface cover, (density), moisture, color, minor modifier, MAJOR modifier, other constituents, odor, sheen, layering, anoxic layer, debris, plant matter, shells, biota

0-10cm: sandy SILT, soft, moist to saturated, olive ~~brown~~ grey, no odor, no sheen, trace plant matter, no shell fragments/biota

Sample Containers: see SQAPP

Analyses:

ANCHOR QEA

Surface Sediment Field Log

Job: Shelton Harbor RI/FS and OMMP Sampling
Station: SMA5-SG15
Job No:11008-01.03
Date: May 7, 2024
Field Staff: HS, AW, CW
Sample Method: surface grab
Contractor:
Proposed Coordinates: Lat.
Horizontal Datum:
Long.

Water Height
DTM Depth Sounder: 11.2
DTM Lead Line: —

Tide Measurements
Time:
Height:

Sample Acceptability Criteria:
1) Overlying water is present
2) Water has low turbidity
3) Sampler is not overfilled
4) Surface is flat
5) Desired penetration depth

Mudline Elevation (lower low water-large tides): calculated after sampling

Notes:

Grab #	Time	Confirmed Coordinates (datum)		Sample Accept (Y/N)	Recovery Depth (in)	Comments: jaws close, good seal, winnowing, overlying water, surface intact, etc
		WGS 84 (N)	WGS 84 (E)			
1	901	19777.06	695710.77	N	—	sticks in jaw
2	904	9477714	695709.25	Y	14	some eg debris in jaw; jaws closed

Sample Description: surface cover, (density), moisture, color, minor modifier, MAJOR modifier, other constituents, odor, sheen, layering, anoxic layer, debris, plant matter, shells, biota

0-10 cm: Brown silt layer overlying dark grey sandy silt, moist, soft, trace shell fragments, abundant woody plant debris, no odor, no sheen, no biota

Sample Containers:

Analyses:

ANCHOR QEA

Surface Sediment Field Log

Job: Shelton Harbor RI/FS and OMMP Sampling
Station: SMA5-SG16
Job No:11008-01.03
Date: May 9, 2024
Field Staff: HS, AW, CW
Sample Method: Power Grab
Contractor: Gravity
Proposed Coordinates: Lat. see FSP
Horizontal Datum: —
Long. see FSP

Water Height
DTM Depth Sounder: 11.7
DTM Lead Line: —

Tide Measurements
Time:
Height:

Sample Acceptability Criteria:
1) Overlying water is present
2) Water has low turbidity
3) Sampler is not overfilled
4) Surface is flat
5) Desired penetration depth

Notes: Mudline Elevation (lower low water-large tides): calculated after sampling

Grab #	Time	Confirmed Coordinates (datum) WGS 84 (N)	Confirmed Coordinates (datum) WGS 84 (E)	Sample Accept (Y/N)	Recovery Depth (in)	Comments: jaws close, good seal, winnowing, overlying water, surface intact, etc
1	826	99770[illegible]	C96233[illegible]	Y	28	Jaws closed overlying water

Sample Description: surface cover, (density), moisture, color, minor modifier, MAJOR modifier, other constituents, odor, sheen, layering, anoxic layer, debris, plant matter, shells, biota

0-10cm: Brown silt overlying dark grey sandy SILT, moist, soft, trace shell fragments, trace fibrous plant material, no odor, no sheen, no biota

Sample Containers:

Analyses:

ANCHOR QEA

Surface Sediment Field Log

Job: Shelton Harbor RI/FS and OMMP Sampling
Station: SMAS-SG17
Job No:11008-01.03
Date: May 9, 2024
Field Staff: HS, CW, AW
Sample Method: Power Grab
Contractor: Gravity
Proposed Coordinates: Lat. –
Horizontal Datum: –
Long. –

Water Height
DTM Depth Sounder: 13.7
DTM Lead Line: –

Tide Measurements
Time: –
Height: –

Sample Acceptability Criteria:
1) Overlying water is present
2) Water has low turbidity
3) Sampler is not overfilled
4) Surface is flat
5) Desired penetration depth

Notes: Mudline Elevation (lower low water-large tides): calculated after sampling

Grab #	Time	Confirmed Coordinates (datum) WGS 84 (N)	Confirmed Coordinates (datum) WGS 84 (E)	Sample Accept (Y/N)	Recovery Depth (in)	Comments: jaws close, good seal, winnowing, overlying water, surface intact, etc
1	806	997916.23	696522	Y	28	Jaws Closed Overlying water

Sample Description: surface cover, (density), moisture, color, minor modifier, MAJOR modifier, other constituents, odor, sheen, layering, anoxic layer, debris, plant matter, shells, biota

0-10 cm: Brown silt layer with dark grey interbedded sandy silt, soft, moist, trace shell fragments, trace fibrous plant matter, no odor, no sheen, worm present

Sample Containers:

Analyses:

ANCHOR QEA

Surface Sediment Field Log

Job: Shelton Harbor RI/FS and OMMP Sampling
Station: SMA5-SG18
Job No:11008-01.03
Date: May 9, 2024
Field Staff: HS, AW, CW
Sample Method: Power Grab
Contractor: Gravity
Proposed Coordinates: Lat. See FSP
Horizontal Datum: —
Long. See FSP

Water Height
DTM Depth Sounder: 195
DTM Lead Line: —

Tide Measurements
Time: 843
Height: —

Sample Acceptability Criteria:
1) Overlying water is present
2) Water has low turbidity
3) Sampler is not overfilled
4) Surface is flat
5) Desired penetration depth

Notes: Mudline Elevation (lower low water-large tides): calculated after sampling

Grab #	Time	Confirmed Coordinates (datum) WGS 84 (N)	Confirmed Coordinates (datum) WGS 84 (E)	Sample Accept (Y/N)	Recovery Depth (in)	Comments: jaws close, good seal, winnowing, overlying water, surface intact, etc
1	843	997946.20	695487.73	N	3cm	Rock in Jaws
2	846	997941.28	695983.76	Y	20	Jaws closed

Sample Description: surface cover, (density), moisture, color, minor modifier, MAJOR modifier, other constituents, odor, sheen, layering, anoxic layer, debris, plant matter, shells, biota

0-10cm: Dark grey sand with gravel, loose, moist, trace shell fragments, worm (biota), gravel pieces <1", no odor, no sheen

Sample Containers:

Analyses:

ANCHOR QEA

Surface Sediment Field Log

Job: Shelton Harbor RI/FS and OMMP Sampling
Station: SMA5 - SG19
Job No:11008-01.03
Date: May 9, 2024
Field Staff: HS, AW, CW
Sample Method: Sample grab (Power)
Contractor: Gravity
Proposed Coordinates: Lat. see FSP
Horizontal Datum: –
Long. see FSP

Water Height
DTM Depth Sounder: 9.7
DTM Lead Line: –

Tide Measurements
Time:
Height:

Sample Acceptability Criteria:
1) Overlying water is present
2) Water has low turbidity
3) Sampler is not overfilled
4) Surface is flat
5) Desired penetration depth

Notes: Mudline Elevation (lower low water-large tides): calculated after sampling

Grab #	Time	Confirmed Coordinates (datum)		Sample Accept (Y/N)	Recovery Depth (in)	Comments: jaws close, good seal, winnowing, overlying water, surface intact, etc
		WGS 84 (N)	WGS 84 (E)			
1	10:01	998269.51	695709.08	Y	18	Jaws closed

Sample Description: surface cover, (density), moisture, color, minor modifier, MAJOR modifier, other constituents, odor, sheen, layering, anoxic layer, debris, plant matter, shells, biota

0-10: Brown silt layer overlying very dark grey silty SAND (fine grained sand), loose, moist, trace fibrous plant material, no shells, no woody debris, no odor, no sheen, no biota

Sample Containers:

Analyses:

ANCHOR QEA

Surface Sediment Field Log

Job: Shelton Harbor RI/FS and OMMP Sampling
Station: SHAS-SG20
Job No:11008-01.03
Date: May 9, 2024
Field Staff: HS, AW, CW
Sample Method: Surface Grab (Power)
Contractor: Gravity
Proposed Coordinates: Lat. see FSP
Horizontal Datum: —
Long. see FSP

Water Height
DTM Depth Sounder: 15
DTM Lead Line: —

Tide Measurements
Time: —
Height: —

Sample Acceptability Criteria:
1) Overlying water is present
2) Water has low turbidity
3) Sampler is not overfilled
4) Surface is flat
5) Desired penetration depth

Notes: Mudline Elevation (lower low water-large tides): calculated after sampling

Grab #	Time	Confirmed Coordinates (datum) WGS 84 (N)	Confirmed Coordinates (datum) WGS 84 (E)	Sample Accept (Y/N)	Recovery Depth (in)	Comments: jaws close, good seal, winnowing, overlying water, surface intact, etc
1	11:14	998773.70	695212.96	Y	20	sticks in jaw, jaw closed, good seal

Sample Description: surface cover, (density), moisture, color, minor modifier, MAJOR modifier, other constituents, odor, sheen, layering, anoxic layer, debris, plant matter, shells, biota

0-10cm: Brown silty layer overlying dark grey silty SAND, ~~ss~~ loose, moist, trace shell fragments, trace woody debris, trace fibrous plant material, shrimp (x1), no odor, no sheen

Sample Containers:

Analyses:

ANCHOR QEA

Surface Sediment Field Log

Job: Shelton Harbor RI/FS and OMMP Sampling
Station: SMA5 - SG21
Job No:11008-01.03
Date: May 9, 2024
Field Staff: HS, CW, AW
Sample Method: Power Grab
Contractor: Gravity
Proposed Coordinates: Lat. see FSP
Horizontal Datum:
Long. see FSP

Water Height
DTM Depth Sounder: 9.2
DTM Lead Line: —

Tide Measurements
Time:
Height:

Sample Acceptability Criteria:
1) Overlying water is present
2) Water has low turbidity
3) Sampler is not overfilled
4) Surface is flat
5) Desired penetration depth

Notes: Mudline Elevation (lower low water-large tides): calculated after sampling

Grab #	Time	Confirmed Coordinates (datum)		Sample Accept (Y/N)	Recovery Depth (in)	Comments: jaws close, good seal, winnowing, overlying water, surface intact, etc
		WGS 84 (N)	WGS 84 (E)			
1	951	99827350	69521431	Y	21	Jaws closed

Sample Description: surface cover, (density), moisture, color, minor modifier, MAJOR modifier, other constituents, odor, sheen, layering, anoxic layer, debris, plant matter, shells, biota

0-10cm: Brown silt layer overlying dark to very dark grey silty SAND (fine sand), soft/loose, moist, trace shell fragments, trace fibrous plant material, trace wood debris, no odor, no sheen, no biota

Sample Containers:

Analyses:

ANCHOR QEA

Surface Sediment Field Log

Job: Shelton Harbor RI/FS and OMMP Sampling
Station: SHAS-SG~~0~~22
Job No:11008-01.03
Date: May 7, 2024
Field Staff: AW, NM
Sample Method: grab (Hewitt) Hand
Contractor:
Proposed Coordinates: Lat. see FSP
Horizontal Datum:
Long. see FSP

Water Height
DTM Depth Sounder: N/A
DTM Lead Line: N/A

Tide Measurements
Time: —
Height: —

Sample Acceptability Criteria:
1) Overlying water is present
2) Water has low turbidity
3) Sampler is not overfilled
4) Surface is flat
5) Desired penetration depth

Notes: Mudline Elevation (lower low water-large tides): calculated after sampling

Grab #	Time	Confirmed Coordinates (datum) WGS 84 (N)	Confirmed Coordinates (datum) WGS 84 (E)	Sample Accept (Y/N)	Recovery Depth (in) cm	Comments: jaws close, good seal, winnowing, overlying water, surface intact, etc
0-10cm	13:~~0~~30			Y	10	n/a

Sample Description: surface cover, (density), moisture, color, minor modifier, MAJOR modifier, other constituents, odor, sheen, layering, anoxic layer, debris, plant matter, shells, biota

0-10cm: sandy SILT, olive brown to olive grey with black interbedded layers, moist, no odor, no sheen, trace shell fragments, trace plant matter

Sample Containers: See SQAPP

Analyses:

ANCHOR QEA

Surface Sediment Field Log

Job: Shelton Harbor RI/FS and OMMP Sampling
Station: SMA5-SG23
Job No:11008-01.03
Date: May 7, 2024
Field Staff: AW, NM
Sample Method: grab (hand)
Contractor: —
Proposed Coordinates: Lat. see FSP
Horizontal Datum: —
Long. see FSP

Water Height
DTM Depth Sounder: —
DTM Lead Line: —

Tide Measurements
Time: —
Height: —

Sample Acceptability Criteria:
1) Overlying water is present
2) Water has low turbidity
3) Sampler is not overfilled
4) Surface is flat
5) Desired penetration depth

Notes: Mudline Elevation (lower low water-large tides): calculated after sampling

Grab #	Time	Confirmed Coordinates (datum)		Sample Accept (Y/N)	Recovery Depth (in) (cm)	Comments: jaws close, good seal, winnowing, overlying water, surface intact, etc
		WGS 84 (N)	WGS 84 (E)			
0-10 cm	13:25			Y	10 cm	n/a

Sample Description: surface cover, (density), moisture, color, minor modifier, MAJOR modifier, other constituents, odor, sheen, layering, anoxic layer, debris, plant matter, shells, biota

0-10cm: sandy SILT, soft, moist, olive brown with interbedded black layer, no odor, no sheen, trace plant matter no shell fragments

Sample Containers: see SQAPP

Analyses:

ANCHOR QEA

Surface Sediment Field Log

Job: Shelton Harbor RI/FS and OMMP Sampling
Station: SMA5 - SG24
Job No:11008-01.03
Date: May 9, 2024
Field Staff: HS, AW, CW
Sample Method: surface grab (Power)
Contractor: Gravity
Proposed Coordinates: Lat. —
Horizontal Datum: —
Long. —

Water Height
DTM Depth Sounder: 7.5
DTM Lead Line: —

Tide Measurements
Time: —
Height: —

Sample Acceptability Criteria:
1) Overlying water is present
2) Water has low turbidity
3) Sampler is not overfilled
4) Surface is flat
5) Desired penetration depth

Notes: Mudline Elevation (lower low water-large tides): calculated after sampling

Grab #	Time	Confirmed Coordinates (datum) WGS 84 (N)	Confirmed Coordinates (datum) WGS 84 (E)	Sample Accept (Y/N)	Recovery Depth (in)	Comments: jaws close, good seal, winnowing, overlying water, surface intact, etc
1	918	997780.00	644714.93	Y	21	Garbage in jaws, jaws closed

Sample Description: surface cover, (density), moisture, color, minor modifier, MAJOR modifier, other constituents, odor, sheen, layering, anoxic layer, debris, plant matter, shells, biota

0-10cm: Brown silt layer with underlying dark grey sandy silt, moist, soft, trace shell fragments, trace fibrous plant matter, no odor, no sheen, no biota

Sample Containers:

Analyses:

ANCHOR QEA

Surface Sediment Field Log

Job: Shelton Harbor RI/FS and OMMP Sampling
Station: SMA5-SG25
Job No:11008-01.03
Date: May 9, 2024
Field Staff: HS, CW, AW
Sample Method: Power Grab
Contractor: Gravity
Proposed Coordinates: Lat. —
Horizontal Datum: —
Long. —

Water Height
DTM Depth Sounder: 10.2
DTM Lead Line: —

Tide Measurements
Time: 937
Height: ____

Sample Acceptability Criteria:
1) Overlying water is present
2) Water has low turbidity
3) Sampler is not overfilled
4) Surface is flat
5) Desired penetration depth

Notes: Mudline Elevation (lower low water-large tides): calculated after sampling

Grab #	Time	Confirmed Coordinates (datum)		Sample Accept (Y/N)	Recovery Depth (in)	Comments: jaws close, good seal, winnowing, overlying water, surface intact, etc
		WGS 84 (N)	WGS 84 (E)			
1	937	998279.11	694711.43	Y	21	Jaws closed + overlying water

Sample Description: surface cover, (density), moisture, color, minor modifier, MAJOR modifier, other constituents, odor, sheen, layering, anoxic layer, debris, plant matter, shells, biota

0-10 cm: Brown silty layer ~~mud~~ overlying dark grey sandy SILT, trace shell fragments and whole shells, trace woody debris, trace fibrous plant material, 2 crabs (1 > 3", 1 < 3"), no odor no sheen

Sample Containers:

Analyses:

ANCHOR QEA

Surface Sediment Field Log

Job: Shelton Harbor RI/FS and OMMP Sampling
Station: RIFS-SHAS-SG26
Job No:11008-01.03
Date: May 9, 2024
Field Staff: HS, AW, CW
Sample Method: Surface Grab (Power)
Contractor: Gravity
Proposed Coordinates: Lat. —
Horizontal Datum: —
Long. —

Water Height
DTM Depth Sounder: 15.5
DTM Lead Line: —

Tide Measurements
Time:
Height:

Sample Acceptability Criteria:
1) Overlying water is present
2) Water has low turbidity
3) Sampler is not overfilled
4) Surface is flat
5) Desired penetration depth

Notes: Mudline Elevation (lower low water-large tides): calculated after sampling

Grab #	Time	Confirmed Coordinates (datum) WGS 84 (N)	Confirmed Coordinates (datum) WGS 84 (E)	Sample Accept (Y/N)	Recovery Depth (in)	Comments: jaws close, good seal, winnowing, overlying water, surface intact, etc
1	10:31	998775.17	644708.94	Y	28	woody debris in jaw

Sample Description: surface cover, (density), moisture, color, minor modifier, MAJOR modifier, other constituents, odor, sheen, layering, anoxic layer, debris, plant matter, shells, biota

0-10cm: Brown silt overlying dark grey silty SAND, moist, loose, trace shells, trace fibrous plant material, trace woody debris no odor, no sheen

Sample Containers: MS/MSD for DIF and TOC/TS

Analyses:

ANCHOR QEA

Surface Sediment Field Log

Job: Shelton Harbor RI/FS and OMMP Sampling
Station: SHAS-SG27
Job No:11008-01.03
Date: May 9, 2024
Field Staff: HS, AW, CW
Sample Method: Surface Grab (Power)
Contractor: Gravity
Proposed Coordinates: Lat. -
Horizontal Datum:
Long. -

Water Height
DTM Depth Sounder: 19.5
DTM Lead Line: -

Tide Measurements
Time: -
Height: -

Sample Acceptability Criteria:
1) Overlying water is present
2) Water has low turbidity
3) Sampler is not overfilled
4) Surface is flat
5) Desired penetration depth

Notes: Mudline Elevation (lower low water-large tides): calculated after sampling

Grab #	Time	Confirmed Coordinates (datum)		Sample Accept (Y/N)	Recovery Depth (in)	Comments: jaws close, good seal, winnowing, overlying water, surface intact, etc
		WGS 84 (N)	WGS 84 (E)			
1	11:02	999284.65	693715.84	Y	17	Jaws close

Sample Description: surface cover, (density), moisture, color, minor modifier, MAJOR modifier, other constituents, odor, sheen, layering, anoxic layer, debris, plant matter, shells, biota

0-10cm: Brown silt layer overlying dark grey silty SAND, soft/loose, moist, trace shell fragments, trace fibrous plant material, trace woody debris, no odor, no sheen, no biota

Sample Containers:

Analyses:

ANCHOR QEA

Surface Sediment Field Log

Job: Shelton Harbor RI/FS and OMMP Sampling
Station: RIFS-SMAS-SG28
Job No:11008-01.03
Date: May 8, 2024
Field Staff: NM, AW, CW
Sample Method: Surface Grab (Power)
Contractor: Gravity
Proposed Coordinates: Lat. 997775.42
Horizontal Datum:
Long. 694211.54

Water Height
DTM Depth Sounder: 3.2
DTM Lead Line:

Tide Measurements
Time:
Height:

Sample Acceptability Criteria:
1) Overlying water is present
2) Water has low turbidity
3) Sampler is not overfilled
4) Surface is flat
5) Desired penetration depth

Mudline Elevation (lower low water-large tides): calculated after sampling

Notes:

Grab #	Time	Confirmed Coordinates (datum) WGS 84 (N)	Confirmed Coordinates (datum) WGS 84 (E)	Sample Accept (Y/N)	Recovery Depth (in)	Comments: jaws close, good seal, winnowing, overlying water, surface intact, etc
1	12:23	997775.42	694211.54	Y	29	Jaws closed

Sample Description: surface cover, (density), moisture, color, minor modifier, MAJOR modifier, other constituents, odor, sheen, layering, anoxic layer, debris, plant matter, shells, biota

0-10cm: brown silt layer overlying interbedded dark grey sandy silt, soft, moist, trace woody debris, trace shell fragments, no odor, no sheen, no biota

Sample Containers: 3x4oz AG, 1x8oz CG

Analyses:

ANCHOR QEA

Surface Sediment Field Log

Job: Shelton Harbor RI/FS and OMMP Sampling
Station: RIFS-SHA5-SG29
Job No:11008-01.03
Date: May 8, 2024
Field Staff: NM, AW, CW
Sample Method: surface grab (Power)
Contractor: Gravity
Proposed Coordinates: Lat. 998264.43
Horizontal Datum:
Long. 694213.87

Water Height
DTM Depth Sounder: 6.7
DTM Lead Line: —

Tide Measurements
Time: —
Height: —

Sample Acceptability Criteria:
1) Overlying water is present
2) Water has low turbidity
3) Sampler is not overfilled
4) Surface is flat
5) Desired penetration depth

Notes: Mudline Elevation (lower low water-large tides): calculated after sampling

Grab #	Time	Confirmed Coordinates (datum)		Sample Accept (Y/N)	Recovery Depth (in)	Comments: jaws close, good seal, winnowing, overlying water, surface intact, etc
		WGS 84 (N)	WGS 84 (E)			
1	12:08	998264.43	694213.87	Y	17	woody debris in jaw, jaws closed

Sample Description: surface cover, (density), moisture, color, minor modifier, MAJOR modifier, other constituents, odor, sheen, layering, anoxic layer, debris, plant matter, shells, biota

0-10 cm. Brown silty layer overlying dark grey sandy silt layer, soft moist, moderate woody debris, trace shell fragments, no plant matter, no odor, no sheen, 1 live shrimp

Sample Containers: 3 x 4oz AG, 1 x 8oz CG

Analyses:

ANCHOR QEA

Surface Sediment Field Log

Job: Shelton Harbor RI/FS and OMMP Sampling
Station: RIFS - SMA5 - SG30
Job No: 11008-01.03
Date: May 8, 2024
Field Staff: NM, AW, CW
Sample Method: ~~Ponar~~ surface grab (Ponar)
Contractor: Gravity
Proposed Coordinates: Lat. 498769.27
Horizontal Datum: Long. 694209.76

Water Height
DTM Depth Sounder: 10.5
DTM Lead Line: —

Tide Measurements
Time: —
Height: —

Sample Acceptability Criteria:
1) Overlying water is present
2) Water has low turbidity
3) Sampler is not overfilled
4) Surface is flat
5) Desired penetration depth

Notes: Mudline Elevation (lower low water-large tides): calculated after sampling

Grab #	Time	Confirmed Coordinates (datum) WGS 84 (N)	Confirmed Coordinates (datum) WGS 84 (E)	Sample Accept (Y/N)	Recovery Depth (in)	Comments: jaws close, good seal, winnowing, overlying water, surface intact, etc
~~#~~ 1	12:34	498769.27	694209.76	Y	26	Jaws closed

Sample Description: surface cover, (density), moisture, color, minor modifier, MAJOR modifier, other constituents, odor, sheen, layering, anoxic layer, debris, plant matter, shells, biota

0-10 cm. brown silt layer, ~~color~~ overlying dark grey sandy silt, soft, moist, ~~moderate~~ trace woody debris, no biota, no odor no sheen

Sample Containers: 3 x 4oz AG, 1 x 8oz CG

Analyses:

ANCHOR QEA

Surface Sediment Field Log

Job: Shelton Harbor RI/FS and OMMP Sampling
Station: RIFS-SMAS-SG31
Job No: 11008-01.03
Date: May 8, 2024
Field Staff: NM, NW, CW
Sample Method: surface grab (Power)
Contractor: Crown Jr
Proposed Coordinates: Lat. 999281.64
Horizontal Datum:
Long. 694210.91

Water Height
DTM Depth Sounder: 13.8
DTM Lead Line:

Tide Measurements
Time:
Height:

Sample Acceptability Criteria:
1) Overlying water is present
2) Water has low turbidity
3) Sampler is not overfilled
4) Surface is flat
5) Desired penetration depth

Mudline Elevation (lower low water-large tides): calculated after sampling

Notes:

Grab #	Time	Confirmed Coordinates (datum) WGS 84 (N)	Confirmed Coordinates (datum) WGS 84 (E)	Sample Accept (Y/N)	Recovery Depth (in)	Comments: jaws close, good seal, winnowing, overlying water, surface intact, etc
1	13:27	999281.64	694210.91	Y	20	Jaws closed

Sample Description: surface cover, (density), moisture, color, minor modifier, MAJOR modifier, other constituents, odor, sheen, layering, anoxic layer, debris, plant matter, shells, biota

0-10cm: Brown silt layer overlying dark grey sandy silt, soft, moist, trace woody debris, trace shell fragments, no odor, no sheen, no biota

Sample Containers: 3x 4oz AG 1x 8oz CG

Analyses:

ANCHOR QEA

Surface Sediment Field Log

Job: Shelton Harbor RI/FS and OMMP Sampling
Station: SHA5 - SG32
Job No:11008-01.03
Date: May 9, 2024
Field Staff: HS, AW, CW
Sample Method: Surface Grab (Power)
Contractor: Gravity
Proposed Coordinates: Lat. –
Horizontal Datum: –
Long. –

Water Height
DTM Depth Sounder: 29.3
DTM Lead Line: —

Tide Measurements
Time: _____
Height: _____

Sample Acceptability Criteria:
1) Overlying water is present
2) Water has low turbidity
3) Sampler is not overfilled
4) Surface is flat
5) Desired penetration depth

Notes: Mudline Elevation (lower low water-large tides): calculated after sampling

Grab #	Time	Confirmed Coordinates (datum)		Sample Accept (Y/N)	Recovery Depth (in)	Comments: jaws close, good seal, winnowing, overlying water, surface intact, etc
		WGS 84 (N)	WGS 84 (E)			
1	10:45	999777.86	694215.89	Y	14	Jaws closed

Sample Description: surface cover, (density), moisture, color, minor modifier, MAJOR modifier, other constituents, odor, sheen, layering, anoxic layer, debris, plant matter, shells, biota

0-10cm: Brown sandy silt, abundant shells and shell fragments overlying dark grey silty sand, moist, soft, moderate marine plant debris (seaweed), trace fibrous plant material, trace wood debris, 2 crabs (1 >3", 1 <1"), no odor, no sheen

Sample Containers:

Analyses:

ANCHOR QEA

Surface Sediment Field Log

Job: Shelton Harbor RI/FS and OMMP Sampling
Station: RI-FS-SMA3-SG33
Job No:11008-01.03
Date: May 8, 2024
Field Staff: NM, AW, CW
Sample Method: surface grab (Power)
Contractor: Gravity
Proposed Coordinates: Lat. 997777.86
Horizontal Datum: —
Long. 693716.21

Water Height
DTM Depth Sounder: 4.4
DTM Lead Line: —

Tide Measurements
Time: —
Height: —

Sample Acceptability Criteria:
1) Overlying water is present
2) Water has low turbidity
3) Sampler is not overfilled
4) Surface is flat
5) Desired penetration depth

Notes: Mudline Elevation (lower low water-large tides): calculated after sampling

Grab #	Time	Confirmed Coordinates (datum) WGS 84 (N)	Confirmed Coordinates (datum) WGS 84 (E)	Sample Accept (Y/N)	Recovery Depth (in)	Comments: jaws close, good seal, winnowing, overlying water, surface intact, etc
1	11:44	997783.55	693714.89	N	n/a	wood debris in jaws, washed out
2	11:45	997777.86	693716.21	Y	20	wood + trash in jaw, ~~accepted~~ jaws closed

Sample Description: surface cover, (density), moisture, color, minor modifier, MAJOR modifier, other constituents, odor, sheen, layering, anoxic layer, debris, plant matter, shells, biota

0-10cm. overlying brown silty layer, dark grey sandy silt interbedded below, moist, soft, no odor, no sheen, abundant woody debris, no biota

Sample Containers: 3x 4oz AG 1x 8oz AG

Analyses:

ANCHOR QEA

Surface Sediment Field Log

Job: Shelton Harbor RI/FS and OMMP Sampling
Station: RIFS-SMA5-SG34
Job No:11008-01.03
Date: May 8, 2024
Field Staff: NM, AW, CW
Sample Method: Power Grab
Contractor: Gravity
Proposed Coordinates: Lat. –
Horizontal Datum: –
Long. –

Water Height
DTM Depth Sounder: 4.6
DTM Lead Line: –

Tide Measurements
Time: –
Height: –

Sample Acceptability Criteria:
1) Overlying water is present
2) Water has low turbidity
3) Sampler is not overfilled
4) Surface is flat
5) Desired penetration depth

Mudline Elevation (lower low water-large tides): calculated after sampling

Notes:

Grab #	Time	Confirmed Coordinates (datum) WGS 84 (N)	Confirmed Coordinates (datum) WGS 84 (E)	Sample Accept (Y/N)	Recovery Depth (in)	Comments: jaws close, good seal, winnowing, overlying water, surface intact, etc
11:54	1	998276.89	693714.53	Y	27	woody debris in jaw, jaw closed overlying water

Sample Description: surface cover, (density), moisture, color, minor modifier, MAJOR modifier, other constituents, odor, sheen, layering, anoxic layer, debris, plant matter, shells, biota

0-10cm: overlying brown silt layer with dark grey sandy silt interbedded, soft, moist, ~~few~~ shells, moderate woody debris, abundant
no biota, no odor
no sheen

Sample Containers: 3 x 4oz AG, 1 x 8oz AG

Analyses:

ANCHOR QEA

Surface Sediment Field Log

Job: Shelton Harbor RI/FS and OMMP Sampling
Station: RIFS - SHAS - SG35
Job No:11008-01.03
Date: May 8, 2024
Field Staff: NM, AW, CW
Sample Method: surface grab (Power)
Contractor: Gravity
Proposed Coordinates: Lat. –
Horizontal Datum: –
Long. –

Water Height
DTM Depth Sounder: _____
DTM Lead Line: _____

Tide Measurements
Time: _____
Height: _____

Sample Acceptability Criteria:
1) Overlying water is present
2) Water has low turbidity
3) Sampler is not overfilled
4) Surface is flat
5) Desired penetration depth

Notes: Mudline Elevation (lower low water-large tides): calculated after sampling

Grab #	Time	Confirmed Coordinates (datum) WGS 84 (N)	Confirmed Coordinates (datum) WGS 84 (E)	Sample Accept (Y/N)	Recovery Depth (in)	Comments: jaws close, good seal, winnowing, overlying water, surface intact, etc
1	13:45			Y	10	n/a

Sample Description: surface cover, (density), moisture, color, minor modifier, MAJOR modifier, other constituents, odor, sheen, layering, anoxic layer, debris, plant matter, shells, biota

0-10cm: Brown silt layer overlying dark brown sandy silt, moist, soft, no odor, no sheen, abundant whole shells with biota (mussels), moderate wood fragments/debris, trace organic plant material

Sample Containers: 5 x 4 oz AG

Analyses:

ANCHOR QEA

Surface Sediment Field Log

Job: Shelton Harbor RI/FS and OMMP Sampling
Station: RIFS - SHA5 - SG40
Job No:11008-01.03
Date: May 1, 2024
Field Staff: HS, AW, CW
Sample Method: Surface Grab (Power)
Contractor: Gravity
Proposed Coordinates: Lat.
Horizontal Datum:
Long.

Water Height
DTM Depth Sounder: 4.5
DTM Lead Line: —

Tide Measurements
Time: —
Height: —

Sample Acceptability Criteria:
1) Overlying water is present
2) Water has low turbidity
3) Sampler is not overfilled
4) Surface is flat
5) Desired penetration depth

Notes: Mudline Elevation (lower low water-large tides): calculated after sampling

Grab #	Time	Confirmed Coordinates (datum)		Sample Accept (Y/N)	Recovery Depth (in)	Comments: jaws close, good seal, winnowing, overlying water, surface intact, etc
		WGS 84 (N)	WGS 84 (E)			
1	10:16	997414.66	694713.73	Y	29	woody debris in jaws. jaws closed

Sample Description: surface cover, (density), moisture, color, minor modifier, MAJOR modifier, other constituents, odor, sheen, layering, anoxic layer, debris, plant matter, shells, biota

0-10cm: Brown silt layer overlying dark grey sandy silt, soft, moist, trace shell fragments, trace fibrous plant material, no woody debris, no odor, no sheen

Sample Containers:

Analyses:

Appendix B
Data Validation Reports

LABORATORY DATA CONSULTANTS, INC.
2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

Anchor QEA, LLC
1201 3rd Ave., Suite 2600
Seattle, WA 98101
ATTN: Ms. Cindy Fields
cfields@anchorqea.com

July 5, 2024

SUBJECT: Shelton Harbors - Data Validation

Dear Ms. Fields,

Enclosed are the final validation reports for the fraction listed below. This SDG was received on June 18, 2024. Attachment 1 is a summary of the samples that were reviewed for each analysis.

LDC Project #59215:

SDG #	**Fraction**
24E0326/A24E0293	Particle Size

The data validation was performed under Stage 2B guidelines. The analysis was validated using the following documents, as applicable to each method:

- Sampling and Quality Assurance Project Plan Addendum No. 3 for Shelton Harbor Sediment Cleanup Unit, Oakland Bay and Shelton Harbor Sediment Cleanup Site, Shelton, Washington (May 2024)
- USEPA National Functional Guidelines (NFG) for Inorganic Superfund Methods Data Review (November 2020)

Please feel free to contact us if you have any questions.

Sincerely,

Stella Cuenco
scuenco@lab-data.com
Project Manager/Senior Chemist

17 pages-ADV (Dioxins Stage 4) Attachment 1

2B/4 EDD LDC #59215 (Anchor Environmental-Seattle WA / Simpson Timber Company / Shelton Harbor Sediment Cleanup)

LDC	SDG#	DATE REC'D	(3) DATE DUE	Part. Size (PSEP)																															
Matrix: Water/Sediment				W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S
A	24E0326/ A24E0293	06/18/24	07/10/24	0	2																														
Total	TR/SC			0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2

Shaded cells indicate Stage 4 validation (all other cells are Stage 2B validation). These sample counts do not include MS, MSD, or DUP's.

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Shelton Harbor

LDC Report Date: June 26, 2024

Parameters: Particle Size

Validation Level: Stage 2B

Laboratory: Analytical Resources, Inc., Tukwila, WA/ AMTEST Laboratories, Kirkland, WA

Sample Delivery Group (SDG): 24E0326/A24E0293

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
OMMP-SMA3-SG-DCOMP-240509	24E0326-05/A24E0293-01	Sediment	05/09/24
OMMP-SMA1-SG-DCOMP-240508	24E0326-12/A24E0293-02	Sediment	05/08/24

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Sampling and Quality Assurance Project Plan Addendum No. 3 for Shelton Harbor Sediment Cleanup Unit, Oakland Bay and Shelton Harbor Sediment Cleanup Site, Shelton, Washington (May 2024) and a modified outline of the USEPA National Functional Guidelines (NFG) for Inorganic Superfund Methods Data Review (November 2020). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Particle Size by Puget Sound Estuary Protocol (PSEP)

All sample results were subjected to Stage 2B data validation, which comprises an evaluation of quality control (QC) summary results.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The reported result was an estimated quantity value.

U (Non-detected): The analyte was analyzed for, but was not detected above the level of the adjusted detection limit or quantitation limit, as appropriate.

UJ (Non-detected): The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.

NJ (Tentatively identified): The analyte has been "tentatively identified" or "presumptively identified" as present, and the associated numerical value was the estimated concentration in the sample.

R (Rejected): The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the sample.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Qualification Codes

1 Holding Time
2 Sample Preservation (Cooler Temp)
3 Sample Custody
4 Missing Deliverables
5 Calibration
6 Field Blanks
7 Laboratory Blanks
8 Matrix Spike (%R)
9 Matrix Spike Duplicate (RPD or Duplicate Sample Analysis)
10 Laboratory Control Sample
11 ICP Interference Check
12 RPD Between Two Columns
13 Surrogates
14 Field Duplicates
15 Peak Resolution
16 ICP Serial Dilution
17 Chemical Recoveries
18 Trip Blanks
19 Internal Standards/Labeled Compounds (High Resolution)
20 Linear Range Exceeded
21 Potential False Positives
22 Do Not Use, Other Result More Technically Sound
23 Estimated Maximum Possible Concentration
24 Other

I. Sample Receipt and Technical Holding Times

All samples were received in good condition.

All technical holding time requirements were met.

II. Initial Calibration

Initial calibration was not required by the method.

III. Continuing Calibration

Continuing calibration was not required by the method.

IV. Laboratory Blanks

Laboratory blanks were not required by the method.

V. Field Blanks

No field blanks were identified in this SDG.

VI. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) analyses were not required by the method.

VII. Laboratory Duplicates

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

VIII. Laboratory Control Samples

Laboratory control samples (LCS) were not required by the method.

IX. Field Duplicates

No field duplicates were identified in this SDG.

X. Target Analyte Quantitation

Raw data were not reviewed for Stage 2B validation.

XI. Overall Assessment of Data

The analysis was conducted within all specifications of the methods. No results were rejected in this SDG.

Shelton Harbor
Particle Size - Data Qualification Summary - SDG 24E0326/A24E0293

No Sample Data Qualified in this SDG

Shelton Harbor
Particle Size - Laboratory Blank Data Qualification Summary - SDG 24E0326/A24E0293

No Sample Data Qualified in this SDG

Shelton Harbor
Particle Size - Field Blank Data Qualification Summary - SDG 24E0326/A24E0293

No Sample Data Qualified in this SDG

LDC #: 59215A6 **VALIDATION COMPLETENESS WORKSHEET** Date: 6/19/24
SDG #: 24E0326/A24E0293 Stage 2B Page: 1 of 1
Laboratory: Analytical Resources, Inc., Tukwila, WAA Reviewer: JC
Sub-Laboratory: AMTEST Laboratories, Kirkland, WA 2nd Reviewer: JC

METHOD: (Analyte) Particle Size (PESP)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A / A	
II	Initial calibration	N	
III.	Calibration verification	N	
IV	Laboratory Blanks	N	Not Required by Method
V	Field blanks	N	
VI.	Matrix Spike/Matrix Spike Duplicates	N	Not Required by Method
VII.	Duplicate sample analysis	N	
VIII.	Laboratory control samples	N	Not Required by Method
IX.	Field duplicates	N	
X.	Target Analyte Quantitation	N	
XI	Overall assessment of data	A	

Note: A = Acceptable ND = No compounds detected D = Duplicate SB=Source blank
N = Not provided/applicable R = Rinsate TB = Trip blank OTHER:
SW = See worksheet FB = Field blank EB = Equipment blank

	Client ID	Sub LAB	Lab ID	Matrix	Date
1	OMMP-SMA3-SG-DCOMP-240509	A24E0293-01	24E0326-05	Sediment	05/09/24
2	OMMP-SMA1-SG-DCOMP-240508	V -02	24E0326-12	Sediment	05/08/24
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

Notes:

LABORATORY DATA CONSULTANTS, INC.
2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

Anchor QEA, LLC
1201 3rd Ave., Suite 2600
Seattle, WA 98101
ATTN: Ms. Cindy Fields
cfields@anchorqea.com

July 18, 2024

SUBJECT: Shelton Harbos - Data Validation

Dear Ms. Fields,

Enclosed are the final validation reports for the fraction listed below. This SDG was received on June 19, 2024. Attachment 1 is a summary of the samples that were reviewed for each analysis.

LDC Project #59227:

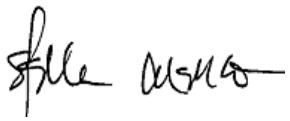
SDG #	Fraction
24E0346 JD88587	Tributyltins, Copper, Wet Chemistry

The data validation was performed under Stage 2B guidelines. The analysis was validated using the following documents, as applicable to each method:

- Sampling and Quality Assurance Project Plan Addendum No. 3 for Shelton Harbor Sediment Cleanup Unit, Oakland Bay and Shelton Harbor Sediment Cleanup Site, Shelton, Washington (May 2024)
- USEPA National Functional Guidelines (NFG) for Organic Superfund Methods Data Review (November 2020)
- USEPA National Functional Guidelines (NFG) for Inorganic Superfund Methods Data Review (January 2017)
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; update IV, February 2007; update V, July 2014; update VI, July 2018

Please feel free to contact us if you have any questions.

Sincerely,



Stella Cuenco
scuenco@lab-data.com
Project Manager/Senior Chemist

198 pages-ADV (Dioxins Stage 4) Attachment 1

2B/4 EDD LDC #59227 (Anchor Environmental-Seattle WA / Simpson Timber Company / Shelton Harbor Sediment Cleanup)

LDC	SDG#	DATE REC'D	(3) DATE DUE	Cu (6020B)		TBT (8270E -SIM)		% Solids (2540G)		TOC (9060A)																															
Matrix: Water/Sediment				W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S
A	24E0346	06/19/24	07/11/24	-	-	0	1	-	-	-	-																										
B	JD88587	06/19/24	07/11/24	0	1	-	-	0	43	0	43																										
Total	TR/SC			0	1	0	1	0	43	0	43	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	88

Shaded cells indicate Stage 4 validation (all other cells are Stage 2B validation). These sample counts do not include MS, MSD, or DUP's.

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Shelton Harbor

LDC Report Date: June 28, 2024

Parameters: Tributyltins

Validation Level: Stage 2B

Laboratory: Analytical Resources, Inc., Tukwila, WA

Sample Delivery Group (SDG): 24E0346

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
OMMP-SMA2-SG-COMP-02-240506	24E0346-11	Sediment	05/06/24
OMMP-SMA2-SG-COMP-02-240506MS	24E0346-11MS	Sediment	05/06/24
OMMP-SMA2-SG-COMP-02-240506MSD	24E0346-11MSD	Sediment	05/06/24

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Sampling and Quality Assurance Project Plan Addendum No. 3 for Shelton Harbor Sediment Cleanup Unit, Oakland Bay and Shelton Harbor Sediment Cleanup Site, Shelton, Washington (May 2024) and a modified outline of the USEPA National Functional Guidelines (NFG) for Organic Superfund Methods Data Review (November 2020). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Tributyltins by Environmental Protection Agency (EPA) SW 846 Method 8270E in Selected Ion Monitoring (SIM) mode

All sample results were subjected to Stage 2B data validation, which comprises an evaluation of quality control (QC) summary results.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The reported result was an estimated quantity value.

U (Non-detected): The analyte was analyzed for, but was not detected above the level of the adjusted detection limit or quantitation limit, as appropriate.

UJ (Non-detected): The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.

NJ (Tentatively identified): The analyte has been "tentatively identified" or "presumptively identified" as present, and the associated numerical value was the estimated concentration in the sample.

R (Rejected): The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the sample.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Qualification Codes

1 Holding Time
2 Sample Preservation (Cooler Temp)
3 Sample Custody
4 Missing Deliverables
5 Calibration
6 Field Blanks
7 Laboratory Blanks
8 Matrix Spike (%R)
9 Matrix Spike Duplicate (RPD or Duplicate Sample Analysis)
10 Laboratory Control Sample
11 ICP Interference Check
12 RPD Between Two Columns
13 Surrogates
14 Field Duplicates
15 Peak Resolution
16 ICP Serial Dilution
17 Chemical Recoveries
18 Trip Blanks
19 Internal Standards/Labeled Compounds (High Resolution)
20 Linear Range Exceeded
21 Potential False Positives
22 Do Not Use, Other Result More Technically Sound
23 Estimated Maximum Possible Concentration
24 Other

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. GC/MS Instrument Performance Check

A decafluorotriphenylphosphine (DFTPP) tune was performed at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 20.0%.

Average relative response factors (RRF) were within validation criteria.

The laboratory indicated that only tributyltin ion was analyzed in the initial calibration verification. The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 30.0%.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

The percent differences (%D) were less than or equal to 20.0%.

All of the continuing calibration relative response factors (RRF) were within validation criteria.

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

VI. Field Blanks

No field blanks were identified in this SDG.

VII. Surrogates

Surrogates were added to all samples as required by the method. All surrogate recoveries (%R) were within QC limits with the following exceptions:

Sample	Surrogate	%R (30-160)	Affected Analyte	Flag	A or P
OMMP-SMA2-SG-COMP-02-240506	Tripropyltin	29.4	Tributyltin ion	J (all detects) UJ (all non-detects)	A

VIII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

IX. Laboratory Control Samples

Laboratory control samples (LCS) were analyzed as required by the method. Percent recoveries (%R) were within QC limits.

X. Field Duplicates

No field duplicates were identified in this SDG.

XI. Internal Standards

All internal standard areas and retention times were within QC limits.

XII. Target Analyte Quantitation

Raw data were not reviewed for Stage 2B validation.

XIII. Target Analyte Identification

Raw data were not reviewed for Stage 2B validation.

XV. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

Data qualified due to surrogate %R are summarized and presented in the Data Qualification Summary.

Shelton Harbor
Tributyltins - Data Qualification Summary - SDG 24E0346

Sample	Analyte	Flag	A or P	Reason (Code)
OMMP-SMA2-SG-COMP-02-240506	Tributyltin ion	J (all detects) UJ (all non-detects)	A	Surrogates (%R) (13)

Shelton Harbor
Tributyltins - Laboratory Blank Data Qualification Summary - SDG 24E0346

No Sample Data Qualified in this SDG

Shelton Harbor
Tributyltins - Field Blank Data Qualification Summary - SDG 24E0346

No Sample Data Qualified in this SDG

LDC #: 59227A19 **VALIDATION COMPLETENESS WORKSHEET** Date: 06/25/24
SDG #: 24E0346 Stage 2B Page: 1 of 1
Laboratory: Analytical Resources, Inc., Tukwila, WA Reviewer: SW
2nd Reviewer:

METHOD: GC/MS Tributyltins (EPA SW-846 Method 8270E-SIM)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A/A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A/SW	RSD ≤ 20% ICV ≤ 30%
IV.	Continuing calibration	A	CCV ≤ 20%
V.	Laboratory Blanks	A	
VI.	Field blanks	N	
VII.	Surrogate spikes	SW	
VIII.	Matrix spike/Matrix spike duplicates	A	
IX.	Laboratory control samples	A	LCS
X.	Field duplicates	N	
XI.	Internal standards	A	
XII.	Target analyte quantitation	N	
XIII.	Target analyte identification	N	
XIV	Overall assessment of data	A	

Note: A = Acceptable ND = No compounds detected D = Duplicate SB=Source blank
N = Not provided/applicable R = Rinsate TB = Trip blank OTHER:
SW = See worksheet FB = Field blank EB = Equipment blank

	Client ID	Lab ID	Matrix	Date
1	OMMP-SMA2-SG-COMP-02-240506	24E0346-11	Sediment	05/06/24
2	OMMP-SMA2-SG-COMP-02-240506MS	24E0346-11MS	Sediment	05/06/24
3	OMMP-SMA2-SG-COMP-02-240506MSD	24E0346-11MSD	Sediment	05/06/24
4				
5				
6				
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Notes:

	BME0516-BLK1							

LDC #: 59227A19

VALIDATION FINDINGS WORKSHEET
Initial Calibration Verification

Reviewer: JVG

METHOD: GC/MS SVOA (EPA SW 846 Method 8270-SIM)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y (N) N/A — Was an initial calibration verification standard analyzed after each ICAL for each instrument?

Y N (N/A) — Were all %D within the validation criteria of ≤20/30% %D ?

#	Date	Standard ID	Compound	Finding %D (Limit: ≤20.0%/30%)	Associated Samples	Qualifications
		Only Tributytin Ion was analyzed in the ICV				Text

LDC #: 59227 A19

VALIDATION FINDINGS WORKSHEET
Surrogate Recovery

Reviewer: JVG

METHOD: GC/MS ~~SVOA~~ Butyltins (EPA SW 846 Method 8270E-SIM)

Please see qualification below for all questions answered "N". Not applicable questions are identified as "N/A".

Y (N) N/A Were percent recoveries (%R) for surrogates within QC limits?

(Y) N N/A If 2 or more base neutral or acid surrogates were outside QC limits, was a reanalysis performed to confirm %R?

(Y) N N/A If any %R was less than 10 percent, was a reanalysis performed to confirm %R?

#	Sample ID	Surrogate	%R (Limits)	(13) Qualifications
	1 (ND + Det)	Tripropyltin	29.4 (30-160)	J/UJ/A
			( )	
			( )	
			( )	
			( )	
			( )	
			( )	
			( )	
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(NBZ) = Nitrobenzene-d5
(FBP) = 2-Fluorobiphenyl
(TPH) = Terphenyl-d14
(PHL) = Phenol-d5

(2FP)= 2-Fluorophenol
(TBP) = 2,4,6-Tribromophenol
(2CP) = 2-Chlorophenol-d4
(DCB) = 1,2-Dichlorobenzene-d4

(2MN) = 2-Methylnaphthalene-d10
(FLN) = Fluoranthene-d10
(MNP) = 1-Methylnaphthalene-d10
(BAP) = Benzo(a)pyrene-d12

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Shelton Harbor

LDC Report Date: July 12, 2024

Parameters: Copper

Validation Level: Stage 2B

Laboratory: SGS North America, Inc., Dayton, NJ

Sample Delivery Group (SDG): JD88587

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
OMMP-SMA2-SG-COMP-02-240506	JD88587-2	Sediment	05/06/24
OMMP-SMA2-SG-COMP-02-240506MS	JD88587-2MS	Sediment	05/06/24
OMMP-SMA2-SG-COMP-02-240506MSD	JD88587-2MSD	Sediment	05/06/24

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Sampling and Quality Assurance Project Plan Addendum No. 3 for Shelton Harbor Sediment Cleanup Unit, Oakland Bay and Shelton Harbor Sediment Cleanup Site, Shelton, Washington (May 2024) and a modified outline of the USEPA National Functional Guidelines (NFG) for Inorganic Superfund Methods Data Review (January 2017). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Copper by Environmental Protection Agency (EPA) SW 846 Method 6020B

All sample results were subjected to Stage 2B data validation, which comprises an evaluation of quality control (QC) summary results.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The reported result was an estimated quantity value.

U (Non-detected): The analyte was analyzed for, but was not detected above the level of the adjusted detection limit or quantitation limit, as appropriate.

UJ (Non-detected): The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.

NJ (Tentatively identified): The analyte has been "tentatively identified" or "presumptively identified" as present, and the associated numerical value was the estimated concentration in the sample.

R (Rejected): The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the sample.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Qualification Codes

1 Holding Time
2 Sample Preservation (Cooler Temp)
3 Sample Custody
4 Missing Deliverables
5 Calibration
6 Field Blanks
7 Laboratory Blanks
8 Matrix Spike (%R)
9 Matrix Spike Duplicate (RPD or Duplicate Sample Analysis)
10 Laboratory Control Sample
11 ICP Interference Check
12 RPD Between Two Columns
13 Surrogates
14 Field Duplicates
15 Peak Resolution
16 ICP Serial Dilution
17 Chemical Recoveries
18 Trip Blanks
19 Internal Standards/Labeled Compounds (High Resolution)
20 Linear Range Exceeded
21 Potential False Positives
22 Do Not Use, Other Result More Technically Sound
23 Estimated Maximum Possible Concentration
24 Other

I. Sample Receipt and Technical Holding Times

All samples were received in good condition.

All technical holding time requirements were met.

II. ICPMS Tune

The mass calibration was within 0.1 AMU and the percent relative standard deviation (%RSD) was less than or equal to 5%.

III. Initial Calibration

Initial calibration was performed as required by the method.

The initial calibration verification (ICV) standards were within QC limits.

IV. Continuing Calibration

Continuing calibrations were performed as required by the method.

The continuing calibration verification (CCV) standards were within QC limits.

V. ICP Interference Check Sample Analysis

The frequency of interference check sample (ICS) analysis was met. All criteria were within QC limits.

VI. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

VII. Field Blanks

No field blanks were identified in this SDG.

VIII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. Percent recoveries (%R) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Analyte	MS %R (75-125)	MSD %R (75-125)	Flag	A or P
OMMP-SMA2-SG-COMP-02-240506MS/MSD (OMMP-SMA2-SG-COMP-02-240506)	Copper	70.2	-	J (all detects)	A

Relative percent differences (RPD) were within QC limits.

IX. Laboratory Duplicates

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

X. Serial Dilution

Serial dilution analysis was performed on an associated project sample. Percent differences (%D) were within QC limits.

XI. Laboratory Control Samples

Laboratory control samples (LCS) were analyzed as required by the method. Percent recoveries (%R) were within QC limits.

XII. Field Duplicates

No field duplicates were identified in this SDG.

XIII. Internal Standards (ICP-MS)

All internal standard percent recoveries (%R) were within QC limits.

XIV. Target Analyte Quantitation

Raw data were not reviewed for Stage 2B validation.

XV. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

Data qualified due to MS/MSD %R are summarized and presented in the Data Qualification Summary.

Shelton Harbor
Copper - Data Qualification Summary - SDG JD88587

Sample	Analyte	Flag	A or P	Reason (Code)
OMMP-SMA2-SG-COMP-02-240506	Copper	J (all detects)	A	Matrix spike/Matrix spike duplicates (%R) (8)

Shelton Harbor
Copper - Laboratory Blank Data Qualification Summary - SDG JD88587

No Sample Data Qualified in this SDG

Shelton Harbor
Copper - Field Blank Data Qualification Summary - SDG JD88587

No Sample Data Qualified in this SDG

LDC #: 59227B4a
SDG #: JD88587
Laboratory: SGS North America, Inc., Dayton, NJ

VALIDATION COMPLETENESS WORKSHEET
Stage 2B

Date: 6/24/24
Page: 1 of 1
Reviewer: JG
2nd Reviewer: CT

METHOD: Copper (EPA SW-846 Method 6020B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A / A	
II.	ICP/MS Tune	A	
III.	Instrument Calibration	A	
IV.	Calibration verification	A	
V.	ICP Interference Check Sample (ICS) Analysis	A	
VI.	Laboratory Blanks	A	
VII.	Field Blanks	N	
VIII.	Matrix Spike/Matrix Spike Duplicates	SW	
IX.	Duplicate sample analysis	N	
X.	Serial Dilution	A	
XI.	Laboratory control samples	A	LCS
XII.	Field Duplicates	N	
XIII.	Internal Standard (ICP-MS)	A	
XIV.	Target Analyte Quantitation	N	
XV	Overall Assessment of Data	A	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

	Client ID	Lab ID	Matrix	Date
1	OMMP-SMA2-SG-COMP-02-240506	JD88587-2	Sediment	05/06/24
2	OMMP-SMA2-SG-COMP-02-240506MS	JD88587-2MS	Sediment	05/06/24
3	OMMP-SMA2-SG-COMP-02-240506MSD	JD88587-2MSD	Sediment	05/06/24
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Notes:

METHOD: Trace Metals (EPA SW 846 Methods 6010/6020/7000)

MS/MSD analysis was performed by the laboratory. All MS/MSD percent recoveries (%R) and relative percent differences (RPDs) were within the acceptable limits with the following exceptions:

MS/MSD ID	Matrix	Analyte	MS %R	MSD %R	%R Limit	RPD	RPD Limit	PDS R %	PDS R% Limit	Associated Samples	Qualification	Det/ND
2,3	Sediment	Cu	70.2		75-125			NA	80-120	1	J/UJ/A	Det

Comments:

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Shelton Harbor

LDC Report Date: July 12, 2024

Parameters: Wet Chemistry

Validation Level: Stage 2B

Laboratory: SGS North America, Inc., Dayton, NJ

Sample Delivery Group (SDG): JD88587

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
OMMP-SMA1-SG-COMP-01-240508	JD88587-1	Sediment	05/08/24
OMMP-SMA2-SG-COMP-02-240506	JD88587-2	Sediment	05/06/24
OMMP-SMA3-SG-COMP-03-240509	JD88587-3	Sediment	05/09/24
NHRA-SMA5-SG-COMP-04-240506	JD88587-4	Sediment	05/06/24
RIFS-SMA5-SG-COMP-05-240509	JD88587-5	Sediment	05/09/24
RIFS-SMA5-SG-COMP-06-240509	JD88587-6	Sediment	05/09/24
RIFS-SMA5-SG-COMP-07-240509	JD88587-7	Sediment	05/09/24
RIFS-SMA5-SG-COMP-08-240509	JD88587-8	Sediment	05/09/24
RIFS-SMA5-SG-COMP-09-240509	JD88587-9	Sediment	05/09/24
RIFS-SMA5-SG01-240508	JD88587-10	Sediment	05/08/24
RIFS-SMA5-SG02-240508	JD88587-11	Sediment	05/08/24
RIFS-SMA5-SG03-240508	JD88587-12	Sediment	05/08/24
RIFS-SMA5-SG04-240508	JD88587-13	Sediment	05/08/24
RIFS-SMA5-SG05-240508	JD88587-14	Sediment	05/08/24
RIFS-SMA5-SG06-240508	JD88587-15	Sediment	05/08/24
RIFS-SMA5-SG07-240508	JD88587-16	Sediment	05/08/24
RIFS-SMA5-SG08-240508	JD88587-17	Sediment	05/08/24
RIFS-SMA5-SG09-240508	JD88587-18	Sediment	05/08/24
RIFS-SMA5-SG10-240508	JD88587-19	Sediment	05/08/24
RIFS-SMA5-SG11-240508	JD88587-20	Sediment	05/08/24
RIFS-SMA5-SG12-240506	JD88587-21	Sediment	05/06/24
RIFS-SMA5-SG13-240507	JD88587-22	Sediment	05/07/24
RIFS-SMA5-SG14-240507	JD88587-23	Sediment	05/07/24
RIFS-SMA5-SG16-240509	JD88587-24	Sediment	05/09/24
RIFS-SMA5-SG17-240509	JD88587-25	Sediment	05/09/24
RIFS-SMA5-SG18-240509	JD88587-26	Sediment	05/09/24

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
RIFS-SMA5-SG20-240509	JD88587-27	Sediment	05/09/24
RIFS-SMA5-SG23-240507	JD88587-28	Sediment	05/07/24
RIFS-SMA5-SG24-240509	JD88587-29	Sediment	05/09/24
RIFS-SMA5-SG26-240509	JD88587-30	Sediment	05/09/24
RIFS-SMA5-SG27-240509	JD88587-31	Sediment	05/09/24
RIFS-SMA5-SG28-240508	JD88587-32	Sediment	05/08/24
RIFS-SMA5-SG29-240508	JD88587-33	Sediment	05/08/24
RIFS-SMA5-SG30-240508	JD88587-34	Sediment	05/08/24
RIFS-SMA5-SG31-240508	JD88587-35	Sediment	05/08/24
RIFS-SMA5-SG32-240509	JD88587-36	Sediment	05/09/24
RIFS-SMA5-SG33-240508	JD88587-37	Sediment	05/08/24
RIFS-SMA5-SG34-240508	JD88587-38	Sediment	05/08/24
RIFS-SMA5-SG35-240508	JD88587-39	Sediment	05/08/24
RIFS-SMA5-SG40-240509	JD88587-40	Sediment	05/09/24
RIFS-SMA5-SG117-240509	JD88587-41	Sediment	05/09/24
OMMP-SMA1-SG-COMP-101	JD88587-42	Sediment	05/08/24
OMMP-SMA3-SG-DCOMP-03-240509	JD88587-43	Sediment	05/09/24
OMMP-SMA1-SG-COMP-01-240508DUP	JD88587-1DUP	Sediment	05/08/24
OMMP-SMA2-SG-COMP-02-240506MS	JD88587-2MS	Sediment	05/06/24
OMMP-SMA2-SG-COMP-02-240506MSD	JD88587-2MSD	Sediment	05/06/24
NHRA-SMA5-SG-COMP-04-240506MS	JD88587-4MS	Sediment	05/06/24
NHRA-SMA5-SG-COMP-04-240506MSD	JD88587-4MSD	Sediment	05/06/24
RIFS-SMA5-SG01-240508DUP	JD88587-10DUP	Sediment	05/08/24
RIFS-SMA5-SG12-240506MS	JD88587-21MS	Sediment	05/06/24
RIFS-SMA5-SG12-240506MSD	JD88587-21MSD	Sediment	05/06/24
RIFS-SMA5-SG26-240509MS	JD88587-30MS	Sediment	05/09/24
RIFS-SMA5-SG26-240509MSD	JD88587-30MSD	Sediment	05/09/24
RIFS-SMA5-SG26-240509DUP	JD88587-30DUP	Sediment	05/09/24
OMMP-SMA1-SG-COMP-101MS	JD88587-42MS	Sediment	05/08/24
OMMP-SMA1-SG-COMP-101MSD	JD88587-42MSD	Sediment	05/08/24

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Sampling and Quality Assurance Project Plan Addendum No. 3 for Shelton Harbor Sediment Cleanup Unit, Oakland Bay and Shelton Harbor Sediment Cleanup Site, Shelton, Washington (May 2024) and a modified outline of the USEPA National Functional Guidelines (NFG) for Inorganic Superfund Methods Data Review (January 2017). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following methods:

Percent Solids by Standard Method 2540G
Total Organic Carbon by Environmental Protection Agency (EPA) SW 846 Method 9060A

All sample results were subjected to Stage 2B data validation, which comprises an evaluation of quality control (QC) summary results.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The reported result was an estimated quantity value.

U (Non-detected): The analyte was analyzed for, but was not detected above the level of the adjusted detection limit or quantitation limit, as appropriate.

UJ (Non-detected): The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.

NJ (Tentatively identified): The analyte has been "tentatively identified" or "presumptively identified" as present, and the associated numerical value was the estimated concentration in the sample.

R (Rejected): The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the sample.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Qualification Codes

1 Holding Time
2 Sample Preservation (Cooler Temp)
3 Sample Custody
4 Missing Deliverables
5 Calibration
6 Field Blanks
7 Laboratory Blanks
8 Matrix Spike (%R)
9 Matrix Spike Duplicate (RPD or Duplicate Sample Analysis)
10 Laboratory Control Sample
11 ICP Interference Check
12 RPD Between Two Columns
13 Surrogates
14 Field Duplicates
15 Peak Resolution
16 ICP Serial Dilution
17 Chemical Recoveries
18 Trip Blanks
19 Internal Standards/Labeled Compounds (High Resolution)
20 Linear Range Exceeded
21 Potential False Positives
22 Do Not Use, Other Result More Technically Sound
23 Estimated Maximum Possible Concentration
24 Other

I. Sample Receipt and Technical Holding Times

All samples were received in good condition.

All technical holding time requirements were met.

II. Initial Calibration

All criteria for the initial calibration of each method were met.

III. Continuing Calibration

Continuing calibration frequency and analysis criteria were met for each method when applicable.

IV. Laboratory Blanks

Laboratory blanks were analyzed as required by the methods. No contaminants were found in the laboratory blanks.

V. Field Blanks

No field blanks were identified in this SDG.

VI. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. Percent recoveries (%R) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Analyte	MS %R (75-125)	MSD %R (75-125)	Flag	A or P
OMMP-SMA1-SG-COMP-101MS/MSD (RIFS-SMA5-SG117-240509 OMMP-SMA1-SG-COMP-101 OMMP-SMA3-SG-DCOMP-03-240509)	Total organic carbon	138	148	J (all detects)	A

Relative percent differences (RPD) were within QC limits.

VII. Laboratory Duplicates

Laboratory duplicate (DUP) sample analysis was performed on an associated project sample. Results were within QC limits.

VIII. Laboratory Control Samples

Laboratory control samples (LCS) were analyzed as required by the methods. Percent recoveries (%R) were within QC limits.

IX. Field Duplicates

Samples OMMP-SMA1-SG-COMP-01-240508 and OMMP-SMA1-SG-COMP-101 and samples RIFS-SMA5-SG17-240509 and RIFS-SMA5-SG117-240509 were identified as field duplicates. No results were detected in any of the samples with the following exceptions:

Analyte	Concentration (mg/Kg)		RPD (≤50)
	OMMP-SMA1-SG-COMP-01-240508	OMMP-SMA1-SG-COMP-101	
Total organic carbon	20600	31500	42

Analyte	Concentration (mg/Kg)		RPD (≤50)
	RIFS-SMA5-SG17-240509	RIFS-SMA5-SG117-240509	
Total organic carbon	36900	49800	30

X. Target Analyte Quantitation

Raw data were not reviewed for Stage 2B validation.

XI. Overall Assessment of Data

The analysis was conducted within all specifications of the methods. No results were rejected in this SDG.

Data qualified due to MS/MSD %R are summarized and presented in the Data Qualification Summary.

Shelton Harbor
Wet Chemistry - Data Qualification Summary - SDG JD88587

Sample	Analyte	Flag	A or P	Reason (Code)
RIFS-SMA5-SG117-240509 OMMP-SMA1-SG-COMP-101 OMMP-SMA3-SG-DCOMP-03-240509	Total organic carbon	J (all detects)	A	Matrix spike/Matrix spike duplicates (%R) (8)

Shelton Harbor
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG JD88587

No Sample Data Qualified in this SDG

Shelton Harbor
Wet Chemistry - Field Blank Data Qualification Summary - SDG JD88587

No Sample Data Qualified in this SDG

LDC #: 59227B6 **VALIDATION COMPLETENESS WORKSHEET** Date: 6/24/24
SDG #: JD88587 Stage 2B Page: 1 of 3
Laboratory: SGS North America, Inc., Dayton, NJ Reviewer: JG
2nd Reviewer: CH

METHOD: (Analyte) Percent Solids (SM2540G), TOC (EPA SW-846 Method 9060A)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A / A	
II	Initial calibration	A	
III.	Calibration verification	A	
IV	Laboratory Blanks	A	
V	Field blanks	N	
VI.	Matrix Spike/Matrix Spike Duplicates	SW	
VII.	Duplicate sample analysis	A	
VIII.	Laboratory control samples	A	LCS
IX.	Field duplicates	SW	(1, 42), (25, 41)
X.	Target Analyte Quantitation	N	
XI	Overall assessment of data	A	

Note: A = Acceptable
N = Not provided/applicable
SW = See worksheet
ND = No compounds detected
R = Rinsate
FB = Field blank
D = Duplicate
TB = Trip blank
EB = Equipment blank
SB=Source blank
OTHER:

	Client ID	Lab ID	Matrix	Date
1	OMMP-SMA1-SG-COMP-01-240508	JD88587-1	Sediment	05/08/24
2	OMMP-SMA2-SG-COMP-02-240506	JD88587-2	Sediment	05/06/24
3	OMMP-SMA3-SG-COMP-03-240509	JD88587-3	Sediment	05/09/24
4	NHRA-SMA5-SG-COMP-04-240506	JD88587-4	Sediment	05/06/24
5	RIFS-SMA5-SG-COMP-05-240509	JD88587-5	Sediment	05/09/24
6	RIFS-SMA5-SG-COMP-06-240509	JD88587-6	Sediment	05/09/24
7	RIFS-SMA5-SG-COMP-07-240509	JD88587-7	Sediment	05/09/24
8	RIFS-SMA5-SG-COMP-08-240509	JD88587-8	Sediment	05/09/24
9	RIFS-SMA5-SG-COMP-09-240509	JD88587-9	Sediment	05/09/24
10	RIFS-SMA5-SG01-240508	JD88587-10	Sediment	05/08/24
11	RIFS-SMA5-SG02-240508	JD88587-11	Sediment	05/08/24
12	RIFS-SMA5-SG03-240508	JD88587-12	Sediment	05/08/24
13	RIFS-SMA5-SG04-240508	JD88587-13	Sediment	05/08/24
14	RIFS-SMA5-SG05-240508	JD88587-14	Sediment	05/08/24
15	RIFS-SMA5-SG06-240508	JD88587-15	Sediment	05/08/24
16	RIFS-SMA5-SG07-240508	JD88587-16	Sediment	05/08/24
17	RIFS-SMA5-SG08-240508	JD88587-17	Sediment	05/08/24

LDC #: 59227B6 **VALIDATION COMPLETENESS WORKSHEET** Date: 6/24/24
SDG #: JD88587 Stage 2B Page: 2 of 3
Laboratory: SGS North America, Inc., Dayton, NJ Reviewer: JC
2nd Reviewer:

METHOD: (Analyte) Percent Solids (SM2540G), TOC (EPA SW-846 Method 9060A)

	Client ID	Lab ID	Matrix	Date
18	RIFS-SMA5-SG09-240508	JD88587-18	Sediment	05/08/24
19	RIFS-SMA5-SG10-240508	JD88587-19	Sediment	05/08/24
20	RIFS-SMA5-SG11-240508	JD88587-20	Sediment	05/08/24
21	RIFS-SMA5-SG12-240506	JD88587-21	Sediment	05/06/24
22	RIFS-SMA5-SG13-240507	JD88587-22	Sediment	05/07/24
23	RIFS-SMA5-SG14-240507	JD88587-23	Sediment	05/07/24
24	RIFS-SMA5-SG16-240509	JD88587-24	Sediment	05/09/24
25	RIFS-SMA5-SG17-240509	JD88587-25	Sediment	05/09/24
26	RIFS-SMA5-SG18-240509	JD88587-26	Sediment	05/09/24
27	RIFS-SMA5-SG20-240509	JD88587-27	Sediment	05/09/24
28	RIFS-SMA5-SG23-240507	JD88587-28	Sediment	05/07/24
29	RIFS-SMA5-SG24-240509	JD88587-29	Sediment	05/09/24
30	RIFS-SMA5-SG26-240509	JD88587-30	Sediment	05/09/24
31	RIFS-SMA5-SG27-240509	JD88587-31	Sediment	05/09/24
32	RIFS-SMA5-SG28-240508	JD88587-32	Sediment	05/08/24
33	RIFS-SMA5-SG29-240508	JD88587-33	Sediment	05/08/24
34	RIFS-SMA5-SG30-240508	JD88587-34	Sediment	05/08/24
35	RIFS-SMA5-SG31-240508	JD88587-35	Sediment	05/08/24
36	RIFS-SMA5-SG32-240508	JD88587-36	Sediment	05/08/24
37	RIFS-SMA5-SG33-240508	JD88587-37	Sediment	05/08/24
38	RIFS-SMA5-SG34-240508	JD88587-38	Sediment	05/08/24
39	RIFS-SMA5-SG35-240508	JD88587-39	Sediment	05/08/24
40	RIFS-SMA5-SG40-240509	JD88587-40	Sediment	05/09/24
41	RIFS-SMA5-SG117-240509	JD88587-41	Sediment	05/09/24
42	OMMP-SMA1-SG-COMP-101	JD88587-42	Sediment	05/08/24
43	OMMP-SMA3-SG-DCOMP-03-240509	JD88587-43	Sediment	05/09/24
44	OMMP-SMA1-SG-COMP-01-240508DUP	JD88587-1DUP	Sediment	05/08/24
45	OMMP-SMA2-SG-COMP-02-240506MS	JD88587-2MS	Sediment	05/06/24
46	OMMP-SMA2-SG-COMP-02-240506MSD	JD88587-2MSD	Sediment	05/06/24
47	NHRA-SMA5-SG-COMP-04-240506MS	JD88587-4MS	Sediment	05/06/24
48	NHRA-SMA5-SG-COMP-04-240506MSD	JD88587-4MSD	Sediment	05/06/24
49	RIFS-SMA5-SG01-240508DUP	JD88587-10DUP	Sediment	05/08/24
50	RIFS-SMA5-SG12-240506MS	JD88587-21MS	Sediment	05/06/24
51	RIFS-SMA5-SG12-240506MSD	JD88587-21MSD	Sediment	05/06/24

LDC #: 59227B6 **VALIDATION COMPLETENESS WORKSHEET** Date: 6/24/24
SDG #: JD88587 Stage 2B Page: 3 of 3
Laboratory: SGS North America, Inc., Dayton, NJ Reviewer: SC
2nd Reviewer:

METHOD: (Analyte) Percent Solids (SM2540G), TOC (EPA SW-846 Method 9060A)

	Client ID	Lab ID	Matrix	Date
52	RIFS-SMA5-SG26-240509MS	JD88587-30MS	Sediment	05/09/24
53	RIFS-SMA5-SG26-240509MSD	JD88587-30MSD	Sediment	05/09/24
54	RIFS-SMA5-SG26-240509DUP	JD88587-30DUP	Sediment	05/09/24
55	OMMP-SMA1-SG-COMP-1014MS	JD88587-42MS	Sediment	05/08/24
56	OMMP-SMA1-SG-COMP-1014MSD	JD88587-42MSD	Sediment	05/08/24
57				
58				
59				

Notes:

All elements are applicable to each sample as noted below.

Sample ID	Target Analyte List
1-43	Percent Solids, TOC
QC	
44,49,54	Percent Solids
45-48, 50-53, 55-56	TOC

METHOD: Inorganics

MS/MSD analysis was performed by the laboratory. All MS/MSD percent recoveries (%R) and relative percent differences (RPDs) were within the acceptable limits with the following exceptions:

MS/MSD ID	Matrix	Analyte	MS %R	MSD %R	%R Limit	RPD	RPD Limit	Associated Samples	Qualification	Det/ND	Code
55,56	Sediment	TOC	138	148	75-125			41-43	Jdet/A	Det= All	8

Comments:

METHOD: Inorganics

Analyte	Concentration (mg/Kg)		RPD (≤ 50)
	1	42	
TOC	20600	31500	42

Analyte	Concentration (mg/Kg)		RPD (≤ 50)
	25	41	
TOC	36900	49800	30

LABORATORY DATA CONSULTANTS, INC.
2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

Anchor QEA, LLC
1201 3rd Ave., Suite 2600
Seattle, WA 98101
ATTN: Ms. Jennifer Marsalla
jmarsalla@anchorqea.com

February 12, 2025

SUBJECT: Shelton Harbors - Data Validation

Dear Ms. Marsalla,

Enclosed are the final validation reports for the fraction listed below. This SDG was received on October 31, 2024. Attachment 1 is a summary of the samples that were reviewed for each analysis.

Revision:
DPWG91143/WG90285
Added rinse blank OMMP-FS-RB-240506

LDC Project #60005_RV1:

SDG #	Fraction
DPWG91143/WG90285	Polycyclic Aromatic Hydrocarbons

The data validation was performed under Stage 2B guidelines. The analysis was validated using the following documents, as applicable to each method:

- Sampling and Quality Assurance Project Plan Addendum No. 2 for Shelton Harbor Sediment Cleanup Unit, Oakland Bay and Shelton Harbor Sediment Cleanup Site, Shelton, Washington (June 2020)
- USEPA National Functional Guidelines (NFG) for Organic Superfund Methods Data Review (January 2017)
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; update IV, February 2007; update V, July 2014; update VI, July 2018

Please feel free to contact us if you have any questions.

Sincerely,

Stella Cuenco
scuenco@lab-data.com
Project Manager/Senior Chemist

2B/4 EDD LDC# 60005 (Anchor Environmental-Seattle WA / Simpson Timber Company / Shelton Harbor Sediment Cleanup)

LDC	SDG#	DATE REC'D	(3) DATE DUE	PAHs (MLA-021)																															
Matrix: Water/Sediment				W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S
A	DPWG91143 /WG90285	10/31/24	10/21/24	0	14																														
Total	TR/SC			0	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14

Shaded cells indicate Stage 4 validation (all other cells are Stage 2B validation). These sample counts do not include MS, MSD, or DUP's.

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Shelton Harbor

LDC Report Date: February 12, 2025

Parameters: Polycyclic Aromatic Hydrocarbons

Validation Level: Stage 2B

Laboratory: SGS AXYS Analytical Services, Ltd., Sidney, BC

Sample Delivery Group (SDG): DPWG91143/WG90285

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
OMMP-SMA1-SG-COMP-01-240508	L41355-1	Sediment	05/08/24
OMMP-SMA2-SG-COMP-02-240506	L41355-2	Sediment	05/06/24
OMMP-SMA3-SG-COMP-03-240509	L41355-3	Sediment	05/09/24
NHRA-SMA5-SG-COMP-04-240506	L41355-4	Sediment	05/06/24
RIFS-SMA5-SG-COMP-06-240509	L41355-6	Sediment	05/09/24
RIFS-SMA5-SG-COMP-07-240509	L41355-7	Sediment	05/09/24
RIFS-SMA5-SG-COMP-08-240509	L41355-8	Sediment	05/09/24
RIFS-SMA5-SG-COMP-09-240509	L41355-9	Sediment	05/09/24
RIFS-SMA5-SG-04-240508	L41355-13	Sediment	05/08/24
RIFS-SMA5-SG-05-240508	L41355-14	Sediment	05/08/24
RIFS-SMA5-SG-12-240506	L41355-21	Sediment	05/06/24
RIFS-SMA5-SG-12-240506MS	L41355-21MS	Sediment	05/06/24
RIFS-SMA5-SG-12-240506MSD	L41355-21MSD	Sediment	05/06/24

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Sampling and Quality Assurance Project Plan Addendum No. 2 for Shelton Harbor Sediment Cleanup Unit, Oakland Bay and Shelton Harbor Sediment Cleanup Site, Shelton, Washington (June 2020) and a modified outline of the USEPA National Functional Guidelines (NFG) for Organic Superfund Methods Data Review (January 2017). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Polycyclic Aromatic Hydrocarbons (PAHs) by SGS AXYS SOP Method MLA-021, Revision 12, Version 10

All sample results were subjected to Stage 2B data validation, which comprises an evaluation of quality assurance and quality control (QA/QC) summary reports.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The reported result was an estimated quantity value.

U (Non-detected): The analyte was analyzed for, but was not detected above the level of the adjusted detection limit or quantitation limit, as appropriate.

UJ (Non-detected): The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.

NJ (Tentatively identified): The analyte has been "tentatively identified" or "presumptively identified" as present, and the associated numerical value was the estimated concentration in the sample.

R (Rejected): The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the sample.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Qualification Codes

1 Holding Time
2 Sample Preservation (Cooler Temp)
3 Sample Custody
4 Missing Deliverables
5 Calibration
6 Field Blanks
7 Laboratory Blanks
8 Matrix Spike (%R)
9 Matrix Spike Duplicate (RPD or Duplicate Sample Analysis)
10 Laboratory Control Sample
11 ICP Interference Check
12 RPD Between Two Columns
13 Surrogates
14 Field Duplicates
15 Peak Resolution
16 ICP Serial Dilution
17 Chemical Recoveries
18 Trip Blanks
19 Internal Standards/Labeled Compounds (High Resolution)
20 Linear Range Exceeded
21 Potential False Positives
22 Do Not Use, Other Result More Technically Sound
23 Estimated Maximum Possible Concentration
24 Other

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. GC/LRMS Instrument Performance Check

Instrument performance check was performed at the required frequency.

III. Initial Calibration

An initial calibration was performed as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 20.0% for all analytes.

The ion abundance ratios for all analytes were within validation criteria.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

The percent differences (%D) were less than or equal to 25.0% for all analytes.

The ion abundance ratios for all analytes were within validation criteria.

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks with the following exceptions:

Blank ID	Extraction Date	Analyte	Concentration (ng/g)	Associated Samples
WG90285-101LB	07/16/24	Naphthalene Phenanthrene Fluoranthene Pyrene Chrysene 2-Methylnaphthalene Dibenzothiophene	0.331 0.246 0.259 0.175 0.087 0.106 0.095	All samples in SDG DPWG91143/WG90285

Sample concentrations were compared to concentrations detected in the laboratory blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated laboratory blanks with the following exceptions:

Sample	Analyte	Reported Concentration (ng/g)	Modified Final Concentration (ng/g)
NHRA-SMA5-SG-COMP-04-240506	Dibenzothiophene	0.302	0.302U

VI. Field Blanks

Sample OMMP-FS-RB-240506 (from SDG WG89860) was identified as a rinsate blank. No contaminants were found with the following exceptions:

Blank ID	Collection Date	Analyte	Concentration (ug/L)	Associated Samples
OMMP-FS-RB-240506	05/06/24	Naphthalene	1.15	OMMP-SMA1-SG-COMP-01-240508
		Phenanthrene	0.670	OMMP-SMA2-SG-COMP-02-240506
		Anthracene	0.298	OMMP-SMA3-SG-COMP-03-240509
		Fluoranthene	0.260	
		Pyrene	0.211	
		Benz[a]anthracene	0.059	
		Chrysene	0.117	
		2-Methylnaphthalene	0.728	

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated field blanks.

VII. Labeled Compounds

All labeled compound percent recoveries (%R) and ion abundance ratios (IAR) were within QC limits.

VIII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. Percent recoveries (%R) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Analyte	MS %R (50-150)	MSD %R (50-150)	Flag	A or P
RIFS-SMA5-SG-12-240506MS/MSD	Phenanthrene	0	0	J (all detects)	A
(RIFS-SMA5-SG-12-240506)	Chrysene	48.9	-	J (all detects)	
RIFS-SMA5-SG-12-240506MS/MSD	Fluoranthene	0	3.10	J (all detects)	A
(RIFS-SMA5-SG-12-240506)	Pyrene	0	0	J (all detects)	

Although the percent recoveries were severely low for phenanthrene, fluoranthene, and pyrene, using professional judgment the associated sample results were qualified as estimated (J) due to the presence of matrix interference.

Relative percent differences (RPD) were within QC limits.

IX. Ongoing Precision Recovery

Ongoing precision recovery (OPR) samples were analyzed as required by the method. Percent recoveries (%R) were within QC limits.

X. Field Duplicates

Samples OMMP-SMA1-SG-COMP-01-240508 and OMMP-SMA1-SG-COMP-101-240508 (from SDG DPWG91605/WG90286) were identified as field duplicates. No results were detected in any of the samples with the following exceptions:

Analyte	Concentration (ng/Kg)		RPD (≤50)
	OMMP-SMA1-SG-COMP-01-240508	OMMP-SMA1-SG-COMP-101-240508	
Anthracene	18.1	12.7	35
Pyrene	110	101	9
Dibenzothiophene	3.90	4.12	5
Benzo(g,h,i)perylene	42.8	38.0	12
Benzo(e)pyrene	44.0	38.9	12
Indeno(1,2,3-c,d)pyrene	28.5	23.1	21
Perylene	53.3	39.5	30
Benzo(b)fluoranthene	44.1	36.7	18
Fluoranthene	102	95.6	6
Acenaphthylene	6.18	6.48	5
Chrysene	87.9	55.3	46
2,3,5-Trimethylnaphthalene (1,6,7-Trimethylnaphthalene)	8.54	11.1	26
Benzo(a)pyrene	41.9	36.0	15
Dibenzo(a,h)anthracene	6.91	6.37	8
Benzo(a)anthracene	36.4	30.0	19
2,6-Dimethylnaphthalene	8.21	13.1	46
Acenaphthene	4.01	6.05	41
1-Methylphenanthrene	10.8	9.17	16
Phenanthrene	56.8	45.6	22
Fluorene	4.92	4.75	4
Naphthalene	35.7	31.7	12
2-Methylnaphthalene	7.57	12.1	46
Benzo(j,k)fluoranthene	38.7	29.9	26

XI. Target Analyte Quantitation

All target analyte quantitations were within validation criteria with the following exceptions:

Sample	Analyte	Flag	A or P
OMMP-SMA1-SG-COMP-01-240508 OMMP-SMA2-SG-COMP-02-240506 OMMP-SMA3-SG-COMP-03-240509 NHRA-SMA5-SG-COMP-04-240506 RIFS-SMA5-SG-COMP-07-240509 RIFS-SMA5-SG-COMP-08-240509 RIFS-SMA5-SG-COMP-09-240509 RIFS-SMA5-SG-04-240508 RIFS-SMA5-SG-05-240508 RIFS-SMA5-SG-12-240506	All analytes flagged "K" by the laboratory as estimated maximum possible concentration (EMPC).	J (all detects)	P

Raw data were not reviewed for Stage 2B validation.

XII. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

Data qualified due to laboratory blank contamination, MS/MSD %R, and results reported by the laboratory as EMPCs are summarized and presented in the Data Qualification Summary.

Shelton Harbor
Polycyclic Aromatic Hydrocarbons - Data Qualification Summary - SDG DPWG91143/WG90285

Sample	Analyte	Flag	A or P	Reason (Code)
RIFS-SMA5-SG-12-240506	Phenanthrene Chrysene	J (all detects) J (all detects)	A	Matrix spike/Matrix spike duplicates (%R) (8)
OMMP-SMA1-SG-COMP-01-240508 OMMP-SMA2-SG-COMP-02-240506 OMMP-SMA3-SG-COMP-03-240509 NHRA-SMA5-SG-COMP-04-240506 RIFS-SMA5-SG-COMP-07-240509 RIFS-SMA5-SG-COMP-08-240509 RIFS-SMA5-SG-04-240508 RIFS-SMA5-SG-05-240508 RIFS-SMA5-SG-12-240506	All analytes flagged "K" by the laboratory as estimated maximum possible concentration (EMPC).	J (all detects)	P	Target analyte quantitation (EMPC) (23)

Shelton Harbor
Polycyclic Aromatic Hydrocarbons - Laboratory Blank Data Qualification Summary - SDG DPWG91143/WG90285

Sample	Analyte	Modified Final Concentration (ng/g)	Code
NHRA-SMA5-SG-COMP-04-240506	Dibenzothiophene	0.302U	7

Shelton Harbor
Polycyclic Aromatic Hydrocarbons - Field Blank Data Qualification Summary - SDG DPWG91143/WG90285

No Sample Data Qualified in this SDG

LDC #: 60005A2b **VALIDATION COMPLETENESS WORKSHEET** Date: 11/14/24

SDG #: DPWG91143/WG90285 Stage 2B Page: 1 of 2

Laboratory: SGS AXYS Analytical Services, Ltd., Sidney, BC Reviewer: JVC

2nd Reviewer:

METHOD: ~~GC/MS~~ LR MS Polynuclear Aromatic Hydrocarbons (MLA-021, Rev 12) Ver 10

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A, A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A, N	RSD ≤ 20%
IV.	Continuing calibration	A	CV ≤ 25%
V.	Laboratory Blanks	SW	
VI.	Field blanks	SW	RB = OMMP-FS-RB-240506 (from WG69860)
VII.	Surrogate spikes (labeled)	A	
VIII.	Matrix spike/Matrix spike duplicates	SW	
IX.	Laboratory control samples	A	OPR
X.	Field duplicates	SW	D = 1/OMMP-SMA1-SG-COMP-101-240508 (from DPWG91605/WG90286)
XI.	~~Internal standards~~	—	
XII.	Target analyte quantitation	SW	
XIII.	Target analyte identification	N	
XIV.	Overall assessment of data	A	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

	Client ID	Lab ID	Matrix	Date
1	OMMP-SMA1-SG-COMP-01-240508	L41355-1	Sediment	05/08/24
2	OMMP-SMA2-SG-COMP-02-240506	L41355-2	Sediment	05/06/24
3	OMMP-SMA3-SG-COMP-03-240509	L41355-3	Sediment	05/09/24
4	NHRA-SMA5-SG-COMP-04-240506	L41355-4	Sediment	05/06/24
5	RIFS-SMA5-SG-COMP-06-240509	L41355-6	Sediment	05/09/24
6	~~RIFS-SMA5-SG-COMP-06-240509~~DL	~~L41355-6~~DL	~~Sediment~~	~~05/09/24~~
7	RIFS-SMA5-SG-COMP-07-240509	L41355-7	Sediment	05/09/24
8	RIFS-SMA5-SG-COMP-08-240509	L41355-8	Sediment	05/09/24
9	RIFS-SMA5-SG-COMP-09-240509	L41355-9	Sediment	05/09/24
10	~~RIFS-SMA5-SG-COMP-09-240509~~DL	~~L41355-9~~DL	~~Sediment~~	~~05/09/24~~
11	RIFS-SMA5-SG-04-240508	L41355-13	Sediment	05/08/24
12	RIFS-SMA5-SG-05-240508	L41355-14	Sediment	05/08/24
13	RIFS-SMA5-SG-12-240506	L41355-21	Sediment	05/06/24
14	~~RIFS-SMA5-SG-12-240506~~DL	~~L41355-21~~DL	~~Sediment~~	~~05/06/24~~
15	RIFS-SMA5-SG-12-240506MS	L41355-21MS	Sediment	05/06/24

LDC #: 60005A2b **VALIDATION COMPLETENESS WORKSHEET** Date: 11/14/24
SDG #: DPWG91143/WG90285 Stage 2B Page: 2 of 2
Laboratory: SGS AXYS Analytical Services, Ltd., Sidney, BC Reviewer: JC
2nd Reviewer:

METHOD: GC/MS Polynuclear Aromatic Hydrocarbons (MLA-021, Rev 12)

	Client ID	Lab ID	Matrix	Date
16	RIFS-SMA5-SG-12-240506MSD	L41355-21MSD	Sediment	05/06/24
17				
18				
19				

Notes:

	WG90285-101	LB					

LRMS = Low Resolution mass Spectrometry

(Frozen samples)

VALIDATION FINDINGS WORKSHEET

METHOD: GC/MS SVOA

A. Phenol	GG. Acenaphthene	MMM. Bis(2-Chloroisopropyl)ether	SSSS. 2/3-Dimethyldibenzothiophene (4MDT)	Y1. 3,3'-Dimethylbenzidine
B. Bis (2-chloroethyl) ether	HH. 2,4-Dinitrophenol	NNN. Aniline	TTTT. 1-Methyldibenzothiophene (1MDT)	Z1. o-Toluidine
C. 2-Chlorophenol	II. 4-Nitrophenol	OOO. N-Nitrosodimethylamine	UUUU.. 2,3,4,6-Tetrachlorophenol	A2. Benzo(j)fluoranthene
D. 1,3-Dichlorobenzene	JJ. Dibenzofuran	PPP. Benzoic Acid	VVVV. 1,2,4,5-Tetrachlorobenzene	B2. Benzofluoranthenes, total
E. 1,4-Dichlorobenzene	KK. 2,4-Dinitrotoluene	QQQ. Benzyl alcohol	WWWW.. 2-Picoline	C2. trans-Decalin
F. 1,2-Dichlorobenzene	LL. Diethylphthalate	RRR. Pyridine	XXXX. 3-Methylcholanthrene	D2. cis-Decalin
G. 2-Methylphenol	MM. 4-Chlorophenyl-phenyl ether	SSS. Benzidine	YYYY. a,a-Dimethylphenethylamine	E2. Dibenzo(a)anthracenes
H. 2,2'-Oxybis(1-chloropropane)	NN. Fluorene	TTT. 1-Methylnaphthalene	ZZZZ. Hexachloropropene	F2. Benzo(j)+(k)fluoranthene
I. 4-Methylphenol	OO. 4-Nitroaniline	UUU.Benzo(b)thiophene	A1. N-Nitrosodiethylamine	G2. Dibenzo(ah)+(ac)anthracene
J. N-Nitroso-di-n-propylamine	PP. 4,6-Dinitro-2-methylphenol	VVV.Benzonaphthothiophene	B1. N-Nitrosodi-n-butylamine	H2.
K. Hexachloroethane	QQ. N-Nitrosodiphenylamine	WWW.Benzo(e)pyrene	C1. N-Nitrosomethylethylamine	I2.
L. Nitrobenzene	RR. 4-Bromophenyl-phenylether	XXX. 2,6-Dimethylnaphthalene	D1. N-Nitrosomorpholine	J2.
M. Isophorone	SS. Hexachlorobenzene	YYY. 2,3,5-Trimethylnaphthalene	E1. N-Nitrosopyrrolidine	K2.
N. 2-Nitrophenol	TT. Pentachlorophenol	ZZZ. Perylene	F1. Phenacetin	L2.
O. 2,4-Dimethylphenol	UU. Phenanthrene	AAAA. Dibenzothiophene	G1. 2-Acetylaminofluorene	M2.
P. Bis(2-chloroethoxy)methane	VV. Anthracene	BBBB. Benzo(a)fluoranthene	H1. Pronamide	N2.
Q. 2,4-Dichlorophenol	WW. Carbazole	CCCC. Benzo(b)fluorene	I1. Methyl methanesulfonate	O2.
R. 1,2,4-Trichlorobenzene	XX. Di-n-butylphthalate	DDDD. cis/trans-Decalin	J1. Ethyl methanesulfonate	P2.
S. Naphthalene	YY. Fluoranthene	EEEE. Biphenyl	K1. o,o',o''-Triethylphosphorothioate	Q2.
T. 4-Chloroaniline	ZZ. Pyrene	FFFF. Retene	L1. n-Phenylene diamine	R2.
U. Hexachlorobutadiene	AAA. Butylbenzylphthalate	GGGG. C30-Hopane	M1. 1,4-Naphthoquinone	S2.
V. 4-Chloro-3-methylphenol	BBB. 3,3'-Dichlorobenzidine	HHHH. 1-Methylphenanthrene	N1. N-Nitro-o-toluidine	T2.
W. 2-Methylnaphthalene	CCC. Benzo(a)anthracene	IIII. 1,4-Dioxane	O1. 1,3,5-Trinitrobenzene	U2.
X. Hexachlorocyclopentadiene	DDD. Chrysene	JJJJ. Acetophenone	P1. Pentachlorobenzene	V2..
Y. 2,4,6-Trichlorophenol	EEE. Bis(2-ethylhexyl)phthalate	KKKK. Atrazine	Q1. 4-Aminobiphenyl	W2
Z. 2,4,5-Trichlorophenol	FFF. Di-n-octylphthalate	LLLL. Benzaldehyde	R1. 2-Naphthylamine	X2..
AA. 2-Chloronaphthalene	GGG. Benzo(b)fluoranthene	MMMM. Caprolactam	S1. Triphenylene	Y2.
BB. 2-Nitroaniline	HHH. Benzo(k)fluoranthene	NNNN. 2,6-Dichlorophenol	T1. Octachlorostyrene	Z2.
CC. Dimethylphthalate	III. Benzo(a)pyrene	OOOO. 1,2-Diphenylhydrazine	U1. Famphur	
DD. Acenaphthylene	JJJ. Indeno(1,2,3-cd)pyrene	PPPP. 3-Methylphenol	V1. 1,4-phenylenediamine	
EE. 2,6-Dinitrotoluene	KKK. Dibenz(a,h)anthracene	QQQQ. 3&4-Methylphenol	W1. Methapyrilene	
FF. 3-Nitroaniline	LLL. Benzo(g,h,i)perylene	RRRR. 4-Dimethyldibenzothiophene	X1. Pentachloroethane	

LDC #: 60005A26

VALIDATION FINDINGS WORKSHEET
Blanks

Page: 1 of 1
Reviewer: JVG

METHOD: LRMS PAH (Lab SOP MLA-021, Rev 12)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Was a method blank analyzed for each matrix?
Y N N/A Was a method blank analyzed for each concentration preparation level?
Y N N/A Was a method blank associated with every sample?
Y N N/A Was the blank contaminated? If yes, please see qualification below.

Blank extraction date: 07/16/24 **Blank analysis date:** 07/25/24
Conc. units: ng/g Associated Samples: All Code: 7

Compound	Blank ID	WG90285-101 LB (5x)	4							
S	0.331	1.655								
UU	0.246	1.23								
YY	0.259	1.295								
ZZ	0.175	0.875								
DDD	0.087	0.435								
W	0.106	0.530								
AAAA	0.095	0.475	0.302/U							

Blank extraction date: _____ **Blank analysis date:** _____
Conc. units: _____ Associated Samples: _____

Compound	Blank ID									

LDC#: 60005A2b

VALIDATION FINDINGS WORKSHEET
Field Blanks

Reviewer: JVG

METHOD: PAH (Lab SOP MLA-021 Rev12)
Field blanks were identified in this SDG.
No contaminants were found in the field blanks with the exceptions identified below.
Sampling date: 5/6/2024 **Blank units:** ug/L **Associated sample units:** ng/g
Field blank type: RB **Associated Samples:** 1-3 (>5x)
(FB = Field Blank; EB = Equipment Blank; SB = Source Blank)

Compound	Blank ID	Blank ID	Sample Identification						
	OMMP-FS-RB-240506	5X							
Naphthalene	1.15	5.75			U by MB				
Phenanthrene	0.670	3.35							
Anthracene	0.298	1.49							
Fluoranthene	0.260	1.30							
Pyrene	0.211	1.06							
Benz[a]anthracene	0.059	0.30							
Chrysene	0.117	0.59			U by MB				
2-Methylnaphthalene	0.728	3.64							

LDC #: 60005 A26

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates

Reviewer: JVG

METHOD: LRMS PAH (LAB SOP MLA-021, Rev 12)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Were matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG?

Y N N/A Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?

#	MS/MSD ID	Compound	MS %R	MSD %R	%R Limits	RPD (Limits)	Associated Samples	Qualifications
	15/16	UU	0	0	50-150	( )	13 (Det)	J/UJ/A (6)
		YY	0	3.10		( )	13, 14	
		ZZ	0	0		( )		
		DOD	48.9	-		( )	13	
						( )		
						( )		
						( )		
						( )		
						( )		
						( )		
						( )		
						( )		
						( )		
						( )		
						( )		
						( )		
						( )		
						( )		
						( )		
						( )		
						( )		
						( )		
						( )		

(matrix interferene)

LDC#: 60005A2b

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Reviewer: JVG

METHOD: PAH (Lab SOP MLA-021 Rev12)

Compound	Concentration (ng/Kg)		RPD ≤50%
	OMMP-SMA1-SG-COMP-01-240508	OMMP-SMA1-SG-COMP-101-240508	
Anthracene	18.1	12.7	35
Pyrene	110	101	9
Dibenzothiophene	3.90	4.12	5
Benzo(g,h,i)perylene	42.8	38.0	12
Benzo(e)pyrene	44.0	38.9	12
Indeno(1,2,3-c,d)pyrene	28.5	23.1	21
Perylene	53.3	39.5	30
Benzo(b)fluoranthene	44.1	36.7	18
Fluoranthene	102	95.6	6
Acenaphthylene	6.18	6.48	5
Chrysene	87.9	55.3	46
2,3,5-Trimethylnaphthalene (1,6,7-Trimethylnaphthalene)	8.54	11.1	26
Benzo(a)pyrene	41.9	36.0	15
Dibenzo(a,h)anthracene	6.91	6.37	8
Benzo(a)anthracene	36.4	30.0	19
2,6-Dimethylnaphthalene	8.21	13.1	46
Acenaphthene	4.01	6.05	41
1-Methylphenanthrene	10.8	9.17	16
Phenanthrene	56.8	45.6	22
Fluorene	4.92	4.75	4
Naphthalene	35.7	31.7	12
2-Methylnaphthalene	7.57	12.1	46
Benzo(j,k)fluoranthene	38.7	29.9	26

LDC #: 60005A2b

VALIDATION FINDINGS WORKSHEET
Target Analyte Quantitation and Reported RLs

Reviewer: JVG

METHOD: LRMS PAH (LAB SOP MLA-021, Rev 12)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Were the correct internal standard (IS), quantitation ions and relative response factors (RRF) used to quantitate the analyte?

Y N N/A Analyte quantitation and RLs were adjusted to reflect all sample dilutions and dry weight factors (if necessary).

#	Sample ID	Analyte	Finding	Qualifications
	All except 5, 6	-	All analytes flagged "K" by the laboratory as EMPC	J det/P (23)

LABORATORY DATA CONSULTANTS, INC.
2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

Anchor QEA, LLC
1201 3rd Ave., Suite 2600
Seattle, WA 98101
ATTN: Ms. Jennifer Marsalla
jmarsalla@anchorqea.com

February 21, 2025

SUBJECT: Shelton Harbor - Data Validation

Dear Ms. Marsalla,

Enclosed are the final validation reports for the fractions listed below. These SDGs were received on November 1, 2024. Attachment 1 is a summary of the samples that were reviewed for each analysis.

Revision:
DPWG91499/WG90268
Polychlorinated Dioxins/Dibenzofurans
Added 1,2,3,7,8,9-HxCDD (VF-XMS) to OMMP-FS-RB-240506

LDC Project #60022_RV2:

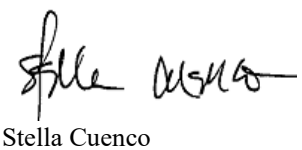
SDG #	Fraction
DPWG91605/WG90286	Polycyclic Aromatic Hydrocarbons, Polychlorinated Dioxins/Dibenzofurans
DPWG91499/WG90268	

The data validation was performed under Stage 2B & 4 guidelines. The analysis was validated using the following documents, as applicable to each method:

- Sampling and Quality Assurance Project Plan Addendum No. 2 for Shelton Harbor Sediment Cleanup Unit, Oakland Bay and Shelton Harbor Sediment Cleanup Site, Shelton, Washington (June 2020)
- USEPA National Functional Guidelines (NFG) for Organic Superfund Methods Data Review (January 2017)
- USEPA National Functional Guidelines (NFG) for High Resolution Superfund Methods Data Review (April 2016)

Please feel free to contact us if you have any questions.

Sincerely,



Stella Cuenco
scuenco@lab-data.com
Project Manager/Senior Chemist

364 pages-ADV (Dioxins Stage 4) Attachment 1

2B/4 EDD LDC# 60022 (Anchor Environmental-Seattle WA / Simpson Timber Company / Shelton Harbor Sediment Cleanup)

LDC	SDG#	DATE REC'D	(3) DATE DUE	PAHs (MLA-021)		Dioxins (MLA-217)																															
Matrix: Water/Sediment				W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S
A	DPWG91605 /WG90286	11/01/24	11/22/24	0	11	-	-																														
B	DPWG91499 /WG90268	11/01/24	11/22/24	-	-	1	0																														
Total	TR/SC			0	11	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12

Shaded cells indicate Stage 4 validation (all other cells are Stage 2B validation). These sample counts do not include MS, MSD, or DUP's.

L:\Anchor\Shelton Harbor\60022ST.wpd

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Shelton Harbor

LDC Report Date: February 12, 2025

Parameters: Polycyclic Aromatic Hydrocarbons

Validation Level: Stage 2B

Laboratory: SGS AXYS Analytical Services, Ltd., Sidney, BC

Sample Delivery Group (SDG): DPWG91605/WG90286

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
RIFS-SMA5-SG06-240508	L41355-15	Sediment	05/08/24
RIFS-SMA5-SG07-240508	L41355-16	Sediment	05/08/24
RIFS-SMA5-SG09-240508	L41355-18	Sediment	05/08/24
RIFS-SMA5-SG10-240508	L41355-19	Sediment	05/08/24
RIFS-SMA5-SG11-240508	L41355-20	Sediment	05/08/24
RIFS-SMA5-SG24-240509	L41355-29	Sediment	05/09/24
RIFS-SMA5-SG28-240508	L41355-32	Sediment	05/08/24
RIFS-SMA5-SG40-240509	L41355-40	Sediment	05/09/24
RIFS-SMA5-SG124-240509	L41355-43	Sediment	05/09/24
OMMP-SMA3-SG-DCOMP-03-240509	L41355-44	Sediment	05/09/24
OMMP-SMA1-SG-COMP-101-240508	L41355-45	Sediment	05/08/24
RIFS-SMA5-SG24-240509MS	L41355-29MS	Sediment	05/09/24
RIFS-SMA5-SG24-240509MSD	L41355-29MSD	Sediment	05/09/24

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Sampling and Quality Assurance Project Plan Addendum No. 3 for Shelton Harbor Sediment Cleanup Unit, Oakland Bay and Shelton Harbor Sediments Cleanup Site, Shelton, Washington (May 2024) and a modified outline of the USEPA National Functional Guidelines (NFG) for Organic Superfund Methods Data Review (January 2017). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Polycyclic Aromatic Hydrocarbons (PAHs) by SGS AXYS SOP Method MLA-021, Revision 12, Version 10

All sample results were subjected to Stage 2B data validation, which comprises an evaluation of quality assurance and quality control (QA/QC) summary reports.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The reported result was an estimated quantity value.

U (Non-detected): The analyte was analyzed for, but was not detected above the level of the adjusted detection limit or quantitation limit, as appropriate.

UJ (Non-detected): The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.

NJ (Tentatively identified): The analyte has been "tentatively identified" or "presumptively identified" as present, and the associated numerical value was the estimated concentration in the sample.

R (Rejected): The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the sample.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Qualification Codes

1 Holding Time
2 Sample Preservation (Cooler Temp)
3 Sample Custody
4 Missing Deliverables
5 Calibration
6 Field Blanks
7 Laboratory Blanks
8 Matrix Spike (%R)
9 Matrix Spike Duplicate (RPD or Duplicate Sample Analysis)
10 Laboratory Control Sample
11 ICP Interference Check
12 RPD Between Two Columns
13 Surrogates
14 Field Duplicates
15 Peak Resolution
16 ICP Serial Dilution
17 Chemical Recoveries
18 Trip Blanks
19 Internal Standards/Labeled Compounds (High Resolution)
20 Linear Range Exceeded
21 Potential False Positives
22 Do Not Use, Other Result More Technically Sound
23 Estimated Maximum Possible Concentration
24 Other

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. GC/LRMS Instrument Performance Check

Instrument performance check was performed at the required frequency.

III. Initial Calibration

An initial calibration was performed as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 20.0% for all analytes.

The ion abundance ratios for all analytes were within validation criteria.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

The percent differences (%D) were less than or equal to 25.0% for all analytes.

The ion abundance ratios for all analytes were within validation criteria.

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks with the following exceptions:

Blank ID	Extraction Date	Analyte	Concentration (ng/Kg)	Associated Samples
WG90286-101	07/16/24	Naphthalene Acenaphthene Phenanthrene Fluoranthene Pyrene Chrysene 2-Methylnaphthalene	0.273 0.268 0.136 0.091 0.062 0.051 0.123	All samples in SDG DPWG91605/WG90286

Sample concentrations were compared to concentrations detected in the laboratory blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated laboratory blanks.

VI. Field Blanks

Sample OMMP-FS-RB-240506 (from SDG WG89860) was identified as a rinsate blank. No contaminants were found with the following exceptions:

Blank ID	Collection Date	Analyte	Concentration (ug/L)	Associated Samples
OMMP-FS-RB-240506	05/06/24	Naphthalene	1.15	OMMP-SMA3-SG-DCOMP-03-240509
		Phenanthrene	0.670	OMMP-SMA1-SG-COMP-101-240508
		Anthracene	0.298	
		Fluoranthene	0.260	
		Pyrene	0.211	
		Benz[a]anthracene	0.059	
		Chrysene	0.117	
		2-Methylnaphthalene	0.728	

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated field blanks.

VII. Labeled Compounds

All labeled compound percent recoveries (%R) and ion abundance ratios (IAR) were within QC limits.

VIII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. Percent recoveries (%R) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Analyte	MS %R (50-150)	MSD %R (50-150)	Flag	A or P
RIFS-SMA5-SG24-240509MS/MSD	Chrysene	-	32.8	J (all detects)	A
(RIFS-SMA5-SG24-240509	Benzo[b]fluoranthene	28.4	-	J (all detects)	
RIFS-SMA5-SG124-240509)	Benzo[j,k]fluoranthenes	48.0	-	J (all detects)	
RIFS-SMA5-SG24-240509MS/MSD (RIFS-SMA5-SG24-240509 RIFS-SMA5-SG124-240509)	2,3,5-Trimethylnaphthalene	152	151	J (all detects)	A

Relative percent differences (RPD) were within QC limits.

IX. Ongoing Precision Recovery

Ongoing precision recovery (OPR) samples were analyzed as required by the method. Percent recoveries (%R) were within QC limits.

X. Field Duplicates

Samples OMMP-SMA1-SG-COMP-01-240508 and OMMP-SMA1-SG-COMP-101-240508 and samples RIFS-SMA5-SG24-240509 and RIFS-SMA5-SG124-240509 were identified as field duplicates. No results were detected in any of the samples with the following exceptions:

Analyte	Concentration (ng/Kg)		RPD (≤50)
	OMMP-SMA1-SG-COMP-01-240508	OMMP-SMA1-SG-COMP-101-240508	
Anthracene	18.1	12.7	35
Pyrene	110	101	9
Dibenzothiophene	3.90	4.12	5
Benzo(g,h,i)perylene	42.8	38.0	12
Benzo(e)pyrene	44.0	38.9	12
Indeno(1,2,3-c,d)pyrene	28.5	23.1	21
Perylene	53.3	39.5	30
Benzo(b)fluoranthene	44.1	36.7	18
Fluoranthene	102	95.6	6
Acenaphthylene	6.18	6.48	5
Chrysene	87.9	55.3	46
2,3,5-Trimethylnaphthalene	8.54	11.1	26
Benzo(a)pyrene	41.9	36.0	15
Dibenzo(a,h)anthracene	6.91	6.37	8
Benzo(a)anthracene	36.4	30.0	19
2,6-Dimethylnaphthalene	8.21	13.1	46
Acenaphthene	4.01	6.05	41
1-Methylphenanthrene	10.8	9.17	16
Phenanthrene	56.8	45.6	22
Fluorene	4.92	4.75	4
Naphthalene	35.7	31.7	12
2-Methylnaphthalene	7.57	12.1	46
Benzo(j,k)fluoranthene	38.7	29.9	26

Analyte	Concentration (ng/Kg)		RPD (≤50)
	RIFS-SMA5-SG24-240509	RIFS-SMA5-SG124-240509	
Anthracene	74.6	42.9	54
Dibenzothiophene	11.6	9.64	18
Benzo(g,h,i)perylene	123	72.0	52
Benzo(e)pyrene	300	157	63
Indeno(1,2,3-c,d)pyrene	130	71.2	58
Perylene	89.5	53.4	51
Benzo(b)fluoranthene	458	227	67
Acenaphthylene	27.9	16.1	54

Analyte	Concentration (ng/Kg)		RPD (≤50)
	RIFS-SMA5-SG24-240509	RIFS-SMA5-SG124-240509	
Chrysene	823	400	69
2,3,5-Trimethylnaphthalene	11.8	9.19	25
Benzo(a)pyrene	215	118	58
Dibenzo(a,h)anthracene	34.4	17.1	67
Benzo(a)anthracene	238	116	69
2,6-Dimethylnaphthalene	9.28	9.23	1
Acenaphthene	16.1	11.7	32
1-Methylphenanthrene	45.0	28.5	45
Phenanthrene	200	158	23
Fluorene	11.3	8.89	24
Naphthalene	31.5	44.3	34
2-Methylnaphthalene	8.98	10.6	17
Benzo(j,k)fluoranthene	361	202	56
Pyrene	1160	761	42
Fluoranthene	1220	804	41

XI. Target Analyte Quantitation

All target analyte quantitations were within validation criteria with the following exceptions:

Sample	Analyte	Flag	A or P
RIFS-SMA5-SG06-240508 RIFS-SMA5-SG11-240508 OMMP-SMA3-SG-DCOMP-03-240509 OMMP-SMA1-SG-COMP-101-240508	All analytes flagged "K" by the laboratory as estimated maximum possible concentration (EMPC).	J (all detects)	P

Raw data were not reviewed for Stage 2B validation.

XII. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

Data qualified due to MS/MSD %R and results reported by the laboratory as EMPCs are summarized and presented in the Data Qualification Summary.

Shelton Harbor
Polycyclic Aromatic Hydrocarbons - Data Qualification Summary - SDG DPWG91605/WG90286

Sample	Analyte	Flag	A or P	Reason (Code)
RIFS-SMA5-SG24-240509 RIFS-SMA5-SG124-240509	Chrysene Benzo[b]fluoranthene Benzo[j,k]fluoranthenes 2,3,5-Trimethylnaphthalene	J (all detects) J (all detects) J (all detects) J (all detects)	A	Matrix spike/Matrix spike duplicates (%R) (8)
RIFS-SMA5-SG06-240508 RIFS-SMA5-SG11-240508 OMMP-SMA3-SG-DCOMP-03-240509 OMMP-SMA1-SG-COMP-101-240508	All analytes flagged "K" by the laboratory as estimated maximum possible concentration (EMPC).	J (all detects)	P	Target analyte quantitation (EMPC) (23)

Shelton Harbor
Polycyclic Aromatic Hydrocarbons - Laboratory Blank Data Qualification Summary - SDG DPWG91605/WG90286

No Sample Data Qualified in this SDG

Shelton Harbor
Polycyclic Aromatic Hydrocarbons - Field Blank Data Qualification Summary - SDG DPWG91605/WG90286

No Sample Data Qualified in this SDG

LDC #: 60022A2b **VALIDATION COMPLETENESS WORKSHEET** Date: 11/22/24
SDG #: DPWG91605/WG90286 Stage 2B Page: 1 of 1
Laboratory: SGS AXYS Analytical Services, Ltd., Sidney, BC Reviewer: JVG
2nd Reviewer: AC

METHOD: GC/~~MS~~ LRMS Polynuclear Aromatic Hydrocarbons (MLA-021, Rev 12) Ver 10

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A / A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A / N	RSD ≤ 20%
IV.	Continuing calibration	A	CCV ≤ 25%
V.	Laboratory Blanks	SW	
VI.	Field blanks	SW	RB = OMMP-FS-RB-240506 (from WG89860)
VII.	~~Surrogate spikes~~ Labeled	A	
VIII.	Matrix spike/Matrix spike duplicates	SW	
IX.	Laboratory control samples	A	OPR
X.	Field duplicates	SW	D= 6/9, 11/6 OMMP-SMA1-SG-COMP-01-240508
XI.	~~Internal standards~~	-	
XII.	Target analyte quantitation	SW	
XIII.	Target analyte identification	N	
XIV	Overall assessment of data	A	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

	Client ID	Lab ID	Matrix	Date
1	RIFS-SMA5-SG06-240508	L41355-15	Sediment	05/08/24
2	RIFS-SMA5-SG07-240508	L41355-16	Sediment	05/08/24
3	RIFS-SMA5-SG09-240508	L41355-18	Sediment	05/08/24
4	RIFS-SMA5-SG10-240508	L41355-19	Sediment	05/08/24
5	RIFS-SMA5-SG11-240508	L41355-20	Sediment	05/08/24
6	RIFS-SMA5-SG24-240509 D1	L41355-29	Sediment	05/09/24
7	RIFS-SMA5-SG28-240508	L41355-32	Sediment	05/08/24
8	RIFS-SMA5-SG40-240509	L41355-40	Sediment	05/09/24
9	RIFS-SMA5-SG124-240509 D1	L41355-43	Sediment	05/09/24
10	OMMP-SMA3-SG-DCOMP-03-240509	L41355-44	Sediment	05/09/24
11	OMMP-SMA1-SG-COMP-101-240508 D1	L41355-45	Sediment	05/08/24
12	RIFS-SMA5-SG24-240509MS	L41355-29MS	Sediment	05/09/24
13	RIFS-SMA5-SG24-240509MSD	L41355-29MSD	Sediment	05/09/24
14				
15	WG90286-101			

(Frozen samples)

LDC#: 60022A2b

VALIDATION FINDINGS WORKSHEET
Blanks

Reviewer: JVG

METHOD: PAH (Lab SOP MLA-021 Rev12)
Method blanks were performed at the required frequency and sequence.
No contaminants were found in the method blanks with the exceptions identified below.
Blank extraction date: 07/16/24 **Blank analysis date:** 07/30/24 **Associated samples:** ALL (>5X)
Conc. units: ng/Kg

Compound	Blank ID	Sample Identification							
	WG90286-101	5X							
Naphthalene	0.273	1.365							
Acenaphthene	0.268	1.340							
Phenanthrene	0.136	0.680							
Fluoranthene	0.091	0.455							
Pyrene	0.062	0.310							
Chrysene	0.051	0.255							
2-Methylnaphthalene	0.123	0.615							

Blank extraction date: **Blank analysis date:** **Associated samples:**
Conc. units:

Compound	Blank ID	Sample Identification							

VALIDATION FINDINGS WORKSHEET
Field Blanks

METHOD: PAH (Lab SOP MLA-021 Rev12)
Field blanks were identified in this SDG.
No contaminants were found in the field blanks with the exceptions identified below.

Sampling date: 5/6/2024 **Blank units:** ug/L **Associated sample units:** ng/g
Field blank type: RB **Associated Samples:** 10, 11 (>5x)

(FB = Field Blank; EB = Equipment Blank; SB = Source Blank)

Compound	Blank ID	Blank ID	Sample Identification						
OMMP-FS-RB-240506		5x							
Naphthalene	1.15	5.75		U by MB					
Phenanthrene	0.670	3.35		↓					
Anthracene	0.298	1.49							
Fluoranthene	0.260	1.30							
Pyrene	0.211	1.06		↓					
Benz[a]anthracene	0.059	0.30							
Chrysene	0.117	0.59		U by MB					
2-Methylnaphthalene	0.728	3.64		↓					

LDC#: 60022A2b

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates

Reviewer: JVG

METHOD: PAH (Lab SOP MLA-021 Rev12)

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample.

Percent recoveries (%R) and %RPD were within QC limits with the exceptions identified below.

MS/MSD ID	Analyte	MS %R	MSD %R	%R Limits	RPD	RPD Limits	Associated samples	Qualifications
12/13	Chrysene	-	32.8	50-150			6, 7 (DET)	J/UJ/A (8)
	Benzo[b]fluoranthene	28.4	-				9	
	Benzo[j,k]fluoranthenes	48.0	-					
	2,3,5-Trimethylnaphthalene	152	151					J det/A (8)

LDC#: 60022A2b

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Reviewer: JVG

METHOD: PAH (Lab SOP MLA-021 Rev12)

Compound	Concentration (ng/Kg)		RPD ≤50%
	OMMP-SMA1-SG-COMP-01-240508	OMMP-SMA1-SG-COMP-101-240508	
Anthracene	18.1	12.7	35
Pyrene	110	101	9
Dibenzothiophene	3.90	4.12	5
Benzo(g,h,i)perylene	42.8	38.0	12
Benzo(e)pyrene	44.0	38.9	12
Indeno(1,2,3-c,d)pyrene	28.5	23.1	21
Perylene	53.3	39.5	30
Benzo(b)fluoranthene	44.1	36.7	18
Fluoranthene	102	95.6	6
Acenaphthylene	6.18	6.48	5
Chrysene	87.9	55.3	46
2,3,5-Trimethylnaphthalene (1,6,7-Trimethylnaphthalene)	8.54	11.1	26
Benzo(a)pyrene	41.9	36.0	15
Dibenzo(a,h)anthracene	6.91	6.37	8
Benzo(a)anthracene	36.4	30.0	19
2,6-Dimethylnaphthalene	8.21	13.1	46
Acenaphthene	4.01	6.05	41
1-Methylphenanthrene	10.8	9.17	16
Phenanthrene	56.8	45.6	22
Fluorene	4.92	4.75	4
Naphthalene	35.7	31.7	12
2-Methylnaphthalene	7.57	12.1	46
Benzo(j,k)fluoranthene	38.7	29.9	26

Compound	Concentration (ng/Kg)		RPD ≤50%
	6	9	
Anthracene	74.6	42.9	54
Dibenzothiophene	11.6	9.64	18
Benzo(g,h,i)perylene	123	72.0	52
Benzo(e)pyrene	300	157	63
Indeno(1,2,3-c,d)pyrene	130	71.2	58
Perylene	89.5	53.4	51
Benzo(b)fluoranthene	458	227	67
Acenaphthylene	27.9	16.1	54
Chrysene	823	400	69
2,3,5-Trimethylnaphthalene (1,6,7-Trimethylnaphthalene)	11.8	9.19	25
Benzo(a)pyrene	215	118	58
Dibenzo(a,h)anthracene	34.4	17.1	67
Benzo(a)anthracene	238	116	69
2,6-Dimethylnaphthalene	9.28	9.23	1

LDC#: 60022A2b

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Reviewer: JVG

METHOD: PAH (Lab SOP MLA-021 Rev12)

Compound	Concentration (ng/Kg)		RPD ≤50%
	6 OMMP-SMA1-SG-COMP-01-240508	9 OMMP-SMA1-SG-COMP-101-240508	
Acenaphthene	16.1	11.7	32
1-Methylphenanthrene	45.0	28.5	45
Phenanthrene	200	158	23
Fluorene	11.3	8.89	24
Naphthalene	31.5	44.3	34
2-Methylnaphthalene	8.98	10.6	17
Benzo(j,k)fluoranthene	361	202	56
Pyrene	1160	761	42
Fluoranthene	1220	804	41

LDC#: 60022A2b

VALIDATION FINDINGS WORKSHEET
Target Analyte Quantitation and Reported RLs

Reviewer: JVG

METHOD: PAH (Lab SOP MLA-021 Rev12)
The correct internal standard (IS), quantitation ion and relative response factor (RRF) were used to quantitate the compound.
The analyte quantitation and RLs were adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation
The reported results and quantitation limits for the target analyte identified below did not meet the project requirements.

#	Sample ID	Analyte	Finding	Qualifications
	1, 5 , 10, 11	-	All analytes flagged "K" by the laboratory as EMPC	J det/P (23)

Comments:

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Shelton Harbor

LDC Report Date: February 17, 2025

Parameters: Polychlorinated Dioxins/Dibenzofurans

Validation Level: Stage 4

Laboratory: SGS AXYS Analytical Services, LTD

Sample Delivery Group (SDG): DPWG91499/WG90268

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
OMMP-FS-RB-240506	L41354-1	Water	05/06/24

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Sampling and Quality Assurance Project Plan Addendum No. 3 for Shelton Harbor Sediment Cleanup Unit, Oakland Bay and Shelton Harbor Sediments Cleanup Site, Shelton, Washington (May 2024) and a modified outline of the USEPA National Functional Guidelines (NFG) for High Resolution Superfund Methods Data Review (April 2016). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Polychlorinated Dioxins/Dibenzofurans by SGS AXYS SOP Method MLA-217, Revision 01, Version 10

All sample results were subjected to Stage 4 data validation, which is comprised of the quality assurance and quality control (QA/QC) summary reports as well as the raw data, to confirm sample quantitation and identification.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The reported result was an estimated quantity value.

U (Non-detected): The analyte was analyzed for, but was not detected above the level of the adjusted detection limit or quantitation limit, as appropriate.

UJ (Non-detected): The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.

NJ (Tentatively identified): The analyte has been "tentatively identified" or "presumptively identified" as present, and the associated numerical value was the estimated concentration in the sample.

R (Rejected): The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the sample.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Qualification Codes

1 Holding Time
2 Sample Preservation (Cooler Temp)
3 Sample Custody
4 Missing Deliverables
5 Calibration
6 Field Blanks
7 Laboratory Blanks
8 Matrix Spike (%R)
9 Matrix Spike Duplicate (RPD or Duplicate Sample Analysis)
10 Laboratory Control Sample
11 ICP Interference Check
12 RPD Between Two Columns
13 Surrogates
14 Field Duplicates
15 Peak Resolution
16 ICP Serial Dilution
17 Chemical Recoveries
18 Trip Blanks
19 Internal Standards/Labeled Compounds (High Resolution)
20 Linear Range Exceeded
21 Potential False Positives
22 Do Not Use, Other Result More Technically Sound
23 Estimated Maximum Possible Concentration
24 Other

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. HRGC/HRMS Instrument Performance Check

Instrument performance was checked at the required frequency.

Retention time windows were established for all homologues. The chromatographic resolution between 2,3,7,8-TCDD and peaks representing any other unlabeled TCDD isomer was less than or equal to 25%.

The static resolving power was at least 10,000 (10% valley definition).

III. Initial Calibration

A five point initial calibration was performed as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 20.0% for all analytes and less than or equal to 35.0% for labeled compounds.

The ion abundance ratios for all PCDDs and PCDFs were within validation criteria.

The minimum S/N ratio was greater than or equal to 10 for each analyte and labeled compound.

The percent differences (%D) of the initial calibration verification (ICV) standard were within the QC limits for all analytes and labeled compounds.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

All of the continuing calibration results were within the QC limits for all analytes and labeled compounds.

The ion abundance ratios for all PCDDs and PCDFs were within validation criteria.

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks with the following exceptions:

Blank ID	Extraction Date	Analyte	Concentration (pg/L)	Associated Samples
WG90268-101	07/09/24	OCDD 1,2,3,7,8-PeCDF Total penta-furan	0.264 0.263 0.263	All samples in SDG DPWG91499/WG90268

Sample concentrations were compared to concentrations detected in the laboratory blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated laboratory blanks with the following exceptions:

Sample	Analyte	Reported Concentration (pg/L)	Modified Final Concentration (pg/L)
OMMP-FS-RB-240506	1,2,3,7,8-PeCDF	0.253	0.253U

VI. Field Blanks

Sample OMMP-FS-RB-240506 was identified as a rinsate blank. No contaminants were found with the following exceptions:

Blank ID	Collection Date	Analyte	Concentration (ng/L)	Associated Samples
OMMP-FS-RB-240506	05/06/24	1,2,3,6,7,8-HxCDD 1,2,3,7,8,9-HxCD (DB5MS) 1,2,3,4,6,7,8-HpCDD OCDD 1,2,3,7,8-PeCDF 1,2,3,4,6,7,8-HpCDF Total penta-dioxins Total hexa-dioxins Total hepta-dioxins Total penta-furans Total hexa-furans Total hepta-furans 1,2,3,7,8,9-HxCDD (VF-XMS)	0.436 0.286 1.300 1.600 0.253 0.485 0.685 3.61 2.55 1.400 2.920 1.020 0.265	No associated samples in this SDG

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated field blanks.

VII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

VIII. Ongoing Precision Recovery

Ongoing precision recovery (OPR) samples were analyzed as required by the method. Percent recoveries (%R) were within QC limits.

IX. Field Duplicates

No field duplicates were identified in this SDG.

X. Labeled Compounds

All percent recoveries (%R) for labeled compounds used to quantitate target analytes were within QC limits.

XI. Target Analyte Quantitation

All target analyte quantitations met validation criteria with the following exceptions:

Sample	Analyte	Finding	Flag	A or P
OMMP-FS-RB-240506	1,2,3,7,8,9-HxCDD	All analytes flagged "K" by the laboratory as estimated maximum possible concentration (EMPC).	J (all detects)	P

XII. Target Analyte Identification

All target analyte identification met validation criteria.

XIV. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

Data qualified due to laboratory blank contamination and EMPC are summarized and presented in the Data Qualification Summary.

Shelton Harbor
Polychlorinated Dioxins/Dibenzofurans - Data Qualification Summary - SDG DPWG91499/WG90268

Sample	Analyte	Flag	A or P	Reason (Code)
OMMP-FS-RB-240506	1,2,3,7,8,9-HxCDD	J (all detects)	P	Target analyte quantitation (EMPC) (23)

Shelton Harbor
Polychlorinated Dioxins/Dibenzofurans - Laboratory Blank Data Qualification Summary - SDG DPWG91499/WG90268

Sample	Analyte	Modified Final Concentration (pg/L)	Code
OMMP-FS-RB-240506	1,2,3,7,8-PeCDF	0.253U	7

Shelton Harbor
Polychlorinated Dioxins/Dibenzofurans - Field Blank Data Qualification Summary - SDG DPWG91499/WG90268

No Sample Data Qualified in this SDG

LDC #: 60022B21 **VALIDATION COMPLETENESS WORKSHEET** Date: h/22/24
SDG #: DPWG91499/WG90268 Stage 4 Page: 1 of 1
Laboratory: SGS AXYS Analytical Services, LTD Reviewer: MV
2nd Reviewer: MC

METHOD: HRGC/HRMS Polychlorinated Dioxins/Dibenzofurans (MLA-217, Rev 01) Ver 10

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A, A	
II.	HRGC/HRMS Instrument performance check	A	
III.	Initial calibration/ICV	A, A	RSD ≤ 20% IAW QC limits
IV.	Continuing calibration	A	CCV ≤ QC limits
V.	Laboratory Blanks	SW	
VI.	Field blanks	SW	RB = 1
VII.	Matrix spike/Matrix spike duplicates	N	CS
VIII.	Laboratory control samples	A	OPR
IX.	Field duplicates	N	
X.	Labeled Compounds	A	
XI.	Target analyte quantitation	SW	Ku EMPC - Tech/A
XII.	Target analyte identification	SW	
XIII	Overall assessment of data	A	

Note: A = Acceptable
N = Not provided/applicable
SW = See worksheet
ND = No compounds detected
R = Rinsate
FB = Field blank
D = Duplicate
TB = Trip blank
EB = Equipment blank
SB=Source blank
OTHER:

	Client ID	Lab ID	Matrix	Date
1	OMMP-FS-RB-240506	L41354-1	Water	05/06/24
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				

Notes:

Method: HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 1613B)

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
All technical holding times were met.	√			
Cooler temperature criteria was met.	√			
II. GC/MS Instrument performance check				
Was PFK exact mass 380.9760 verified?	√			
Were the retention time windows established for all homologues?	√			
Was the chromatographic resolution between 2,3,7,8-TCDD and peaks representing any other unlabeled TCDD isomers ≤ 25% ?	√			
Is the static resolving power at least 10,000 (10% valley definition)?	√			
Was the mass resolution adequately check with PFK?	√			
Was the presence of 1,2,8,9-TCDD and 1,3,4,6,8-PeCDF verified?	√			
IIIa. Initial calibration				
Was the initial calibration performed at 5 concentration levels?	√			
Were all percent relative standard deviations (%RSD) ≤ 20% for unlabeled compounds and ≤ 35% for unlabeled compounds?	√			
Did all calibration standards meet the Ion Abundance Ratio criteria?	√			
Was the signal to noise ratio for each target compound and labeled compound ≥ 10?	√			
IIIb. Initial Calibration Verification				
Was an initial calibration verification standard analyzed after each initial calibration for each instrument?	√			
Were all concentrations for the unlabeled compounds and for labeled compounds within QC limits?	√			
IV. Continuing calibration				
Was a continuing calibration performed at the beginning of each 12 hour period?	√			
Were all concentrations for the unlabeled compounds and for labeled compounds within QC limits (Method 1613B, Table 6)?	√			
Did all continuing calibration standards meet the Ion Abundance Ratio criteria?	√			
V. Blanks				
Was a method blank associated with every sample in this SDG?	√			
Was a method blank performed for each matrix and whenever a sample extraction was performed?	√			
Was there contamination in the method blanks?	√			
VI. Field blanks				
Were field blanks identified in this SDG?	√			
Were target analytes detected in the field blanks?	√			
VII. Matrix spike/Matrix spike duplicates				
Were matrix spike (MS) and matrix spike duplicate (MSD) analyzed in this SDG?		√		
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?			√	

Validation Area	Yes	No	NA	Findings/Comments
VIII. Laboratory control samples				
Was an LCS analyzed per extraction batch?	√			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	√			
IX. Field duplicates				
Were field duplicate pairs identified in this SDG?		√		
Were target analytes detected in the field duplicates?			√	
X. Labeled compounds				
Were labeled compounds within QC limits (Method 1613B, Table 7)?	√			
Was the minimum S/N ratio of all labeled compound peaks ≥ 10?	√			
XI. Target analyte quantitation				
Did the laboratory LOQs/RLs meet the QAPP LOQs/RLs?	√			
Were the correct labeled compound, quantitation ion and relative response factor (RRF) used to quantitate the analyte?	√			
Were target analyte quantitation and RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	√			
XII. Target analyte identification				
For 2,3,7,8 substituted congeners with associated labeled standards, were the retention times of the two quantitation peaks within -1 to 3 sec. of the RT of the labeled standard?	√			
For 2,3,7,8 substituted congeners without associated labeled standards, were the relative retention times of the two quantitation peaks within 0.005 time units of the RRT measured in the routine calibration?	√			
For non-2,3,7,8 substituted congeners, were the retention times of the two quantitation peaks within RT established in the performance check solution?	√			
Did analyte spectra contain all characteristic ions listed in the table attached?	√			
Was the Ion Abundance Ratio for the two quantitation ions within criteria?	√	√		
Was the signal to noise ratio for each target analyte ≥2.5 and ≥10 for the labeled compound?	√			
Does the maximum intensity of each specified characteristic ion coincide within ± 2 seconds (includes labeled standards)?	√			
For PCDF identification, was any signal (S/N ≥ 2.5, at ± seconds RT) detected in the corresponding PCDPE channel?	√			
Was an acceptable lock mass recorded and monitored?	√			
Were manual integrations reviewed and found acceptable?			√	
Did the laboratory provide before and after integration printouts?			√	
XIII. Overall assessment of data				
Overall assessment of data was found to be acceptable.	√			

LDC#: 60022B21

VALIDATION FINDINGS WORKSHEET
Blanks

Reviewer: JVG

METHOD: PCDD/PCDF (Lab SOP MLA-217 Rev 01)
Method blanks were performed at the required frequency and sequence.
No contaminants were found in the method blanks with the exceptions identified below.
Blank extraction date: 07/09/24 **lank analysis date:** 07/15/24 **Associated samples:** ALL (Code 7)
Conc. units: pg/L

Compound	Blank ID	Sample Identification							
	WG90268-101	5X		1					
OCDD	0.264	1.320							
1,2,3,7,8-PECDF	0.263	1.315		0.253/U					
TOTAL PENTA-FURAN	0.263	1.315							

Blank extraction date: **Blank analysis date:** **Associated samples:**
Conc. units:

Compound	Blank ID	Sample Identification							

LDC#: 60022B21

VALIDATION FINDINGS WORKSHEET
Field Blanks

Reviewer: JVG

METHOD: PCDD/PCDF (Lab SOP MLA-217 Rev 01)
Field blanks were identified in this SDG.
No contaminants were found in the field blanks with the exceptions identified below.

Sampling date: 5/6/2024 **Blank units:** ng/L **Associated sample units:** NA
Field blank type: RB **Associated Samples:** NONE

(FB = Field Blank; EB = Equipment Blank; SB = Source Blank)

Compound	Blank ID	Blank ID	Sample Identification						
[redacted]	1								
1,2,3,6,7,8-HXCDD	0.436								
1,2,3,7,8,9-HXCD	0.286								
1,2,3,4,6,7,8-HPCDD	1.300								
OCDD	1.600								
1,2,3,7,8-PECDF	0.253								
1,2,3,4,6,7,8-HPCDF	0.485								
TOTAL PENTA-DIOXINS	0.685								
TOTAL HEXA-DIOXINS	3.61								
TOTAL HEPTA-DIOXINS	2.55								
TOTAL PENTA-FURANS	1.400								
TOTAL HEXA-FURANS	2.920								
TOTAL HEPTA-FURANS	1.020								
1,2,3,7,8,9-HXCDF	0.265								

(DBS)

(VF-xMS)

LDC#: 60022B21

VALIDATION FINDINGS WORKSHEET
Target Analyte ~~Identification~~ Quantitation

Reviewer: JVG

METHOD: PCDD/PCDF (Lab SOP MLA-217 Rev 01)
The Ion Abundance Ratio for the two quantitation ions is within criteria except analytes identified below.
The signal to noise ratio for each target analyte and labeled standard > 2.5 except those identified below.

#	Associated samples	Analyte	~~Ion ratio (limits)~~	Qualifications
	1	1,2,3,7,8,9-HXCDD	1.89 (1.33-1.80)	J det/P (23)
			Analytes flagged "K" as EMPC	

Comments: Ion ratio out qualified K and reported as EMPC

LDC #: 60022B21

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Reviewer: JVG

METHOD: HRGC/HRMS Dioxins/Dibenzofurans (EPA Method 1613B)

The Relative Response Factor (RRF), average RRF, and percent relative standard deviation (%RSD) were recalculated for the compounds identified below using the following calculations:

$RRF = (A_x)(C_{is})/(A_{is})(C_x)$
average RRF = sum of the RRFs/number of standards
%RSD = 100 * (S/X)

A_x = Area of Compound
C_x = Concentration of compound,
S= Standard deviation of the RRFs,

A_{is} = Area of associated internal standard
C_{is} = Concentration of internal standard
X = Mean of the RRFs

#	Standard ID	Calibration Date	Compound (IS)	Reported RRF (CS3)	Recalculated RRF (CS3)	Reported Average RRF (Initial)	Recalculated Average RRF (Initial)	Reported %RSD	Recalculated %RSD
1	ICAL HRGCMS	8/21/2023	2,3,7,8-TCDD (13C-2,3,7,8-TCDD)	1.27	1.26	1.3110	1.31	3.25	3.29
			2,3,7,8-TCDF (13C-2,3,7,8-TCDF)	1.04	1.04	1.0960	1.09	5.48	5.42
			1,2,3,6,7,8-HxCDD (13C-1,2,3,6,7,8-HxCDD)	1.07	1.07	1.1150	1.12	3.94	4.03
			1,2,3,4,6,7,8-HpCDF (13C-1,2,3,4,6,7,8,-HpCDF)	0.96	0.97	0.9985	1.00	4.56	4.50
			OCDD (13C-OCDD)	1.02	1.02	1.0525	1.05	4.62	4.64
2	ICAL HRGCMS	9/13/2023	2,3,7,8-TCDF (13C-2,3,7,8-TCDF)	1.01	1.015	1.0523	1.05	2.34	2.41

LDC#: 60022B21

VALIDATION FINDINGS WORSHEET
Continuing Calibration Results Verification

Reviewer: JVG

METHOD: HRGC/HRMS Dioxins/Dibenzofurans (EPA Method 1613B)

The percent difference (%D) of the initial calibration average Relative Response Factors (RRFs) and the continuing calibration RRFs were recalculated for the compounds identified below using the following calculation:

% Difference = 100 * (ave. RRF - RRF)/ave. RRF
RRF = (Ax)(Cis)/(Ais)(Cx)

ave. RRF = ICAL average RRF
RRF = CCV RRF
Ax = Area of compound

Cx = Concentration of compound
Ais = Area of associated internal standard
Cis = Concentration of internal standard

#	Standard ID	Calibration Date	Compound (IS)	Conc ng/mL	Reported Conc	Recalculated Conc	Reported %R	Recalculated %R
1	DX4T_065S20	07/15/24	2,3,7,8-TCDD (13C-2,3,7,8-TCDD)	0.525	0.556	0.556	105.9	106.0
			2,3,7,8-TCDF (13C-2,3,7,8-TCDF)	0.500	0.461	0.461	92.2	92.3
			1,2,3,6,7,8-HxCDD (13C-1,2,3,6,7,8-HxCDD)	2.500	2.630	2.636	105.2	105.4
			1,2,3,4,6,7,8-HpCDF (13C-1,2,3,4,6,7,8,-HpCDF)	2.500	2.584	2.590	103.4	103.6
			OCDD (13C-OCDD)	5.000	5.025	5.012	100.5	100.2
2	DX4M_016S12	07/16/24	2,3,7,8-TCDF (13C-2,3,7,8-TCDF)	0.500	0.537	0.537	107.4	107.4

LDC # 60022B21

VALIDATION FINDINGS WORKSHEET
LCS/OPR Results Verification

Reviewer: JVG

METHOD: HRGC/HRMS Dioxins/Dibenzofurans (EPA Method 1613B)

The percent recoveries (%R) and relative percent differences (RPD) of the laboratory control sample and laboratory control duplicate were recalculated for the compounds identified below using the following calculation:

SSC = (Area spike) (Conc IS) / (Area IS) (average RRF spike)
%Recovery = 100 * SSC/SA

Where:
SSC = Spiked concentration
SA = Spike added
LCS = Laboratory control spike recovery
LCSD = Laboratory control spike duplicate recovery

RPD = | LCS - LCSD | * 2/(LCS + LCSD)

LCS/LCSD ID: WG90268-102

Compound	SA (ng/mL)		SSC (ng/mL)		LCS Percent Recovery		LCSD Percent Recovery		LCS/D RPD	
	LCS	LCSD	LCS	LCSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalc.
2,3,7,8-TCDD	1.05		1.03	NA	98.2	98.1				
1,2,3,7,8-PeCDD	5.00		4.75		95	95				
1,2,3,4,7,8-HxCDD	5.00		5.29		106	106				
1,2,3,4,7,8,9-HpCDF	5.00		5.14		103	103				
OCDF	10.00		11.20		112	112				

LDC # 59416B21

VALIDATION FINDINGS WORKSHEET
Sample Results Verification

Reviewer: JVG

METHOD: HRGC/HRMS Dioxins/Dibenzofurans (EPA Method 1613B)

Analyte results for all Level IV samples reported with a positive detect were recalculated and verified using the following equation:

$$\text{Concentration} = \frac{(Ax)(Cis)(Ve)(DF)}{(Ais)(RRF)(Vi)(\%S)}$$

Ax	Area of the characteristic ion (EICP) for the analyte to be measured
Ais	Area of the characteristic ion (EICP) for the specific internal standard
Cis	Amount of internal standard added in nanograms (ng)
Ve	Volume or weight of sample extract in mcroliters (ul)
Vi	Initial volume or weight of sample in milliliters (ml) or grams (g).
RRF	Relative Response Factor (average) from the initial calibration
Df	Dilution Factor.
%S	Percent solids, applicable to soil and solid matrices only.

Sample #	Compound	Ax	Ai	Ci (ng)	RRF	DF	Ve (uL)	(dry wt) Vi (L)	% S/100	Calculated Concentration (pg/L)	Reported Concentration (pg/L)	% Diff
1	OCDD	1.71E+03	4.30E+06	200	1.053	1.00	20.00	0.94	NA	1.60	1.60	0

LABORATORY DATA CONSULTANTS, INC.

2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

Anchor QEA, LLC
1201 3rd Ave., Suite 2600
Seattle, WA 98101
ATTN: Ms. Jennifer Marsalla
jmarsalla@anchorqea.com

February 18, 2025

SUBJECT: Shelton Harbor - Data Validation

Dear Ms. Marsalla,

Enclosed are the final validation reports for the fraction listed below. These SDGs were received on November 21, 2024. Attachment 1 is a summary of the samples that were reviewed for each analysis.

LDC Project #60135:

SDG #	Fraction
WG90287 WG90288 WG91427	Polychlorinated Dioxins/Dibenzofurans

The data validation was performed under Stage 4 guidelines. The analysis was validated using the following documents, as applicable to each method:

- Sampling and Quality Assurance Project Plan Addendum No. 3 for Shelton Harbor Sediment Cleanup Unit, Oakland Bay and Shelton Harbor Sediments Cleanup Site, Shelton, Washington (May 2024)
- USEPA National Functional Guidelines (NFG) for High Resolution Superfund Methods Data Review (April 2016)

Please feel free to contact us if you have any questions.

Sincerely,

Stella Cuenco
scuenco@lab-data.com
Project Manager/Senior Chemist

LDC #60135 (Anchor Environmental - Seattle, WA / Shelton Harbor Sediement Cleanup - Simpson Timber Co.)

LDC	SDG#	Received Date	(25) Due Date	Validation Level	Dioxins MLA-217
Matrix Type:					Sediment
A	WG90287	11/21/24	12/16/24	Stage 4	20
B	WG90288	11/21/24	12/16/24	Stage 4	2
C	WG91427	11/21/24	12/16/24	Stage 4	15
Total			PM: SC		**37**

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Shelton Harbor

LDC Report Date: February 17, 2025

Parameters: Polychlorinated Dioxins/Dibenzofurans

Validation Level: Stage 4

Laboratory: SGS AXYS Analytical Services, LTD

Sample Delivery Group (SDG): WG90287

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
OMMP-SMA1-SG-COMP-01-240508	L41355-1	Sediment	05/08/24
OMMP-SMA2-SG-COMP-02-240506	L41355-2	Sediment	05/06/24
OMMP-SMA3-SG-COMP-03-240509	L41355-3	Sediment	05/09/24
NHRA-SMA5-SG-COMP-04-240506	L41355-4	Sediment	05/06/24
RIFS-SMA5-SG-COMP-05-240509	L41355-5	Sediment	05/09/24
RIFS-SMA5-SG01-240508	L41355-10	Sediment	05/08/24
RIFS-SMA5-SG02-240508	L41355-11	Sediment	05/08/24
RIFS-SMA5-SG03-240508	L41355-12	Sediment	05/08/24
RIFS-SMA5-SG04-240508	L41355-13	Sediment	05/08/24
RIFS-SMA5-SG05-240508	L41355-14	Sediment	05/08/24
RIFS-SMA5-SG06-240508	L41355-15	Sediment	05/08/24
RIFS-SMA5-SG07-240508	L41355-16	Sediment	05/08/24
RIFS-SMA5-SG08-240508	L41355-17	Sediment	05/08/24
RIFS-SMA5-SG09-240508	L41355-18	Sediment	05/08/24
RIFS-SMA5-SG10-240508	L41355-19	Sediment	05/08/24
RIFS-SMA5-SG11-240508	L41355-20	Sediment	05/08/24
RIFS-SMA5-SG12-240506	L41355-21	Sediment	05/06/24
RIFS-SMA5-SG13-240507	L41355-22	Sediment	05/07/24
RIFS-SMA5-SG14-240507	L41355-23	Sediment	05/07/24
RIFS-SMA5-SG16-240509	L41355-24	Sediment	05/09/24
RIFS-SMA5-SG14-240507DUP	L41355-23DUP	Sediment	05/07/24

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Sampling and Quality Assurance Project Plan Addendum No. 3 for Shelton Harbor Sediment Cleanup Unit, Oakland Bay and Shelton Harbor Sediments Cleanup Site, Shelton, Washington (May 2024) and a modified outline of the USEPA National Functional Guidelines (NFG) for High Resolution Superfund Methods Data Review (April 2016). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Polychlorinated Dioxins/Dibenzofurans by SGS AXYS SOP Method MLA-217, Revision 01, Version 10

All sample results were subjected to Stage 4 data validation, which is comprised of the quality assurance and quality control (QA/QC) summary reports as well as the raw data, to confirm sample quantitation and identification.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The reported result was an estimated quantity value.

U (Non-detected): The analyte was analyzed for, but was not detected above the level of the adjusted detection limit or quantitation limit, as appropriate.

UJ (Non-detected): The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.

NJ (Tentatively identified): The analyte has been "tentatively identified" or "presumptively identified" as present, and the associated numerical value was the estimated concentration in the sample.

R (Rejected): The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the sample.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Qualification Codes

1 Holding Time
2 Sample Preservation (Cooler Temp)
3 Sample Custody
4 Missing Deliverables
5 Calibration
6 Field Blanks
7 Laboratory Blanks
8 Matrix Spike (%R)
9 Matrix Spike Duplicate (RPD or Duplicate Sample Analysis)
10 Laboratory Control Sample
11 ICP Interference Check
12 RPD Between Two Columns
13 Surrogates
14 Field Duplicates
15 Peak Resolution
16 ICP Serial Dilution
17 Chemical Recoveries
18 Trip Blanks
19 Internal Standards/Labeled Compounds (High Resolution)
20 Linear Range Exceeded
21 Potential False Positives
22 Do Not Use, Other Result More Technically Sound
23 Estimated Maximum Possible Concentration
24 Other

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. HRGC/HRMS Instrument Performance Check

Instrument performance was checked at the required frequency.

Retention time windows were established for all homologues. The chromatographic resolution between 2,3,7,8-TCDD and peaks representing any other unlabeled TCDD isomer was less than or equal to 25%.

The static resolving power was at least 10,000 (10% valley definition).

III. Initial Calibration

A five point initial calibration was performed as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 20.0% for all analytes and less than or equal to 35.0% for labeled compounds.

The ion abundance ratios for all PCDDs and PCDFs were within validation criteria.

The minimum S/N ratio was greater than or equal to 10 for each analyte and labeled compound.

The percent differences (%D) of the initial calibration verification (ICV) standard were within the QC limits for all analytes and labeled compounds.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

All of the continuing calibration results were within the QC limits for all analytes and labeled compounds.

The ion abundance ratios for all PCDDs and PCDFs were within validation criteria.

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks with the following exceptions:

Blank ID	Extraction Date	Analyte	Concentration (pg/g)	Associated Samples
WG90287-101 (DB5)	07/30/24	1,2,3,7,8-PeCDD	0.069	All samples in SDG WG90287
		1,2,3,4,7,8-HxCDD	0.050	
		1,2,3,6,7,8-HxCDD	0.081	
		1,2,3,4,6,7,8-HpCDD	0.711	
		OCDD	3.81	
		2,3,7,8-TCDF	0.072	
		1,2,3,7,8-PeCDF	0.093	
		2,3,4,7,8-PeCDF	0.055	
		1,2,3,4,7,8-HxCDF	0.079	
		1,2,3,6,7,8-HxCDF	0.055	
		2,3,4,6,7,8-HxCDF	0.052	
		1,2,3,4,6,7,8-HpCDF	0.425	
		1,2,3,4,7,8,9-HpCDF	0.064	
		OCDF	2.37	
		Total TCDD	0.409	
		Total PeCDD	0.487	
		Total HxCDD	0.482	
		Total HpCDD	1.27	
		Total TCDF	0.072	
		Total PeCDF	0.055	
		Total HxCDF	0.468	
		Total HpCDF	1.86	
WG90287-101 (VF-XMS)	07/30/24	2,3,7,8-TCDF	0.047	All samples in SDG WG90287
		1,2,3,7,8,9-HxCDD	0.059	

Sample concentrations were compared to concentrations detected in the laboratory blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated laboratory blanks with the following exceptions:

Sample	Analyte	Reported Concentration (pg/g)	Modified Final Concentration (pg/g)
NHRA-SMA5-SG-COMP-04-240506	1,2,3,7,8-PeCDD	0.232	0.232U
	2,3,7,8-TCDF	0.345	0.345U
	1,2,3,7,8-PeCDF	0.166	0.166U
	2,3,4,7,8-PeCDF	0.143	0.143U
	1,2,3,4,7,8-HxCDF	0.568	0.568U
	1,2,3,6,7,8-HxCDF	0.292	0.292U
	2,3,4,6,7,8-HxCDF	0.243	0.243U

VI. Field Blanks

Sample OMMP-FS-RB-240506 (from SDG DPWG91499/WG90268) was identified as a rinsate blank. No contaminants were found with the following exceptions:

Blank ID	Collection Date	Analyte	Concentration (ng/L)	Associated Samples
OMMP-FS-RB-240506	05/06/24	1,2,3,6,7,8-HxCDD	0.436	OMMP-SMA1-SG-COMP-01-240508
		1,2,3,7,8,9-HxCD (DB5MS)	0.286	OMMP-SMA2-SG-COMP-02-240506
		1,2,3,4,6,7,8-HpCDD	1.30	OMMP-SMA3-SG-COMP-03-240509
		OCDD	1.60	
		1,2,3,7,8-PeCDF	0.253	
		1,2,3,4,6,7,8-HpCDF	0.485	
		Total penta-dioxins	0.685	
		Total hexa-dioxins	3.61	
		Total hepta-dioxins	2.55	
		Total penta-furans	1.40	
		Total hexa-furans	2.92	
		Total hepta-furans	1.02	
		1,2,3,7,8,9-HxCDD (VF-XMS)	0.265	

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated field blanks.

VII. Matrix Spike/Matrix Spike Duplicates/Laboratory Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

Laboratory duplicate (DUP) sample analysis was performed on an associated project sample. Results were within QC limits with the following exceptions:

DUP ID (Associated Samples)	Analyte	RPD (≤35)	Flag	A or P
RIFS-SMA5-SG14-240507DUP (RIFS-SMA5-SG14-240507)	OCDF	38.7	J (all detects)	A

VIII. Ongoing Precision and Recovery

Ongoing precision and recovery (OPR) samples were analyzed as required by the method. Percent recoveries (%R) were within QC limits.

IX. Field Duplicates

Samples OMMP-SMA1-SG-COMP-01-240508 and OMMP-SMA1-SG-COMP-101-240508 (from SDG WG91427) were identified as field duplicates. No results were detected in any of the samples with the following exceptions:

Analyte	Concentration (pg/g)		RPD
	OMMP-SMA1-SG-COMP-01-240508	OMMP-SMA1-SG-COMP-101-240508	
2,3,7,8-TCDD	0.902	0.974	8
1,2,3,7,8-PeCDD	5.36	5.94	10
1,2,3,4,7,8-HxCDD	12.0	11.7	3
1,2,3,6,7,8-HxCDD	37.7	40.3	7
1,2,3,7,8,9-HxCDD (DB5MS)	27.7	31.7	13
1,2,3,4,6,7,8-HpCDD	846	875	3
OCDD	6200	6810	9
2,3,7,8-TCDF (DB5MS)	8.14	9.43	15
1,2,3,7,8-PeCDF	3.34	3.52	5
2,3,4,7,8-PeCDF	4.60	4.96	8
1,2,3,4,7,8-HxCDF	19.9	23.5	17
1,2,3,6,7,8-HxCDF	8.71	9.40	8
1,2,3,7,8,9-HxCDF	0.750	0.774	3
2,3,4,6,7,8-HxCDF	6.70	7.52	12
1,2,3,4,6,7,8-HpCDF	296	315	6
1,2,3,4,7,8,9-HpCDF	16.5	15.6	6
OCDF	884	925	5
Total TCDD	343	366	6
Total PeCDD	409	480	16
Total HxCDD	737	843	13
Total HpCDD	1900	2030	7
Total TCDF	63.0	72.0	13
Total PeCDF	92.4	108	16
Total HxCDF	360	402	11
Total HpCDF	1010	1060	5
2,3,7,8-TCDF (VF-XMS)	2.78	2.94	6
1,2,3,7,8,9-HxCDD (VF-XMS)	24.9	24.7	1

X. Labeled Compounds

All percent recoveries (%R) for labeled compounds used to quantitate target analytes were within QC limits with the following exceptions:

Sample	Labeled Compound	%R (Limits)	Affected Analyte	Flag	A or P
RIFS-SMA5-SG04-240508	13C-2,3,7,8-TCDD 13C-1,2,3,7,8-PECDD 13C-1,2,3,4,7,8-HXCDD 13C-1,2,3,6,7,8-HXCDD 13C-1,2,3,4,6,7,8-HPCDD 13C-OCDD 13C-2,3,7,8-TCDF 13C-1,2,3,7,8-PECDF 13C-2,3,4,7,8-PECDF 13C-1,2,3,4,7,8-HXCDF 13C-1,2,3,6,7,8-HXCDF 13C-1,2,3,7,8,9-HXCDF 13C-2,3,4,6,7,8-HXCDF 13C-1,2,3,4,6,7,8-HPCDF 13C-1,2,3,4,7,8,9-HPCDF	15.7 (25-164) 20.0 (25-181) 21.6 (32-141) 21.8 (28-130) 20.0 (23-140) 16.2 (17-157) 16.5 (24-169) 19.6 (24-185) 19.1 (21-178) 22.1(26-152) 22.6 (26-123) 19.5 (29-147) 20.4 (28-136) 20.8 (28-143) 18.7 (26-138)	All analytes (DB5)	J (all detects)	P
RIFS-SMA5-SG04-240508	13C-1,2,3,4,7,8-HXCDD 13C-1,2,3,6,7,8-HXCDD	18.7 (32-141) 20.2 (28-130)	1,2,3,7,8,9-HxCDD (VF-XMS)	J (all detects)	P
RIFS-SMA5-SG10-240508	13C-2,3,7,8-TCDD 13C-1,2,3,7,8-PECDD 13C-1,2,3,4,7,8-HXCDD 13C-1,2,3,6,7,8-HXCDD 13C-1,2,3,4,6,7,8-HPCDD 13C-OCDD 13C-2,3,7,8-TCDF 13C-1,2,3,7,8-PECDF 13C-2,3,4,7,8-PECDF 13C-1,2,3,4,7,8-HXCDF 13C-1,2,3,6,7,8-HXCDF 13C-1,2,3,7,8,9-HXCDF 13C-2,3,4,6,7,8-HXCDF 13C-1,2,3,4,6,7,8-HPCDF 13C-1,2,3,4,7,8,9-HPCDF	13.0 (25-164) 18.5 (25-181) 17.0 (32-141) 18.4 (28-130) 15.9 (23-140) 13.2 (17-157) 13.9 (24-169) 17.2 (24-185) 17.4 (21-178) 17.9 (26-152) 19.7 (26-123) 15.9 (29-147) 16.6 (28-136) 17.6 (28-143) 16.1 (26-138)	All analytes (DB5)	J (all detects)	P
RIFS-SMA5-SG10-240508	13C-1,2,3,4,7,8-HXCDD 13C-1,2,3,6,7,8-HXCDD	18.9 (32-141) 19.8 (28-130)	1,2,3,7,8,9-HxCDD (VF-XMS)	J (all detects)	P

XI. Target Analyte Quantitation

All target analyte quantitations met validation criteria with the following exceptions:

Sample	Analyte	Finding	Flag	A or P
NHRA-SMA5-SG-COMP-04-240506	All analytes	All analytes flagged "K" by the laboratory as estimated maximum possible concentration (EMPC).	J (all detects)	A

XII. Target Analyte Identification

All target analyte identification met validation criteria.

XIV. Overall Assessment of Data

The analysis was conducted within all specifications of the method.

In the case where more than one result was reported for an individual sample, the least technically acceptable results were deemed not reportable as follows:

Sample	Analyte	Reason	Flag	A or P
All samples in SDG WG90287	1,2,3,7,8,9-HxCDD (DB5) 2,3,7,8-TCDF (DB5)	Results from VF-XMS column were more usable.	Not reportable	-

Data qualified due to laboratory blank contamination, DUP RPD, labeled compound %R, and EMPC are summarized and presented in the Data Qualification Summary.

Shelton Harbor
Polychlorinated Dioxins/Dibenzofurans - Data Qualification Summary - SDG WG90287

Sample	Analyte	Flag	A or P	Reason (Code)
RIFS-SMA5-SG14-240507	OCDF	J (all detects)	A	Laboratory duplicates (RPD) (9)
RIFS-SMA5-SG04-240508 RIFS-SMA5-SG10-240508	All analytes (DB5)	J (all detects)	P	Labeled compounds (%R) (19)
RIFS-SMA5-SG04-240508 RIFS-SMA5-SG10-240508	1,2,3,7,8,9-HxCDD (VF-XMS)	J (all detects)	P	Labeled compounds (%R) (19)
NHRA-SMA5-SG-COMP-04-240506	All analytes flagged "K" by the laboratory as estimated maximum possible concentration (EMPC).	J (all detects)	P	Target analyte quantitation (EMPC) (23)
OMMP-SMA1-SG-COMP-01-240508 OMMP-SMA2-SG-COMP-02-240506 OMMP-SMA3-SG-COMP-03-240509 NHRA-SMA5-SG-COMP-04-240506 RIFS-SMA5-SG-COMP-05-240509 RIFS-SMA5-SG01-240508 RIFS-SMA5-SG02-240508 RIFS-SMA5-SG03-240508 RIFS-SMA5-SG04-240508 RIFS-SMA5-SG05-240508 RIFS-SMA5-SG06-240508 RIFS-SMA5-SG07-240508 RIFS-SMA5-SG08-240508 RIFS-SMA5-SG09-240508 RIFS-SMA5-SG10-240508 RIFS-SMA5-SG11-240508 RIFS-SMA5-SG12-240506 RIFS-SMA5-SG13-240507 RIFS-SMA5-SG14-240507 RIFS-SMA5-SG16-240509	1,2,3,7,8,9-HxCDD (DB5) 2,3,7,8-TCDF(DB5)	Not reportable	-	Overall assessment of data (22)

Shelton Harbor
Polychlorinated Dioxins/Dibenzofurans - Laboratory Blank Data Qualification Summary - SDG WG90287

Sample	Analyte	Modified Final Concentration (pg/g)	Code
NHRA-SMA5-SG-COMP-04-240506	1,2,3,7,8-PeCDD 1,2,3,7,8-PeCDF 2,3,4,7,8-PeCDF 1,2,3,4,7,8-HxCDF 1,2,3,6,7,8-HxCDF 2,3,4,6,7,8-HxCDF	0.232U 0.166U 0.143U 0.568U 0.292U 0.243U	7

Shelton Harbor
Polychlorinated Dioxins/Dibenzofurans - Field Blank Data Qualification Summary - SDG WG90287

No Sample Data Qualified in this SDG

VALIDATION COMPLETENESS WORKSHEET

LDC #: 60135A
SDG #: WG90287
Laboratory: SGS AXYS Analytical Services, Ltd., Sidney, BC

Date: 11/27/2024
Page: 1
Reviewer: JL
2nd Reviewer: N

Method: Dioxins (SGS AXYS MLA-217) Rev 01

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I	Sample receipt/Technical holding times	A/A	
II	HRGC/HRMS Instrument performance check	A	
III	Initial Calibration/ ICV	A/A	RSD ≤ 20/35 ICV = QC limits
IV	Continuing calibration	A	QC limits
V	Laboratory Blanks	SW	
VI	Field blanks	SW	
VII	~~Surrogate spikes~~		
VIII	Matrix Spike/Matrix Spike Duplicate /DUP	N/A	
IX	Laboratory control samples	A	OPR
X	Field duplicates	SW	
XI	Labeled Compounds	SW	
XII	Target analyte quantitation	SW	
XIII	Target analyte identification	A	
XIV	Overall assessment of data	SW	

Note: A = Acceptable; ND = Not detected; FT = Field triplicate; AB= Ambient blank; R = Rinsate
N = Not provided/applicable; NQ = Not qualified; TB = Trip blank; SB = Source blank
SW = See worksheet; FD = Field duplicate; FB = Field blank; EB = Equipment blank

	Client ID	Lab ID	QC Type	Matrix	Date	Stage
1 RB	OMMP-SMA1-SG-COMP-01-240508	L41355-1	#D	Sediment	05/08/2024	Stage 4
2 ↓	OMMP-SMA2-SG-COMP-02-240506	L41355-2		Sediment	05/06/2024	Stage 4
3 ↓	OMMP-SMA3-SG-COMP-03-240509	L41355-3		Sediment	05/09/2024	Stage 4
4	NHRA-SMA5-SG-COMP-04-240506	L41355-4		Sediment	05/06/2024	Stage 4
5	RIFS-SMA5-SG-COMP-05-240509	L41355-5		Sediment	05/09/2024	Stage 4
6	RIFS-SMA5-SG01-240508	L41355-10		Sediment	05/08/2024	Stage 4
7	RIFS-SMA5-SG02-240508	L41355-11		Sediment	05/08/2024	Stage 4
8	RIFS-SMA5-SG03-240508	L41355-12		Sediment	05/08/2024	Stage 4
9	RIFS-SMA5-SG04-240508	L41355-13		Sediment	05/08/2024	Stage 4
10	RIFS-SMA5-SG05-240508	L41355-14		Sediment	05/08/2024	Stage 4
11	RIFS-SMA5-SG06-240508	L41355-15		Sediment	05/08/2024	Stage 4
12	RIFS-SMA5-SG07-240508	L41355-16		Sediment	05/08/2024	Stage 4
13	RIFS-SMA5-SG08-240508	L41355-17		Sediment	05/08/2024	Stage 4
14	RIFS-SMA5-SG09-240508	L41355-18		Sediment	05/08/2024	Stage 4
15	RIFS-SMA5-SG10-240508	L41355-19		Sediment	05/08/2024	Stage 4
16	RIFS-SMA5-SG11-240508	L41355-20		Sediment	05/08/2024	Stage 4
17	RIFS-SMA5-SG12-240506	L41355-21		Sediment	05/06/2024	Stage 4
18	RIFS-SMA5-SG13-240507	L41355-22		Sediment	05/07/2024	Stage 4
19	RIFS-SMA5-SG14-240507	L41355-23		Sediment	05/07/2024	Stage 4
20	RIFS-SMA5-SG16-240509	L41355-24		Sediment	05/09/2024	Stage 4
21	RIFS-SMA5-SG14-240507DUP	L41355-23DUP	DUP	Sediment	05/07/2024	Stage 4

Notes: WG90287

LDC #: 60125A

VALIDATION FINDINGS CHECKLIST

Reviewer: 1

Method: HRGC/HRMS Dioxins/Dibenzofurans (EPA Method 1613B/SGS AXYS Method MLA-017 R01)

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
All technical holding times were met.	✓			
Cooler temperature criteria was met.	✓			
II. GC/MS Instrument performance check				
Was PFK exact mass 380.9760 verified?	✓			
Were the retention time windows established for all homologues?	✓			
Was the chromatographic resolution between 2,3,7,8-TCDD and peaks representing any other unlabeled TCDD isomers ≤ 25% ?	✓			
Is the static resolving power at least 10,000 (10% valley definition)?	✓			
Was the mass resolution adequately check with PFK?	✓			
Was the presence of 1,2,8,9-TCDD and 1,3,4,6,8-PeCDF verified?	✓			
III. Initial calibration				
Was the initial calibration performed at 5 concentration levels?	✓			
Were all percent relative standard deviations (%RSD) ≤ 20% for unlabeled compounds and ≤ 35% for labeled compounds ?	✓			
Did all calibration standards meet the Ion Abundance Ratio criteria?	✓			
Was the signal to noise ratio for each target compound ≥ 2.5 and for each recovery and internal standard ≥ 10?	✓			
IV. Initial calibration verification				
Was an initial calibration verification standard analyzed after each initial calibration for each instrument?	✓			
Were all concentration ≤ QC limits for unlabeled and labeled compounds ?	✓			
V. Continuing calibration				
Was a continuing calibration performed at the beginning and end of each 12 hour period?	✓			
Were all concentration ≤ QC limits for unlabeled and labeled compounds ?	✓			
Did all continuing calibration standards meet the Ion Abundance Ratio criteria?	✓			
VI. Blanks				
Was a method blank associated with every sample in this SDG?	✓			
Was a method blank performed for each matrix and concentration?	✓			
Was there contamination in the method blanks?	✓			
VII. Field blanks				
Field blanks were identified in this SDG.	✓			
Target compounds were detected in the field blanks.	✓			
VIII. Matrix spike/Matrix spike duplicates DUP				
Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG?		✓		
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?		✓		DUP RPD

Validation Area	Yes	No	NA	Findings/Comments
IX. Laboratory control samples OPR				
Was an LCS analyzed per extraction batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	✓			
X. Field duplicates				
Field duplicate pairs were identified in this SDG.		✓		
Target compounds were detected in the field duplicates.		✓		
XI. Labeled Compounds				
Were labeled compound recoveries and ion abundance ratio within the QC limits?		✓		
Was the minimum S/N ratio of all labeled compound peaks ≥ 10?	✓			
XII. Target analyte quantitation				
Were the correct labeled compound, quantitation ion and relative response factor (RRF) used to quantitate the compound?	✓			
Were analyte quantitation and RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
XII. Target analyte identification				
For 2,3,7,8 substituted congeners with associated labeled standards, were the retention times of the two quantitation peaks within -1 to 3 sec. of the RT of the labeled standard?	✓			
For 2,3,7,8 substituted congeners without associated labeled standards, were the relative retention times of the two quantitation peaks within 0.005 time units of the RRT measured in the continuin calibration?	✓			
For non-2,3,7,8 substituted congeners, were the retention times of the two quantitation peaks within RT established in the performance check solution?	✓			
Did analyte contain all characteristic ions listed in the table attached?	✓			
Was the Ion Abundance Ratio for the two quantitation ions within criteria?		✓		
Was the signal to noise ratio for each target compound and labeled standard ≥2.5?	✓			
Does the maximum intensity of each specified characteristic ion coincide within ± 2 seconds (includes labeled standards)?	✓			
For PCDF identification, was any signal (S/N ≥ 2.5, at ± seconds RT) detected in the corresponding PCDPE channel?	✓	N	✓	
Was an acceptable lock mass recorded and monitored?	✓			
XIV. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			

VALIDATION FINDINGS WORKSHEET
Blanks

METHOD: SGS AXYS MLA-217 Rev 01)

Blank extraction date: 7/30/2024
Blank analysis date: 9/23/2024 **Associated samples:** All Qualify individual U7 Total J7

Analyte	Blank ID (pg/g)	Sample Identification							
	WG90287-101 (DB5)	5X	4						
1,2,3,7,8-PeCDD	0.069	0.345	0.232						
1,2,3,4,7,8-HxCDD	0.050	0.25							
1,2,3,6,7,8-HxCDD	0.081	0.405							
1,2,3,4,6,7,8-HpCDD	0.711	3.555							
OCDD	3.81	19.05							
2,3,7,8-TCDF	0.072	0.36	0.345						
1,2,3,7,8-PeCDF	0.093	0.465	0.166						
2,3,4,7,8-PeCDF	0.055	0.275	0.143						
1,2,3,4,7,8-HxCDF	0.079	0.395	0.568						
1,2,3,6,7,8-HxCDF	0.055	0.275	0.292						
2,3,4,6,7,8-HxCDF	0.052	0.26	0.243						
1,2,3,4,6,7,8-HpCDF	0.425	2.125							
1,2,3,4,7,8,9-HpCDF	0.064	0.32							
OCDF	2.37	11.85							
Total TCDD	0.409	2.045							
Total PeCDD	0.487	2.435							
Total HxCDD	0.482	2.41							
Total HpCDD	1.27	6.35							
Total TCDF	0.072	0.36							
Total PeCDF	0.055	0.275							
Total HxCDF	0.468	2.34							
Total HpCDF	1.86	9.3							

VALIDATION FINDINGS WORKSHEET
Blanks

METHOD: SGS AXYS MLA-217 Rev 01)

Blank extraction date: 7/30/2024
Blank analysis date: 9/28/2024
Associated samples: All Qualify individual U7 Total J7

Analyte	Blank ID (pg/g)	Sample Identification							
	WG90287-101 (VF-XMS)	5X	4						
2,3,7,8-TCDF	0.047	0.235							
1,2,3,7,8,9-HxCDD	0.059	0.295							

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LDC#: 60022B21

VALIDATION FINDINGS WORKSHEET
Field Blanks

Reviewer: JVG

METHOD: PCDD/PCDF (Lab SOP MLA-217 Rev 01)

Sampling date: 5/6/2024 **Associated sample units:** pg/g

Field blank type: RB **Associated Samples:** 1-3

Compound	Blank ID (ng/L)	Sample Identification						
SDG DPWG91499/WG90268	OMMP-FS-RB-240506							
1,2,3,6,7,8-HXCDD	0.436							
(1,2,3,7,8,9-HXCDD) 1,2,3,7,8,9-HXCD	0.286							
1,2,3,4,6,7,8-HPCDD	1.30U							
OCDD	1.60U							
1,2,3,7,8-PECDF	0.253							
1,2,3,4,6,7,8-HPCDF	0.485							
TOTAL PENTA-DIOXINS	0.685							
TOTAL HEXA-DIOXINS	3.61							
TOTAL HEPTA-DIOXINS	2.55							
TOTAL PENTA-FURANS	1.40U							
TOTAL HEXA-FURANS	2.92U							
TOTAL HEPTA-FURANS	1.02U							
(VF-XMS) 1,2,3,7,8,9-HxCDD	0.265							

VALIDATION FINDINGS WORKSHEET
Laboratory Duplicates

METHOD: SGS AXYS MLA-217 Rev 01)

Laboratory duplicate (DUP) sample analysis was performed on an associated project sample.

Percent relative difference (RPD) were within QC limits with the exceptions identified below.

DUP ID	Analyte	RPD	RPD Limits	Associated samples	Qualifications
21	OCDF	38.7	≤35	19 (det)	Ldets/A (9)

VALIDATION FINDINGS WORKSHEET
Field Duplicates

METHOD: SGS AXYS MLA-217 Rev 01)

Compound	Concentration (pg/g)		RPD
	OMMP-SMA1-SG-COMP-01-240508	OMMP-SMA1-SG-COMP-101-240508	
2,3,7,8-TCDD	0.902	0.974	8
1,2,3,7,8-PeCDD	5.36	5.94	10
1,2,3,4,7,8-HxCDD	12.0	11.7	3
1,2,3,6,7,8-HxCDD	37.7	40.3	7
1,2,3,7,8,9-HxCDD (DB5)	27.7	31.7	13
1,2,3,4,6,7,8-HpCDD	846	875	3
OCDD	6200	6810	9
2,3,7,8-TCDF (DB5MS)	8.14	9.43	15
1,2,3,7,8-PeCDF	3.34	3.52	5
2,3,4,7,8-PeCDF	4.60	4.96	8
1,2,3,4,7,8-HxCDF	19.9	23.5	17
1,2,3,6,7,8-HxCDF	8.71	9.40	8
1,2,3,7,8,9-HxCDF	0.750	0.774	3
2,3,4,6,7,8-HxCDF	6.70	7.52	12
1,2,3,4,6,7,8-HpCDF	296	315	6
1,2,3,4,7,8,9-HpCDF	16.5	15.6	6
OCDF	884	925	5
Total TCDD	343	366	6
Total PeCDD	409	480	16
Total HxCDD	737	843	13
Total HpCDD	1900	2030	7
Total TCDF	63.0	72.0	13
Total PeCDF	92.4	108	16
Total HxCDF	360	402	11
Total HpCDF	1010	1060	5
2,3,7,8-TCDF (VF-XMS)	2.78	2.94	6
1,2,3,7,8,9-HxCDD (VF-XMS)	24.9	24.7	1

SDG ~~WG90287~~ WG91427

VALIDATION FINDINGS WORKSHEET
Labeled Compounds

METHOD: SGS AXYS MLA-217 Rev 01)

All labeled compound percent recoveries (%R) were within QC limits with the exceptions identified below.

#	Sample ID	Labeled compound	%Recovery	%R (Limits)	Assoc'd Analyte	Qualifications
	RIFS-SMA5-SG04-240508 (DB5)	13C-2,3,7,8-TCDD	15.7	25-164	All (DB5)	J/UJ/P (19)
	(det)	13C-1,2,3,7,8-PECDD	20.0	25-181		
		13C-1,2,3,4,7,8-HXCDD	21.6	32-141		
		13C-1,2,3,6,7,8-HXCDD	21.8	28-130		
		13C-1,2,3,4,6,7,8-HPCDD	20.0	23-140		
		13C-OCDD	16.2	17-157		
		13C-2,3,7,8-TCDF	16.5	24-169		
		13C-1,2,3,7,8-PECDF	19.6	24-185		
		13C-2,3,4,7,8-PECDF	19.1	21-178		
		13C-1,2,3,4,7,8-HXCDF	22.1	26-152		
		13C-1,2,3,6,7,8-HXCDF	22.6	26-123		
		13C-1,2,3,7,8,9-HXCDF	19.5	29-147		
		13C-2,3,4,6,7,8-HXCDF	20.4	28-136		
		13C-1,2,3,4,6,7,8-HPCDF	20.8	28-143		
		13C-1,2,3,4,7,8,9-HPCDF	18.7	26-138		
	RIFS-SMA5-SG04-240508 (VF-XMS)	13C-1,2,3,4,7,8-HXCDD	18.7	32-141	1,2,3,7,8,9-HxCDD (VF-XMS)	J/UJ/P (19)
	(det)	13C-1,2,3,6,7,8-HXCDD	20.2	28-130		

VALIDATION FINDINGS WORKSHEET
Labeled Compounds

METHOD: SGS AXYS MLA-217 Rev 01)

All labeled compound percent recoveries (%R) were within QC limits with the exceptions identified below.

#	Sample ID	Labeled compound	%Recovery	%R (Limits)	Assoc'd Analyte	Qualifications
	RIFS-SMA5-SG10-240508 (DB5)	13C-2,3,7,8-TCDD	13.0	see page 1	All (DB5)	J/UJ/P (19)
	(det)	13C-1,2,3,7,8-PECDD	18.5			
		13C-1,2,3,4,7,8-HXCDD	17.0			
		13C-1,2,3,6,7,8-HXCDD	18.4			
		13C-1,2,3,4,6,7,8-HPCDD	15.9			
		13C-OCDD	13.2			
		13C-2,3,7,8-TCDF	13.9			
		13C-1,2,3,7,8-PECDF	17.2			
		13C-2,3,4,7,8-PECDF	17.4			
		13C-1,2,3,4,7,8-HXCDF	17.9			
		13C-1,2,3,6,7,8-HXCDF	19.7			
		13C-1,2,3,7,8,9-HXCDF	15.9			
		13C-2,3,4,6,7,8-HXCDF	16.6			
		13C-1,2,3,4,6,7,8-HPCDF	17.6			
		13C-1,2,3,4,7,8,9-HPCDF	16.1			
	RIFS-SMA5-SG10-240508 (VF-XMS)	13C-1,2,3,4,7,8-HXCDD	18.9	32-141	1,2,3,7,8,9-HxCDD (VF-XMS)	J/UJ/P (19)
	(det)	13C-1,2,3,6,7,8-HXCDD	19.8	28-130		

VALIDATION FINDINGS WORKSHEET
Target Analyte Quantitation

METHOD: SGS AXYS MLA-217 Rev 01)

#	Associated samples	Finding	Analyte	Qualifications
	4	All analytes flaged "k" by the laboratory as EMPC		Jdets/A (23)

VALIDATION FINDINGS WORKSHEET
Overall Assessment of Data

METHOD: SGS AXYS MLA-217 Rev 01)

#	Sample ID	Finding	Analyte	Qualifications
	All	E,H (DB5 column)	E,H (VF-XMS column) are more usable	NR (22)

METHOD: HRGC/HRMS PCDD/PCDF (EPA Method 1613B)

The Relative Response Factor (RRF), average RRF, and percent relative standard deviation (%RSD) were recalculated for the analytes identified below using the following calculations:

$RRF = (A_x)(C_{is})/(A_{is})(C_x)$
average RRF = sum of the RRFs/number of standards
%RSD = 100 * (S/X)

Ax = Area of analyte
Cx = Concentration of analyte
S= Standard deviation of the RRFs

A_{is} = Area of associated internal standard
C_{is} = Concentration of internal standard
X = Mean of the RRFs

#	Standard ID	Calibration Date	Analyte (IS)	Reported RRF (RRF CS3 std)	Recalculated RRF (RRF CS3 std)	Reported Average RRF (Initial)	Recalculated Average RRF (Initial)	Reported %RSD	Recalculated %RSD
1	ICAL DB5	8/30/2024	2,3,7,8-TCDF (13C-2,3,7,8-TCDF)	1.01	1.01	1.05	1.05	4.66	4.48
			2,3,7,8-TCDD (13C-2,3,7,8-TCDD)	1.22	1.22	1.23	1.23	4.05	4.22
			1,2,3,6,7,8-HxCDD (13C-1,2,3,6,7,8-HxCDD)	1.13	1.13	1.16	1.16	3.66	3.58
			1,2,3,4,6,7,8-HpCDD (13C-1,2,4,6,7,8,-HpCDD)	0.94	0.94	0.97	0.97	3.98	4.19
			OCDF (13C-OCDD)	1.28	1.27	1.27	1.27	3.94	4.00
2	ICAL VF-XMS	9/13/2023	2,3,7,8-TCDF (13C-2,3,7,8-TCDF)	1.01	1.02	1.05	1.05	2.34	2.41
3	ICAL VF-XMS	9/18/2023	2,3,7,8-TCDF (13C-2,3,7,8-TCDF)	1.03	1.03	1.08	1.08	9.43	9.54

METHOD: HRGC/HRMS PCDD/PCDF (EPA Method 1613B)

The percent difference (%D) of the initial calibration average Relative Response Factors (RRFs) and the continuing calibration RRFs were recalculated for the analytes identified below using the following calculation:

% Difference = 100 * (ave. RRF - RRF)/ave. RRF
RRF = (Ax)(Cis)/(Ais)(Cx)

Where:
ave. RRF = Initial calibration average RRF
RRF = Continuing calibration RRF
Ax = Area of analyte
Ais = Area of associated internal standard
Cx = Concentration of analyte
Cis = Concentration of internal standard

#	Standard ID	Calibration Date	Analyte (IS)	Average RRF (Initial)	Reported conc (CCV)	Recalculated conc (CCV)	Reported %R	Recalculated %R
1	DX4T_076BS48	9/4/2024	2,3,7,8-TCDF (13C-2,3,7,8-TCDF)	1.05	0.514	0.512		
			2,3,7,8-TCDD (13C-2,3,7,8-TCDD)	1.23	0.551	0.553		
			1,2,3,6,7,8-HxCDD (13C-1,2,3,6,7,8-HxCDD)	1.16	2.64	2.63		
			1,2,3,4,6,7,8-HpCDD (13C-1,2,4,6,7,8,-HpCDD)	0.97	2.56	2.56		
			OCDF (13C-OCDD)	1.27	5.29	5.28		
2	DX4T_076BS61	9/4/2024	2,3,7,8-TCDF (13C-2,3,7,8-TCDF)	1.05	0.524	0.522		
			2,3,7,8-TCDD (13C-2,3,7,8-TCDD)	1.23	0.537	0.539		
			1,2,3,6,7,8-HxCDD (13C-1,2,3,6,7,8-HxCDD)	1.16	2.63	2.64		
			1,2,3,4,6,7,8-HpCDD (13C-1,2,4,6,7,8,-HpCDD)	0.97	2.70	2.69		
			OCDF (13C-OCDD)	1.27	5.47	5.46		
3	DX4T_076BS73	9/5/2024	2,3,7,8-TCDF (13C-2,3,7,8-TCDF)	1.05	0.526	0.524		
			2,3,7,8-TCDD (13C-2,3,7,8-TCDD)	1.23	0.548	0.549		
			1,2,3,6,7,8-HxCDD (13C-1,2,3,6,7,8-HxCDD)	1.16	2.58	2.58		
			1,2,3,4,6,7,8-HpCDD (13C-1,2,4,6,7,8,-HpCDD)	0.97	2.84	2.84		
			OCDF (13C-OCDD)	1.27	5.67	5.63		
4	VF4T_078S32	9/11/2024	2,3,7,8-TCDF (13C-2,3,7,8-TCDF)	1.05	0.543	0.544		
5	VF4T_078S49	9/11/2024	2,3,7,8-TCDF (13C-2,3,7,8-TCDF)	1.05	0.527	0.528		
6	VF4T_078S66	9/12/2024	2,3,7,8-TCDF (13C-2,3,7,8-TCDF)	1.05	0.528	0.529		
7	VF4T_084AS6	9/26/2024	2,3,7,8-TCDF (13C-2,3,7,8-TCDF)	1.08	0.516	0.514		

METHOD: HRGC/HRMS PCDD/PCDF (EPA Method 1613B)

The percent difference (%D) of the initial calibration average Relative Response Factors (RRFs) and the continuing calibration RRFs were recalculated for the analytes identified below using the following calculation:

% Difference = 100 * (ave. RRF - RRF)/ave. RRF
RRF = (Ax)(Cis)/(Ais)(Cx)

Where:
ave. RRF = Initial calibration average RRF
RRF = Continuing calibration RRF
Ax = Area of analyte
Ais = Area of associated internal standard
Cx = Concentration of analyte
Cis = Concentration of internal standard

#	Standard ID	Calibration Date	Analyte (IS)	Average RRF (Initial)	Reported conc (CCV)	Recalculated conc (CCV)	Reported %R	Recalculated %R
8	DX4T_083S1	9/23/2024	2,3,7,8-TCDF (13C-2,3,7,8-TCDF)	1.05	0.487	0.484		
			2,3,7,8-TCDD (13C-2,3,7,8-TCDD)	1.23	0.547	0.548		
			1,2,3,6,7,8-HxCDD (13C-1,2,3,6,7,8-HxCDD)	1.16	2.56	2.56		
			1,2,3,4,6,7,8-HpCDD (13C-1,2,4,6,7,8,-HpCDD)	0.97	2.57	2.57		
			OCDF (13C-OCDF)	1.27	5.47	5.46		
			2,3,7,8-TCDF (13C-2,3,7,8-TCDF)					
			2,3,7,8-TCDD (13C-2,3,7,8-TCDD)					
			1,2,3,6,7,8-HxCDD (13C-1,2,3,6,7,8-HxCDD)					
			1,2,3,4,6,7,8-HpCDD (13C-1,2,4,6,7,8,-HpCDD)					
			OCDF (13C-OCDF)					
			2,3,7,8-TCDF (13C-2,3,7,8-TCDF)					
			2,3,7,8-TCDD (13C-2,3,7,8-TCDD)					
			1,2,3,6,7,8-HxCDD (13C-1,2,3,6,7,8-HxCDD)					
			1,2,3,4,6,7,8-HpCDD (13C-1,2,4,6,7,8,-HpCDD)					
			OCDF (13C-OCDF)					

METHOD: HRGC/HRMS PCDD/PCDF (EPA Method 1613B)

The percent recoveries (%R) for the Ongoing Precision and Recovery (OPR) were recalculated for the analytes identified below using the following calculation:

SSC = (Area spike) (Conc IS) / (Area IS) (average RRF spike)
%Recovery = 100 * SSC/SA

Where:
SSC = Spiked concentration
SA = Spike added

OPR ID: WG90287-102

Analyte	SA (ng/mL)	SSC (ng/mL)	Recalc. (ng/mL)	OPR Percent Recovery	
	OPR	OPR		Reported	Recalc.
2,3,7,8-TCDD	1.05	1.07		102	102
1,2,3,7,8-PeCDD	5.00	4.99		99.7	99.8
1,2,3,4,7,8-HxCDD	5.00	5.37		107	107
1,2,3,4,7,8,9-HpCDF	5.00	5.38		108	108
OCDF	10.0	9.94		99.4	99.4

METHOD: HRGC/HRMS PCDD/PCDF (EPA Method 1613B)

Analyte results for all Level IV samples reported with a positive detect were recalculated and verified using the following equation:

$$\text{Concentration} = \frac{(Ax)\,(Ci)\,(Vo)\,(Df)}{(Ai)\,(RRF)\,(Wt)\,(\%S)}$$

Where:

Ax = Area or height of the peak for the analyte to be measured
DF = Dilution factor
Ci = Concentration of internal standard
RRF = Average relative response factor
Vo = Volume of extract in microliters (uL)
Ai = Area or height of internal standard
Wt = Weight of sample in grams (g)

Sample #	Analyte	Ax	Ai	Ci (pg)	DF	RRF	Vo (uL)	Wt (g)	% Solids	Calculated Concentration (pg/g)	Reported Concentration (pg/g)	% Diff
7	OCDD	8.51E+06	3.64E+05	4000	3	0.98	1	16.46	0.375	15460	15500	

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Shelton Harbor

LDC Report Date: February 17, 2025

Parameters: Polychlorinated Dioxins/Dibenzofurans

Validation Level: Stage 4

Laboratory: SGS AXYS Analytical Services, LTD

Sample Delivery Group (SDG): WG90288

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
RIFS-SMA5-SG17-240509	L41355-25	Sediment	05/09/24
RIFS-SMA5-SG18-240509	L41355-26	Sediment	05/09/24

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Sampling and Quality Assurance Project Plan Addendum No. 3 for Shelton Harbor Sediment Cleanup Unit, Oakland Bay and Shelton Harbor Sediments Cleanup Site, Shelton, Washington (May 2024) and a modified outline of the USEPA National Functional Guidelines (NFG) for High Resolution Superfund Methods Data Review (April 2016). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Polychlorinated Dioxins/Dibenzofurans by SGS AXYS SOP Method MLA-217, Revision 01, Version 10

All sample results were subjected to Stage 4 data validation, which is comprised of the quality assurance and quality control (QA/QC) summary reports as well as the raw data, to confirm sample quantitation and identification.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The reported result was an estimated quantity value.

U (Non-detected): The analyte was analyzed for, but was not detected above the level of the adjusted detection limit or quantitation limit, as appropriate.

UJ (Non-detected): The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.

NJ (Tentatively identified): The analyte has been "tentatively identified" or "presumptively identified" as present, and the associated numerical value was the estimated concentration in the sample.

R (Rejected): The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the sample.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Qualification Codes

1 Holding Time
2 Sample Preservation (Cooler Temp)
3 Sample Custody
4 Missing Deliverables
5 Calibration
6 Field Blanks
7 Laboratory Blanks
8 Matrix Spike (%R)
9 Matrix Spike Duplicate (RPD or Duplicate Sample Analysis)
10 Laboratory Control Sample
11 ICP Interference Check
12 RPD Between Two Columns
13 Surrogates
14 Field Duplicates
15 Peak Resolution
16 ICP Serial Dilution
17 Chemical Recoveries
18 Trip Blanks
19 Internal Standards/Labeled Compounds (High Resolution)
20 Linear Range Exceeded
21 Potential False Positives
22 Do Not Use, Other Result More Technically Sound
23 Estimated Maximum Possible Concentration
24 Other

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. HRGC/HRMS Instrument Performance Check

Instrument performance was checked at the required frequency.

Retention time windows were established for all homologues. The chromatographic resolution between 2,3,7,8-TCDD and peaks representing any other unlabeled TCDD isomer was less than or equal to 25%.

The static resolving power was at least 10,000 (10% valley definition).

III. Initial Calibration

A five point initial calibration was performed as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 20.0% for all analytes and less than or equal to 35.0% for labeled compounds.

The ion abundance ratios for all PCDDs and PCDFs were within validation criteria.

The minimum S/N ratio was greater than or equal to 10 for each analyte and labeled compound.

The percent differences (%D) of the initial calibration verification (ICV) standard were within the QC limits for all analytes and labeled compounds.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

All of the continuing calibration results were within the QC limits for all analytes and labeled compounds.

The ion abundance ratios for all PCDDs and PCDFs were within validation criteria.

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks with the following exceptions:

Blank ID	Extraction Date	Analyte	Concentration (pg/g)	Associated Samples
WG90288-101 (DB5MS)	07/31/24	1,2,3,6,7,8-HxCDD 1,2,3,7,8,9-HxCDD 1,2,3,4,6,7,8-HpCDD OCDD 2,3,7,8-TCDF 1,2,3,7,8-PeCDF 1,2,3,4,6,7,8-HpCDF OCDF Total TCDD Total PeCDD Total HxCDD Total HpCDD Total TCDF Total PeCDF Total HxCDF Total HpCDF	0.060 0.058 0.342 1.22 0.047 0.058 0.143 0.165 0.364 0.314 0.491 0.678 0.047 0.042 0.136 0.324	All samples in SDG WG90288
WG90288-101 (VF-XMS)	07/31/24	1,2,3,7,8,9-HxCDD	0.043	All samples in SDG WG90288

Sample concentrations were compared to concentrations detected in the laboratory blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated laboratory blanks with the following exceptions:

Sample	Analyte	Reported Concentration (pg/g)	Modified Final Concentration (pg/g)
RIFS-SMA5-SG18-240509	1,2,3,7,8-PeCDF	0.209	0.209U

VI. Field Blanks

No field blanks were identified in this SDG.

VII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

VIII. Ongoing Precision and Recovery

Ongoing precision and recovery (OPR) samples were analyzed as required by the method. Percent recoveries (%R) were within QC limits.

IX. Field Duplicates

Samples RIFS-SMA5-SG17-240509 and RIFS-SMA5-SG117-240509 (from SDG WG91427) were identified as field duplicates. No results were detected in any of the samples with the following exceptions:

Analyte	Concentration (pg/g)		RPD
	RIFS-SMA5-SG17-240509	RIFS-SMA5-SG117-240509	
2,3,7,8-TCDD	1.40	1.65	16
1,2,3,7,8-PeCDD	10.6	10.3	3
1,2,3,4,7,8-HxCDD	21.1	18.4	14
1,2,3,6,7,8-HxCDD	78.6	76.5	3
1,2,3,7,8,9-HxCDD (DB5MS)	58.8	46.7	23
1,2,3,4,6,7,8-HpCDD	1410	1400	1
OCDD	11800	9960	17
2,3,7,8-TCDF (DB5MS)	23.9	23.4	2
1,2,3,7,8-PeCDF	7.75	6.33	20
2,3,4,7,8-PeCDF	11.5	9.87	15
1,2,3,4,7,8-HxCDF	28.2	33.5	17
1,2,3,6,7,8-HxCDF	12.9	14.1	9
1,2,3,7,8,9-HxCDF	1.61	1.50	7
2,3,4,6,7,8-HxCDF	9.96	9.61	4
1,2,3,4,6,7,8-HpCDF	287	301	5
1,2,3,4,7,8,9-HpCDF	19.0	19.8	4
OCDF	457	591	26
Total TCDD	723	653	10
Total PeCDD	862	734	16
Total HxCDD	1480	1270	15
Total HpCDD	3270	3810	15
Total TCDF	176	182	3
Total PeCDF	221	206	7
Total HxCDF	552	622	12
Total HpCDF	984	1040	6
2,3,7,8-TCDF (VF-XMS)	7.19	6.20	15
1,2,3,7,8,9-HxCDD (VF-XMS)	34.7	37.2	7

X. Labeled Compounds

All percent recoveries (%R) for labeled compounds used to quantitate target analytes were within QC limits.

XI. Target Analyte Quantitation

All target analyte quantitations met validation criteria.

XII. Target Analyte Identification

All target analyte identification met validation criteria.

XIV. Overall Assessment of Data

The analysis was conducted within all specifications of the method.

In the case where more than one result was reported for an individual sample, the least technically acceptable results were deemed not reportable as follows:

Sample	Analyte	Reason	Flag	A or P
All samples in SDG WG90288	1,2,3,7,8,9-HxCDD (DB5MS) 2,3,7,8-TCDF (DB5MS)	Results from VF-XMS column were more usable.	Not reportable	-

Data qualified due to laboratory blank contamination are summarized and presented in the Data Qualification Summary.

Shelton Harbor
Polychlorinated Dioxins/Dibenzofurans - Data Qualification Summary - SDG WG90288

Sample	Analyte	Flag	A or P	Reason (Code)
RIFS-SMA5-SG17-240509 RIFS-SMA5-SG18-240509	1,2,3,7,8,9-HxCDD (DB5MS) 2,3,7,8-TCDF (DB5MS)	Not reportable	-	Overall assessment of data (22)

Shelton Harbor
Polychlorinated Dioxins/Dibenzofurans - Laboratory Blank Data Qualification Summary - SDG WG90288

Sample	Analyte	Modified Final Concentration (pg/g)	Code
RIFS-SMA5-SG18-240509	1,2,3,7,8-PeCDF	0.209U	7

Shelton Harbor
Polychlorinated Dioxins/Dibenzofurans - Field Blank Data Qualification Summary - SDG WG90288

No Sample Data Qualified in this SDG

VALIDATION COMPLETENESS WORKSHEET

LDC #: 60135B
SDG #: WG90288
Laboratory: SGS AXYS Analytical Services, Ltd., Sidney, BC

Date: 11/27/2024
Page: 1
Reviewer:
2nd Reviewer:

Method: Dioxins (SGS AXYS MLA-217) Rev 01

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I	Sample receipt/Technical holding times	A/A	
II	HRGC/HRMS Instrument performance check	A	
III	Initial Calibration/ ICV	A/A	RSD ≤20/35 IQE QC limits
IV	Continuing calibration	A	QC limits
V	Laboratory Blanks	SW	
VI	Field blanks	SW/N	
VII	Matrix Spike/Matrix Spike Duplicate	N	
VIII	Laboratory control samples	A	OPR
IX	Field duplicates	SW	
X	Labeled Compounds	A	
XI	Target analyte quantitation	A	
XII	Target analyte identification	A	
XIII	Overall assessment of data	SW	

Note: A = Acceptable; ND = Not detected; FT = Field triplicate; AB= Ambient blank; R = Rinsate
N = Not provided/applicable; NQ = Not qualified; TB = Trip blank; SB = Source blank
SW = See worksheet; FD = Field duplicate; FB = Field blank; EB = Equipment blank

	Client ID	Lab ID	QC Type	Matrix	Date	Stage
1	RIFS-SMA5-SG17-240509	L41355-25	FD	Sediment	05/09/2024	Stage 4
2	RIFS-SMA5-SG18-240509	L41355-26		Sediment	05/09/2024	Stage 4

Notes:

WG90288		

LDC #: 60135B

VALIDATION FINDINGS CHECKLIST

Reviewer: A

Method: HRGC/HRMS Dioxins/Dibenzofurans (EPA Method 1613B/SGS AXYS Method MLA-017 R01)

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
All technical holding times were met.	✓			
Cooler temperature criteria was met.	✓			
II. GC/MS Instrument performance check				
Was PFK exact mass 380.9760 verified?	✓			
Were the retention time windows established for all homologues?	✓			
Was the chromatographic resolution between 2,3,7,8-TCDD and peaks representing any other unlabeled TCDD isomers ≤ 25% ?	✓			
Is the static resolving power at least 10,000 (10% valley definition)?	✓			
Was the mass resolution adequately check with PFK?	✓			
Was the presence of 1,2,8,9-TCDD and 1,3,4,6,8-PeCDF verified?	✓			
III. Initial calibration				
Was the initial calibration performed at 5 concentration levels?	✓			
Were all percent relative standard deviations (%RSD) ≤ 20% for unlabeled compounds and ≤ 35% for labeled compounds ?	✓			
Did all calibration standards meet the Ion Abundance Ratio criteria?	✓			
Was the signal to noise ratio for each target compound ≥ 2.5 and for each recovery and internal standard ≥ 10?	✓			
IV. Initial calibration verification				
Was an initial calibration verification standard analyzed after each initial calibration for each instrument?	✓			
Were all concentration ≤ QC limits for unlabeled and labeled compounds ?	✓			
V. Continuing calibration				
Was a continuing calibration performed at the beginning and end of each 12 hour period?	✓			
Were all concentration ≤ QC limits for unlabeled and labeled compounds ?	✓			
Did all continuing calibration standards meet the Ion Abundance Ratio criteria?	✓			
VI. Blanks				
Was a method blank associated with every sample in this SDG?	✓			
Was a method blank performed for each matrix and concentration?	✓			
Was there contamination in the method blanks?	✓			
VII. Field blanks				
Field blanks were identified in this SDG.	✓			
Target compounds were detected in the field blanks.	✓			
VIII. Matrix spike/Matrix spike duplicates				
Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG?		✓		
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?			✓	

Validation Area	Yes	No	NA	Findings/Comments
IX. Laboratory control samples OPR				
Was an LCS analyzed per extraction batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	✓			
X. Field duplicates				
Field duplicate pairs were identified in this SDG.	✓			
Target compounds were detected in the field duplicates.	✓			
XI. Labeled Compounds				
Were labeled compound recoveries and ion abundance ratio within the QC limits?	✓			
Was the minimum S/N ratio of all labeled compound peaks ≥ 10?	✓			
XII. Target analyte quantitation				
Were the correct labeled compound, quantitation ion and relative response factor (RRF) used to quantitate the compound?	✓			
Were analyte quantitation and RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
XII. Target analyte identification				
For 2,3,7,8 substituted congeners with associated labeled standards, were the retention times of the two quantitation peaks within -1 to 3 sec. of the RT of the labeled standard?	✓			
For 2,3,7,8 substituted congeners without associated labeled standards, were the relative retention times of the two quantitation peaks within 0.005 time units of the RRT measured in the continuin calibration?	✓			
For non-2,3,7,8 substituted congeners, were the retention times of the two quantitation peaks within RT established in the performance check solution?	✓			
Did analyte contain all characteristic ions listed in the table attached?	✓			
Was the Ion Abundance Ratio for the two quantitation ions within criteria?	✓			
Was the signal to noise ratio for each target compound and labeled standard ≥2.5?	✓			
Does the maximum intensity of each specified characteristic ion coincide within ± 2 seconds (includes labeled standards)?	✓			
For PCDF identification, was any signal (S/N ≥ 2.5, at ± seconds RT) detected in the corresponding PCDPE channel?	NR		✓	
Was an acceptable lock mass recorded and monitored?	✓			
XIV. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			

LDC #: 60135B

VALIDATION FINDINGS WORKSHEET
Blanks

Reviewer: SC

METHOD: SGS AXYS MLA-217 Rev 01)

Blank extraction date: 7/31/2024
Blank analysis date: 8/15/2024
Associated samples: All Qualify individual U7 Total J7

Analyte	Blank ID (pg/g)		Sample Identification						
	WG90288-101 (DB5MS)	5X	2						
1,2,3,6,7,8-HxCDD	0.060	0.3							
1,2,3,7,8,9-HxCDD	0.058	0.29							
1,2,3,4,6,7,8-HpCDD	0.342	1.71							
OCDD	1.22	6.1							
2,3,7,8-TCDF	0.047	0.235							
1,2,3,7,8-PeCDF	0.058	0.29	0.209						
1,2,3,4,6,7,8-HpCDF	0.143	0.715							
OCDF	0.165	0.825							
Total TCDD	0.364	1.82							
Total PeCDD	0.314	1.57							
Total HxCDD	0.491	2.455							
Total HpCDD	0.678	3.39							
Total TCDF	0.047	0.235							
Total PeCDF	0.042	0.21							
Total HxCDF	0.136	0.68							
Total HpCDF	0.324	1.62							

Blank extraction date: 7/31/2024
Blank analysis date: 8/14/2024
Associated samples: All Qualify individual U7 Total J7

Analyte	Blank ID (pg/g)		Sample Identification						
	WG90288-101 (VF-XMS)	5X							
1,2,3,7,8,9-HxCDD	0.043	0.215							

METHOD: SGS AXYS MLA-217 Rev 01)

Compound	Concentration (pg/g)		RPD
	RIFS-SMA5-SG17-240509	RIFS-SMA5-SG117-240509	
2,3,7,8-TCDD	1.40	1.65	16
1,2,3,7,8-PeCDD	10.6	10.3	3
1,2,3,4,7,8-HxCDD	21.1	18.4	14
1,2,3,6,7,8-HxCDD	78.6	76.5	3
1,2,3,7,8,9-HxCDD (DB5MS)	58.8	46.7	23
1,2,3,4,6,7,8-HpCDD	1410	1400	1
OCDD	11800	9960	17
2,3,7,8-TCDF (DB5MS)	23.9	23.4	2
1,2,3,7,8-PeCDF	7.75	6.33	20
2,3,4,7,8-PeCDF	11.5	9.87	15
1,2,3,4,7,8-HxCDF	28.2	33.5	17
1,2,3,6,7,8-HxCDF	12.9	14.1	9
1,2,3,7,8,9-HxCDF	1.61	1.50	7
2,3,4,6,7,8-HxCDF	9.96	9.61	4
1,2,3,4,6,7,8-HpCDF	287	301	5
1,2,3,4,7,8,9-HpCDF	19.0	19.8	4
OCDF	457	591	26
Total TCDD	723	653	10
Total PeCDD	862	734	16
Total HxCDD	1480	1270	15
Total HpCDD	3270	3810	15
Total TCDF	176	182	3
Total PeCDF	221	206	7
Total HxCDF	552	622	12
Total HpCDF	984	1040	6
2,3,7,8-TCDF (VF-XMS)	7.19	6.20	15
1,2,3,7,8,9-HxCDD (VF-XMS)	34.7	37.2	7

SDG ~~WG90288~~ WG91427

VALIDATION FINDINGS WORKSHEET
Overall Assessment of Data

METHOD: SGS AXYS MLA-217 Rev 01)

#	Sample ID	Finding	Analyte	Qualifications
	All	E,H (DB5 MS column)	E,H (VF-XMS column) are more usable	NR (22)

METHOD: HRGC/HRMS PCDD/PCDF (EPA Method 1613B)

The Relative Response Factor (RRF), average RRF, and percent relative standard deviation (%RSD) were recalculated for the analytes identified below using the following calculations:

$RRF = (A_x)(C_{is})/(A_{is})(C_x)$
average RRF = sum of the RRFs/number of standards
%RSD = 100 * (S/X)

Ax = Area of analyte
Cx = Concentration of analyte
S= Standard deviation of the RRFs

A_{is} = Area of associated internal standard
C_{is} = Concentration of internal standard
X = Mean of the RRFs

#	Standard ID	Calibration Date	Analyte (IS)	Reported RRF (RRF CS3 std)	Recalculated RRF (RRF CS3 std)	Reported Average RRF (Initial)	Recalculated Average RRF (Initial)	Reported %RSD	Recalculated %RSD
1	ICAL DB5MS	8/21/2023	2,3,7,8-TCDF (13C-2,3,7,8-TCDF)	1.04	1.04	1.10	1.09	5.48	5.42
			2,3,7,8-TCDD (13C-2,3,7,8-TCDD)	1.27	1.26	1.31	1.31	3.25	3.29
			1,2,3,6,7,8-HxCDD (13C-1,2,3,6,7,8-HxCDD)	1.07	1.07	1.11	1.12	3.94	4.03
			1,2,3,4,6,7,8-HpCDD (13C-1,2,4,6,7,8,-HpCDD)	0.94	0.94	1.00	1.00	5.74	5.65
			OCDF (13C-OCDD)	1.63	1.63	1.65	1.65	3.62	3.58
2	ICAL VF-XMS	9/13/2023	2,3,7,8-TCDF (13C-2,3,7,8-TCDF)	1.01	1.02	1.05	1.05	2.34	2.41
3	ICAL VF-XMS	9/18/2023	2,3,7,8-TCDF (13C-2,3,7,8-TCDF)	1.03	1.03	1.08	1.08	9.43	9.54
4	ICAL DB5	8/30/2024	2,3,7,8-TCDF (13C-2,3,7,8-TCDF)	1.01	1.01	1.05	1.05	4.66	4.48
			2,3,7,8-TCDD (13C-2,3,7,8-TCDD)	1.22	1.22	1.23	1.23	4.05	4.22
			1,2,3,6,7,8-HxCDD (13C-1,2,3,6,7,8-HxCDD)	1.13	1.13	1.16	1.16	3.66	3.58
			1,2,3,4,6,7,8-HpCDD (13C-1,2,4,6,7,8,-HpCDD)	0.94	0.94	0.97	0.97	3.98	4.19
			OCDF (13C-OCDD)	1.28	1.27	1.27	1.27	3.94	4.00

VALIDATION FINDINGS WORKSHEET
Continuing Calibration Calculation Verification

METHOD: HRGC/HRMS PCDD/PCDF (EPA Method 1613B)

The percent difference (%D) of the initial calibration average Relative Response Factors (RRFs) and the continuing calibration RRFs were recalculated for the analytes identified below using the following calculation:

% Difference = 100 * (ave. RRF - RRF)/ave. RRF
RRF = (Ax)(Cis)/(Ais)(Cx)

Where:
ave. RRF = Initial calibration average RRF
RRF = Continuing calibration RRF
Ax = Area of analyte
Ais = Area of associated internal standard
Cx = Concentration of analyte
Cis = Concentration of internal standard

#	Standard ID	Calibration Date	Analyte (IS)	Average RRF (Initial)	Reported conc (CCV)	Recalculated conc (CCV)	Reported %R	Recalculated %R
1	DX4T_071S1	8/15/2024	2,3,7,8-TCDF (13C-2,3,7,8-TCDF)	1.10	0.498	0.497		
			2,3,7,8-TCDD (13C-2,3,7,8-TCDD)	1.31	0.547	0.548		
			1,2,3,6,7,8-HxCDD (13C-1,2,3,6,7,8-HxCDD)	1.11	2.59	2.61		
			1,2,3,4,6,7,8-HpCDD (13C-1,2,4,6,7,8,-HpCDD)	1.00	2.58	2.57		
			OCDF (13C-OCDD)	1.65	3.96	3.95		
2	VF4T_070S3	8/14/2024	2,3,7,8-TCDF (13C-2,3,7,8-TCDF)	1.05	0.542	0.544		
3	VF4T_080S11	9/19/2023	2,3,7,8-TCDF (13C-2,3,7,8-TCDF)	1.08	0.543	0.542		
4	DX4T_079S1	8/15/2024	2,3,7,8-TCDF (13C-2,3,7,8-TCDF)	1.05	0.486	0.483		
			2,3,7,8-TCDD (13C-2,3,7,8-TCDD)	1.23	0.550	0.551		
			1,2,3,6,7,8-HxCDD (13C-1,2,3,6,7,8-HxCDD)	1.16	2.61	2.60		
			1,2,3,4,6,7,8-HpCDD (13C-1,2,4,6,7,8,-HpCDD)	0.97	2.69	2.70		
			OCDF (13C-OCDD)	1.27	5.87	5.87		

VALIDATION FINDINGS WORKSHEET
Ongoing Precision and Recovery Verification

METHOD: HRGC/HRMS PCDD/PCDF (EPA Method 1613B)

The percent recoveries (%R) for the Ongoing Precision and Recovery (OPR) were recalculated for the analytes identified below using the following calculation:

SSC = (Area spike) (Conc IS) / (Area IS) (average RRF spike)
%Recovery = 100 * SSC/SA

Where:
SSC = Spiked concentration
SA = Spike added

OPR ID: WG90288-102

Analyte	SA (ng/mL)	SSC (ng/mL)	Recalc. (ng/mL)	OPR Percent Recovery	
	OPR	OPR		Reported	Recalc.
2,3,7,8-TCDD	1.05	1.05		101	100
1,2,3,7,8-PeCDD	5.00	5.22		104	104
1,2,3,4,7,8-HxCDD	5.00	5.09		102	102
1,2,3,4,7,8,9-HpCDF	5.00	5.34		107	107
OCDF	10.0	7.60		76.0	76.0

METHOD: HRGC/HRMS PCDD/PCDF (EPA Method 1613B)

Analyte results for all Level IV samples reported with a positive detect were recalculated and verified using the following equation:

$$\text{Concentration} = \frac{(Ax)\,(Ci)\,(Vo)\,(Df)}{(Ai)\,(RRF)\,(Wt)\,(\%S)}$$

Where:

Ax = Area or height of the peak for the analyte to be measured
DF = Dilution factor
Ci = Concentration of internal standard
RRF = Average relative response factor
Vo = Volume of extract in microliters (uL)
Ai = Area or height of internal standard
Wt = Weight of sample in grams (g)

Sample #	Analyte	Ax	Ai	Ci (pg)	DF	RRF	Vo (uL)	Wt (g)	% Solids	Calculated Concentration (pg/g)	Reported Concentration (pg/g)	% Diff
1	OCDD	2.65E+06	1.74E+05	4000	10	0.98	1	9.00	0.587	11767	11800	

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Shelton Harbor

LDC Report Date: February 17, 2025

Parameters: Polychlorinated Dioxins/Dibenzofurans

Validation Level: Stage 4

Laboratory: SGS AXYS Analytical Services, LTD

Sample Delivery Group (SDG): WG91427

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
RIFS-SMA5-SG20-240509	L41355-27	Sediment	05/09/24
RIFS-SMA5-SG23-240507	L41355-28	Sediment	05/07/24
RIFS-SMA5-SG26-240509	L41355-30	Sediment	05/09/24
RIFS-SMA5-SG27-240509	L41355-31	Sediment	05/09/24
RIFS-SMA5-SG28-240508	L41355-32	Sediment	05/08/24
RIFS-SMA5-SG29-240508	L41355-33	Sediment	05/08/24
RIFS-SMA5-SG30-240508	L41355-34	Sediment	05/08/24
RIFS-SMA5-SG31-240508	L41355-35	Sediment	05/08/24
RIFS-SMA5-SG32-240509	L41355-36	Sediment	05/08/24
RIFS-SMA5-SG33-240508	L41355-37	Sediment	05/08/24
RIFS-SMA5-SG34-240508	L41355-38	Sediment	05/08/24
RIFS-SMA5-SG35-240508	L41355-39	Sediment	05/08/24
RIFS-SMA5-SG117-240509	L41355-42	Sediment	05/08/24
OMMP-SMA3-SG-DCOMP-03-240509	L41355-44	Sediment	05/08/24
OMMP-SMA1-SG-COMP-101-240508	L41355-45	Sediment	05/08/24
RIFS-SMA5-SG23-240507DUP	L41355-28DUP	Sediment	05/07/24

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The reported result was an estimated quantity value.

U (Non-detected): The analyte was analyzed for, but was not detected above the level of the adjusted detection limit or quantitation limit, as appropriate.

UJ (Non-detected): The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.

NJ (Tentatively identified): The analyte has been "tentatively identified" or "presumptively identified" as present, and the associated numerical value was the estimated concentration in the sample.

R (Rejected): The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the sample.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Qualification Codes

1 Holding Time
2 Sample Preservation (Cooler Temp)
3 Sample Custody
4 Missing Deliverables
5 Calibration
6 Field Blanks
7 Laboratory Blanks
8 Matrix Spike (%R)
9 Matrix Spike Duplicate (RPD or Duplicate Sample Analysis)
10 Laboratory Control Sample
11 ICP Interference Check
12 RPD Between Two Columns
13 Surrogates
14 Field Duplicates
15 Peak Resolution
16 ICP Serial Dilution
17 Chemical Recoveries
18 Trip Blanks
19 Internal Standards/Labeled Compounds (High Resolution)
20 Linear Range Exceeded
21 Potential False Positives
22 Do Not Use, Other Result More Technically Sound
23 Estimated Maximum Possible Concentration
24 Other

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. HRGC/HRMS Instrument Performance Check

Instrument performance was checked at the required frequency.

Retention time windows were established for all homologues. The chromatographic resolution between 2,3,7,8-TCDD and peaks representing any other unlabeled TCDD isomer was less than or equal to 25%.

The static resolving power was at least 10,000 (10% valley definition).

III. Initial Calibration

A five point initial calibration was performed as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 20.0% for all analytes and less than or equal to 35.0% for labeled compounds.

The ion abundance ratios for all PCDDs and PCDFs were within validation criteria.

The minimum S/N ratio was greater than or equal to 10 for each analyte and labeled compound.

The percent differences (%D) of the initial calibration verification (ICV) standard were within the QC limits for all analytes and labeled compounds.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

All of the continuing calibration results were within the QC limits for all analytes and labeled compounds.

The ion abundance ratios for all PCDDs and PCDFs were within validation criteria.

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks with the following exceptions:

Blank ID	Extraction Date	Analyte	Concentration (pg/g)	Associated Samples
WG91427-101 (DB5MS)	10/1/24	1,2,3,7,8-PeCDD	0.102	All samples in SDG WG91427
		1,2,3,4,7,8-HxCDD	0.186	
		1,2,3,6,7,8-HxCDD	0.357	
		1,2,3,7,8,9-HxCDD	0.596	
		1,2,3,4,6,7,8-HpCDD	3.40	
		OCDD	6.35	
		2,3,7,8-TCDF	0.332	
		1,2,3,7,8-PeCDF	0.245	
		2,3,4,7,8-PeCDF	0.326	
		1,2,3,4,7,8-HxCDF	1.26	
		1,2,3,6,7,8-HxCDF	0.682	
		1,2,3,7,8,9-HxCDF	0.068	
		2,3,4,6,7,8-HxCDF	0.726	
		1,2,3,4,6,7,8-HpCDF	5.37	
		1,2,3,4,7,8,9-HpCDF	0.654	
		OCDF	3.42	
		Total TCDD	0.364	
		Total PeCDD	1.00	
		Total HxCDD	3.20	
		Total HpCDD	5.87	
		Total TCDF	0.627	
		Total PeCDF	2.71	
		Total HxCDF	6.49	
		Total HpCDF	7.68	
WG91427-101 (VF-XMS)	10/1/24	1,2,3,7,8,9-HxCDD	0.283	All samples in SDG WG91427
		2,3,7,8-TCDF	0.083	

Sample concentrations were compared to concentrations detected in the laboratory blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated laboratory blanks with the following exceptions:

Sample	Analyte	Reported Concentration (pg/g)	Modified Final Concentration (pg/g)
RIFS-SMA5-SG23-240507	1,2,3,7,8-PeCDF	1.06	1.06U
	2,3,4,7,8-PeCDF	1.42	1.42U
	1,2,3,6,7,8-HxCDF	2.97	2.97U
	1,2,3,7,8,9-HxCDF	0.248	0.248U
	2,3,4,6,7,8-HxCDF	2.27	2.27U

VI. Field Blanks

Sample OMMP-FS-RB-240506 (from SDG DPWG91499/WG90268) was identified as a rinsate blank. No contaminants were found with the following exceptions:

Blank ID	Collection Date	Analyte	Concentration (ng/L)	Associated Samples
OMMP-FS-RB-240506	05/06/24	1,2,3,6,7,8-HxCDD	0.436	OMMP-SMA3-SG-DCOMP-03-240509
		1,2,3,7,8,9-HxCD (DB5MS)	0.286	OMMP-SMA1-SG-COMP-101-240508
		1,2,3,4,6,7,8-HpCDD	1.30	
		OCDD	1.60	
		1,2,3,7,8-PeCDF	0.253	
		1,2,3,4,6,7,8-HpCDF	0.485	
		Total penta-dioxins	0.685	
		Total hexa-dioxins	3.61	
		Total hepta-dioxins	2.55	
		Total penta-furans	1.40	
		Total hexa-furans	2.92	
		Total hepta-furans	1.02	
		1,2,3,7,8,9-HxCDD (VF-XMS)	0.265	

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated field blanks.

VII. Matrix Spike/Matrix Spike Duplicates/Laboratory Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

Duplicate (DUP) sample analysis was performed on an associated project sample. Results were less than 5X the reporting limit (RL).

VIII. Ongoing Precision and Recovery

Ongoing precision and recovery (OPR) samples were analyzed as required by the method. Percent recoveries (%R) were within QC limits.

IX. Field Duplicates

Samples RIFS-SMA5-SG17-240509 (from SDG WG90288) and RIFS-SMA5-SG117-240509 and samples OMMP-SMA1-SG-COMP-01-240508 (from SDG WG90287) and OMMP-SMA1-SG-COMP-101-240508 were identified as field duplicates. No results were detected in any of the samples with the following exceptions:

Analyte	Concentration (pg/g)		RPD
	RIFS-SMA5-SG17-240509	RIFS-SMA5-SG117-240509	
2,3,7,8-TCDD	1.40	1.65	16
1,2,3,7,8-PeCDD	10.6	10.3	3
1,2,3,4,7,8-HxCDD	21.1	18.4	14
1,2,3,6,7,8-HxCDD	78.6	76.5	3
1,2,3,7,8,9-HxCDD (DB5MS)	58.8	46.7	23

Analyte	Concentration (pg/g)		RPD
	RIFS-SMA5-SG17-240509	RIFS-SMA5-SG117-240509	
1,2,3,4,6,7,8-HpCDD	1410	1400	1
OCDD	11800	9960	17
2,3,7,8-TCDF (DB5MS)	23.9	23.4	2
1,2,3,7,8-PeCDF	7.75	6.33	20
2,3,4,7,8-PeCDF	11.5	9.87	15
1,2,3,4,7,8-HxCDF	28.2	33.5	17
1,2,3,6,7,8-HxCDF	12.9	14.1	9
1,2,3,7,8,9-HxCDF	1.61	1.50	7
2,3,4,6,7,8-HxCDF	9.96	9.61	4
1,2,3,4,6,7,8-HpCDF	287	301	5
1,2,3,4,7,8,9-HpCDF	19.0	19.8	4
OCDF	457	591	26
Total TCDD	723	653	10
Total PeCDD	862	734	16
Total HxCDD	1480	1270	15
Total HpCDD	3270	3810	15
Total TCDF	176	182	3
Total PeCDF	221	206	7
Total HxCDF	552	622	12
Total HpCDF	984	1040	6
2,3,7,8-TCDF (VF-XMS)	7.19	6.20	15
1,2,3,7,8,9-HxCDD (VF-XMS)	34.7	37.2	7

Analyte	Concentration (pg/g)		RPD
	OMMP-SMA1-SG-COMP-01-240508	OMMP-SMA1-SG-COMP-101-240508	
2,3,7,8-TCDD	0.902	0.974	8
1,2,3,7,8-PeCDD	5.36	5.94	10
1,2,3,4,7,8-HxCDD	12.0	11.7	3
1,2,3,6,7,8-HxCDD	37.7	40.3	7
1,2,3,7,8,9-HxCDD (DB5MS)	27.7	31.7	13
1,2,3,4,6,7,8-HpCDD	846	875	3
OCDD	6200	6810	9
2,3,7,8-TCDF (DB5MS)	8.14	9.43	15
1,2,3,7,8-PeCDF	3.34	3.52	5
2,3,4,7,8-PeCDF	4.60	4.96	8
1,2,3,4,7,8-HxCDF	19.9	23.5	17
1,2,3,6,7,8-HxCDF	8.71	9.40	8
1,2,3,7,8,9-HxCDF	0.750	0.774	3
2,3,4,6,7,8-HxCDF	6.70	7.52	12

Analyte	Concentration (pg/g)		RPD
	OMMP-SMA1-SG-COMP-01-240508	OMMP-SMA1-SG-COMP-101-240508	
1,2,3,4,6,7,8-HpCDF	296	315	6
1,2,3,4,7,8,9-HpCDF	16.5	15.6	6
OCDF	884	925	5
Total TCDD	343	366	6
Total PeCDD	409	480	16
Total HxCDD	737	843	13
Total HpCDD	1900	2030	7
Total TCDF	63.0	72.0	13
Total PeCDF	92.4	108	16
Total HxCDF	360	402	11
Total HpCDF	1010	1060	5
2,3,7,8-TCDF (VF-XMS)	2.78	2.94	6
1,2,3,7,8,9-HxCDD (VF-XMS)	24.9	24.7	1

X. Labeled Compounds

All percent recoveries (%R) for labeled compounds used to quantitate target analytes were within QC limits.

XI. Target Analyte Quantitation

All target analyte quantitations met validation criteria.

XII. Target Analyte Identification

All target analyte identification met validation criteria.

XIV. Overall Assessment of Data

The analysis was conducted within all specifications of the method.

In the case where more than one result was reported for an individual sample, the least technically acceptable results were deemed not reportable as follows:

Sample	Analyte	Reason	Flag	A or P
All samples in SDG WG91427	1,2,3,7,8,9-HxCDD (DB5MS) 2,3,7,8-TCDF (DB5MS)	Results from VF-XMS column were more usable.	Not reportable	-

Data qualified due to laboratory blank contamination are summarized and presented in the Data Qualification Summary.

Shelton Harbor
Polychlorinated Dioxins/Dibenzofurans - Data Qualification Summary - SDG WG91427

Sample	Analyte	Flag	A or P	Reason (Code)
RIFS-SMA5-SG20-240509 RIFS-SMA5-SG23-240507 RIFS-SMA5-SG26-240509 RIFS-SMA5-SG27-240509 RIFS-SMA5-SG28-240508 RIFS-SMA5-SG29-240508 RIFS-SMA5-SG30-240508 RIFS-SMA5-SG31-240508 RIFS-SMA5-SG32-240509 RIFS-SMA5-SG33-240508 RIFS-SMA5-SG34-240508 RIFS-SMA5-SG35-240508 RIFS-SMA5-SG117-240509 OMMP-SMA3-SG-DCOMP-03-240509 OMMP-SMA1-SG-COMP-101-240508	1,2,3,7,8,9-HxCDD (DB5MS) 2,3,7,8-TCDF (DB5MS)	Not reportable	-	Overall assessment of data (22)

Shelton Harbor
Polychlorinated Dioxins/Dibenzofurans - Laboratory Blank Data Qualification Summary - SDG WG91427

Sample	Analyte	Modified Final Concentration (pg/g)	Code
RIFS-SMA5-SG23-240507	1,2,3,7,8-PeCDF 2,3,4,7,8-PeCDF 1,2,3,6,7,8-HxCDF 1,2,3,7,8,9-HxCDF 2,3,4,6,7,8-HxCDF	1.06U 1.42U 2.97U 0.248U 2.27U	7

Shelton Harbor
Polychlorinated Dioxins/Dibenzofurans - Field Blank Data Qualification Summary - SDG WG91427

No Sample Data Qualified in this SDG

VALIDATION COMPLETENESS WORKSHEET

LDC #: 60135C
SDG #: WG91427
Laboratory: SGS AXYS Analytical Services, Ltd., Sidney, BC

Date: 11/27/2024
Page: 1
Reviewer: JC
2nd Reviewer: CF

Method: Dioxins (SGS AXYS MLA-217) Rev 01

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I	Sample receipt/Technical holding times	A/A	
II	HRGC/HRMS Instrument performance check	A	
III	Initial Calibration/ ICV	A/A	RSD ≤ 20/35 IAV = QC limits
IV	Continuing calibration	A	QC limits
V	Laboratory Blanks	SW	
VI	Field blanks	SW	
VII	~~Surrogate spikes~~		
VIII	Matrix Spike/Matrix Spike Duplicate /DUP	N/A	<5xRL
IX	Laboratory control samples	A	OPR
X	Field duplicates	SW	
XI	Labeled Compounds	A	
XII	Target analyte quantitation	A	
XIII	Target analyte identification	A	
XIV	Overall assessment of data	SW	

Note: A = Acceptable; ND = Not detected; FT = Field triplicate; AB= Ambient blank; R = Rinsate
N = Not provided/applicable; NQ = Not qualified; TB = Trip blank; SB = Source blank
SW = See worksheet; FD = Field duplicate; FB = Field blank; EB = Equipment blank

	Client ID	Lab ID	QC Type	Matrix	Date	Stage
1	RIFS-SMA5-SG20-240509	L41355-27		Sediment	05/09/2024	Stage 4
2	RIFS-SMA5-SG23-240507	L41355-28		Sediment	05/07/2024	Stage 4
3	RIFS-SMA5-SG26-240509	L41355-30		Sediment	05/09/2024	Stage 4
4	RIFS-SMA5-SG27-240509	L41355-31		Sediment	05/09/2024	Stage 4
5	RIFS-SMA5-SG28-240508	L41355-32		Sediment	05/08/2024	Stage 4
6	RIFS-SMA5-SG29-240508	L41355-33		Sediment	05/08/2024	Stage 4
7	RIFS-SMA5-SG30-240508	L41355-34		Sediment	05/08/2024	Stage 4
8	RIFS-SMA5-SG31-240508	L41355-35		Sediment	05/08/2024	Stage 4
9	RIFS-SMA5-SG32-240509	L41355-36		Sediment	05/09/2024	Stage 4
10	RIFS-SMA5-SG33-240508	L41355-37		Sediment	05/08/2024	Stage 4
11	RIFS-SMA5-SG34-240508	L41355-38		Sediment	05/08/2024	Stage 4
12	RIFS-SMA5-SG35-240508	L41355-39		Sediment	05/08/2024	Stage 4
13	RIFS-SMA5-SG117-240509	L41355-42	FD	Sediment	05/09/2024	Stage 4
14 RB	OMMP-SMA3-SG-DCOMP-03-240509	L41355-44		Sediment	05/09/2024	Stage 4
15 ↓	OMMP-SMA1-SG-COMP-101-240508	L41355-45		Sediment	05/08/2024	Stage 4
16	RIFS-SMA5-SG23-240507DUP	L41355-28DUP	DUP	Sediment	05/07/2024	Stage 4

Notes:

WG91427		

LDC #: 60BFC

VALIDATION FINDINGS CHECKLIST

Reviewer: K

Method: HRGC/HRMS Dioxins/Dibenzofurans (EPA Method 1613B/SGS AXYS Method MLA-017 R01)

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
All technical holding times were met.	✓			
Cooler temperature criteria was met.	✓			
II. GC/MS Instrument performance check				
Was PFK exact mass 380.9760 verified?	✓			
Were the retention time windows established for all homologues?	✓			
Was the chromatographic resolution between 2,3,7,8-TCDD and peaks representing any other unlabeled TCDD isomers ≤ 25% ?	✓			
Is the static resolving power at least 10,000 (10% valley definition)?	✓			
Was the mass resolution adequately check with PFK?	✓			
Was the presence of 1,2,8,9-TCDD and 1,3,4,6,8-PeCDF verified?	✓			
III. Initial calibration				
Was the initial calibration performed at 5 concentration levels?	✓			
Were all percent relative standard deviations (%RSD) ≤ 20% for unlabeled compounds and ≤ 35% for labeled compounds ?	✓			
Did all calibration standards meet the Ion Abundance Ratio criteria?	✓			
Was the signal to noise ratio for each target compound ≥ 2.5 and for each recovery and internal standard ≥ 10?	✓			
IV. Initial calibration verification				
Was an initial calibration verification standard analyzed after each initial calibration for each instrument?	✓			
Were all concentration ≤ QC limits for unlabeled and labeled compounds ?	✓			
V. Continuing calibration				
Was a continuing calibration performed at the beginning and end of each 12 hour period?	✓			
Were all concentration ≤ QC limits for unlabeled and labeled compounds ?	✓			
Did all continuing calibration standards meet the Ion Abundance Ratio criteria?	✓			
VI. Blanks				
Was a method blank associated with every sample in this SDG?	✓			
Was a method blank performed for each matrix and concentration?	✓			
Was there contamination in the method blanks?	✓			
VII. Field blanks				
Field blanks were identified in this SDG.	✓			
Target compounds were detected in the field blanks.	✓			
VIII. Matrix spike/Matrix spike duplicates DUP				
Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG?		✓		
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?	✓			DUP RPD

Validation Area	Yes	No	NA	Findings/Comments
IX. Laboratory control samples EKK				
Was an LCS analyzed per extraction batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	✓			
X. Field duplicates				
Field duplicate pairs were identified in this SDG.	✓			
Target compounds were detected in the field duplicates.	✓			
XI. Labeled Compounds				
Were labeled compound recoveries and ion abundance ratio within the QC limits?	✓			
Was the minimum S/N ratio of all labeled compound peaks $\geq$ 10?	✓			
XII. Target analyte quantitation				
Were the correct labeled compound, quantitation ion and relative response factor (RRF) used to quantitate the compound?	✓			
Were analyte quantitation and RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
XII. Target analyte identification				
For 2,3,7,8 substituted congeners with associated labeled standards, were the retention times of the two quantitation peaks within -1 to 3 sec. of the RT of the labeled standard?	✓			
For 2,3,7,8 substituted congeners without associated labeled standards, were the relative retention times of the two quantitation peaks within 0.005 time units of the RRT measured in the continuin calibration?	✓			
For non-2,3,7,8 substituted congeners, were the retention times of the two quantitation peaks within RT established in the performance check solution?	✓			
Did analyte contain all characteristic ions listed in the table attached?	✓			
Was the Ion Abundance Ratio for the two quantitation ions within criteria?	✓			
Was the signal to noise ratio for each target compound and labeled standard $\geq$2.5?	✓			
Does the maximum intensity of each specified characteristic ion coincide within $\pm$ 2 seconds (includes labeled standards)?	✓			
For PCDF identification, was any signal (S/N $\geq$ 2.5, at $\pm$ seconds RT) detected in the corresponding PCDPE channel?			✓	
Was an acceptable lock mass recorded and monitored?	✓			
XIV. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			

VALIDATION FINDINGS WORKSHEET
Blanks

METHOD: SGS AXYS MLA-217 Rev 01)

Blank extraction date: 10/1/2024
Blank analysis date: 11/6/2024 **Associated samples:** All Qualify individual U7 Total J7

Analyte	Blank ID (pg/g)	Sample Identification							
	WG91427-101 (DB5MS)	5X	2						
1,2,3,7,8-PeCDD	0.102	0.51							
1,2,3,4,7,8-HxCDD	0.186	0.93							
1,2,3,6,7,8-HxCDD	0.357	1.785							
1,2,3,7,8,9-HxCDD	0.596	2.98							
1,2,3,4,6,7,8-HpCDD	3.40	17							
OCDD	6.35	31.75							
2,3,7,8-TCDF	0.332	1.66							
1,2,3,7,8-PeCDF	0.245	1.225	1.06						
2,3,4,7,8-PeCDF	0.326	1.63	1.42						
1,2,3,4,7,8-HxCDF	1.26	6.3							
1,2,3,6,7,8-HxCDF	0.682	3.41	2.97						
1,2,3,7,8,9-HxCDF	0.068	0.34	0.248						
2,3,4,6,7,8-HxCDF	0.726	3.63	2.27						
1,2,3,4,6,7,8-HpCDF	5.37	26.85							
1,2,3,4,7,8,9-HpCDF	0.654	3.27							
OCDF	3.42	17.1							
Total TCDD	0.364	1.82							
Total PeCDD	1.00	5							
Total HxCDD	3.20	16							
Total HpCDD	5.87	29.35							
Total TCDF	0.627	3.135							
Total PeCDF	2.71	13.55							
Total HxCDF	6.49	32.45							
Total HpCDF	7.68	38.4							

Blank extraction date: 10/1/2024
Blank analysis date: 11/1/2024 **Associated samples:** All Qualify individual U7 Total J7

Analyte	Blank ID (pg/g)	Sample Identification							
	WG91427-101 (VF-XMS)	5X							
1,2,3,7,8,9-HxCDD	0.283	1.415							
2,3,7,8-TCDF	0.083	0.415							

60135C

LDC#: 60022B21

VALIDATION FINDINGS WORKSHEET
Field Blanks

Reviewer: JVG

METHOD: PCDD/PCDF (Lab SOP MLA-217 Rev 01)

Sampling date: 5/6/2024 **Associated sample units:** pg/g

Field blank type: RB **Associated Samples:** 14, 15

Compound	Blank ID (ng/L)	Sample Identification						
SDG DPWG91499/WG90268	OMMP-FS-RB-240506							
1,2,3,6,7,8-HXCDD	0.436							
(DB5MS) 1,2,3,7,8,9-HXCD	0.286							
1,2,3,4,6,7,8-HPCDD	1.300							
OCDD	1.600							
1,2,3,7,8-PECDF	0.253							
1,2,3,4,6,7,8-HPCDF	0.485							
TOTAL PENTA-DIOXINS	0.685							
TOTAL HEXA-DIOXINS	3.61							
TOTAL HEPTA-DIOXINS	2.55							
TOTAL PENTA-FURANS	1.400							
TOTAL HEXA-FURANS	2.920							
TOTAL HEPTA-FURANS	1.020							
(VF-XMS) 1,2,3,7,8,9-HxCDD	0.265							

VALIDATION FINDINGS WORKSHEET
Field Duplicates

METHOD: SGS AXYS MLA-217 Rev 01)

Compound	Concentration (pg/g)		RPD
	RIFS-SMA5-SG17-240509	RIFS-SMA5-SG117-240509	
2,3,7,8-TCDD	1.40	1.65	16
1,2,3,7,8-PeCDD	10.6	10.3	3
1,2,3,4,7,8-HxCDD	21.1	18.4	14
1,2,3,6,7,8-HxCDD	78.6	76.5	3
1,2,3,7,8,9-HxCDD (DB5MS)	58.8	46.7	23
1,2,3,4,6,7,8-HpCDD	1410	1400	1
OCDD	11800	9960	17
2,3,7,8-TCDF (DB5MS)	23.9	23.4	2
1,2,3,7,8-PeCDF	7.75	6.33	20
2,3,4,7,8-PeCDF	11.5	9.87	15
1,2,3,4,7,8-HxCDF	28.2	33.5	17
1,2,3,6,7,8-HxCDF	12.9	14.1	9
1,2,3,7,8,9-HxCDF	1.61	1.50	7
2,3,4,6,7,8-HxCDF	9.96	9.61	4
1,2,3,4,6,7,8-HpCDF	287	301	5
1,2,3,4,7,8,9-HpCDF	19.0	19.8	4
OCDF	457	591	26
Total TCDD	723	653	10
Total PeCDD	862	734	16
Total HxCDD	1480	1270	15
Total HpCDD	3270	3810	15
Total TCDF	176	182	3
Total PeCDF	221	206	7
Total HxCDF	552	622	12
Total HpCDF	984	1040	6
2,3,7,8-TCDF (VF-XMS)	7.19	6.20	15
1,2,3,7,8,9-HxCDD (VF-XMS)	34.7	37.2	7

SDG WG90288 ~~WG91427~~

VALIDATION FINDINGS WORKSHEET
Field Duplicates

METHOD: SGS AXYS MLA-217 Rev 01)

Compound	Concentration (pg/g)		RPD
	OMMP-SMA1-SG-COMP-01-240508	OMMP-SMA1-SG-COMP-101-240508	
2,3,7,8-TCDD	0.902	0.974	8
1,2,3,7,8-PeCDD	5.36	5.94	10
1,2,3,4,7,8-HxCDD	12.0	11.7	3
1,2,3,6,7,8-HxCDD	37.7	40.3	7
1,2,3,7,8,9-HxCDD (DB5)	27.7	31.7	13
1,2,3,4,6,7,8-HpCDD	846	875	3
OCDD	6200	6810	9
2,3,7,8-TCDF (DB5MS)	8.14	9.43	15
1,2,3,7,8-PeCDF	3.34	3.52	5
2,3,4,7,8-PeCDF	4.60	4.96	8
1,2,3,4,7,8-HxCDF	19.9	23.5	17
1,2,3,6,7,8-HxCDF	8.71	9.40	8
1,2,3,7,8,9-HxCDF	0.750	0.774	3
2,3,4,6,7,8-HxCDF	6.70	7.52	12
1,2,3,4,6,7,8-HpCDF	296	315	6
1,2,3,4,7,8,9-HpCDF	16.5	15.6	6
OCDF	884	925	5
Total TCDD	343	366	6
Total PeCDD	409	480	16
Total HxCDD	737	843	13
Total HpCDD	1900	2030	7
Total TCDF	63.0	72.0	13
Total PeCDF	92.4	108	16
Total HxCDF	360	402	11
Total HpCDF	1010	1060	5
2,3,7,8-TCDF (VF-XMS)	2.78	2.94	6
1,2,3,7,8,9-HxCDD (VF-XMS)	24.9	24.7	1

SDG WG90287 ~~WG91427~~

VALIDATION FINDINGS WORKSHEET
Overall Assessment of Data

METHOD: SGS AXYS MLA-217 Rev 01)

#	Sample ID	Finding	Analyte	Qualifications
	All	E,H (DB5MS column)	E,H (VF-XMS column) are more usab	NR (22)

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

METHOD: HRGC/HRMS PCDD/PCDF (EPA Method 1613B)

The Relative Response Factor (RRF), average RRF, and percent relative standard deviation (%RSD) were recalculated for the analytes identified below using the following calculations:

$RRF = (A_x)(C_{is})/(A_{is})(C_x)$
average RRF = sum of the RRFs/number of standards
%RSD = 100 * (S/X)

Ax = Area of analyte
Cx = Concentration of analyte
S= Standard deviation of the RRFs

A_{is} = Area of associated internal standard
C_{is} = Concentration of internal standard
X = Mean of the RRFs

#	Standard ID	Calibration Date	Analyte (IS)	Reported RRF (RRF CS3 std)	Recalculated RRF (RRF CS3 std)	Reported Average RRF (Initial)	Recalculated Average RRF (Initial)	Reported %RSD	Recalculated %RSD
1	ICAL DB5MS	8/7/2024	2,3,7,8-TCDF (13C-2,3,7,8-TCDF)	1.07	1.07	1.02	1.02	3.73	3.72
			2,3,7,8-TCDD (13C-2,3,7,8-TCDD)	1.15	1.15	1.09	1.09	4.06	4.07
			1,2,3,6,7,8-HxCDD (13C-1,2,3,6,7,8-HxCDD)	1.07	1.07	1.10	1.10	4.71	4.78
			1,2,3,4,6,7,8-HpCDD (13C-1,2,4,6,7,8,-HpCDD)	1.10	1.10	1.09	1.09	4.07	3.89
			OCDF (13C-OCDD)	1.27	1.27	1.27	1.27	3.22	3.11
2	ICAL VF-XMS	10/30/2024	2,3,7,8-TCDF (13C-2,3,7,8-TCDF)	1.04	1.04	1.11	1.11	9.38	9.19
3			2,3,7,8-TCDF (13C-2,3,7,8-TCDF)						
			2,3,7,8-TCDD (13C-2,3,7,8-TCDD)						
			1,2,3,6,7,8-HxCDD (13C-1,2,3,6,7,8-HxCDD)						
			1,2,3,4,6,7,8-HpCDD (13C-1,2,4,6,7,8,-HpCDD)						
			OCDF (13C-OCDD)						

VALIDATION FINDINGS WORKSHEET
Continuing Calibration Calculation Verification

METHOD: HRGC/HRMS PCDD/PCDF (EPA Method 1613B)

The percent difference (%D) of the initial calibration average Relative Response Factors (RRFs) and the continuing calibration RRFs were recalculated for the analytes identified below using the following calculation:

% Difference = 100 * (ave. RRF - RRF)/ave. RRF
RRF = (Ax)(Cis)/(Ais)(Cx)

Where:
ave. RRF = Initial calibration average RRF
RRF = Continuing calibration RRF
Ax = Area of analyte
Ais = Area of associated internal standard
Cx = Concentration of analyte
Cis = Concentration of internal standard

#	Standard ID	Calibration Date	Analyte (IS)	Average RRF (Initial)	Reported conc (CCV)	Recalculated conc (CCV)	Reported %R	Recalculated %R
1	DX4T_093S1	10/22/2024	2,3,7,8-TCDF (13C-2,3,7,8-TCDF)	1.02	0.527	0.528		
			2,3,7,8-TCDD (13C-2,3,7,8-TCDD)	1.09	0.505	0.505		
			1,2,3,6,7,8-HxCDD (13C-1,2,3,6,7,8-HxCDD)	1.10	2.42	2.43		
			1,2,3,4,6,7,8-HpCDD (13C-1,2,4,6,7,8,-HpCDD)	1.09	2.53	2.52		
			OCDF (13C-OCDD)	1.27	5.11	5.09		
2	DX4T_094S1	10/24/2024	2,3,7,8-TCDF (13C-2,3,7,8-TCDF)	1.02	0.530	0.532		
			2,3,7,8-TCDD (13C-2,3,7,8-TCDD)	1.09	0.498	0.498		
			1,2,3,6,7,8-HxCDD (13C-1,2,3,6,7,8-HxCDD)	1.10	2.40	2.40		
			1,2,3,4,6,7,8-HpCDD (13C-1,2,4,6,7,8,-HpCDD)	1.09	2.52	2.51		
			OCDF (13C-OCDD)	1.27	5.26	5.24		
3	VF4T_099S2	11/1/2024	2,3,7,8-TCDF (13C-2,3,7,8-TCDF)	1.11	0.493	0.491		
4	VF4T_099S14	11/4/2024	2,3,7,8-TCDF (13C-2,3,7,8-TCDF)	1.11	0.491	0.489		
5	DX4T_103S23	11/11/2024	2,3,7,8-TCDF (13C-2,3,7,8-TCDF)	1.02	0.515	0.516		
			2,3,7,8-TCDD (13C-2,3,7,8-TCDD)	1.09	0.527	0.527		
			1,2,3,6,7,8-HxCDD (13C-1,2,3,6,7,8-HxCDD)	1.10	2.58	2.58		
			1,2,3,4,6,7,8-HpCDD (13C-1,2,4,6,7,8,-HpCDD)	1.09	2.59	2.59		
			OCDF (13C-OCDD)	1.27	4.73	4.72		

METHOD: HRGC/HRMS PCDD/PCDF (EPA Method 1613B)

The percent recoveries (%R) for the Ongoing Precision and Recovery (OPR) were recalculated for the analytes identified below using the following calculation:

SSC = (Area spike) (Conc IS) / (Area IS) (average RRF spike)
%Recovery = 100 * SSC/SA

Where:
SSC = Spiked concentration
SA = Spike added

OPR ID: WG91427-102

Analyte	SA (ng/mL)	SSC (ng/mL)	Recalc. (ng/mL)	OPR Percent Recovery	
	OPR	OPR		Reported	Recalc.
2,3,7,8-TCDD	1.05	0.97		92.7	92.8
1,2,3,7,8-PeCDD	5.00	4.71		94.2	94.2
1,2,3,4,7,8-HxCDD	5.00	4.78		95.5	95.6
1,2,3,4,7,8,9-HpCDF	5.00	5.02		100	100
OCDF	10.0	9.75		97.5	97.5

METHOD: HRGC/HRMS PCDD/PCDF (EPA Method 1613B)

Analyte results for all Level IV samples reported with a positive detect were recalculated and verified using the following equation:

$$\text{Concentration} = \frac{(Ax)\,(Ci)\,(Vo)\,(Df)}{(Ai)\,(RRF)\,(Wt)\,(\%S)}$$

Where:

Ax = Area or height of the peak for the analyte to be measured
DF = Dilution factor
Ci = Concentration of internal standard
RRF = Average relative response factor
Vo = Volume of extract in microliters (uL)
Ai = Area or height of internal standard
Wt = Weight of sample in grams (g)

Sample #	Analyte	Ax	Ai	Ci (pg)	DF	RRF	Vo (uL)	Wt (g)	% Solids	Calculated Concentration (pg/g)	Reported Concentration (pg/g)	% Diff
6	OCDD	2.82E+07	2.31E+06	4000	1	1.00	1	10.01	0.576	8469	8450	

LABORATORY DATA CONSULTANTS, INC.
2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

Anchor QEA, LLC
1201 3rd Ave., Suite 2600
Seattle, WA 98101
ATTN: Ms. Jennifer Marsalla
jmarsalla@anchorqea.com

February 12, 2025

SUBJECT: Shelton Harbor - Data Validation

Dear Ms. Marsalla,

Enclosed are the final validation reports for the fraction listed below. This SDG was received on November 25, 2024. Attachment 1 is a summary of the samples that were reviewed for each analysis.

LDC Project #60145:

SDG #	**Fraction**
WG89860	Polycyclic Aromatic Hydrocarbons

The data validation was performed under Stage 2B guidelines. The analysis was validated using the following documents, as applicable to each method:

- Sampling and Quality Assurance Project Plan Addendum No. 3 for Shelton Harbor Sediment Cleanup Unit, Oakland Bay and Shelton Harbor Sediments Cleanup Site, Shelton, Washington (May 2024)
- USEPA National Functional Guidelines (NFG) for Organic Superfund Methods Data Review (January 2017)

Please feel free to contact us if you have any questions.

Sincerely,

Stella Cuenco
scuenco@lab-data.com
Project Manager/Senior Chemist

LDC #60145 (Anchor Environmental - Seattle, WA / Shelton Harbor Sediment Cleanup - Simpson Timber Co.)

LDC	SDG#	Received Date	(23) Due Date	Validation Level	PAHs MLA-021
Matrix Type:					Water
A	WG89860	11/25/24	12/18/24	Stage 2B	1
Total			PM: SC		**1**

EDD: EDD
These sample counts do not include MS/MSD, and DUPs.

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Shelton Harbor

LDC Report Date: December 23, 2024

Parameters: Polycyclic Aromatic Hydrocarbons

Validation Level: Stage 2B

Laboratory: SGS AXYS Analytical Services, Ltd., Sidney, BC

Sample Delivery Group (SDG): WG89860

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
OMMP-FS-RB-240506	L41354-1	Water	05/06/24

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Sampling and Quality Assurance Project Plan Addendum No. 3 for Shelton Harbor Sediment Cleanup Unit, Oakland Bay and Shelton Harbor Sediments Cleanup Site, Shelton, Washington (May 2024) and a modified outline of the USEPA National Functional Guidelines (NFG) for Organic Superfund Methods Data Review (January 2017). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Polycyclic Aromatic Hydrocarbons (PAHs) by SGS AXYS SOP Method MLA-021, Revision 12, Version 10

All sample results were subjected to Stage 2B data validation, which comprises an evaluation of quality assurance and quality control (QA/QC) summary reports.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The reported result was an estimated quantity value.

U (Non-detected): The analyte was analyzed for, but was not detected above the level of the adjusted detection limit or quantitation limit, as appropriate.

UJ (Non-detected): The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.

NJ (Tentatively identified): The analyte has been "tentatively identified" or "presumptively identified" as present, and the associated numerical value was the estimated concentration in the sample.

R (Rejected): The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the sample.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Qualification Codes

1 Holding Time
2 Sample Preservation (Cooler Temp)
3 Sample Custody
4 Missing Deliverables
5 Calibration
6 Field Blanks
7 Laboratory Blanks
8 Matrix Spike (%R)
9 Matrix Spike Duplicate (RPD or Duplicate Sample Analysis)
10 Laboratory Control Sample
11 ICP Interference Check
12 RPD Between Two Columns
13 Surrogates
14 Field Duplicates
15 Peak Resolution
16 ICP Serial Dilution
17 Chemical Recoveries
18 Trip Blanks
19 Internal Standards/Labeled Compounds (High Resolution)
20 Linear Range Exceeded
21 Potential False Positives
22 Do Not Use, Other Result More Technically Sound
23 Estimated Maximum Possible Concentration
24 Other

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met with the following exceptions:

Sample	Analyte	Total Days From Sample Collection Until Extraction	Required Holding Time (in Days) From Sample Collection Until Extraction	Flag	A or P
OMMP-FS-RB-240506	All analytes	8	7	J (all detects) UJ (all non-detects)	P

II. GC/LRMS Instrument Performance Check

Instrument performance check was performed at the required frequency.

III. Initial Calibration

An initial calibration was performed as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 20.0% for all analytes.

The ion abundance ratios for all analytes were within validation criteria.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

The percent differences (%D) were less than or equal to 25.0% for all analytes.

The ion abundance ratios for all analytes were within validation criteria.

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks with the following exceptions:

Blank ID	Extraction Date	Analyte	Concentration (ng/L)	Associated Samples
WG89860-101	05/14/24	Naphthalene	1.14	All samples in SDG WG89860
		Phenanthrene	0.737	
		Anthracene	0.126	
		Fluoranthene	0.415	
		Pyrene	0.257	
		Chrysene	0.077	
		Indeno[1,2,3-cd]pyrene	0.090	
		2-Methylnaphthalene	0.634	
		Dibenzothiophene	0.169	

Sample concentrations were compared to concentrations detected in the laboratory blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated laboratory blanks with the following exceptions:

Sample	Analyte	Reported Concentration (ng/L)	Modified Final Concentration (ng/L)
OMMP-FS-RB-240506	Naphthalene	1.15	1.15U
	Phenanthrene	0.670	0.670U
	Anthracene	0.298	0.298U
	Fluoranthene	0.260	0.260U
	Pyrene	0.211	0.211U
	Chrysene	0.117	0.117U
	2-Methylnaphthalene	0.728	0.728U

VI. Field Blanks

Sample OMMP-FS-RB-240506 was identified as a rinsate blank. No contaminants were found with the following exceptions:

Blank ID	Collection Date	Analyte	Concentration (ug/L)	Associated Samples
OMMP-FS-RB-240506	05/06/24	Naphthalene	1.15	No associated samples in this SDG
		Phenanthrene	0.670	
		Anthracene	0.298	
		Fluoranthene	0.260	
		Pyrene	0.211	
		Benz[a]anthracene	0.059	
		Chrysene	0.117	
		2-Methylnaphthalene	0.728	

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated field blanks.

VII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

VIII. Ongoing Precision Recovery

Ongoing precision recovery (OPR) samples were analyzed as required by the method. Percent recoveries (%R) were within QC limits.

IX. Field Duplicates

No field duplicates were identified in this SDG.

X. Labeled Compounds

All labeled compound percent recoveries (%R) and ion abundance ratios (IAR) were within QC limits.

XI. Target Analyte Quantitation

All target analyte quantitations were within validation criteria with the following exceptions:

Sample	Analyte	Flag	A or P
All samples in SDG WG89860	All analytes flagged "K" by the laboratory as estimated maximum possible concentration (EMPC).	J (all detects)	P

Raw data were not reviewed for Stage 2B validation.

XII. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

Data qualified due to technical holding time, rinsate blank contamination, and results reported by the laboratory as EMPCs are summarized and presented in the Data Qualification Summary.

Shelton Harbor
Polycyclic Aromatic Hydrocarbons - Data Qualification Summary - SDG WG89860

Sample	Analyte	Flag	A or P	Reason (Code)
OMMP-FS-RB-240506	All analytes	J (all detects) UJ (all non-detects)	P	Technical holding times (1)
OMMP-FS-RB-240506	All analytes flagged "K" by the laboratory as estimated maximum possible concentration (EMPC).	J (all detects)	P	Target analyte quantitation (EMPC) (23)

Shelton Harbor
Polycyclic Aromatic Hydrocarbons - Laboratory Blank Data Qualification Summary - SDG WG89860

No Sample Data Qualified in this SDG

Shelton Harbor
Polycyclic Aromatic Hydrocarbons - Field Blank Data Qualification Summary - SDG WG89860

Sample	Analyte	Modified Final Concentration (ng/L)	Code
OMMP-FS-RB-240506	Naphthalene	1.15	1.15U
	Phenanthrene	0.670	0.670U
	Anthracene	0.298	0.298U
	Fluoranthene	0.260	0.260U
	Pyrene	0.211	0.211U
	Chrysene	0.117	0.117U
	2-Methylnaphthalene	0.728	0.728U

VALIDATION COMPLETENESS WORKSHEET

LDC #: 60145A
SDG #: WG89860
Laboratory: SGS AXYS Analytical Services, Ltd., Sidney, BC

Date: 12/4/2024
Page: 1 of 1
Reviewer: JVC
2nd Reviewer:

Method: Polycyclic Aromatic Hydrocarbons (PAH) (AXYS SOP MLA-021 Rev 12, Ver 10

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I	Sample receipt/Technical holding times	A SW	
II	GC/LRMS Instrument performance check	A	
III	Initial Calibration/ ICV	A / N	RSD ≤ 20%
IV	Continuing calibration	A	CCV ≤ 25%
V	Laboratory Blanks	SW	
VI	Field blanks	SW	RB = 1
VII	Matrix spike/Matrix spike duplicates	N	CS
VIII	Laboratory control samples	A	OPR
IX	Field duplicates	N	
X	Labeled Compounds	A	
XI	Target analyte quantitation	SW	
XII	Overall assessment of data	A	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = Not detected; NQ = Not qualified; FD = Field duplicate; FT = Field triplicate; TB = Trip blank; FB = Field blank; AB= Ambient blank; SB = Source blank; EB = Equipment blank; R = Rinsate

	Client ID	Lab ID	QC Type	Matrix	Date	Stage
1	OMMP-FS-RB-240506	L41354-1	RB	Water	05/06/2024	Stage 2B

Notes:

WG89860-101 Blk		

LDC#: 60145A

VALIDATION FINDINGS WORKSHEET
Technical Holding Times

Reviewer: JVG

Samples identified below have exceeded the cooler temperature validation criteria of 0-6 deg C or the technical holding time criteria.

METHOD: PAH (Lab SOP MLA-021 Rev12)

Sample ID	Matrix	Preserved	Sampling date	Extraction date	Analysis date	7 DAYS Total # of days	Qualifier
1	W	N	5/6/2024	5/14/2024	6/3/2024	8	J/UJ/P (1)
(ND+DET)							

TECHNICAL HOLDING TIME CRITERIA:

EXTRACTABLES: Water: Extracted within 7 days, analyzed within 40 days
Soils: Extracted within 14 days, analyzed within 40 days

LDC#: 60145A

VALIDATION FINDINGS WORKSHEET
Blanks

Reviewer: JVG

METHOD: PAH (Lab SOP MLA-021 Rev12)
Method blanks were performed at the required frequency and sequence.
No contaminants were found in the method blanks with the exceptions identified below.
Blank extraction date: 05/14/24 **Blank analysis date:** 05/30/24 **Associated samples:** ALL (Code: 7)
Conc. units: ng/L

Compound	Blank ID	Sample Identification							
	WG89860-101	5X		1					
Naphthalene	1.14	5.700		1.15/U					
Phenanthrene	0.737	3.685		0.670/U					
Anthracene	0.126	0.630		0.298/U					
Fluoranthene	0.415	2.075		0.260/U					
Pyrene	0.257	1.285		0.211/U					
Chrysene	0.077	0.385		0.117/U					
Indeno[1,2,3-cd]pyrene	0.090	0.450							
2-Methylnaphthalene	0.634	3.170		0.728/U					
Dibenzothiophene	0.169	0.845							

Blank extraction date: **Blank analysis date:** **Associated samples:**
Conc. units:

Compound	Blank ID	Sample Identification							

VALIDATION FINDINGS WORKSHEET
Field Blanks

METHOD: PAH (Lab SOP MLA-021 Rev12)
Field blanks were identified in this SDG.
No contaminants were found in the field blanks with the exceptions identified below.

Sampling date: 5/6/2024 **Blank units:** ug/L **Associated sample units:** NA
Field blank type: **RB** **Associated Samples:** NONE

(FB = Field Blank; EB = Equipment Blank; SB = Source Blank)

Compound	Blank ID	Blank ID	Sample Identification						
	1								
Naphthalene	1.15								
Phenanthrene	0.670								
Anthracene	0.298								
Fluoranthene	0.260								
Pyrene	0.211								
Benz[a]anthracene	0.059								
Chrysene	0.117								
2-Methylnaphthalene	0.728								

LDC#: 60145A

VALIDATION FINDINGS WORKSHEET
Target Analyte Quantitation and Reported RLs

Reviewer: JVG

METHOD: PAH (Lab SOP MLA-021 Rev12)
The correct internal standard (IS), quantitation ion and relative response factor (RRF) were used to quantitate the compound.
The analyte quantitation and RLs were adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation
The reported results and quantitation limits for the target analyte identified below did not meet the project requirements.

#	Sample ID	Analyte	Finding	Qualifications
	ALL	-	All analytes flagged "K" by the laboratory as EMPC	J det/P (23)

Comments: