

Data Validation Report

Project: Portland Harbor Pre-Remedial Design Investigation and Baseline Sampling
Portland Harbor Superfund Site
Surface Sediment – Sediment Management Area

Laboratory: ALS Environmental, Kelso, WA

Laboratory Group: K1804878

Analyses/Method: Chlorinated Pesticides, Polycyclic Aromatic Hydrocarbons (PAHs), and Total Solids

Validation Level: Stage 2A

AECOM Project

Number: 60566335 Task #2.12

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File Name: K1804878 DVR

SUMMARY

The data quality review of 6 surface sediment samples collected on May 21 and May 22, 2018, has been completed. Samples were analyzed for chlorinated pesticides by EPA Method 1699-modified (GC/MS/MS), PAHs by EPA Method 8270D modified by selected ion monitoring (SIM), and total solids by EPA Method 160.3-modified at ALS Environmental (ALS) located in Kelso, Washington. The analyses were performed in general accordance with the methods specified in EPA's *Test Methods for Evaluating Solid Waste (SW-846)*, *Method 1699: Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS*, December 2007 (modified by ALS SOP SVM-PESTMS2), and *Methods for Chemical Analysis of Water and Wastes*, March 1983. The laboratory provided level 2 and level 4 data packages containing sample results and associated quality assurance (QA) and quality control (QC) data, preparation logs, and raw instrument outputs (where applicable). The following samples are associated with laboratory group K1804878:

Sample ID	Laboratory ID
PDI-SG-S221	K1804878-001
PDI-SG-S222	K1804878-002
PDI-SG-S218	K1804878-003
PDI-SG-S149	K1804878-004
PDI-SG-S240	K1804878-005
PDI-SG-S240-D (Duplicate of PDI-SG-S240)	K1804878-006

Data validation is based on method performance criteria and QC criteria documented in the *Quality Assurance Project Plan (QAPP)*, dated March 23, 2018, as amended. If data qualification was required, data were qualified based on the definitions and use of qualifying flags outlined in the EPA documents *USEPA National Functional Guidelines for Organic Superfund Methods Data Review*, January 2017, and *USEPA National Functional Guidelines for Inorganic Superfund Methods Data Review*, January 2017. Data qualifiers assigned to this sample set are included in Table 1.

SAMPLE RECEIPT

Upon receipt by ALS, the sample jar information was compared to the chain-of-custody (COC) and the cooler temperatures were recorded. No discrepancies related to sample identification were noted by ALS and the coolers were received at temperatures within the EPA-recommended limits of greater than 0°C and less than or equal to 6°C.

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ORGANIC ANALYSES

Samples were analyzed for chlorinated pesticides and PAHs by the methods identified in the introduction to this report.

1. Holding Times – Acceptable except as noted below:

Chlorinated Pesticides by EPA Method 1699-modified – 4,4'-DDE in PDI-SG-S222 was re-extracted 59 days past the method-recommended holding time of 14 days after sample collection. Per ALS-Kelso protocol, the samples were frozen in archive after the initial extraction and the samples were thawed for less than 14 days; therefore, the samples were not re-extracted outside the holding time.

2. Initial and Continuing Calibration Verifications – Acceptable

PAHs by EPA Method 8270D-SIM – The percent differences (%Ds) for dibenz(a,h)anthracene (-21%) and benzo(g,h,i)perylene (-27%) were outside the control limit of $\pm 20\%$ in the continuing calibration verification (CCV) analyzed on June 20, 2018. The results for dibenz(a,h)anthracene and benzo(g,h,i)perylene in PDI-SG-S222, PDI-SG-S218, PDI-SG-S149, PDI-SG-S240, and PDI-SG-S240-D were qualified as estimated and flagged 'J' based on these CCV results.

The %D for fluoranthene-d10 (21%) was outside the control limit of $\pm 20\%$ in the continuing calibration verification (CCV) analyzed on June 21, 2018. Data were not qualified based on surrogate %D outliers.

3. Blanks – Acceptable except as noted below:

General – Two rinsate blanks were collected on May 24 and May 30, 2018, were reported with laboratory groups K1804798 (ID K1804798-017) and K1805149 (K1805149-010), and are applicable to the samples collected in this laboratory group. One or more analytes were detected in these rinsate blanks, and one or more of these results were qualified as not detected based on the associated method blank results. Refer to the associated data validation memoranda for further information. Sediment data were not qualified based on rinsate blank detections.

4. Surrogates – Acceptable
5. Internal Standards – Acceptable
6. Laboratory Control Sample (LCS) – Acceptable
7. Matrix Spike/Matrix Spike Duplicate (MS/MSD) – Acceptable

Chlorinated Pesticides by EPA Method 1699-modified – An MS/MSD was performed using PDI-SG-S221. The percent recovery for 4,4'-DDT in the MS (239%) and relative percent difference (73%) were outside the control limits of 24-183% and 40%, respectively. 4,4'-DDT was not detected in PDI-SG-S221; therefore, data were not qualified based on the MS/MSD results.

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PAHs by EPA Method 8270D-SIM – An MS/MSD was performed using PDI-SG-S221. Results were acceptable.

8. Field Duplicate – Acceptable except as noted below:

General - A field duplicate was submitted for PDI-SG-S240 and identified as PDI-SG-S240-D. Results were comparable.

9. Reporting Limits– Acceptable except as noted below:

General – One or more results were flagged 'J' by the laboratory to indicate the reported concentrations were above the MDLs but below the reporting limits. Laboratory 'J'-flagged results are considered estimated. As the result is between the MDL and the reporting limit, there is a greater level of uncertainty associated with the numerical result.

Chlorinated Pesticides by EPA Method 1699-modified – The reporting limits for one or more pesticides reported as not detected in multiple samples were elevated due to the moisture content and/or dilution due to matrix interference. The elevated reporting limits and MDLs do not exceed the cleanup level.

CONVENTIONAL ANALYSIS

Soil samples were analyzed for total solids by EPA Method 160.3-modified.

1. Holding Times – Acceptable
2. Laboratory Duplicate – Acceptable

A laboratory duplicate was performed using PDI-SG-S221. Results were comparable.

3. Field Duplicate – Acceptable except as noted below:

A field duplicate was submitted for PDI-SG-S240 and identified as PDI-SG-S240-D. Results were comparable.

4. Reporting Limits – Acceptable

OVERALL ASSESSMENT OF DATA

The data reported in this laboratory group is considered usable for meeting project objectives. The completeness for laboratory group K1804878 is 100%.

Table 1
QA/QC Data Summary Review
Portland Harbor
Surface Sediment - Sediment Management Area
ALS Kelso Laboratory Group: K1804878

Sample ID	Laboratory ID	Method	Analyte	Laboratory Result	Units	Final Result	Reason Code
PDI-SG-S222	K1804878-002	SW8270DSIM	Benzo(g,h,i)perylene	69 D	ug/kg	69 J	c
PDI-SG-S222	K1804878-002	SW8270DSIM	Dibenz(a,h)anthracene	13 D	ug/kg	13 J	c
PDI-SG-S218	K1804878-003	SW8270DSIM	Benzo(g,h,i)perylene	57	ug/kg	57 J	c
PDI-SG-S218	K1804878-003	SW8270DSIM	Dibenz(a,h)anthracene	8.0	ug/kg	8.0 J	c
PDI-SG-S149	K1804878-004	SW8270DSIM	Benzo(g,h,i)perylene	2.9	ug/kg	2.9 J	c
PDI-SG-S149	K1804878-004	SW8270DSIM	Dibenz(a,h)anthracene	0.57	ug/kg	0.57 J	c
PDI-SG-S240	K1804878-005	SW8270DSIM	Benzo(g,h,i)perylene	5.8	ug/kg	5.8 J	c
PDI-SG-S240	K1804878-005	SW8270DSIM	Dibenz(a,h)anthracene	1.6	ug/kg	1.6 J	c
PDI-SG-S240-D	K1804878-006	SW8270DSIM	Benzo(g,h,i)perylene	5.1	ug/kg	5.1 J	c
PDI-SG-S240-D	K1804878-006	SW8270DSIM	Dibenz(a,h)anthracene	1.4	ug/kg	1.4 J	c

Notes:

c - calibration issue

D - result was reported from a dilution

J - estimated value

ug/kg - microgram per kilogram