

Data Validation Report

Project: Portland Harbor Pre-Remedial Design Investigation and Baseline Sampling
 Portland Harbor Superfund Site
 Subsurface Sediment – Deep Core Stations

Laboratory: ALS Environmental, Burlington, Ontario, Canada

Laboratory Group: L2148686

Analyses/Method: Chlorinated Pesticides and Total Solids

Validation Level: Stage 2/(Stage 4 PDI-SC-S113(A)-2.2TO4.6 and PDI-SC-S151-6TO8)

AECOM Project

Number: 60566335 Task #2.12

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File Name: L2148686 DVR

SUMMARY

The data quality review of 74 subsurface sediment samples, 4 field duplicates, and 4 rinsate blanks collected between August 14 and August 16, 2018, has been completed. Samples were analyzed for chlorinated pesticides by EPA Method 1699-modified (GC/HRMS) and/or total solids by American Society for Testing and Materials (ASTM) Method D-2974 at ALS Environmental (ALS) located in Burlington, Ontario, Canada. The analyses were performed in general accordance with the methods specified in *Method 1699: Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS*, December 2007 (modified by ALS SOP BU-TM-1103 v07 OCP), and *Annual Book of ASTM Standards*, American Society for Testing & Materials (ASTM), Philadelphia, Pennsylvania. 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 L2148686:

Sample ID	Laboratory ID
PDI-SC-S109-0TO2	L2148686-1
PDI-SC-S109-2TO4	L2148686-2
PDI-SC-S109-4TO6	L2148686-3
PDI-SC-S109-6TO8	L2148686-4
PDI-SC-S109-8TO10	L2148686-5
PDI-SC-S109-10TO11.3	L2148686-6
PDI-SC-S131-0TO2	L2148686-7
PDI-SC-S131-2TO4	L2148686-8
PDI-SC-S131-4TO6	L2148686-9
PDI-SC-S131-6TO8	L2148686-10
PDI-SC-S256-0TO2	L2148686-11
PDI-SC-S256-2TO4	L2148686-12
PDI-RB-SS-180814-1040 (rinsate blank)	L2148686-13
PDI-RB-SS-180815-0730 (rinsate blank)	L2148686-14
PDI-RB-SS-180815-1340 (rinsate blank)	L2148686-15
PDI-SC-S113(A)-0TO2.2	L2148686-16
PDI-SC-S113(A)-2.2TO4.6	L2148686-17



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Sample ID	Laboratory ID
PDI-SC-S113(A)-2.2TO4.6D (Duplicate of PDI-SC-S113(A)-2.2TO4.6)	L2148686-18
PDI-SC-S113(B)-3.6TO5.6	L2148686-19
PDI-SC-S113(B)-5.6TO7.4	L2148686-20
PDI-SC-S113(B)-7.4TO10	L2148686-21
PDI-SC-S113(B)-10TO12	L2148686-22
PDI-SC-S113(B)-12TO13.8	L2148686-23
PDI-SC-S065-4TO6	L2148686-24
PDI-SC-S065-6TO8	L2148686-25
PDI-SC-S065-8TO10	L2148686-26
PDI-SC-S065-12TO14.3	L2148686-27
PDI-SC-S070-0TO1.1	L2148686-28
PDI-SC-S070-1.1TO2.4	L2148686-29
PDI-SC-S070-2.4TO4.4	L2148686-30
PDI-SC-S070-4.4TO6.4	L2148686-31
PDI-SC-S070-6.4TO8.4	L2148686-32
PDI-SC-S070-8.4TO10.4	L2148686-33
PDI-SC-S065-10TO12	L2148686-34
PDI-SC-S070-10.4TO12.6	L2148686-35
PDI-SC-S150-7.7TO9.7	L2148686-36
PDI-SC-S150-9.7TO11.1	L2148686-37
PDI-SC-S150-11.1TO12.5	L2148686-38
PDI-SC-S146-0TO2	L2148686-39
PDI-SC-S146-2TO4	L2148686-40
PDI-SC-S146-4TO5	L2148686-41
PDI-SC-S146-5TO7	L2148686-42
PDI-SC-S146-7TO8	L2148686-43
PDI-SC-S146-8TO9.1	L2148686-44
PDI-SC-S136-0TO2	L2148686-45
PDI-SC-S136-2TO4	L2148686-46
PDI-SC-S136-4TO6	L2148686-47
PDI-SC-S151-2TO4	L2148686-48
PDI-SC-S151-0TO2	L2148686-49
PDI-SC-S151-4TO6	L2148686-50
PDI-SC-S151-6TO8	L2148686-51
PDI-SC-S151-8TO10	L2148686-52
PDI-SC-S151-10TO12	L2148686-53
PDI-SC-S150-0TO2	L2148686-54
PDI-SC-S150-2TO4	L2148686-55
PDI-SC-S150-4TO6	L2148686-56
PDI-SC-S150-4TO6D (Duplicate of PDI-SC-S150-4TO6)	L2148686-57



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Sample ID	Laboratory ID
PDI-SC-S150-6TO7.7	L2148686-58
PDI-SC-S136-6TO7	L2148686-59
PDI-SC-S136-7TO9	L2148686-60
PDI-SC-S136-9TO11.3	L2148686-61
PDI-SC-S092-0TO2	L2148686-62
PDI-SC-S092-2TO4	L2148686-63
PDI-SC-S092-4TO6	L2148686-64
PDI-SC-S092-4TO6D (Duplicate of PDI-SC-S092-4TO6)	L2148686-65
PDI-SC-S092-6TO8	L2148686-66
PDI-SC-S092-8TO9.9	L2148686-67
PDI-SC-S092-9.9TO10.9	L2148686-68
PDI-SC-S065-0TO2	L2148686-69
PDI-SC-S065-2TO4	L2148686-70
PDI-SC-S256-2TO4D (Duplicate of PDI-SC-S256-2TO4)	L2148686-71
PDI-SC-S256-4TO6	L2148686-72
PDI-SC-S256-6TO8	L2148686-73
PDI-SC-S256-8TO9.7	L2148686-74
PDI-SC-S256-9.7TO10.7	L2148686-75
PDI-RB-SS-180816-1110 (rinsate blank)	L2148686-76
PDI-SC-S053-0TO2	L2148686-77
PDI-SC-S053-2TO4	L2148686-78
PDI-SC-S053-4TO6	L2148686-79
PDI-SC-S053-6TO8	L2148686-80
PDI-SC-S053-8TO10	L2148686-81
PDI-SC-S053-10TO12.4	L2148686-82

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 High Resolution Superfund Methods Data Review*, April 2016, *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 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. Per AECOM request, the depths on PDI-SC-S070-10TO12.6 and PDI-SC-256-9.7TO8.7 were corrected to PDI-SC-S070-10.4TO12.6 and PDI-SC-256-9.7TO10.7, respectively.



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ORGANIC ANALYSIS

Samples were analyzed for chlorinated pesticides by EPA Method 1699.

1. Holding Times – Acceptable

Samples PDI-SC-S150-4TO6D, PDI-SC-S150-6TO7.7, PDI-SC-S136-6TO7, PDI-SC-S136-7TO9, PDI-SC-S136-9TO11.3, PDI-SC-S092-0TO2, PDI-SC-S092-2TO4, PDI-SC-S092-4TO6, PDI-SC-S092-4TO6D, PDI-SC-S092-6TO8, PDI-SC-S092-8TO9.9, PDI-SC-S092-9.9TO10.9, PDI-SC-S065-0TO2, and PDI-SC-S065-2TO4 were extracted 1 day past the method-recommended holding time of 14 days. The samples were frozen in archive until extraction; therefore, the samples were not extracted outside the holding time.

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

The percent recoveries for the following analytes and labeled compounds were outside the control limits of 75-125% and 70-130%, respectively.

Analysis Date and Time	Analyte	% Recovery
September 7, 2018 04:55	4,4'-DDD, 13C12	180%
	4,4'-DDT, 13C12	166%
September 9, 2018 03:14	4,4'-DDT, 13C12	144%
September 12, 2018 20:11	4,4'-DDT	205%
	4,4'-DDD, 13C12	66%
	4,4'-DDT, 13C12	57%
September 12, 2018 23:53	4,4'-DDT, 13C12	65%

The results for 2,4'-DDD and 4,4'-DDD in PDI-SC-S109-2TO4, PDI-SC-S109-4TO6, PDI-SC-S109-6TO8, PDI-SC-S109-8TO10, PDI-SC-S109-10TO11.3, PDI-SC-S131-0TO2, PDI-SC-S131-2TO4, PDI-SC-S131-4TO6, PDI-SC-S131-6TO8, PDI-SC-S256-0TO2, PDI-SC-S256-2TO4, PDI-RB-SS-180814-1040, PDI-RB-SS-180815-0730, PDI-RB-SS-180815-1340, PDI-SC-S113(A)-0TO2.2, PDI-SC-S150-9.7TO11.1, PDI-SC-S150-11.1TO12.5, PDI-SC-S146-0TO2, PDI-SC-S146-2TO4, PDI-SC-S146-4TO5, PDI-SC-S146-5TO7, PDI-SC-S146-7TO8, PDI-SC-S146-8TO9.1, PDI-SC-S136-0TO2, PDI-SC-S136-2TO4, PDI-SC-S136-4TO6, PDI-SC-S151-2TO4, PDI-SC-S151-0TO2, PDI-SC-S151-4TO6, PDI-SC-S151-6TO8, PDI-SC-S151-8TO10, PDI-SC-S151-10TO12, PDI-SC-S150-0TO2, PDI-SC-S150-2TO4, PDI-SC-S150-4TO6, and PDI-RB-SS-180816-1110 were qualified as estimated and flagged 'J' or 'UJ' based on the associated continuing calibration verification (CCV) results.

The results for 2,4'-DDT and 4,4'-DDT in PDI-SC-S109-2TO4, PDI-SC-S109-4TO6, PDI-SC-S109-6TO8, PDI-SC-S109-8TO10, PDI-SC-S109-10TO11.3, PDI-SC-S131-0TO2, PDI-SC-S131-2TO4, PDI-SC-S131-4TO6, PDI-SC-S131-6TO8, PDI-SC-S256-0TO2, PDI-SC-S256-2TO4, PDI-RB-SS-180814-1040, PDI-RB-SS-180815-0730, PDI-RB-SS-180815-1340, PDI-SC-S113(A)-0TO2.2, PDI-SC-S070-8.4TO10.4, PDI-SC-S065-10TO12, PDI-SC-S070-10.4TO12.6, PDI-SC-S150-9.7TO11.1, PDI-SC-S150-11.1TO12.5, PDI-SC-S146-0TO2, PDI-SC-S146-2TO4, PDI-SC-S146-4TO5, PDI-SC-S146-5TO7, PDI-SC-S146-7TO8, PDI-SC-S146-8TO9.1, PDI-SC-S136-0TO2, PDI-SC-S136-2TO4, PDI-SC-S136-4TO6, PDI-SC-S151-2TO4, PDI-SC-S151-0TO2, PDI-SC-S151-4TO6, PDI-SC-S151-6TO8, PDI-SC-S151-8TO10, PDI-SC-S151-10TO12, PDI-SC-S150-0TO2, PDI-SC-S150-2TO4, PDI-SC-S150-4TO6, and

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PDI-RB-SS-180816-1110 were qualified as estimated and flagged 'J' or 'UJ' based on the associated CCV results.

The CCV associated with the 4,4'-DDT result in PDI-SC-S150-7.7TO9.7 was acceptable; therefore, only the result for 2,4'-DDT in PDI-SC-S150-7.7TO9.7 was qualified as estimated and flagged 'J' based on the associated CCV result.

3. Blanks – Acceptable except as noted below:

The following analytes were detected in the method blanks at concentrations between the estimated detection limits (EDLs) and reporting limits.

Batch	Analyte	Result (ng/g)
WG2851440	2,4'-DDE	0.0890
	4,4'-DDT	0.425
WG2855004	2,4'-DDD	0.0175
	4,4'-DDD	0.027
	4,4'-DDT	0.0261
WG2856797	2,4'-DDE	0.017
	4,4'-DDE	0.029
	2,4'-DDD	0.0789
	4,4'-DDD	0.119
	2,4'-DDT	0.025
	4,4'-DDT	0.158

The NFG guidance stipulates that a conservative approach should be taken with regard to qualification of analytes based on blank contamination and the reporting of false negative results should be avoided.

Therefore, in order to avoid the reporting of false negative results, professional judgment was used to qualify the data in the following manner. As allowed in the NFG, a blank action limit (BAL) was determined as 5 times the blank result:

- When the sample results were < the blank result, the sample result was qualified as not detected (U) at the sample result or reported detection limit (RDL).
- When the sample result was \geq the blank result and \leq the BAL, the sample result was qualified as estimated and potentially biased high (J).
- When the sample result was > the BAL, sample result was not qualified.

The following results were reported at concentrations less than the blank concentration; therefore, these results were qualified as not detected and flagged 'U' at the sample results.

- 2,4'-DDE in PDI-SC-S109-6TO8, PDI-SC-S109-8TO10, PDI-SC-S256-2TO4, PDI-SC-S053-6TO8, and PDI-SC-S053-8TO10.
- 4,4'-DDD in PDI-SC-S065-12TO14.3.
- 4,4'-DDT in PDI-SC-S109-0TO2, PDI-SC-S065-12TO14.3, and PDI-SC-S053-6TO8.

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The following results were reported at concentrations greater than the blank concentration but less than the BAL; therefore, these results were qualified as estimated and flagged 'J' at the sample results.

- 2,4'-DDE in PDI-SC-S109-0TO2, PDI-SC-S109-4TO6, PDI-SC-S131-2TO4, PDI-SC-S131-4TO6, PDI-SC-S113(A)-0TO2.2, and PDI-SC-S053-10TO12.4.
- 4,4'-DDE in PDI-SC-S053-6TO8, PDI-SC-S053-8TO10, and PDI-SC-S053-10TO12.4.
- 2,4'-DDD in PDI-SC-S065-8TO10, PDI-SC-S065-10TO12, PDI-SC-S070-10.4TO12.6, PDI-SC-S053-6TO8, PDI-SC-S053-8TO10, and PDI-SC-S053-10TO12.4.
- 4,4'-DDD in PDI-SC-S065-8TO10, PDI-SC-S065-10TO12, PDI-SC-S070-10.4TO12.6, PDI-SC-S053-6TO8, PDI-SC-S053-8TO10, and PDI-SC-S053-10TO12.4.
- 4,4'-DDT in PDI-SC-S053-8TO10.

The results for 4,4'-DDT in PDI-SC-S109-4TO6, PDI-SC-S131-4TO6, PDI-SC-S131-6TO8, PDI-SC-S113(A)-0TO2.2, and PDI-SC-S070-10.4TO12.6 were qualified as estimated based on CCV results as described in Section 2; therefore, no further qualification for method blank results was required.

Four rinsate blanks were submitted with this laboratory group. The following analytes were detected in the rinsate blanks.

Blank Identification	Analyte	Result (ng/L)
PDI-RB-SS-180814-1040	2,4'-DDD	0.629
	4,4'-DDD	1.44
PDI-RB-SS-180815-0730	4,4'-DDD	0.370

Sediment data were not qualified based on rinsate blank detections.

4. Labeled compounds – Acceptable except as noted below:

The percent recoveries for the following labeled compounds were outside the control limits.

Sample	Labeled Compound	Percent Recovery	Control Limit
PDI-SC-S109-2TO4	4,4'-DDE-13C12	19%	21-125%
PDI-SC-S109-4TO6	4,4'-DDE-13C12	16%	21-125%
PDI-SC-S131-0TO2	4,4'-DDE-13C12	7%	21-125%
PDI-SC-S131-2TO4	4,4'-DDE-13C12	13%	21-125%
PDI-SC-S131-6TO8	4,4'-DDE-13C12	13%	21-125%
PDI-SC-S113(A)-2.2TO4.6D	4,4'-DDT-13C12	130%	5-120%
PDI-SC-S113(B)-12TO13.8	4,4'-DDT-13C12	122%	5-120%



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Sample	Labeled Compound	Percent Recovery	Control Limit
PDI-SC-S151-8TO10	4,4'-DDD-13C12	191%	5-150%
PDI-SC-S151-10TO12	4,4'-DDD-13C12	220%	5-150%
PDI-SC-S150-6TO7.7	4,4'-DDE-13C12	135%	21-125%
PDI-SC-S065-0TO2	4,4'-DDE-13C12	16%	21-125%
PDI-SC-S065-2TO4	4,4'-DDE-13C12	18%	21-125%
PDI-SC-S256-4TO6	4,4'-DDE-13C12	20%	21-125%
PDI-SC-S053-2TO4	4,4'-DDE-13C12	16%	21-125%
PDI-SC-S053-4TO6	4,4'-DDE-13C12	16%	21-125%
PDI-SC-S053-10TO12.4	4,4'-DDE-13C12	20%	21-125%
MB (Batch WG2851440)	4,4'-DDE-13C12	15%	21-125%
LCS (Batch WG2853964)	4,4'-DDE-13C12	20%	21-125%
LCS (Batch WG2856797)	4,4'-DDE-13C12	16%	21-125%

MB – method blank

LCS – laboratory control sample

Data were not qualified based on labeled compound exceedances in the QC (method blank and laboratory control samples) samples.

The results for 2,4'-DDE in PDI-SC-S109-4TO6 and PDI-SC-S131-2TO4 were qualified as estimated based on method blank results as described in Section 3; therefore, no further qualification based on label compound recoveries was required. The results for 4,4'-DDE in PDI-SC-S109-4TO6 and PDI-SC-S131-2TO4 were qualified as estimated and flagged 'J' based on these labeled compound recoveries.

The results for 2,4'-DDE and 4,4'-DDE in PDI-SC-S053-10TO12.4 were qualified as estimated based on method blank results as described in Section 3; therefore, no further qualification based on label compound recoveries was required. The results for 2,4'-DDE and 4,4'-DDE in PDI-SC-S109-2TO4, PDI-SC-S131-0TO2, PDI-SC-S131-6TO8, PDI-SC-S150-6TO7.7, PDI-SC-S065-0TO2, PDI-SC-S065-2TO4, PDI-SC-S256-4TO6, PDI-SC-S053-2TO4, and PDI-SC-S053-4TO6 were qualified as estimated and flagged 'J' or 'UJ' based on these labeled compound recoveries.

The results for 2,4'-DDD and 4,4'-DDD in PDI-SC-S151-8TO10 and PDI-SC-S151-10TO12 were qualified as estimated based on CCVs results as described in Section 2; therefore, no further qualification based on label compound recoveries was required.

The results for 2,4'-DDT and 4,4'-DDT in PDI-SC-S113(A)-2.2TO4.6D and PDI-SC-S113(B)-12TO13.8 were qualified as estimated and flagged 'J' based on these labeled compound recoveries.

5. Internal Standards – Acceptable
6. Laboratory Control Sample (LCS) – Acceptable except as noted below:

The percent recoveries (%R) for 2,4'-DDE were outside the control limits of 50-120% in the following LCSs.

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Batch	Analyte	%R
WG2853964	2,4'-DDE	142%
WG2855028	2,4'-DDE	140%
WG2856784	2,4'-DDE	151%
WG2856797	2,4'-DDE	123%

The results for 2,4'-DDE in PDI-SC-S150-6TO7.7, PDI-SC-S053-2TO4, PDI-SC-S053-4TO6, PDI-SC-S053-6TO8, PDI-SC-S053-8TO10, and PDI-SC-S053-10TO12.4 were qualified as estimated based on method blank or labeled compound results as described in Section 2 and Section 4; therefore, no further qualification based on the LCS results was required.

The results for 2,4'-DDE in PDI-SC-S150-9.7TO11.1, PDI-SC-S146-0TO2, PDI-SC-S146-2TO4, PDI-SC-S146-4TO5, PDI-SC-S146-5TO7, PDI-SC-S136-0TO2, PDI-SC-S136-2TO4, PDI-SC-S136-4TO6, PDI-SC-S151-2TO4, PDI-SC-S151-0TO2, PDI-SC-S151-4TO6, PDI-SC-S151-6TO8, PDI-SC-S151-8TO10, PDI-SC-S151-10TO12, PDI-SC-S150-0TO2, PDI-SC-S150-2TO4, PDI-SC-S150-4TO6, PDI-SC-S150-4TO6D, PDI-SC-S136-6TO7, PDI-SC-S136-7TO9, PDI-SC-S136-9TO11.3, PDI-SC-S092-2TO4, PDI-SC-S092-4TO6, PDI-SC-S092-4TO6D, and PDI-SC-S256-8TO9.7 were qualified as estimated and flagged 'J' based on the associated LCS recovery.

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

An MS/MSD was not performed in association with the rinsate blanks. Accuracy was assessed using the LCS results. Precision was not assessed.

An MS/MSD was not performed in association with the sediment samples. Accuracy was assessed using the LCS results. Precision was assessed using the laboratory and field duplicate results.

8. Laboratory Duplicate – Acceptable except as noted below:

Laboratory duplicates were performed using PDI-SC-S109-0TO2, PDI-SC-S113(A)-2.2TO4.6, PDI-SC-S150-9.7TO11.1, and PDI-SC-S150-4TO6D. Results greater than five times the reporting limits (RLs) were evaluated. The relative percent differences (RPDs) for 4,4'-DDT (162%), 4,4'-DDE (29%), and 2,4'-DDT (182%) exceeded the control limit of $\pm 25\%$ in PDI-SC-S150-4TO6D. The results for 4,4'-DDT, 4,4'-DDE, and 2,4'-DDT in PDI-SC-S150-4TO6D were qualified as estimated and flagged 'J' based on these elevated duplicate RPDs.

9. Field Duplicate – Acceptable except as noted below:

Field duplicates were submitted for PDI-SC-S113(A)-2.2TO4.6, PDI-SC-S150-4TO6, PDI-SC-S092-4TO6, and PDI-SC-S256-2TO4 and identified as PDI-SC-S113(A)-2.2TO4.6D, PDI-SC-S150-4TO6D, PDI-SC-S092-4TO6D, and PDI-SC-S256-2TO4D, respectively. Results greater than five times the RL were evaluated. Results were comparable with the following exceptions.

The RPDs for 2,4'-DDT and 4,4'-DDT were greater than 50% for the PDI-SC-S092-4TO6/PDI-SC-S092-4TO6D field duplicate pair. The results for 2,4'-DDT and 4,4'-DDT in PDI-SC-S092-4TO6 and PDI-SC-S092-4TO6D were qualified as estimated and flagged 'J' or 'UJ' based on these field duplicate results.

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The RPD for 4,4'-DDD was greater than 50% for the PDI-SC-S113(A)-2.2TO4.6/PDI-SC-S113(A)-2.2TO4.6D field duplicate pair. The results for 4,4'-DDD in PDI-SC-S113(A)-2.2TO4.6 and PDI-SC-S113(A)-2.2TO4.6D were qualified as estimated and flagged 'J' based on this field duplicate result.

The RPDs for 4,4'-DDE, 2,4'-DDT, and 4,4'-DDT were greater than 50% for the PDI-SC-S150-4TO6/ PDI-SC-S150-4TO6D field duplicate pair. The results for 2,4'-DDT, and 4,4'-DDT in PDI-SC-S150-4TO6 were qualified based on CCV results as described in Section 2; therefore, no further qualification based on field duplicate results was required. The results for 4,4'-DDE, 2,4'-DDT, and 4,4'-DDT in PDI-SC-S150-4TO6D were qualified as estimated based on laboratory duplicate results as described in Section 8; therefore, no further qualification based on field duplicate results was required. The result for 4,4'-DDE in PDI-SC-S150-4TO6 were qualified as estimated and flagged 'J' based on this field duplicate result.

10. Calculation Checks – Acceptable

A stage 4 validation was required for PDI-SC-S113(A)-2.2TO4.6 and PDI-SC-S151-6TO8. Calculation checks were performed on PDI-SC-S113(A)-2.2TO4.6 and PDI-SC-S151-6TO8. The review confirmed the final results were correct as reported.

11. Reporting Limits and Chromatographic Review – Acceptable except as noted below:

Chromatograms/spectra were reviewed for PDI-SC-S113(A)-2.2TO4.6 and PDI-SC-S151-6TO8 to confirm target analytes were properly identified. The review confirmed target analytes were properly identified and reported by the laboratory.

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

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 or high target analyte concentrations. The reporting limits do not exceeded the cleanup level.

Analytes with an ion abundance ratio outside the control limits of 1.56 +/- 25% were flagged 'R' by the laboratory indicating an 'EMPC' (estimated maximum possible concentration). Results that were not flagged 'U' based on method blank results were qualified as tentatively identified and flagged 'JN' based on this laboratory flag as identified in Table 1.

12. Other Items:

The laboratory noted samples PDI-SC-S150-4TO6, PDI-SC-S151-6TO8, PDI-SC-S151-8TO10, and PDI-SC-S151-10TO12 were re-analyzed using a diluted extract that was fortified with labeled extraction standard for quantification. Results were comparable; therefore the laboratory used the initial analysis of these samples. One or more results in these samples were flagged 'E' by the laboratory to indicate the results exceeded the calibration range of the instrument. The results for these analytes in these samples were qualified as estimated based on CCV results as described in Section 2; therefore, no further qualification based on 'E' flags was required.



Data Validation Report
Portland Harbor Pre-Remedial Design Investigation and Baseline Sampling
Subsurface Sediment – Deep Core Stations
ALS Lab Group: L2148686

CONVENTIONAL ANALYSIS

Sediment samples were analyzed for total solids by ASTM D-2974.

1. Holding Times – Acceptable except as noted below:

The sediment samples exceeded the 7-day holding time indicated in the QAPP. No data qualifiers were assigned based on the holding time exceedance.

2. Laboratory Duplicate – Acceptable

Laboratory duplicates were performed using PDI-SC-S109-0TO2, PDI-SC-S113(A)-2.2TO4.6, PDI-SC-S150-9.7TO11.1, and PDI-SC-S150-4TO6D. Results were comparable.

3. Field Duplicate – Acceptable

Field duplicates were submitted for PDI-SC-S113(A)-2.2TO4.6, PDI-SC-S150-4TO6, PDI-SC-S092-4TO6, and PDI-SC-S065-2TO4, and identified as PDI-SC-S113(A)-2.2TO4.6D, PDI-SC-S150-4TO6D, PDI-SC-S092-4TO6D, and PDI-SC-S065-2TO4D, respectively. Results were comparable.

4. Calculation Checks – Acceptable

A calculation check was performed on PDI-SC-S113(A)-2.2TO4.6 and PDI-SC-S151-6TO8. The review confirmed the final results were correct as reported.

5. 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 L2148686 is 100%.

Table 1
QA/QC Data Summary Review
Portland Harbor
Subsurface Sediment
ALS Burlington Laboratory Group: L2148686

Sample ID	Laboratory ID	Method	Analyte	Laboratory Result	Units	Final Result	Reason Code
PDI-SC-S109-0TO2	L2148686-1	E1699M	2,4-DDE	0.149 J	ng/g	0.149 J	bl
PDI-SC-S109-0TO2	L2148686-1	E1699M	4,4'-DDT	0.248 M,J,B	ng/g	0.248 U	bl
PDI-SC-S109-2TO4	L2148686-2	E1699M	2,4-DDD	0.285 J	ng/g	0.285 J	c
PDI-SC-S109-2TO4	L2148686-2	E1699M	2,4-DDE	0.019 U	ng/g	0.019 UJ	lc
PDI-SC-S109-2TO4	L2148686-2	E1699M	2,4-DDT	0.023 U	ng/g	0.023 UJ	c
PDI-SC-S109-2TO4	L2148686-2	E1699M	4,4'-DDD	0.502 J	ng/g	0.502 J	c
PDI-SC-S109-2TO4	L2148686-2	E1699M	4,4'-DDE	0.228 J	ng/g	0.228 J	lc
PDI-SC-S109-2TO4	L2148686-2	E1699M	4,4'-DDT	0.069 U	ng/g	0.069 UJ	c
PDI-SC-S109-4TO6	L2148686-3	E1699M	2,4-DDD	0.174 J	ng/g	0.174 J	c
PDI-SC-S109-4TO6	L2148686-3	E1699M	2,4-DDE	0.15 J,R	ng/g	0.15 JN	bl,k
PDI-SC-S109-4TO6	L2148686-3	E1699M	2,4-DDT	0.042 U	ng/g	0.042 UJ	c
PDI-SC-S109-4TO6	L2148686-3	E1699M	4,4'-DDD	0.372 M,J	ng/g	0.372 J	c
PDI-SC-S109-4TO6	L2148686-3	E1699M	4,4'-DDE	0.759 J	ng/g	0.759 J	lc
PDI-SC-S109-4TO6	L2148686-3	E1699M	4,4'-DDT	1.05 J,B	ng/g	1.05 J	c
PDI-SC-S109-6TO8	L2148686-4	E1699M	2,4-DDD	0.133 J	ng/g	0.133 J	c
PDI-SC-S109-6TO8	L2148686-4	E1699M	2,4-DDE	0.0303 M,J	ng/g	0.0303 U	bl
PDI-SC-S109-6TO8	L2148686-4	E1699M	2,4-DDT	0.017 U	ng/g	0.017 UJ	c
PDI-SC-S109-6TO8	L2148686-4	E1699M	4,4'-DDD	0.349 J	ng/g	0.349 J	c
PDI-SC-S109-6TO8	L2148686-4	E1699M	4,4'-DDT	0.044 U	ng/g	0.044 UJ	c
PDI-SC-S109-8TO10	L2148686-5	E1699M	2,4-DDD	0.0831 J	ng/g	0.0831 J	c
PDI-SC-S109-8TO10	L2148686-5	E1699M	2,4-DDE	0.00845 M,J	ng/g	0.00845 U	bl
PDI-SC-S109-8TO10	L2148686-5	E1699M	2,4-DDT	0.014 U	ng/g	0.014 UJ	c
PDI-SC-S109-8TO10	L2148686-5	E1699M	4,4'-DDD	0.130 J	ng/g	0.130 J	c
PDI-SC-S109-8TO10	L2148686-5	E1699M	4,4'-DDT	0.031 U	ng/g	0.031 UJ	c
PDI-SC-S109-10TO11.3	L2148686-6	E1699M	2,4-DDD	0.027 U	ng/g	0.027 UJ	c
PDI-SC-S109-10TO11.3	L2148686-6	E1699M	2,4-DDT	0.11 U	ng/g	0.11 UJ	c
PDI-SC-S109-10TO11.3	L2148686-6	E1699M	4,4'-DDD	0.11 U	ng/g	0.11 UJ	c
PDI-SC-S109-10TO11.3	L2148686-6	E1699M	4,4'-DDT	0.25 U	ng/g	0.25 UJ	c
PDI-SC-S131-0TO2	L2148686-7	E1699M	2,4-DDD	0.22 U	ng/g	0.22 UJ	c
PDI-SC-S131-0TO2	L2148686-7	E1699M	2,4-DDE	0.13 U	ng/g	0.13 UJ	lc
PDI-SC-S131-0TO2	L2148686-7	E1699M	2,4-DDT	0.23 U	ng/g	0.23 UJ	c
PDI-SC-S131-0TO2	L2148686-7	E1699M	4,4'-DDD	1.06 J	ng/g	1.06 J	c
PDI-SC-S131-0TO2	L2148686-7	E1699M	4,4'-DDE	2.65	ng/g	2.65 J	lc
PDI-SC-S131-0TO2	L2148686-7	E1699M	4,4'-DDT	0.76 U	ng/g	0.76 UJ	c
PDI-SC-S131-2TO4	L2148686-8	E1699M	2,4-DDD	0.634 J	ng/g	0.634 J	c
PDI-SC-S131-2TO4	L2148686-8	E1699M	2,4-DDE	0.15 M,J,R	ng/g	0.15 JN	bl,k
PDI-SC-S131-2TO4	L2148686-8	E1699M	2,4-DDT	0.094 U	ng/g	0.094 UJ	c
PDI-SC-S131-2TO4	L2148686-8	E1699M	4,4'-DDD	2.03	ng/g	2.03 J	c
PDI-SC-S131-2TO4	L2148686-8	E1699M	4,4'-DDE	4.10 M	ng/g	4.10 J	lc
PDI-SC-S131-2TO4	L2148686-8	E1699M	4,4'-DDT	0.31 U	ng/g	0.31 UJ	c
PDI-SC-S131-4TO6	L2148686-9	E1699M	2,4-DDD	0.791 J	ng/g	0.791 J	c
PDI-SC-S131-4TO6	L2148686-9	E1699M	2,4-DDE	0.372 J	ng/g	0.372 J	bl
PDI-SC-S131-4TO6	L2148686-9	E1699M	2,4-DDT	0.228 M,J	ng/g	0.228 J	c
PDI-SC-S131-4TO6	L2148686-9	E1699M	4,4'-DDD	2.83 M	ng/g	2.83 J	c
PDI-SC-S131-4TO6	L2148686-9	E1699M	4,4'-DDT	0.657 J,B	ng/g	0.657 J	c
PDI-SC-S131-6TO8	L2148686-10	E1699M	2,4-DDD	1.19 J	ng/g	1.19 J	c
PDI-SC-S131-6TO8	L2148686-10	E1699M	2,4-DDE	0.519 J	ng/g	0.519 J	lc
PDI-SC-S131-6TO8	L2148686-10	E1699M	2,4-DDT	1.51 J	ng/g	1.51 J	c
PDI-SC-S131-6TO8	L2148686-10	E1699M	4,4'-DDD	4.02	ng/g	4.02 J	c
PDI-SC-S131-6TO8	L2148686-10	E1699M	4,4'-DDE	7.01	ng/g	7.01 J	lc
PDI-SC-S131-6TO8	L2148686-10	E1699M	4,4'-DDT	1.87 J,B	ng/g	1.87 J	c
PDI-SC-S256-0TO2	L2148686-11	E1699M	2,4-DDD	0.091 J,R	ng/g	0.091 JN	c,k
PDI-SC-S256-0TO2	L2148686-11	E1699M	2,4-DDT	0.033 U	ng/g	0.033 UJ	c
PDI-SC-S256-0TO2	L2148686-11	E1699M	4,4'-DDD	0.439 J	ng/g	0.439 J	c
PDI-SC-S256-0TO2	L2148686-11	E1699M	4,4'-DDT	0.086 U	ng/g	0.086 UJ	c
PDI-SC-S256-2TO4	L2148686-12	E1699M	2,4-DDD	0.216 J	ng/g	0.216 J	c
PDI-SC-S256-2TO4	L2148686-12	E1699M	2,4-DDE	0.0539 J	ng/g	0.0539 U	bl
PDI-SC-S256-2TO4	L2148686-12	E1699M	2,4-DDT	0.025 U	ng/g	0.025 UJ	c
PDI-SC-S256-2TO4	L2148686-12	E1699M	4,4'-DDD	0.822 J	ng/g	0.822 J	c
PDI-SC-S256-2TO4	L2148686-12	E1699M	4,4'-DDT	0.048 U	ng/g	0.048 UJ	c

Table 1
QA/QC Data Summary Review
Portland Harbor
Subsurface Sediment
ALS Burlington Laboratory Group: L2148686

Sample ID	Laboratory ID	Method	Analyte	Laboratory Result	Units	Final Result	Reason Code
PDI-RB-SS-180814-1040	L2148686-13	E1699M	2,4-DDD	0.629 J	ng/L	0.629 J	c
PDI-RB-SS-180814-1040	L2148686-13	E1699M	2,4-DDT	0.056 U	ng/L	0.056 UJ	c
PDI-RB-SS-180814-1040	L2148686-13	E1699M	4,4'-DDD	1.44 J	ng/L	1.44 J	c
PDI-RB-SS-180814-1040	L2148686-13	E1699M	4,4'-DDT	0.13 U	ng/L	0.13 UJ	c
PDI-RB-SS-180815-0730	L2148686-14	E1699M	2,4-DDD	0.048 U	ng/L	0.048 UJ	c
PDI-RB-SS-180815-0730	L2148686-14	E1699M	2,4-DDT	0.066 U	ng/L	0.066 UJ	c
PDI-RB-SS-180815-0730	L2148686-14	E1699M	4,4'-DDD	0.37 J,R	ng/L	0.37 JN	c,k
PDI-RB-SS-180815-0730	L2148686-14	E1699M	4,4'-DDT	0.16 U	ng/L	0.16 UJ	c
PDI-RB-SS-180815-1340	L2148686-15	E1699M	2,4-DDD	0.028 U	ng/L	0.028 UJ	c
PDI-RB-SS-180815-1340	L2148686-15	E1699M	2,4-DDT	0.042 U	ng/L	0.042 UJ	c
PDI-RB-SS-180815-1340	L2148686-15	E1699M	4,4'-DDD	0.044 U	ng/L	0.044 UJ	c
PDI-RB-SS-180815-1340	L2148686-15	E1699M	4,4'-DDT	0.086 U	ng/L	0.086 UJ	c
PDI-SC-S113(A)-0TO2.2	L2148686-16	E1699M	2,4-DDD	6.58	ng/g	6.58 J	c
PDI-SC-S113(A)-0TO2.2	L2148686-16	E1699M	2,4-DDE	0.411 J	ng/g	0.411 J	bl
PDI-SC-S113(A)-0TO2.2	L2148686-16	E1699M	2,4-DDT	0.443 M,J	ng/g	0.443 J	c
PDI-SC-S113(A)-0TO2.2	L2148686-16	E1699M	4,4'-DDD	20.3 M	ng/g	20.3 J	c
PDI-SC-S113(A)-0TO2.2	L2148686-16	E1699M	4,4'-DDT	0.740 J,B	ng/g	0.740 J	c
PDI-SC-S113(A)-2.2TO4.6	L2148686-17	E1699M	4,4'-DDD	3.83	ng/g	3.83 J	fd
PDI-SC-S113(A)-2.2TO4.6D	L2148686-18	E1699M	2,4-DDT	0.098 J,R	ng/g	0.098 JN	lc,k
PDI-SC-S113(A)-2.2TO4.6D	L2148686-18	E1699M	4,4'-DDD	7.03	ng/g	7.03 J	fd
PDI-SC-S113(A)-2.2TO4.6D	L2148686-18	E1699M	4,4'-DDT	0.397 J	ng/g	0.397 J	lc
PDI-SC-S113(B)-12TO13.8	L2148686-23	E1699M	2,4-DDT	0.13 M,J,R	ng/g	0.13 JN	lc,k
PDI-SC-S113(B)-12TO13.8	L2148686-23	E1699M	4,4'-DDT	0.186 J,B	ng/g	0.186 J	lc
PDI-SC-S065-6TO8	L2148686-25	E1699M	2,4-DDT	0.054 M,J,R	ng/g	0.054 JN	k
PDI-SC-S065-8TO10	L2148686-26	E1699M	2,4-DDD	0.0284 J,B	ng/g	0.0284 J	bl
PDI-SC-S065-8TO10	L2148686-26	E1699M	4,4'-DDD	0.0600 J,B	ng/g	0.0600 J	bl
PDI-SC-S065-12TO14.3	L2148686-27	E1699M	4,4'-DDD	0.0261 J,B	ng/g	0.0261 U	bl
PDI-SC-S065-12TO14.3	L2148686-27	E1699M	4,4'-DDT	0.023 J,R	ng/g	0.023 U	bl
PDI-SC-S070-6.4TO8.4	L2148686-32	E1699M	2,4-DDE	0.038 M,J,R	ng/g	0.038 JN	k
PDI-SC-S070-8.4TO10.4	L2148686-33	E1699M	2,4-DDT	0.011 U	ng/g	0.011 UJ	c
PDI-SC-S070-8.4TO10.4	L2148686-33	E1699M	4,4'-DDT	0.022 U	ng/g	0.022 UJ	c
PDI-SC-S065-10TO12	L2148686-34	E1699M	2,4-DDD	0.0275 J,B	ng/g	0.0275 J	bl
PDI-SC-S065-10TO12	L2148686-34	E1699M	2,4-DDT	0.011 U	ng/g	0.011 UJ	c
PDI-SC-S065-10TO12	L2148686-34	E1699M	4,4'-DDD	0.0479 M,J,B	ng/g	0.0479 J	bl
PDI-SC-S065-10TO12	L2148686-34	E1699M	4,4'-DDT	0.025 U	ng/g	0.025 UJ	c
PDI-SC-S070-10.4TO12.6	L2148686-35	E1699M	2,4-DDD	0.030 J,R	ng/g	0.030 JN	bl,k
PDI-SC-S070-10.4TO12.6	L2148686-35	E1699M	2,4-DDT	0.012 U	ng/g	0.012 UJ	c
PDI-SC-S070-10.4TO12.6	L2148686-35	E1699M	4,4'-DDD	0.0743 J,B	ng/g	0.0743 J	bl
PDI-SC-S070-10.4TO12.6	L2148686-35	E1699M	4,4'-DDT	0.0586 J,B	ng/g	0.0586 J	c
PDI-SC-S150-7.7TO9.7	L2148686-36	E1699M	2,4-DDT	9.37 M	ng/g	9.37 J	c
PDI-SC-S150-9.7TO11.1	L2148686-37	E1699M	2,4-DDD	8.53	ng/g	8.53 J	c
PDI-SC-S150-9.7TO11.1	L2148686-37	E1699M	2,4-DDE	0.187 M,J	ng/g	0.187 J	l
PDI-SC-S150-9.7TO11.1	L2148686-37	E1699M	2,4-DDT	0.718 M,J	ng/g	0.718 J	c
PDI-SC-S150-9.7TO11.1	L2148686-37	E1699M	4,4'-DDD	12.8 M	ng/g	12.8 J	c
PDI-SC-S150-9.7TO11.1	L2148686-37	E1699M	4,4'-DDT	6.05	ng/g	6.05 J	c
PDI-SC-S150-11.1TO12.5	L2148686-38	E1699M	2,4-DDD	3.63	ng/g	3.63 J	c
PDI-SC-S150-11.1TO12.5	L2148686-38	E1699M	2,4-DDT	0.093 U	ng/g	0.093 UJ	c
PDI-SC-S150-11.1TO12.5	L2148686-38	E1699M	4,4'-DDD	5.11 M	ng/g	5.11 J	c
PDI-SC-S150-11.1TO12.5	L2148686-38	E1699M	4,4'-DDT	0.16 U	ng/g	0.16 UJ	c
PDI-SC-S146-0TO2	L2148686-39	E1699M	2,4-DDD	189	ng/g	189 J	c
PDI-SC-S146-0TO2	L2148686-39	E1699M	2,4-DDE	7.92 J	ng/g	7.92 J	l
PDI-SC-S146-0TO2	L2148686-39	E1699M	2,4-DDT	39.4	ng/g	39.4 J	c
PDI-SC-S146-0TO2	L2148686-39	E1699M	4,4'-DDD	531	ng/g	531 J	c
PDI-SC-S146-0TO2	L2148686-39	E1699M	4,4'-DDT	10700	ng/g	10700 J	c
PDI-SC-S146-2TO4	L2148686-40	E1699M	2,4-DDD	317	ng/g	317 J	c
PDI-SC-S146-2TO4	L2148686-40	E1699M	2,4-DDE	15.8 J	ng/g	15.8 J	l
PDI-SC-S146-2TO4	L2148686-40	E1699M	2,4-DDT	75.6	ng/g	75.6 J	c
PDI-SC-S146-2TO4	L2148686-40	E1699M	4,4'-DDD	982	ng/g	982 J	c
PDI-SC-S146-2TO4	L2148686-40	E1699M	4,4'-DDT	1910	ng/g	1910 J	c

Table 1
QA/QC Data Summary Review
Portland Harbor
Subsurface Sediment
ALS Burlington Laboratory Group: L2148686

Sample ID	Laboratory ID	Method	Analyte	Laboratory Result	Units	Final Result	Reason Code
PDI-SC-S146-4TO5	L2148686-41	E1699M	2,4-DDD	186	ng/g	186 J	c
PDI-SC-S146-4TO5	L2148686-41	E1699M	2,4-DDE	21.8	ng/g	21.8 J	l
PDI-SC-S146-4TO5	L2148686-41	E1699M	2,4-DDT	25.3 M	ng/g	25.3 J	c
PDI-SC-S146-4TO5	L2148686-41	E1699M	4,4'-DDD	611 M	ng/g	611 J	c
PDI-SC-S146-4TO5	L2148686-41	E1699M	4,4'-DDT	559	ng/g	559 J	c
PDI-SC-S146-5TO7	L2148686-42	E1699M	2,4-DDD	47.6	ng/g	47.6 J	c
PDI-SC-S146-5TO7	L2148686-42	E1699M	2,4-DDE	1.59	ng/g	1.59 J	l
PDI-SC-S146-5TO7	L2148686-42	E1699M	2,4-DDT	4.26 M	ng/g	4.26 J	c
PDI-SC-S146-5TO7	L2148686-42	E1699M	4,4'-DDD	138 M	ng/g	138 J	c
PDI-SC-S146-5TO7	L2148686-42	E1699M	4,4'-DDT	69.8	ng/g	69.8 J	c
PDI-SC-S146-7TO8	L2148686-43	E1699M	2,4-DDD	0.066 U	ng/g	0.066 UJ	c
PDI-SC-S146-7TO8	L2148686-43	E1699M	2,4-DDT	0.096 U	ng/g	0.096 UJ	c
PDI-SC-S146-7TO8	L2148686-43	E1699M	4,4'-DDD	0.759 M,J	ng/g	0.759 J	c
PDI-SC-S146-7TO8	L2148686-43	E1699M	4,4'-DDT	0.17 U	ng/g	0.17 UJ	c
PDI-SC-S146-8TO9.1	L2148686-44	E1699M	2,4-DDD	0.15 U	ng/g	0.15 UJ	c
PDI-SC-S146-8TO9.1	L2148686-44	E1699M	2,4-DDT	0.13 U	ng/g	0.13 UJ	c
PDI-SC-S146-8TO9.1	L2148686-44	E1699M	4,4'-DDD	0.528 J	ng/g	0.528 J	c
PDI-SC-S146-8TO9.1	L2148686-44	E1699M	4,4'-DDT	0.30 U	ng/g	0.30 UJ	c
PDI-SC-S136-0TO2	L2148686-45	E1699M	2,4-DDD	77.5	ng/g	77.5 J	c
PDI-SC-S136-0TO2	L2148686-45	E1699M	2,4-DDE	2.10	ng/g	2.10 J	l
PDI-SC-S136-0TO2	L2148686-45	E1699M	2,4-DDT	4.55	ng/g	4.55 J	c
PDI-SC-S136-0TO2	L2148686-45	E1699M	4,4'-DDD	168	ng/g	168 J	c
PDI-SC-S136-0TO2	L2148686-45	E1699M	4,4'-DDT	66.7	ng/g	66.7 J	c
PDI-SC-S136-2TO4	L2148686-46	E1699M	2,4-DDD	64.4	ng/g	64.4 J	c
PDI-SC-S136-2TO4	L2148686-46	E1699M	2,4-DDE	1.38	ng/g	1.38 J	l
PDI-SC-S136-2TO4	L2148686-46	E1699M	2,4-DDT	4.08 M	ng/g	4.08 J	c
PDI-SC-S136-2TO4	L2148686-46	E1699M	4,4'-DDD	154 M	ng/g	154 J	c
PDI-SC-S136-2TO4	L2148686-46	E1699M	4,4'-DDT	66.4	ng/g	66.4 J	c
PDI-SC-S136-4TO6	L2148686-47	E1699M	2,4-DDD	31.0	ng/g	31.0 J	c
PDI-SC-S136-4TO6	L2148686-47	E1699M	2,4-DDE	1.04 J	ng/g	1.04 J	l
PDI-SC-S136-4TO6	L2148686-47	E1699M	2,4-DDT	6.39	ng/g	6.39 J	c
PDI-SC-S136-4TO6	L2148686-47	E1699M	4,4'-DDD	69.8	ng/g	69.8 J	c
PDI-SC-S136-4TO6	L2148686-47	E1699M	4,4'-DDT	232	ng/g	232 J	c
PDI-SC-S151-2TO4	L2148686-48	E1699M	2,4-DDD	134	ng/g	134 J	c
PDI-SC-S151-2TO4	L2148686-48	E1699M	2,4-DDE	11.1 J	ng/g	11.1 J	l
PDI-SC-S151-2TO4	L2148686-48	E1699M	2,4-DDT	21.9 M	ng/g	21.9 J	c
PDI-SC-S151-2TO4	L2148686-48	E1699M	4,4'-DDD	358 M	ng/g	358 J	c
PDI-SC-S151-2TO4	L2148686-48	E1699M	4,4'-DDT	1350	ng/g	1350 J	c
PDI-SC-S151-0TO2	L2148686-49	E1699M	2,4-DDD	31.6	ng/g	31.6 J	c
PDI-SC-S151-0TO2	L2148686-49	E1699M	2,4-DDE	1.41 J	ng/g	1.41 J	l
PDI-SC-S151-0TO2	L2148686-49	E1699M	2,4-DDT	15.4	ng/g	15.4 J	c
PDI-SC-S151-0TO2	L2148686-49	E1699M	4,4'-DDD	69.7	ng/g	69.7 J	c
PDI-SC-S151-0TO2	L2148686-49	E1699M	4,4'-DDT	123	ng/g	123 J	c
PDI-SC-S151-4TO6	L2148686-50	E1699M	2,4-DDD	339	ng/g	339 J	c
PDI-SC-S151-4TO6	L2148686-50	E1699M	2,4-DDE	14.8 J	ng/g	14.8 J	l
PDI-SC-S151-4TO6	L2148686-50	E1699M	2,4-DDT	38.0 M	ng/g	38.0 J	c
PDI-SC-S151-4TO6	L2148686-50	E1699M	4,4'-DDD	887 M	ng/g	887 J	c
PDI-SC-S151-4TO6	L2148686-50	E1699M	4,4'-DDT	1770	ng/g	1770 J	c
PDI-SC-S151-6TO8	L2148686-51	E1699M	2,4-DDD	6940 E	ng/g	6940 J	c
PDI-SC-S151-6TO8	L2148686-51	E1699M	2,4-DDE	160	ng/g	160 J	l
PDI-SC-S151-6TO8	L2148686-51	E1699M	2,4-DDT	620	ng/g	620 J	c
PDI-SC-S151-6TO8	L2148686-51	E1699M	4,4'-DDD	14300 E	ng/g	14300 J	c
PDI-SC-S151-6TO8	L2148686-51	E1699M	4,4'-DDT	9830 E	ng/g	9830 J	c
PDI-SC-S151-8TO10	L2148686-52	E1699M	2,4-DDD	34900 E	ng/g	34900 J	c
PDI-SC-S151-8TO10	L2148686-52	E1699M	2,4-DDE	490	ng/g	490 J	l
PDI-SC-S151-8TO10	L2148686-52	E1699M	2,4-DDT	10300 E	ng/g	10300 J	c
PDI-SC-S151-8TO10	L2148686-52	E1699M	4,4'-DDD	60600 E	ng/g	60600 J	c
PDI-SC-S151-8TO10	L2148686-52	E1699M	4,4'-DDT	101000 E	ng/g	101000 J	c

Table 1
QA/QC Data Summary Review
Portland Harbor
Subsurface Sediment
ALS Burlington Laboratory Group: L2148686

Sample ID	Laboratory ID	Method	Analyte	Laboratory Result	Units	Final Result	Reason Code
PDI-SC-S151-10TO12	L2148686-53	E1699M	2,4-DDD	13100 E	ng/g	13100 J	c
PDI-SC-S151-10TO12	L2148686-53	E1699M	2,4-DDE	233	ng/g	233 J	l
PDI-SC-S151-10TO12	L2148686-53	E1699M	2,4-DDT	1210 M	ng/g	1210 J	c
PDI-SC-S151-10TO12	L2148686-53	E1699M	4,4'-DDD	25900 M,E	ng/g	25900 J	c
PDI-SC-S151-10TO12	L2148686-53	E1699M	4,4'-DDT	8860 E	ng/g	8860 J	c
PDI-SC-S150-0TO2	L2148686-54	E1699M	2,4-DDD	257	ng/g	257 J	c
PDI-SC-S150-0TO2	L2148686-54	E1699M	2,4-DDE	6.36 J	ng/g	6.36 J	l
PDI-SC-S150-0TO2	L2148686-54	E1699M	2,4-DDT	159	ng/g	159 J	c
PDI-SC-S150-0TO2	L2148686-54	E1699M	4,4'-DDD	473	ng/g	473 J	c
PDI-SC-S150-0TO2	L2148686-54	E1699M	4,4'-DDT	3800	ng/g	3800 J	c
PDI-SC-S150-2TO4	L2148686-55	E1699M	2,4-DDD	118	ng/g	118 J	c
PDI-SC-S150-2TO4	L2148686-55	E1699M	2,4-DDE	4.17	ng/g	4.17 J	l
PDI-SC-S150-2TO4	L2148686-55	E1699M	2,4-DDT	244	ng/g	244 J	c
PDI-SC-S150-2TO4	L2148686-55	E1699M	4,4'-DDD	308	ng/g	308 J	c
PDI-SC-S150-2TO4	L2148686-55	E1699M	4,4'-DDT	938 E	ng/g	938 J	c
PDI-SC-S150-4TO6	L2148686-56	E1699M	2,4-DDD	579	ng/g	579 J	c
PDI-SC-S150-4TO6	L2148686-56	E1699M	2,4-DDE	24.3	ng/g	24.3 J	l
PDI-SC-S150-4TO6	L2148686-56	E1699M	2,4-DDT	506	ng/g	506 J	c
PDI-SC-S150-4TO6	L2148686-56	E1699M	4,4'-DDD	1250	ng/g	1250 J	c
PDI-SC-S150-4TO6	L2148686-56	E1699M	4,4'-DDE	128	ng/g	128 J	fd
PDI-SC-S150-4TO6	L2148686-56	E1699M	4,4'-DDT	15500 E	ng/g	15500 J	c
PDI-SC-S150-4TO6D	L2148686-57	E1699M	2,4-DDE	18.9	ng/g	18.9 J	l
PDI-SC-S150-4TO6D	L2148686-57	E1699M	2,4-DDT	25.2	ng/g	25.2 J	ld
PDI-SC-S150-4TO6D	L2148686-57	E1699M	4,4'-DDE	74.3	ng/g	74.3 J	ld
PDI-SC-S150-4TO6D	L2148686-57	E1699M	4,4'-DDT	714	ng/g	714 J	ld
PDI-SC-S150-6TO7.7	L2148686-58	E1699M	2,4-DDE	23.9 J	ng/g	23.9 J	lc
PDI-SC-S150-6TO7.7	L2148686-58	E1699M	4,4'-DDE	94.3 M	ng/g	94.3 J	lc
PDI-SC-S136-6TO7	L2148686-59	E1699M	2,4-DDE	0.882 M,J	ng/g	0.882 J	l
PDI-SC-S136-7TO9	L2148686-60	E1699M	2,4-DDE	1.04 M,J	ng/g	1.04 J	l
PDI-SC-S136-9TO11.3	L2148686-61	E1699M	2,4-DDE	4.92 J	ng/g	4.92 J	l
PDI-SC-S092-2TO4	L2148686-63	E1699M	2,4-DDE	7.92	ng/g	7.92 J	l
PDI-SC-S092-4TO6	L2148686-64	E1699M	2,4-DDE	0.600 J	ng/g	0.600 J	l
PDI-SC-S092-4TO6	L2148686-64	E1699M	2,4-DDT	0.10 U	ng/g	0.10 UJ	fd
PDI-SC-S092-4TO6	L2148686-64	E1699M	4,4'-DDT	44.3	ng/g	44.3 J	fd
PDI-SC-S092-4TO6D	L2148686-65	E1699M	2,4-DDE	0.650 J	ng/g	0.650 J	l
PDI-SC-S092-4TO6D	L2148686-65	E1699M	2,4-DDT	8.12	ng/g	8.12 J	fd
PDI-SC-S092-4TO6D	L2148686-65	E1699M	4,4'-DDT	6.09	ng/g	6.09 J	fd
PDI-SC-S065-0TO2	L2148686-69	E1699M	2,4-DDE	0.86 U	ng/g	0.86 UJ	lc
PDI-SC-S065-0TO2	L2148686-69	E1699M	4,4'-DDE	3.3 M,R	ng/g	3.3 JN	lc,k
PDI-SC-S065-2TO4	L2148686-70	E1699M	2,4-DDE	0.55 U	ng/g	0.55 UJ	lc
PDI-SC-S065-2TO4	L2148686-70	E1699M	4,4'-DDE	7.56	ng/g	7.56 J	lc
PDI-SC-S256-4TO6	L2148686-72	E1699M	2,4-DDE	0.39 U	ng/g	0.39 UJ	lc
PDI-SC-S256-4TO6	L2148686-72	E1699M	4,4'-DDE	2.49 M	ng/g	2.49 J	lc
PDI-SC-S256-8TO9.7	L2148686-74	E1699M	2,4-DDE	0.19 M,J,R	ng/g	0.19 JN	l,k
PDI-RB-SS-180816-1110	L2148686-76	E1699M	2,4-DDD	0.032 U	ng/L	0.032 UJ	c
PDI-RB-SS-180816-1110	L2148686-76	E1699M	2,4-DDT	0.062 U	ng/L	0.062 UJ	c
PDI-RB-SS-180816-1110	L2148686-76	E1699M	4,4'-DDD	0.065 U	ng/L	0.065 UJ	c
PDI-RB-SS-180816-1110	L2148686-76	E1699M	4,4'-DDT	0.13 U	ng/L	0.13 UJ	c
PDI-SC-S053-2TO4	L2148686-78	E1699M	2,4-DDE	2.24	ng/g	2.24 J	lc
PDI-SC-S053-2TO4	L2148686-78	E1699M	4,4'-DDE	9.40	ng/g	9.40 J	lc
PDI-SC-S053-4TO6	L2148686-79	E1699M	2,4-DDE	0.629 J	ng/g	0.629 J	lc
PDI-SC-S053-4TO6	L2148686-79	E1699M	4,4'-DDE	2.25	ng/g	2.25 J	lc
PDI-SC-S053-6TO8	L2148686-80	E1699M	2,4-DDD	0.130 J,B	ng/g	0.130 J	bl
PDI-SC-S053-6TO8	L2148686-80	E1699M	2,4-DDE	0.014 J,R	ng/g	0.014 U	bl
PDI-SC-S053-6TO8	L2148686-80	E1699M	4,4'-DDD	0.225 J,B	ng/g	0.225 J	bl
PDI-SC-S053-6TO8	L2148686-80	E1699M	4,4'-DDE	0.0688 J	ng/g	0.0688 J	bl
PDI-SC-S053-6TO8	L2148686-80	E1699M	4,4'-DDT	0.151 J,B	ng/g	0.151 U	bl

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Portland Harbor
Subsurface Sediment
ALS Burlington Laboratory Group: L2148686

Sample ID	Laboratory ID	Method	Analyte	Laboratory Result	Units	Final Result	Reason Code
PDI-SC-S053-8TO10	L2148686-81	E1699M	2,4-DDD	0.155 J,B	ng/g	0.155 J	bl
PDI-SC-S053-8TO10	L2148686-81	E1699M	2,4-DDE	0.017 M,J,R	ng/g	0.017 U	bl
PDI-SC-S053-8TO10	L2148686-81	E1699M	4,4'-DDD	0.236 M,J,B	ng/g	0.236 J	bl
PDI-SC-S053-8TO10	L2148686-81	E1699M	4,4'-DDE	0.0343 M,J	ng/g	0.0343 J	bl
PDI-SC-S053-8TO10	L2148686-81	E1699M	4,4'-DDT	0.282 J,B	ng/g	0.282 J	bl
PDI-SC-S053-10TO12.4	L2148686-82	E1699M	2,4-DDD	0.233 J,B	ng/g	0.233 J	bl
PDI-SC-S053-10TO12.4	L2148686-82	E1699M	2,4-DDE	0.0751 M,J,B	ng/g	0.0751 J	bl
PDI-SC-S053-10TO12.4	L2148686-82	E1699M	4,4'-DDD	0.400 M,J,B	ng/g	0.400 J	bl
PDI-SC-S053-10TO12.4	L2148686-82	E1699M	4,4'-DDE	0.140 J	ng/g	0.140 J	bl

Notes:

- B - detected in blank at >10% of sample concentration
- bl - laboratory blank contamination
- c - calibration issue
- fd - field duplicate RPD
- J - estimated value
- JN - tentatively identified analyte
- k - Estimated Maximum Possible Concentration (EMPC)
- l - LCS recovery
- lc - labeled compound recovery
- ld - laboratory duplicate RPD
- M - manual integration by laboratory
- ng/g - nanogram per gram
- ng/L - nanogram per liter
- R - Ion abundance outside acceptance criterion
- RPD - relative percent difference
- U - Compound was analyzed for, but not detected above the value shown.

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