

Data Validation Report

Project: Portland Harbor Pre-Remedial Design Investigation and Baseline Sampling
 Portland Harbor Superfund Site
 Surface Water – November 2018

Laboratory: TestAmerica Laboratories, Incorporated, Seattle, WA

Laboratory Group: 580-82281-1

Analyses: Ethylbenzene, Methylchlorophenoxypropionic Acid (MCP), Metals, Total Hardness by calculation, Total Organic Carbon (TOC), Dissolved Organic Carbon (DOC), Total Suspended Solids (TSS), and Total Dissolved Solids (TDS)

Validation Level: Stage 2A / Stage 4 (TOC and DOC)

AECOM Project

Number: 60566335, Task #2.12

Prepared by: Chelsey Cook/AECOM

Completed on: January 23, 2019

Reviewed by: Jennifer B. Garner/AECOM

File Name: 580-82281-1 DVR

SUMMARY

The data quality review of 12 surface water samples and 3 trip blanks collected on November 30 and December 1, 2018, has been completed. Samples were analyzed for ethylbenzene by United States Environmental Protection Agency (EPA) Method 8260C, MCP by EPA Method 8151A, metals by EPA Methods 6010C (dissolved calcium and magnesium) and 6020B (total and dissolved arsenic, chromium, copper, and zinc), total hardness by Standard Method (SM) 2340B, TSS by SM 2540D, and TDS by SM 2540C by TestAmerica Laboratories, Incorporated (TA) located in Tacoma, Washington and/or TOC and DOC by SM 5310B by Analytical Resources, Incorporated (ARI) located in Tukwila, Washington as noted in the table below. The analyses were performed in general accordance with the methods 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 groups 580-82281-1 and 18L0426:

Sample ID	Laboratory ID	Requested Analyses
PDI-WS-T04-1812	580-82281-1/18L0426-01/18L0426-04	MCP, Metals, Hardness, TDS, TSS, TOC, and DOC
PDI-WS-T04N-1812	580-82281-2	Ethylbenzene
PDI-WS-T04E-1812	580-82281-3	Ethylbenzene
PDI-WS-T04W-1812	580-82281-4	Ethylbenzene
PDI-WS-T02-1811	580-82281-5/18L0426-02/18L0426-05	MCP, Metals, Hardness, TDS, TSS, TOC, and DOC
PDI-WS-T02N-1811	580-82281-6	Ethylbenzene
PDI-WS-T02E-1811	580-82281-7	Ethylbenzene
PDI-WS-T02W-1811	580-82281-8	Ethylbenzene
PDI-WS-T06-1811	580-82281-9/18L0426-03/18L0426-06	MCP, Metals, Hardness, TDS, TSS, TOC, and DOC
PDI-WS-T06N-1811	580-82281-10	Ethylbenzene
PDI-WS-T06E-1811	580-82281-11	Ethylbenzene
PDI-WS-T06W-1811	580-82281-12	Ethylbenzene
Trip Blank T02	580-82281-13	Ethylbenzene

Data Validation Report
Portland Harbor Pre-Remedial Design Investigation and Baseline Sampling
Surface Water – November 2018
TestAmerica Lab Group: 580-82281-1

Sample ID	Laboratory ID	Requested Analyses
Trip Blank T04	580-82281-14	Ethylbenzene
Trip Blank T06	580-82281-15	Ethylbenzene

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 the laboratories, the sample jar information was compared to the associated chain-of-custody (COC) and the cooler temperatures were recorded. The coolers were received at temperatures within the EPA-recommended limits of greater than 0°C and less than or equal to 6°C. TA's TOC instrument was out of service when the samples arrived at the laboratory. TA sent the samples requiring TOC analysis to ARI to perform the TOC and DOC analyses upon approval by AECOM. The ARI laboratory report, 18L0246, is included as an addendum to the TA laboratory report.

ORGANIC ANALYSES

Samples were analyzed for ethylbenzene and/or MCPP by the methods identified in the introduction of this report.

1. Holding Times – Acceptable
2. Blanks – Acceptable

Ethylbenzene by Method 8260C – The rinsate blank associated with these samples, reported with laboratory group 580-82189-1, was submitted to TA for ethylbenzene analysis, however, it was not logged or analyzed for this analyte. Ethylbenzene was not detected in any of the associated samples; therefore, this oversight does not impact the use of the data.

MCPP by Method 8151A – One rinsate blank was reported with laboratory group 580-82189-1 and is applicable to the samples reported in this laboratory group. MCPP was not detected in this rinsate blank.

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

General – MS/MSDs were not performed using samples reported in this laboratory group. Precision and accuracy were assessed using the LCS/LCSD results.

Data Validation Report

Portland Harbor Pre-Remedial Design Investigation and Baseline Sampling

Surface Water – November 2018

TestAmerica Lab Group: 580-82281-1

6. Reporting Limits – Acceptable except as noted below:

MCCP by Method 8151A – The reporting limits for MCCP were slightly elevated in all samples reported in this laboratory group due to limited sample volume. The method detection limits (MDLs) and reporting limits are below cleanup levels.

METALS ANALYSES

Samples were analyzed for metals and calculated for hardness by the methods identified in the introduction to this report.

1. Holding Times – Acceptable
2. Blanks – Acceptable where applicable

General – One rinsate blank was reported with laboratory group 580-82189-1 and is applicable to the samples reported in this laboratory group. Metals were not detected in this rinsate blank.

3. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) - Acceptable where applicable
4. Matrix Spike/Matrix Spike Duplicate (MS/MSD) and Post Digestion Spike (PDS, where applicable) – Acceptable where applicable

Calcium and Magnesium by Method 6010C – An MS/MSD and PDS were performed using PDI-WS-T04-1812. Results were acceptable.

Metals by Method 6020B – An MS/MSD and PDS were performed using the dissolved metals fraction submitted for PDI-WS-T04-1812. Results were acceptable. An MS/MSD and PDS for total metals were not performed using a sample reported in this laboratory group. Precision and accuracy were assessed for total metals using the LCS/LCSD results.

5. Laboratory Duplicate – Acceptable where applicable

Calcium and Magnesium by Method 6010C – A laboratory duplicate was performed using PDI-WS-T04-1812. Results were comparable.

Metals by Method 6020B – A laboratory duplicate was performed using the dissolved metals fraction submitted for PDI-WS-T04-1812. Results were comparable. A laboratory duplicate for total metals was not performed using a sample reported in this laboratory group. Precision was assessed using the LCS/LCSD results.

6. Serial Dilution – Acceptable

Calcium and Magnesium by Method 6010C – A serial dilution was performed using PDI-WS-T04-1812. Results were comparable.

Metals by Method 6020B – A serial dilution was performed using the dissolved metals fraction submitted for PDI-WS-T04-1812. Results were comparable.

Data Validation Report

Portland Harbor Pre-Remedial Design Investigation and Baseline Sampling

Surface Water – November 2018

TestAmerica Lab Group: 580-82281-1

7. Reporting Limits – Acceptable

General – Analyte concentrations detected between the MDLs and the reporting limits are reported by the laboratory with 'J' flags. One or more results were flagged 'J' by the laboratory. Laboratory 'J'-flagged results are considered estimated results. As the results are between the MDLs and the reporting limits, there is a greater level of uncertainty associated with the numerical results.

CONVENTIONAL ANALYSES

Samples were analyzed for TOC, DOC, TSS, and TDS by the methods identified in the introduction to this report.

1. Holding Times – Acceptable

2. Initial and Continuing Calibrations (assessed for TOC and DOC only) – Acceptable where applicable

3. Blanks – Acceptable except as noted below:

General – One rinsate blank was reported with laboratory group 580-82189-1 and is applicable to the samples reported in this laboratory group. TOC (0.56 mg/L) and DOC (0.40 mg/L) were detected at concentrations between the MDLs and the reporting limits. TOC and DOC were detected in PDI-WS-T04-1812, PDI-WS-T02-1811, and PDI-WS-T06-1811 at concentrations above the reporting limits but less than ten times the rinsate blank concentrations; therefore, the results for TOC and DOC in these samples were qualified as estimated and flagged 'J' based on the rinsate blank results.

4. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) – Acceptable

5. Matrix Spike/Matrix Spike Duplicate (MS/MSD) – Acceptable where applicable

TOC/DOC by Method 5310B – MS/MSDs for TOC and DOC were performed using PDI-WS-T04-1812. Results were acceptable.

6. Laboratory Duplicate – Acceptable

TOC/DOC by Method 5310B – Laboratory duplicates for TOC and DOC were performed using PDI-WS-T04-1812. Results were comparable.

TSS by Method 2540D – A laboratory duplicate was not performed using a sample reported in this laboratory group. Accuracy was assessed using the LCS. Precision was not assessed.

TDS by Method 2540C – A laboratory duplicate was performed using PDI-WS-T04-1812. Results were comparable.

7. Calculation Checks (applicable to TOC and DOC only) – Acceptable

TOC/DOC by Method 5310B – A calculation check was performed for sample results on one sample per calibration for TOC and DOC performed by ARI. The review confirmed the final result as reported.



Data Validation Report
Portland Harbor Pre-Remedial Design Investigation and Baseline Sampling
Surface Water – November 2018
TestAmerica Lab Group: 580-82281-1

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 580-82281-1 is 100%.

Table 1
QA/QC Data Summary Review
Portland Harbor
Surface Water - November 2018
TestAmerica Laboratory Group: 580-82281-1
Analytical Resources, Incorporated Laboratory Group: 18L0426

Sample ID	Laboratory ID	Method	Analyte	Laboratory Result	Units	Final Result	Reason Code
PDI-WS-T04-1812	18L0426-01	SM5310B	Total Organic Carbon	2.27	mg/L	2.27 J	be
PDI-WS-T02-1811	18L0426-02	SM5310B	Total Organic Carbon	1.98	mg/L	1.98 J	be
PDI-WS-T06-1811	18L0426-03	SM5310B	Total Organic Carbon	2.18	mg/L	2.18 J	be
PDI-WS-T04-1812	18L0426-04	SM5310B	Dissolved Organic Carbon	2.08	mg/L	2.08 J	be
PDI-WS-T02-1811	18L0426-05	SM5310B	Dissolved Organic Carbon	1.81	mg/L	1.81 J	be
PDI-WS-T06-1811	18L0426-06	SM5310B	Dissolved Organic Carbon	2.01	mg/L	2.01 J	be

Notes:

be - equipment blank contamination

J - estimated value

mg/L - milligram per liter