

# Data Validation Report

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

Laboratory: TestAmerica Laboratories, Incorporated, Seattle, WA

Laboratory Group: 580-79862-1

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

AECOM Project

Number: 60566335, Task #2.12

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File Name: 580-79862-1 DVR

## SUMMARY

The data quality review of 14 surface water samples and 2 trip blanks collected on August 22 and August 23, 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, TOC and DOC by SM 5310B, 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 580-79862-1:

Sample ID	Laboratory ID
PDI-WS-T03-1808	580-79862-1
PDI-WS-T04-1808	580-79862-2
PDI-WS-T04-1808-D (field duplicate of PDI-WS-T04-1808)	580-79862-3
PDI-WS-T07-1808	580-79862-4
PDI-WS-T04E-1808	580-79862-5
PDI-WS-T04E-1808-D (field duplicate of PDI-WS-T04E-1808)	580-79862-6
PDI-WS-T04N-1808	580-79862-7
PDI-WS-T04W-1808	580-79862-8
Trip Blank T04	580-79862-9
PDI-WS-T07E-1808	580-79862-10
PDI-WS-T07W-1808	580-79862-11
PDI-WS-T07NAV-1808	580-79862-12
Trip Blank T07	580-79862-13
PDI-WS-T03E-1808	580-79862-14
PDI-WS-T03W-1808	580-79862-15



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Sample ID	Laboratory ID
PDI-WS-T03NAV-1808	580-79862-16

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 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. PDI-WS-T07NAV-1808 and PDI-WS-T03NAV-1808 were submitted with the incorrect sample ID nomenclature and were updated in the database to PDI-WS-T07N-1808 and PDI-WS-T03N-1808. This data validation report refers to the samples as identified on the COC and in the laboratory reports.

### **ORGANIC ANALYSES**

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

1. Holding Times – Acceptable
2. Blanks – Acceptable except as noted below

General – One rinsate blank was reported with laboratory group 580-79792-1 and is applicable to the samples reported with this laboratory group. Ethylbenzene (0.85 ug/L) was detected in the rinsate blank at a concentration between the method detection limit (MDL) and the reporting limit. Ethylbenzene was not detected in the associated samples; therefore, data were not qualified based on the rinsate blank detection.

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

Ethylbenzene by EPA 8260C – An MS/MSD was not performed using a sample from this laboratory group. Precision and accuracy were assessed using the LCS/LCSD results.

MCPP by EPA 8151A – An MS/MSD was performed using PDI-WS-T07-1808. Results were acceptable.

6. Field Duplicate – Acceptable

General – Field duplicates were submitted for PDI-WS-T04-1808 and PDI-WS-T04E-1808 and identified as PDI-WS-T04-1808-D and PDI-WS-T04E-1808-D, respectively. Results were comparable.

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7. Reporting Limits – Acceptable

## 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 except as noted below:

General – One rinsate blank was reported with laboratory group 580-79792-1 and is applicable to the samples reported with this laboratory group. Total chromium (0.18 ug/L) and dissolved zinc (2.9 ug/L) were detected in this rinsate blank at concentrations between the MDLs and the reporting limits and dissolved chromium (0.76 ug/L) was detected in this rinsate blank at a concentration greater than the reporting limit. Dissolved zinc and total chromium in PDI-WS-T03-1808, PDI-WS-T04-1808, PDI-WS-T04-1808-D, and PDI-WS-T07-1808 and dissolved chromium in PDI-WS-T07-1808 were detected at concentrations between the MDLs and the reporting limits; therefore, the results were qualified as not detected and flagged 'U' at the reporting limits. Dissolved chromium was detected in PDI-WS-T03-1808 and PDI-WS-T04-1808-D at concentrations greater than the reporting limits but less than ten times the rinsate blank detection; therefore, the results were qualified as estimated and flagged 'J' based on the rinsate blank results.

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

Calcium and Magnesium by Method 6010C – MS/MSDs and PDS' were performed using PDI-WS-T03-1808 and PDI-WS-T07-1808. Results were acceptable.

Metals by Method 6020B –MS/MSDs and PDS' were performed using the total metals fraction of PDI-WS-T07-1808 and the dissolved metals fractions of PDI-WS-T03-1808 and PDI-WS-T07-1808. Results were acceptable.

5. Field Duplicate – Acceptable except as noted below:

General – A field duplicate was submitted for PDI-WS-T04-1808 and identified as PDI-WS-T04-1808-D. The relative percent difference (RPD) for dissolved chromium (128%) and dissolved copper (74%) exceeded 30%. The sample concentrations for dissolved copper were less than five times the reporting limits; therefore, data were not qualified based on elevated field duplicate RPD. The result for dissolved chromium in PDI-WS-T04-1808 was qualified as estimated and flagged 'J' based on the elevated field duplicate RPD. The result for dissolved chromium in PDI-WS-T04-1808-D was qualified as estimated and flagged 'J' based on the rinsate blank results and no further qualification was necessary based on the field duplicate RPD.

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6. Laboratory Duplicate – Acceptable except as noted below:

Calcium and Magnesium by Method 6010C – Laboratory duplicates were performed using PDI-WS-T03-1808 and PDI-WS-T07-1808. Results were comparable.

Metals by Method 6020B – A laboratory duplicate was performed using the total metals fraction of PDI-WS-T07-1808. Results were comparable.

Laboratory duplicates were performed using the dissolved metals fractions of PDI-WS-T03-1808 and PDI-WS-T07-1808. The RPD for chromium (137%) and copper (21%) in PDI-WS-T03-1808 and zinc (34%) in PDI-WS-T07-1808 exceeded the control limit of 20%. The sample concentrations for chromium, copper, and zinc were less than five times the reporting limits; therefore, data were not qualified based on the elevated lab duplicate RPDs.

7. Serial Dilution – Acceptable

Calcium and Magnesium by Method 6010C – Serial dilutions were performed using PDI-WS-T03-1808 and PDI-WS-T07-1808. Results were comparable.

Metals by Method 6020B – Serial dilutions were performed using the total metals fraction of PDI-WS-T07-1808 and the dissolved metals fractions of PDI-WS-T03-1808 and PDI-WS-T07-1808. Results were comparable.

8. 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. Blanks – Acceptable except as noted below:

General – One rinsate blank was reported with laboratory group 580-79792-1 and is applicable to the samples reported with this laboratory group. TOC (0.72 mg/L) and DOC (0.73 mg/L) were detected at concentrations between the MDLs and the reporting limits. TOC and DOC were detected in PDI-WS-T03-1808, PDI-WS-T04-1808, PDI-WS-T04-1808-D, and PDI-WS-T07-1808 at concentrations greater than the reporting limits but less than ten times the rinsate blank results; therefore, the results were qualified as estimated and flagged 'J' based on the rinsate blank results.

3. Laboratory Control Sample (LCS) – Acceptable



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

TOC by Method 5310B – An MS/MSD was performed using PDI-WS-T07-1808. Results were acceptable.

5. Field Duplicate – Acceptable

General – A field duplicate was submitted for PDI-WS-T04-1808 and identified as PDI-WS-T04-1808-D. Results were comparable.

6. Laboratory Duplicate – Acceptable

TOC by Method 5310B – A laboratory duplicate was performed using PDI-WS-T07-1808. Results were comparable.

TSS by Method 2540D – A laboratory duplicate was performed using PDI-WS-T03-1808. Results were comparable.

7. 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 580-79862-1 is 100%.

**Table 1**  
**QA/QC Data Summary Review**  
**Portland Harbor**  
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Sample ID	Laboratory ID	Method	Analyte	Fraction	Laboratory Result	Units	Final Result	Reason Code
PDI-WS-T03-1808	580-79862-1	SM5310B	Dissolved Organic Carbon	D	1.9	mg/L	1.9 J	be
PDI-WS-T03-1808	580-79862-1	SM5310B	Total Organic Carbon	T	2.2	mg/L	2.2 J	be
PDI-WS-T03-1808	580-79862-1	SW6020B	Chromium	D	1.5	ug/L	1.5 J	be
PDI-WS-T03-1808	580-79862-1	SW6020B	Chromium	T	0.39 J	ug/L	0.40 U	be
PDI-WS-T03-1808	580-79862-1	SW6020B	Zinc	D	2.1 J	ug/L	7.0 U	be
PDI-WS-T04-1808	580-79862-2	SM5310B	Dissolved Organic Carbon	D	2.2	mg/L	2.2 J	be
PDI-WS-T04-1808	580-79862-2	SM5310B	Total Organic Carbon	T	2.4	mg/L	2.4 J	be
PDI-WS-T04-1808	580-79862-2	SW6020B	Chromium	D	10	ug/L	10 J	fd
PDI-WS-T04-1808	580-79862-2	SW6020B	Chromium	T	0.18 J	ug/L	0.40 U	be
PDI-WS-T04-1808	580-79862-2	SW6020B	Zinc	D	2.3 J	ug/L	7.0 U	be
PDI-WS-T04-1808-D	580-79862-3	SM5310B	Dissolved Organic Carbon	D	2.1	mg/L	2.1 J	be
PDI-WS-T04-1808-D	580-79862-3	SM5310B	Total Organic Carbon	T	2.2	mg/L	2.2 J	be
PDI-WS-T04-1808-D	580-79862-3	SW6020B	Chromium	D	2.2	ug/L	2.2 J	be
PDI-WS-T04-1808-D	580-79862-3	SW6020B	Chromium	T	0.18 J	ug/L	0.40 U	be
PDI-WS-T04-1808-D	580-79862-3	SW6020B	Zinc	D	2.0 J	ug/L	7.0 U	be
PDI-WS-T07-1808	580-79862-4	SM5310B	Dissolved Organic Carbon	D	5.0	mg/L	5.0 J	be
PDI-WS-T07-1808	580-79862-4	SM5310B	Total Organic Carbon	T	4.5	mg/L	4.5 J	be
PDI-WS-T07-1808	580-79862-4	SW6020B	Chromium	D	0.29 J	ug/L	0.40 U	be
PDI-WS-T07-1808	580-79862-4	SW6020B	Chromium	T	0.26 J	ug/L	0.40 U	be
PDI-WS-T07-1808	580-79862-4	SW6020B	Zinc	D	4.3 J	ug/L	7.0 U	be

be - equipment blank contamination

D - dissolved fraction

fd - field duplicate relative percent difference

J - estimated value

mg/L - milligram per liter

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.