

Data Validation Report

Project: Portland Harbor Pre-Remedial Design Investigation and Baseline Sampling
 Portland Harbor Superfund Site
 Surface Water – February 2019

Laboratory: Analytical Resources, Incorporated, Tukwila, WA

Laboratory Group: 19B0242

Analyses: Pentachlorophenol (PCP), Total Organic Carbon (TOC), and Dissolved Organic Carbon (DOC)

Validation Level: Stage 4

AECOM Project
 Number: 60566335, Task #2.12

Prepared by: Chelsey Cook/AECOM Completed on: April 1, 2019

Reviewed by: Jennifer B. Garner/AECOM File Name: 19B0242 DVR

SUMMARY

The data quality review of five surface water samples collected on February 17 and February 18, 2019, has been completed. Samples were analyzed for PCP by United States Environmental Protection Agency (EPA) Method 8041A and TOC and DOC by Standard Method (SM) 5310B by Analytical Resources, Incorporated (ARI) located in Tukwila, Washington. The analysis was performed in general accordance with the method specified in EPA's *Test Methods for Evaluating Solid Waste (SW-846)* and *Standard Methods for the Examination of Water and Wastewater*. 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 19B0242:

Sample ID	Laboratory ID
PDI-WS-T01-1902	19B0242-01
PDI-WS-T02-1902	19B0242-02
PDI-WS-T03-1902	19B0242-03
PDI-WS-T04-1902	19B0242-04
PDI-WS-T05-1902	19B0242-05

Data validation is based on method performance criteria and QC criteria documented in the final *Quality Assurance Project Plan (QAPP)*, dated December 19, 2018. 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 ARI, the sample jar information was compared to the chain-of-custody (COC) and the cooler temperature was recorded. The cooler was received at a temperature within the EPA-recommended limits of greater than 0°C and less than or equal to 6°C. No discrepancies related to sample identification were noted by ARI.



Data Validation Report
Portland Harbor Pre-Remedial Design Investigation and Baseline Sampling
Surface Water – February 2019
ARI Lab Group: 19B0242

ORGANIC ANALYSIS

Samples were analyzed for PCP by EPA Method 8041A.

1. Holding Times – Acceptable
2. Initial and Continuing Calibration Verifications – Acceptable except as noted below:

The percent differences (%Ds) for PCP (40.1%) and the surrogate 2,4,6-tribromophenol (27.6%) were outside of the control limits of $\pm 20\%$ (high) in the continuing calibration verification (CCV) analyzed on one of the analytical columns on February 28, 2019. The PCP and 2,4,6-tribromophenol %Ds were acceptable on the alternate analytical column. Sample results were reported from the alternate column; therefore, data were not qualified based on the CCV %Ds noted above.
3. Blanks – Acceptable

One rinsate blank was reported with laboratory group 19A0436 and is applicable to the samples reported in this laboratory group. PCP was not detected in this rinsate blank.
4. Surrogate – Acceptable
5. Laboratory Control Sample (LCS) – Acceptable
6. Matrix Spike/Matrix Spike Duplicate (MS/MSD) – Acceptable

An MS/MSD was performed using PDI-WS-T01-1902. Results were acceptable.
7. Calculation Checks – Acceptable

A calculation check was performed for sample results on one sample per calibration. The review confirmed the final results were correct as reported.
8. Reporting Limits and Chromatographic Review – Acceptable

Chromatograms/spectra were reviewed to confirm target analytes were properly identified. The review confirmed target analytes were properly identified and reported by the laboratory.

CONVENTIONAL ANALYSES

Samples were analyzed for TOC and DOC by SM 5310B.

1. Holding Times – Acceptable
2. Initial and Continuing Calibrations – Acceptable
3. Blanks – Acceptable except as noted below:

General – One rinsate blank was reported with laboratory group 19A0436 and is applicable to the samples reported in this laboratory group. TOC (1.33 mg/L) was detected at a concentration greater than the reporting limit. TOC was detected in PDI-WS-T01-1902, PDI-WS-T02-1902, PDI-WS-T03-1902, PDI-WS-T04-1902, and PDI-WS-T05-1902 at



Data Validation Report
Portland Harbor Pre-Remedial Design Investigation and Baseline Sampling
Surface Water – February 2019
ARI Lab Group: 19B0242

concentrations greater than the reporting limits but less than ten times the rinsate blank result; therefore, the results were qualified as estimated and flagged 'J' based on the rinsate blank result.

4. Laboratory Control Sample (LCS) – Acceptable
5. Matrix Spike/Matrix Spike Duplicate (MS/MSD) – Acceptable

MS/MSDs for TOC and DOC were performed using PDI-WS-T01-1902. The percent recoveries for TOC in the MS (73.1%) and MSD (74.6%) and DOC in the MS (71.7%) and MSD (72.3%) were below the control limits of 75-125%. The result for TOC in PDI-WS-T01-1902 was previously qualified as estimated based on the rinsate blank result and no further qualifications were necessary based on the MS/MSD results. The result for DOC in PDI-WS-T01-1902 was qualified as estimated and flagged 'J' based on the MS/MSD results.

6. Laboratory Duplicate – Acceptable

Laboratory duplicates for TOC and DOC were performed using PDI-WS-T01-1902. Results were comparable.

7. Calculation Checks – Acceptable

A calculation check was performed for sample results on one sample per calibration. The review confirmed the final results were correct as reported.

8. Reporting Limits – Acceptable

OVERALL ASSESSMENT OF DATA

The data reported in this laboratory group, as qualified, is considered usable for meeting project objectives. The completeness for laboratory group 19B0242 is 100%.

Table 1
QA/QC Data Summary Review
Portland Harbor
Surface Water - February 2019
Analytical Resources, Incorporated Laboratory Group: 19B0242

Sample ID	Laboratory ID	Method	Analyte	Laboratory Result	Units	Final Result	Reason Code
PDI-WS-T01-1902	19B0242-01	SM5310B	Total Organic Carbon	3.06	mg/L	3.06 J	be
PDI-WS-T01-1902	19B0242-01	SM5310B	Dissolved Organic Carbon	2.67	mg/L	2.67 J	m
PDI-WS-T02-1902	19B0242-02	SM5310B	Total Organic Carbon	4.31	mg/L	4.31 J	be
PDI-WS-T03-1902	19B0242-03	SM5310B	Total Organic Carbon	2.82	mg/L	2.82 J	be
PDI-WS-T04-1902	19B0242-04	SM5310B	Total Organic Carbon	3.38	mg/L	3.38 J	be
PDI-WS-T05-1902	19B0242-05	SM5310B	Total Organic Carbon	3.12	mg/L	3.12 J	be

Notes:

be - equipment blank contamination
J - estimated value
m - matrix spike/matrix spike duplicate recovery
mg/L - milligram per liter