

Data Validation Report

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

Laboratory: TestAmerica Laboratories, Incorporated, Seattle, WA

Laboratory Group: 580-84010-1

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

Validation Level: Stage 4

AECOM Project

Number: 60566335, Task #2.12

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File Name: 580-84010-1 DVR

SUMMARY

The data quality review of 20 surface water samples and 5 trip blanks collected on February 17 and February 18, 2019, 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. 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 group 580-84010-1:

Sample ID	Laboratory ID
PDI-WS-T01-1902	580-84010-1
PDI-WS-T02-1902	580-84010-2
PDI-WS-T03-1902	580-84010-3
PDI-WS-T04-1902	580-84010-4
PDI-WS-T05-1902	580-84010-5
PDI-WS-T01E-1902	580-84010-6
PDI-WS-T01N-1902	580-84010-7
PDI-WS-T01W-1902	580-84010-8
PDI-WS-T02W-1902	580-84010-9
PDI-WS-T02E-1902	580-84010-10
PDI-WS-T02N-1902	580-84010-11
PDI-WS-T03E-1902	580-84010-12
PDI-WS-T03N-1902	580-84010-13
PDI-WS-T03W-1902	580-84010-14
PDI-WS-T04E-1902	580-84010-15
PDI-WS-T04N-1902	580-84010-16

Data Validation Report
Portland Harbor Pre-Remedial Design Investigation and Baseline Sampling
Surface Water – February 2019
TestAmerica Lab Group: 580-84010-1

Sample ID	Laboratory ID
PDI-WS-T04W-1902	580-84010-17
PDI-WS-T05E-1902	580-84010-18
PDI-WS-T05N-1902	580-84010-19
PDI-WS-T05W-1902	580-84010-20
Trip Blank-T01	580-84010-21
Trip Blank-T02	580-84010-22
Trip Blank-T03	580-84010-23
Trip Blank-T04	580-84010-24
Trip Blank-T05	580-84010-25

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 TA, the sample jar information was compared to the 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. No discrepancies related to sample identification were noted by TA.

ORGANIC ANALYSES

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

1. Holding Times – Acceptable
2. Initial and Continuing Calibration Verifications/Instrument Performance Checks – Acceptable
3. Blanks – Acceptable

General – One rinsate blank was reported with laboratory group 580-83566-1. Ethylbenzene and MCPP were not detected in this rinsate blank.

4. Surrogates – Acceptable
5. Internal Standards – Acceptable
6. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) – Acceptable except as noted below:

MCPP by EPA 8151A – The percent recovery in the LCS (49%) and the relative percent difference (RPD, 40%), were outside the control limits of 61-135% and 35%, respectively. The results for MCPP in PDI-WS-T01-1902, PDI-WS-T02-1902, PDI-WS-T03-1902, PDI-WS-



Data Validation Report
Portland Harbor Pre-Remedial Design Investigation and Baseline Sampling
Surface Water – February 2019
TestAmerica Lab Group: 580-84010-1

T04-1902, and PDI-WS-T05-1902 were qualified as estimated and flagged 'UJ' based on the LCS/LCSD results.

7. Matrix Spike/Matrix Spike Duplicate (MS/MSD)

General – MS/MSDs were not performed using samples from this laboratory group. Accuracy and precision were assessed using the LCS/LCSDs.

8. Calculation Checks – Acceptable

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

9. Reporting Limits and Chromatographic Review – Acceptable

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

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. ICP-MS Instrument Performance Check & Tuning (where applicable) – Acceptable

3. Initial and Continuing Calibrations – Acceptable

4. Blanks – Acceptable except as noted below:

General –

One rinsate blank was reported with laboratory group 580-83566-1. Dissolved zinc (4.8 ug/L) was detected in this rinsate blank at a concentration between the method detection limit (MDL) and the reporting limit. Dissolved zinc was detected between the MDLs and reporting limits, qualified as not detected, and flagged 'U' at the reporting limits in PDI-WS-T01-1902, PDI-WS-T02-1902, PDI-WS-T03-1902, PDI-WS-T04-1902, and PDI-WS-T05-1902 based on this rinsate blank result.

5. Internal Standards – Acceptable

6. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) - Acceptable

7. Matrix Spike/Matrix Spike Duplicate (MS/MSD) and Post Digestion Spike (PDS, where applicable) – Acceptable

General – MS/MSDs and PDS' were performed using PDI-WS-T01-1902. Results were acceptable.



Data Validation Report
Portland Harbor Pre-Remedial Design Investigation and Baseline Sampling
Surface Water – February 2019
TestAmerica Lab Group: 580-84010-1

8. Laboratory Duplicate – Acceptable except as noted below:

Calcium and Magnesium by Method 6010C – A laboratory duplicate was performed using PDI-WS-T01-1902. Results were comparable.

Metals by Method 6020B – A laboratory duplicate was performed using the dissolved metals fraction of PDI-WS-T01-1902. The RPD for zinc (27%) exceeded the control limit of 20%. The sample concentration of zinc was less than five times the reporting limit; therefore, data were not qualified based on the elevated laboratory duplicate RPD.

9. Serial Dilution – Acceptable

General – Serial dilutions were performed using PDI-WS-T01-1902. Results were comparable.

10. ICP Interference Check Samples – Acceptable

11. Calculation Checks – Acceptable

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

12. 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 TSS and TDS by the methods identified in the introduction to this report.

1. Holding Times – Acceptable
2. Blanks – Acceptable except as noted below:
3. Laboratory Control Sample (LCS) – Acceptable
4. Laboratory Duplicate

General – Laboratory duplicates were not performed using a sample from this laboratory group. Precision was not assessed.

5. Calculation Checks – Acceptable

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

6. Reporting Limits – Acceptable



Data Validation Report
Portland Harbor Pre-Remedial Design Investigation and Baseline Sampling
Surface Water – February 2019
TestAmerica Lab Group: 580-84010-1

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 580-84010-1 is 100%.

Table 1
QA/QC Data Summary Review
Portland Harbor
Surface Water - February 2019
TestAmerica Laboratory Group: 580-84010-1

Sample ID	Laboratory ID	Method	Analyte	Fraction	Laboratory Result	Units	Final Result	Reason Code
PDI-WS-T01-1902	580-84010-1	SW6020B	Zinc	D	2.3 J	ug/L	7.0 U	be
PDI-WS-T01-1902	580-84010-1	SW8151A	MCPP	T	1.1 U	ug/L	1.1 UJ	I
PDI-WS-T02-1902	580-84010-2	SW6020B	Zinc	D	3.4 J	ug/L	7.0 U	be
PDI-WS-T02-1902	580-84010-2	SW8151A	MCPP	T	1.1 U	ug/L	1.1 UJ	I
PDI-WS-T03-1902	580-84010-3	SW6020B	Zinc	D	2.3 J	ug/L	7.0 U	be
PDI-WS-T03-1902	580-84010-3	SW8151A	MCPP	T	1.1 U	ug/L	1.1 UJ	I
PDI-WS-T04-1902	580-84010-4	SW6020B	Zinc	D	2.7 J	ug/L	7.0 U	be
PDI-WS-T04-1902	580-84010-4	SW8151A	MCPP	T	1.1 U	ug/L	1.1 UJ	I
PDI-WS-T05-1902	580-84010-5	SW6020B	Zinc	D	2.6 J	ug/L	7.0 U	be
PDI-WS-T05-1902	580-84010-5	SW8151A	MCPP	T	1.1 U	ug/L	1.1 UJ	I

be - equipment blank contamination

D - dissolved fraction

J - estimated value

I - laboratory control sample

T - total fraction

U - Compound was analyzed for, but not detected above the value shown.

ug/L - microgram per liter

Note: Line items where the laboratory result contains a "J" and the final result contains a "U" with a data validation reason code "be" indicate that the final result is reported as not detected ("U" flag) at the reporting limit.