



ALS Environmental
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www.alsglobal.com

July 20, 2018

Analytical Report for Service Request No: K1804181B

Amy Dahl
AECOM
1111 Third Avenue, Suite 1600
Seattle, WA 98101

RE: Portland Harbor Pre-Remedial Design Investigation / 60566335

Dear Amy,

Enclosed are the results of the sample(s) submitted to our laboratory May 04, 2018
For your reference, these analyses have been assigned our service request number **K1804181**.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. All results are intended to be considered in their entirety, and ALS Group USA Corp. dba ALS Environmental (ALS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please contact me if you have any questions. My extension is 3364. You may also contact me via email at howard.holmes@alsglobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Howard Holmes
Project Manager



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Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LOD	Limit of Detection
LOQ	Limit of Quantitation
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Inorganic Data Qualifiers

- * The result is an outlier. See case narrative.
- # The control limit criteria is not applicable. See case narrative.
- B The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
- E The result is an estimate amount because the value exceeded the instrument calibration range.
- J The result is an estimated value.
- U The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
DOD-QSM 4.2 definition : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
- i The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
- X See case narrative.
- Q See case narrative. One or more quality control criteria was outside the limits.
- H The holding time for this test is immediately following sample collection. The samples were analyzed as soon as possible after receipt by the laboratory.

Metals Data Qualifiers

- # The control limit criteria is not applicable. See case narrative.
- J The result is an estimated value.
- E The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
- M The duplicate injection precision was not met.
- N The Matrix Spike sample recovery is not within control limits. See case narrative.
- S The reported value was determined by the Method of Standard Additions (MSA).
- U The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
DOD-QSM 4.2 definition : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
- W The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
- i The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
- X See case narrative.
- + The correlation coefficient for the MSA is less than 0.995.
- Q See case narrative. One or more quality control criteria was outside the limits.

Organic Data Qualifiers

- * The result is an outlier. See case narrative.
- # The control limit criteria is not applicable. See case narrative.
- A A tentatively identified compound, a suspected aldol-condensation product.
- B The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
- C The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
- D The reported result is from a dilution.
- E The result is an estimated value.
- J The result is an estimated value.
- N The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
- P The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results.
- U The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
DOD-QSM 4.2 definition : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
- i The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference.
- X See case narrative.
- Q See case narrative. One or more quality control criteria was outside the limits.

Additional Petroleum Hydrocarbon Specific Qualifiers

- F The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
- L The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
- H The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
- O The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
- Y The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
- Z The chromatographic fingerprint does not resemble a petroleum product.

ALS Group USA Corp. dba ALS Environmental (ALS) - Kelso
State Certifications, Accreditations, and Licenses

Agency	Web Site	Number
Alaska DEH	http://dec.alaska.gov/eh/lab/cs/csapproval.htm	UST-040
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0339
Arkansas - DEQ	http://www.adeq.state.ar.us/techsvs/labcert.htm	88-0637
California DHS (ELAP)	http://www.cdph.ca.gov/certlic/labs/Pages/ELAP.aspx	2795
DOD ELAP	http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm	L16-58-R4
Florida DOH	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E87412
Hawaii DOH	http://health.hawaii.gov/	-
ISO 17025	http://www.pjllabs.com/	L16-57
Louisiana DEQ	http://www.deq.louisiana.gov/page/la-lab-accreditation	03016
Maine DHS	http://www.maine.gov/dhhs/	WA01276
Minnesota DOH	http://www.health.state.mn.us/accreditation	053-999-457
Nevada DEP	http://ndep.nv.gov/bsdwlabservice.htm	WA01276
New Jersey DEP	http://www.nj.gov/dep/enforcement/oqa.html	WA005
New York - DOH	https://www.wadsworth.org/regulatory/elap	12060
North Carolina DEQ	https://deq.nc.gov/about/divisions/water-resources/water-resources-data/water-sciences-home-page/laboratory-certification-branch/non-field-lab-certification	605
Oklahoma DEQ	http://www.deq.state.ok.us/CSDnew/labcert.htm	9801
Oregon – DEQ (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	WA100010
South Carolina DHEC	http://www.scdhec.gov/environment/EnvironmentalLabCertification/	61002
Texas CEQ	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704427
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C544
Wyoming (EPA Region 8)	https://www.epa.gov/region8-waterops/epa-region-8-certified-drinking-water	-
Kelso Laboratory Website	www.alsglobal.com	NA

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. A complete listing of specific NELAP-certified analytes, can be found in the certification section at www.ALSGlobal.com or at the accreditation bodies web site.

Please refer to the certification and/or accreditation body's web site if samples are submitted for compliance purposes. The states highlighted above, require the analysis be listed on the state certification if used for compliance purposes and if the method/analyte is offered by that state.



Case Narrative

ALS Environmental—Kelso Laboratory
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Phone (360)577-7222 Fax (360)636-1068
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Client: AECOM
Project: Portland Harbor Pre-Remedial Design Investigation
Sample Matrix: Sediment, Water

Service Request: K1804181
Date Received: 05/04/2018

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples designated for Tier IV validation deliverables including summary forms and all of the associated raw data for each of the analyses. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt:

Twenty six sediment samples and two water samples were received for analysis at ALS Environmental on 05/04/2018. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

Semivolatiles by GC/MS:

Method 8270D SIM-PAH, 06/06-08/2018: The control criteria were exceeded for Terphenyl-d14 in samples PDI-SG-S236, PDI-SG-S194, PDI-SG-S126 and PDI-SG-S126-D due to matrix interference. The presence of non-target background components prevented adequate resolution of the surrogate. Accurate quantitation was not possible. No further corrective action was appropriate.

Method 8270D SIM-PAH, 06/06/2018: The internal standard recovery of Phenanthrene-d10 in sample PDI-SG-S126-D was outside control criteria because of suspected matrix interference. The sample was reanalyzed at a dilution with acceptable results. All analytes associated with the affected internal standard were reported from the diluted analysis. The reporting limits were elevated accordingly. No further corrective action was taken.

Method 8270D, 06/06/2018: The duplicate matrix spike recovery of Fluoranthene, Pyrene, Benz(a)anthracene, Chrysene and Benzo(b)fluoranthene for sample PDI-SG-S200 was outside control criteria because of matrix interference. The chromatogram indicated the presence of non-target background components that prevented adequate resolution of the target analytes. As a result, accurate quantitation was not possible. No further corrective action was required.

Method 8270D, 06/06/2018: The Relative Percent Difference (RPD) for Benz(a)anthracene and Chrysene in the replicate matrix spike analyses of PDI-SG-S200 was outside control criteria. All spike recoveries in the MS and associated Laboratory Control Sample (LCS) were within acceptance limits, indicating the analytical batch was in control. No further corrective action was appropriate.

Method 8270D, 05/16/2018: The matrix spike recovery of Phenanthrene, Fluoranthene and Pyrene for sample PDI-SG-S236 was outside control criteria. Recovery in the Laboratory Control Sample (LCS) was acceptable, which indicated the analytical batch was in control. The matrix spike outlier suggested a potential high bias in this matrix. No further corrective action was appropriate.

Insufficient sample volume was received to perform a Matrix Spike/Matrix Spike Duplicate (MS/MSD) with this sample batch. A Laboratory Control Sample/Duplicate Laboratory Control Sample (LCS/DLCS) was analyzed and reported in lieu of the MS/MSD for these samples.

The detection limits were elevated for both samples due to less than optimal sample volume received for analysis.

Method ALS SOP, 05/21/2018: The detection limit was elevated for all analytes in all sediment samples. The sample extract was diluted prior to instrumental analysis due to relatively high levels of non-target background components. The non-target matrix interference has been shown to interfere with the internal standards for this project; these samples were diluted based on historical data. The reporting limits were adjusted to reflect the dilution.



Approved by _____

Date 07/20/2018

Method ALS SOP, 06/26/2018: The analysis of several samples was initially performed past the recommended holding time due to instrument capacity issues. The data was flagged to indicate the holding time violation.

Method ALS SOP, 06/25/2018: The spike recovery of 2,4'-DDT and 4,4'-DDE for Laboratory Control Sample (LCS) KQ1805895-03 was outside the upper control criterion. One or more of the affected analytes in question was detected in the following associated field samples: PDI-SG-S239, PDI-SG-BS236, PDI-SG-S233, PDI-SG-S037, PDI-SG-S039, PDI-SG-S037-D, PDI-SG-S040, PDI-SG-041, PDI-SG-S043, PDI-SG-S044, PDI-SG-S062, PDI-SG-S063, PDI-SG-S198, PDI-SG-S201, PDI-SG-S194, PDI-SG-S193, PDI-SG-S186 and PDI-SG-S172. The error associated with elevated recovery indicated a potential high bias. Additional analysis of the associated field samples was not performed because the holding time had already elapsed. The data was flagged to indicate the problem.

Method ALS SOP, 06/26/2018: The matrix spike recovery of 2,4'-DDD, 2,4'-DDT, 4,4'-DDD and 4,4'-DDT for sample PDI-SG-S200 was outside the ALS control criteria as a result of the heterogeneous character of the sample. The Relative Percent Difference (RPD) for the replicate analysis supported this. The variability between replicates was sufficient to bias the percent recoveries outside normal ALS control criteria. The associated QA/QC results (e.g. control sample, calibration standards, etc.) indicated the analysis was in control. No further corrective action was appropriate.

Method ALS SOP, 06/26/2018: The duplicate matrix spike recovery of 2,4'-DDT for sample PDI-SG-S2360 was outside the ALS control criteria as a result of the heterogeneous character of the sample. The Relative Percent Difference (RPD) for the replicate analysis supported this. The variability between replicates was sufficient to bias the percent recoveries outside normal ALS control criteria. The associated QA/QC results (e.g. control sample, calibration standards, etc.) indicated the analysis was in control. No further corrective action was appropriate.

Semivoa GC:

No significant anomalies were noted with this analysis.



Approved by _____

Date 07/20/2018



Chain of Custody

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K1804181

SURFACE SEDIMENT CHAIN OF CUSTODY

ALS-Environmental-Kelso 1317-S-13th-Ave Kelso, WA 98626 Ph: 360-577-7222 Fax: 360-636-1068		SURFACE SEDIMENT CHAIN OF CUSTODY										COC No. 1 1 of 3 page(s)						
Client Contact AECOM 1111 3rd Ave Suite 1600 Seattle, WA 98101 Phone: (206) 438-2700 Fax: 1+(866) 495-5288 Project Name: Portland Harbor Pre-Remedial Design Investigation and Baseline Sampling Portland, OR Project #: 60566335 Study: Surface Sediment-SMA		Project Contact: Amy Dahl / Chelsey Cook Tel: (206) 438-2261 / (206) 438-2010			Site Contact: Jennifer Ray / Michaela McCoog Laboratory Contact: Howard-Holmes			Date: 5/04/18 Carrier: Courier										
Analysis Turnaround Time Calendar (C) or Work Days (W) ☒ 21 days ☐ Other _____		Fraction: Particulates, PAHs, Total Solids 1669M, 8270-SIM, 1661.3																
Sample Identification		Sample Date	Sample Time	Matrix	QC Sample	Sampler's Initials	Total No. of Cont.											Sample Specific Notes:
PDI-SG-S239		5/2/2018	9:25	SS		MT	1	x										
PDI-SG-S236		5/2/2018	11:50	SS	MS/MSD	MT	3	x										
PDI-SG-S242		5/2/2018	10:50	SS		MT	1	x										
PDI-SG-S233		5/2/2018	13:35	SS		MT	1	x										
PDI-SG-S037		5/2/2018	9:45	SS		AP	1	x										
PDI-SG-S038		5/2/2018	12:20	SS		AP	1	x										
PDI-SG-S039		5/2/2018	11:20	SS		AP	1	x										
PDI-SG-S037-D		5/2/2018	9:45	SS		AP	1	x										
PDI-SG-S040		5/2/2018	13:20	SS		AP	1	x										
PDI-SG-S041		5/2/2018	14:15	SS		AP	1	x										
PDI-SG-S043		5/2/2018	15:00	SS		AP	1	x										
PDI-SG-S044		5/2/2018	15:45	SS		AP	1	x										
Container Type: WMG=Wide Mouth Glass Jar, P=HDPE, PP=Polypropylene, AG=amber glass, G=glass, RC=Resin Column Preservative: HCl = Hydrochloric Acid, H3PO4 = Phosphoric Acid, HNO3 = Nitric Acid Fraction: D = Dissolved, PRT = Particulate, T = Total (unfiltered)														Sample Disposal ☐ Return To Client ☒ Disposal By Lab ☒ Archive For 12 Months				
Special Instructions/QC Requirements & Comments: SMA Study samples - Log in separately from SS Study samples																		
Relinquished by: <i>Michaela McCoog</i>		Company: AECOM		Date/Time: 5-4-18 1137		Received by: <i>[Signature]</i>		Company: ALS		Date/Time: 5-4-18 1137								
Relinquished by:		Company:		Date/Time:		Received by: <i>[Signature]</i>		Company: ALS		Date/Time: 5-4-18 1250								
Relinquished by:		Company:		Date/Time:		Received by:		Company:		Date/Time:								

K1804181

[illegible]

[illegible]

PC HH

Cooler Receipt and Preservation Form

Client Accorn Service Request K18 04181
 Received: 5/4/18 Opened: 5/4/18 By: km Unloaded: 5/4/18 By: km

1. Samples were received via? USPS Fed Ex UPS DHL PDX Courier Hand Delivered
 2. Samples were received in: (circle) Cooler Box Envelope Other NA
 3. Were custody seals on coolers? NA Y N If yes, how many and where? 1 Front
 If present, were custody seals intact? Y N If present, were they signed and dated? Y N

Raw Cooler Temp	Corrected Cooler Temp	Raw Temp Blank	Corrected Temp Blank	Corr. Factor	Thermometer ID	Cooler/COC ID	Tracking Number	NA	Filed
1.7	1.5	3.6	3.4	-0.2	379	NA		NA	
4.1	4.1	4.9	4.9	0.0	325				
0.1	0.0	5.9	5.8	-0.1	378				

4. Packing material: Inserts Baggies Bubble Wrap Gel Packs Wet Ice Dry Ice Sleeves
 5. Were custody papers properly filled out (ink, signed, etc.)? NA Y N
 6. Were samples received in good condition (temperature, unbroken)? Indicate in the table below. NA Y N
 If applicable, tissue samples were received: Frozen Partially Thawed Thawed
 7. Were all sample labels complete (i.e analysis, preservation, etc.)? NA Y N
 8. Did all sample labels and tags agree with custody papers? Indicate major discrepancies in the table on page 2. NA Y N
 9. Were appropriate bottles/containers and volumes received for the tests indicated? NA Y N
 10. Were the pH-preserved bottles (see SMO GEN SOP) received at the appropriate pH? Indicate in the table below NA Y N
 11. Were VOA vials received without headspace? Indicate in the table below. NA Y N
 12. Was C12/Res negative? NA Y N

Sample ID on Bottle	Sample ID on COC	Identified by:

Sample ID	Bottle Count Bottle Type	Out of Temp	Head- space	Broke	pH	Reagent	Volume added	Reagent Lot Number	Initials	Time

Notes, Discrepancies, & Resolutions:



Total Solids

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ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: AECOM
Project: Portland Harbor Pre-Remedial Design Investigation/60566335
Sample Matrix: Sediment
Analysis Method: 160.3 Modified
Prep Method: None

Service Request: K1804181
Date Collected: 05/02/18 - 05/03/18
Date Received: 05/4/18
Units: Percent
Basis: As Received

Solids, Total

Sample Name	Lab Code	Result	MRL	MDL	Dil.	Date Analyzed	Q
PDI-SG-S239	K1804181-001	33.2	-	-	1	05/07/18 10:51	
PDI-SG-S236	K1804181-002	45.7	-	-	1	05/07/18 10:51	
PDI-SG-S242	K1804181-003	73.8	-	-	1	05/07/18 10:51	
PDI-SG-S233	K1804181-004	32.7	-	-	1	05/07/18 10:51	
PDI-SG-S037	K1804181-005	53.8	-	-	1	05/07/18 10:51	
PDI-SG-S038	K1804181-006	55.4	-	-	1	05/07/18 10:51	
PDI-SG-S039	K1804181-007	54.2	-	-	1	05/07/18 10:51	
PDI-SG-S037-D	K1804181-008	54.6	-	-	1	05/07/18 10:51	
PDI-SG-S040	K1804181-009	54.4	-	-	1	05/07/18 10:51	
PDI-SG-S041	K1804181-010	44.8	-	-	1	05/07/18 10:51	
PDI-SG-S043	K1804181-011	42.9	-	-	1	05/07/18 10:51	
PDI-SG-S044	K1804181-012	46.7	-	-	1	05/07/18 10:51	
PDI-SG-S062	K1804181-013	39.8	-	-	1	05/07/18 10:51	
PDI-SG-S063	K1804181-014	39.3	-	-	1	05/07/18 10:51	
PDI-SG-S198	K1804181-015	36.4	-	-	1	05/07/18 10:51	
PDI-SG-S201	K1804181-016	36.0	-	-	1	05/07/18 10:51	
PDI-SG-S200	K1804181-017	38.7	-	-	1	05/07/18 10:51	
PDI-SG-S194	K1804181-018	36.1	-	-	1	05/07/18 10:51	
PDI-SG-S193	K1804181-019	33.7	-	-	1	05/07/18 10:51	
PDI-SG-S186	K1804181-020	37.4	-	-	1	05/07/18 10:51	
PDI-SG-S172	K1804181-021	62.0	-	-	1	05/07/18 13:37	
PDI-SG-S123	K1804181-022	62.0	-	-	1	05/07/18 13:37	
PDI-SG-S125	K1804181-023	45.2	-	-	1	05/07/18 13:37	
PDI-SG-S128	K1804181-024	72.5	-	-	1	05/07/18 13:37	
PDI-SG-S126	K1804181-025	48.8	-	-	1	05/07/18 13:37	
PDI-SG-S126-D	K1804181-026	47.6	-	-	1	05/07/18 13:37	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: AECOM
Project Portland Harbor Pre-Remedial Design Investigation/60566335
Sample Matrix: Sediment

Analysis Method: 160.3 Modified
Prep Method: None

Service Request:K1804181
Date Collected:05/02/18 - 05/03/18
Date Received:05/04/18

Units:Percent
Basis:As Received

Replicate Sample Summary
Inorganic Parameters

Sample Name:	Lab Code:	MRL	MDL	Sample Result	Duplicate Result	Average	RPD	RPD Limit	Date Analyzed
PDI-SG-S236	K1804181-002DUP	-	-	45.7	45.7	45.7	<1	20	05/07/18
PDI-SG-S200	K1804181-017DUP	-	-	38.7	38.6	38.7	<1	20	05/07/18
PDI-SG-S172	K1804181-021DUP	-	-	62.0	60.8	61.4	2	20	05/07/18

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.



Organochlorine Pesticides

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ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: AECOM
Project: Portland Harbor Pre-Remedial Design Investigation/60566335
Sample Matrix: Sediment

Sample Name: PDI-SG-S239
Lab Code: K1804181-001

Service Request: K1804181
Date Collected: 05/02/18 09:25
Date Received: 05/04/18 12:50

Units: ug/Kg
Basis: Dry

Organochlorine Pesticides by GC/MS/MS

Analysis Method: ALS SOP
Prep Method: EPA 3541

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
2,4'-DDD	ND U	1.5	0.95	10	06/26/18 01:28	5/10/18	*
2,4'-DDE	ND U	1.5	1.2	10	06/26/18 01:28	5/10/18	*
2,4'-DDT	ND U	1.5	1.5	10	06/26/18 01:28	5/10/18	**
4,4'-DDD	2.7	1.5	0.53	10	06/26/18 01:28	5/10/18	*
4,4'-DDE	4.8	1.5	1.1	10	06/26/18 01:28	5/10/18	**
4,4'-DDT	ND U	1.5	0.71	10	06/26/18 01:28	5/10/18	*

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_4,4'DDD-d4	29	5 - 120	06/26/18 01:28	
S_4,4'-DDT-d4	33	13 - 200	06/26/18 01:28	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: AECOM
Project: Portland Harbor Pre-Remedial Design Investigation/60566335
Sample Matrix: Sediment

Sample Name: PDI-SG-S236
Lab Code: K1804181-002

Service Request: K1804181
Date Collected: 05/02/18 11:50
Date Received: 05/04/18 12:50

Units: ug/Kg
Basis: Dry

Organochlorine Pesticides by GC/MS/MS

Analysis Method: ALS SOP
Prep Method: EPA 3541

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
2,4'-DDD	ND U	1.1	0.69	10	06/26/18 01:55	5/10/18	*
2,4'-DDE	ND U	1.1	0.86	10	06/26/18 01:55	5/10/18	*
2,4'-DDT	ND U	1.1	1.1	10	06/26/18 01:55	5/10/18	**
4,4'-DDD	0.93 J	1.1	0.38	10	06/26/18 01:55	5/10/18	*
4,4'-DDE	1.8	1.1	0.76	10	06/26/18 01:55	5/10/18	**
4,4'-DDT	ND U	1.1	0.52	10	06/26/18 01:55	5/10/18	*

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_4,4'DDD-d4	66	5 - 120	06/26/18 01:55	
S_4,4'-DDT-d4	71	13 - 200	06/26/18 01:55	

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Analytical Report

Client: AECOM
Project: Portland Harbor Pre-Remedial Design Investigation/60566335
Sample Matrix: Sediment

Sample Name: PDI-SG-S242
Lab Code: K1804181-003

Service Request: K1804181
Date Collected: 05/02/18 10:50
Date Received: 05/04/18 12:50

Units: ug/Kg
Basis: Dry

Organochlorine Pesticides by GC/MS/MS

Analysis Method: ALS SOP
Prep Method: EPA 3541

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
2,4'-DDD	ND U	0.67	0.63	10	06/26/18 02:23	5/10/18	*
2,4'-DDE	ND U	0.79	0.79	10	06/26/18 02:23	5/10/18	*
2,4'-DDT	ND U	0.94	0.94	10	06/26/18 02:23	5/10/18	**
4,4'-DDD	ND U	0.67	0.35	10	06/26/18 02:23	5/10/18	*
4,4'-DDE	ND U	0.70	0.70	10	06/26/18 02:23	5/10/18	**
4,4'-DDT	ND U	0.67	0.47	10	06/26/18 02:23	5/10/18	*

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_4,4'DDD-d4	55	5 - 120	06/26/18 02:23	
S_4,4'-DDT-d4	61	13 - 200	06/26/18 02:23	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: AECOM
Project: Portland Harbor Pre-Remedial Design Investigation/60566335
Sample Matrix: Sediment

Sample Name: PDI-SG-S233
Lab Code: K1804181-004

Service Request: K1804181
Date Collected: 05/02/18 13:35
Date Received: 05/04/18 12:50

Units: ug/Kg
Basis: Dry

Organochlorine Pesticides by GC/MS/MS

Analysis Method: ALS SOP
Prep Method: EPA 3541

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
2,4'-DDD	ND U	1.5	0.95	10	06/26/18 02:50	5/10/18	*
2,4'-DDE	ND U	1.5	1.2	10	06/26/18 02:50	5/10/18	*
2,4'-DDT	ND U	1.5	1.5	10	06/26/18 02:50	5/10/18	**
4,4'-DDD	2.0	1.5	0.53	10	06/26/18 02:50	5/10/18	*
4,4'-DDE	4.0	1.5	1.1	10	06/26/18 02:50	5/10/18	**
4,4'-DDT	ND U	1.5	0.71	10	06/26/18 02:50	5/10/18	*

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_4,4'DDD-d4	51	5 - 120	06/26/18 02:50	
S_4,4'-DDT-d4	57	13 - 200	06/26/18 02:50	

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dba ALS Environmental

Analytical Report

Client: AECOM
Project: Portland Harbor Pre-Remedial Design Investigation/60566335
Sample Matrix: Sediment

Sample Name: PDI-SG-S037
Lab Code: K1804181-005

Service Request: K1804181
Date Collected: 05/02/18 09:45
Date Received: 05/04/18 12:50

Units: ug/Kg
Basis: Dry

Organochlorine Pesticides by GC/MS/MS

Analysis Method: ALS SOP
Prep Method: EPA 3541

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
2,4'-DDD	6.9	0.92	0.63	10	06/26/18 03:17	5/10/18	*
2,4'-DDE	ND U	0.92	0.79	10	06/26/18 03:17	5/10/18	*
2,4'-DDT	ND U	0.94	0.94	10	06/26/18 03:17	5/10/18	**
4,4'-DDD	19	0.92	0.35	10	06/26/18 03:17	5/10/18	*
4,4'-DDE	2.4	0.92	0.70	10	06/26/18 03:17	5/10/18	**
4,4'-DDT	0.49 J	0.92	0.47	10	06/26/18 03:17	5/10/18	*

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_4,4'DDD-d4	82	5 - 120	06/26/18 03:17	
S_4,4'-DDT-d4	89	13 - 200	06/26/18 03:17	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: AECOM
Project: Portland Harbor Pre-Remedial Design Investigation/60566335
Sample Matrix: Sediment

Sample Name: PDI-SG-S038
Lab Code: K1804181-006

Service Request: K1804181
Date Collected: 05/02/18 12:20
Date Received: 05/04/18 12:50

Units: ug/Kg
Basis: Dry

Organochlorine Pesticides by GC/MS/MS

Analysis Method: ALS SOP
Prep Method: EPA 3541

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
2,4'-DDD	0.86 J	0.90	0.63	10	06/26/18 03:44	5/10/18	*
2,4'-DDE	ND U	0.90	0.79	10	06/26/18 03:44	5/10/18	*
2,4'-DDT	ND U	0.94	0.94	10	06/26/18 03:44	5/10/18	**
4,4'-DDD	1.4	0.90	0.35	10	06/26/18 03:44	5/10/18	*
4,4'-DDE	ND U	0.90	0.70	10	06/26/18 03:44	5/10/18	**
4,4'-DDT	0.57 J	0.90	0.47	10	06/26/18 03:44	5/10/18	*

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_4,4'DDD-d4	69	5 - 120	06/26/18 03:44	
S_4,4'-DDT-d4	70	13 - 200	06/26/18 03:44	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: AECOM
Project: Portland Harbor Pre-Remedial Design Investigation/60566335
Sample Matrix: Sediment

Sample Name: PDI-SG-S039
Lab Code: K1804181-007

Service Request: K1804181
Date Collected: 05/02/18 11:20
Date Received: 05/04/18 12:50

Units: ug/Kg
Basis: Dry

Organochlorine Pesticides by GC/MS/MS

Analysis Method: ALS SOP
Prep Method: EPA 3541

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
2,4'-DDD	11	0.91	0.63	10	06/26/18 04:12	5/10/18	*
2,4'-DDE	ND U	0.91	0.79	10	06/26/18 04:12	5/10/18	*
2,4'-DDT	ND U	0.94	0.94	10	06/26/18 04:12	5/10/18	**
4,4'-DDD	16	0.91	0.35	10	06/26/18 04:12	5/10/18	*
4,4'-DDE	3.2	0.91	0.70	10	06/26/18 04:12	5/10/18	**
4,4'-DDT	2.8	0.91	0.47	10	06/26/18 04:12	5/10/18	*

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_4,4'DDD-d4	58	5 - 120	06/26/18 04:12	
S_4,4'-DDT-d4	57	13 - 200	06/26/18 04:12	

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dba ALS Environmental

Analytical Report

Client: AECOM
Project: Portland Harbor Pre-Remedial Design Investigation/60566335
Sample Matrix: Sediment

Sample Name: PDI-SG-S037-D
Lab Code: K1804181-008

Service Request: K1804181
Date Collected: 05/02/18 09:45
Date Received: 05/04/18 12:50

Units: ug/Kg
Basis: Dry

Organochlorine Pesticides by GC/MS/MS

Analysis Method: ALS SOP
Prep Method: EPA 3541

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
2,4'-DDD	5.6	0.90	0.63	10	06/26/18 04:39	5/10/18	*
2,4'-DDE	ND U	0.90	0.79	10	06/26/18 04:39	5/10/18	*
2,4'-DDT	ND U	0.94	0.94	10	06/26/18 04:39	5/10/18	**
4,4'-DDD	13	0.90	0.35	10	06/26/18 04:39	5/10/18	*
4,4'-DDE	2.1	0.90	0.70	10	06/26/18 04:39	5/10/18	**
4,4'-DDT	0.96	0.90	0.47	10	06/26/18 04:39	5/10/18	*

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_4,4'DDD-d4	70	5 - 120	06/26/18 04:39	
S_4,4'-DDT-d4	68	13 - 200	06/26/18 04:39	

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dba ALS Environmental

Analytical Report

Client: AECOM
Project: Portland Harbor Pre-Remedial Design Investigation/60566335
Sample Matrix: Sediment

Sample Name: PDI-SG-S040
Lab Code: K1804181-009

Service Request: K1804181
Date Collected: 05/02/18 13:20
Date Received: 05/04/18 12:50

Units: ug/Kg
Basis: Dry

Organochlorine Pesticides by GC/MS/MS

Analysis Method: ALS SOP
Prep Method: EPA 3541

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
2,4'-DDD	0.99	0.90	0.63	10	06/26/18 05:06	5/10/18	*
2,4'-DDE	ND U	0.90	0.79	10	06/26/18 05:06	5/10/18	*
2,4'-DDT	2.7	0.94	0.94	10	06/26/18 05:06	5/10/18	**
4,4'-DDD	1.8	0.90	0.35	10	06/26/18 05:06	5/10/18	*
4,4'-DDE	3.4	0.90	0.70	10	06/26/18 05:06	5/10/18	**
4,4'-DDT	3.6	0.90	0.47	10	06/26/18 05:06	5/10/18	*

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_4,4'DDD-d4	50	5 - 120	06/26/18 05:06	
S_4,4'-DDT-d4	49	13 - 200	06/26/18 05:06	

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Analytical Report

Client: AECOM
Project: Portland Harbor Pre-Remedial Design Investigation/60566335
Sample Matrix: Sediment

Sample Name: PDI-SG-S041
Lab Code: K1804181-010

Service Request: K1804181
Date Collected: 05/02/18 14:15
Date Received: 05/04/18 12:50

Units: ug/Kg
Basis: Dry

Organochlorine Pesticides by GC/MS/MS

Analysis Method: ALS SOP
Prep Method: EPA 3541

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
2,4'-DDD	ND U	1.1	0.69	10	06/26/18 05:34	5/10/18	*
2,4'-DDE	ND U	1.1	0.87	10	06/26/18 05:34	5/10/18	*
2,4'-DDT	ND U	1.1	1.1	10	06/26/18 05:34	5/10/18	**
4,4'-DDD	1.6	1.1	0.39	10	06/26/18 05:34	5/10/18	*
4,4'-DDE	2.9	1.1	0.77	10	06/26/18 05:34	5/10/18	**
4,4'-DDT	0.77 J	1.1	0.52	10	06/26/18 05:34	5/10/18	*

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_4,4'DDD-d4	58	5 - 120	06/26/18 05:34	
S_4,4'-DDT-d4	59	13 - 200	06/26/18 05:34	

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dba ALS Environmental

Analytical Report

Client: AECOM
Project: Portland Harbor Pre-Remedial Design Investigation/60566335
Sample Matrix: Sediment

Sample Name: PDI-SG-S043
Lab Code: K1804181-011

Service Request: K1804181
Date Collected: 05/02/18 15:00
Date Received: 05/04/18 12:50

Units: ug/Kg
Basis: Dry

Organochlorine Pesticides by GC/MS/MS

Analysis Method: ALS SOP
Prep Method: EPA 3541

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
2,4'-DDD	ND U	1.1	0.73	10	06/26/18 06:01	5/10/18	*
2,4'-DDE	ND U	1.1	0.91	10	06/26/18 06:01	5/10/18	*
2,4'-DDT	ND U	1.1	1.1	10	06/26/18 06:01	5/10/18	**
4,4'-DDD	1.2	1.1	0.41	10	06/26/18 06:01	5/10/18	*
4,4'-DDE	3.0	1.1	0.81	10	06/26/18 06:01	5/10/18	**
4,4'-DDT	ND U	1.1	0.55	10	06/26/18 06:01	5/10/18	*

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_4,4'DDD-d4	60	5 - 120	06/26/18 06:01	
S_4,4'-DDT-d4	57	13 - 200	06/26/18 06:01	

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dba ALS Environmental

Analytical Report

Client: AECOM
Project: Portland Harbor Pre-Remedial Design Investigation/60566335
Sample Matrix: Sediment

Sample Name: PDI-SG-S044
Lab Code: K1804181-012

Service Request: K1804181
Date Collected: 05/02/18 15:45
Date Received: 05/04/18 12:50

Units: ug/Kg
Basis: Dry

Organochlorine Pesticides by GC/MS/MS

Analysis Method: ALS SOP
Prep Method: EPA 3541

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
2,4'-DDD	3.7	1.1	0.67	10	06/26/18 06:28	5/10/18	*
2,4'-DDE	ND U	1.1	0.84	10	06/26/18 06:28	5/10/18	*
2,4'-DDT	4.0	1.1	1.0	10	06/26/18 06:28	5/10/18	**
4,4'-DDD	14	1.1	0.38	10	06/26/18 06:28	5/10/18	*
4,4'-DDE	8.8	1.1	0.75	10	06/26/18 06:28	5/10/18	**
4,4'-DDT	9.2	1.1	0.50	10	06/26/18 06:28	5/10/18	*

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_4,4'DDD-d4	50	5 - 120	06/26/18 06:28	
S_4,4'-DDT-d4	49	13 - 200	06/26/18 06:28	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: AECOM
Project: Portland Harbor Pre-Remedial Design Investigation/60566335
Sample Matrix: Sediment

Sample Name: PDI-SG-S062
Lab Code: K1804181-013

Service Request: K1804181
Date Collected: 05/02/18 16:40
Date Received: 05/04/18 12:50

Units: ug/Kg
Basis: Dry

Organochlorine Pesticides by GC/MS/MS

Analysis Method: ALS SOP
Prep Method: EPA 3541

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
2,4'-DDD	ND U	1.2	0.79	10	06/26/18 06:56	5/10/18	*
2,4'-DDE	ND U	1.2	0.99	10	06/26/18 06:56	5/10/18	*
2,4'-DDT	ND U	1.2	1.2	10	06/26/18 06:56	5/10/18	**
4,4'-DDD	1.9	1.2	0.44	10	06/26/18 06:56	5/10/18	*
4,4'-DDE	3.1	1.2	0.88	10	06/26/18 06:56	5/10/18	**
4,4'-DDT	ND U	1.2	0.59	10	06/26/18 06:56	5/10/18	*

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_4,4'DDD-d4	64	5 - 120	06/26/18 06:56	
S_4,4'-DDT-d4	70	13 - 200	06/26/18 06:56	

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Analytical Report

Client: AECOM
Project: Portland Harbor Pre-Remedial Design Investigation/60566335
Sample Matrix: Sediment

Sample Name: PDI-SG-S063
Lab Code: K1804181-014

Service Request: K1804181
Date Collected: 05/03/18 10:05
Date Received: 05/04/18 12:50

Units: ug/Kg
Basis: Dry

Organochlorine Pesticides by GC/MS/MS

Analysis Method: ALS SOP
Prep Method: EPA 3541

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
2,4'-DDD	ND U	1.3	0.80	10	06/26/18 07:23	5/10/18	*
2,4'-DDE	ND U	1.3	1.0	10	06/26/18 07:23	5/10/18	*
2,4'-DDT	ND U	1.3	1.2	10	06/26/18 07:23	5/10/18	**
4,4'-DDD	1.8	1.3	0.45	10	06/26/18 07:23	5/10/18	*
4,4'-DDE	3.2	1.3	0.89	10	06/26/18 07:23	5/10/18	**
4,4'-DDT	ND U	1.3	0.60	10	06/26/18 07:23	5/10/18	*

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_4,4'DDD-d4	50	5 - 120	06/26/18 07:23	
S_4,4'-DDT-d4	59	13 - 200	06/26/18 07:23	

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dba ALS Environmental

Analytical Report

Client: AECOM
Project: Portland Harbor Pre-Remedial Design Investigation/60566335
Sample Matrix: Sediment

Sample Name: PDI-SG-S198
Lab Code: K1804181-015

Service Request: K1804181
Date Collected: 05/03/18 10:01
Date Received: 05/04/18 12:50

Units: ug/Kg
Basis: Dry

Organochlorine Pesticides by GC/MS/MS

Analysis Method: ALS SOP
Prep Method: EPA 3541

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
2,4'-DDD	ND U	1.4	0.86	10	06/26/18 07:50	5/10/18	*
2,4'-DDE	ND U	1.4	1.1	10	06/26/18 07:50	5/10/18	*
2,4'-DDT	ND U	1.4	1.3	10	06/26/18 07:50	5/10/18	**
4,4'-DDD	1.6	1.4	0.48	10	06/26/18 07:50	5/10/18	*
4,4'-DDE	4.2	1.4	0.95	10	06/26/18 07:50	5/10/18	**
4,4'-DDT	ND U	1.4	0.64	10	06/26/18 07:50	5/10/18	*

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_4,4'DDD-d4	43	5 - 120	06/26/18 07:50	
S_4,4'-DDT-d4	52	13 - 200	06/26/18 07:50	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: AECOM
Project: Portland Harbor Pre-Remedial Design Investigation/60566335
Sample Matrix: Sediment

Sample Name: PDI-SG-S201
Lab Code: K1804181-016

Service Request: K1804181
Date Collected: 05/03/18 11:36
Date Received: 05/04/18 12:50

Units: ug/Kg
Basis: Dry

Organochlorine Pesticides by GC/MS/MS

Analysis Method: ALS SOP
Prep Method: EPA 3541

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
2,4'-DDD	ND U	1.4	0.87	10	06/26/18 08:17	5/10/18	*
2,4'-DDE	ND U	1.4	1.1	10	06/26/18 08:17	5/10/18	*
2,4'-DDT	ND U	1.4	1.3	10	06/26/18 08:17	5/10/18	**
4,4'-DDD	1.8	1.4	0.48	10	06/26/18 08:17	5/10/18	*
4,4'-DDE	3.8	1.4	0.96	10	06/26/18 08:17	5/10/18	**
4,4'-DDT	1.1 J	1.4	0.65	10	06/26/18 08:17	5/10/18	*

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_4,4'DDD-d4	46	5 - 120	06/26/18 08:17	
S_4,4'-DDT-d4	48	13 - 200	06/26/18 08:17	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: AECOM
Project: Portland Harbor Pre-Remedial Design Investigation/60566335
Sample Matrix: Sediment

Sample Name: PDI-SG-S200
Lab Code: K1804181-017

Service Request: K1804181
Date Collected: 05/03/18 12:38
Date Received: 05/04/18 12:50

Units: ug/Kg
Basis: Dry

Organochlorine Pesticides by GC/MS/MS

Analysis Method: ALS SOP
Prep Method: EPA 3541

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
2,4'-DDD	0.72	0.64	0.41	5	06/17/18 16:10	5/10/18	
2,4'-DDE	ND U	0.64	0.51	5	06/17/18 16:10	5/10/18	
2,4'-DDT	ND U	0.64	0.61	5	06/17/18 16:10	5/10/18	
4,4'-DDD	2.1	0.64	0.23	5	06/17/18 16:10	5/10/18	
4,4'-DDE	3.0	0.64	0.45	5	06/17/18 16:10	5/10/18	
4,4'-DDT	0.44 J	0.64	0.31	5	06/17/18 16:10	5/10/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_4,4'DDD-d4	69	5 - 120	06/17/18 16:10	
S_4,4'-DDT-d4	72	13 - 200	06/17/18 16:10	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: AECOM
Project: Portland Harbor Pre-Remedial Design Investigation/60566335
Sample Matrix: Sediment

Sample Name: PDI-SG-S194
Lab Code: K1804181-018

Service Request: K1804181
Date Collected: 05/03/18 13:32
Date Received: 05/04/18 12:50

Units: ug/Kg
Basis: Dry

Organochlorine Pesticides by GC/MS/MS

Analysis Method: ALS SOP
Prep Method: EPA 3541

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
2,4'-DDD	2.4	1.4	0.87	10	06/26/18 11:57	5/10/18	*
2,4'-DDE	ND U	1.4	1.1	10	06/26/18 11:57	5/10/18	*
2,4'-DDT	ND U	1.4	1.3	10	06/26/18 11:57	5/10/18	**
4,4'-DDD	5.0	1.4	0.48	10	06/26/18 11:57	5/10/18	*
4,4'-DDE	4.7	1.4	0.96	10	06/26/18 11:57	5/10/18	**
4,4'-DDT	1.0 J	1.4	0.65	10	06/26/18 11:57	5/10/18	*

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_4,4'DDD-d4	46	5 - 120	06/26/18 11:57	
S_4,4'-DDT-d4	48	13 - 200	06/26/18 11:57	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: AECOM
Project: Portland Harbor Pre-Remedial Design Investigation/60566335
Sample Matrix: Sediment

Sample Name: PDI-SG-S193
Lab Code: K1804181-019

Service Request: K1804181
Date Collected: 05/03/18 14:33
Date Received: 05/04/18 12:50

Units: ug/Kg
Basis: Dry

Organochlorine Pesticides by GC/MS/MS

Analysis Method: ALS SOP
Prep Method: EPA 3541

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
2,4'-DDD	4.6	1.5	0.93	10	06/26/18 12:25	5/10/18	*
2,4'-DDE	ND U	1.5	1.2	10	06/26/18 12:25	5/10/18	*
2,4'-DDT	1.7	1.5	1.4	10	06/26/18 12:25	5/10/18	**
4,4'-DDD	12	1.5	0.52	10	06/26/18 12:25	5/10/18	*
4,4'-DDE	8.5	1.5	1.1	10	06/26/18 12:25	5/10/18	**
4,4'-DDT	5.3	1.5	0.69	10	06/26/18 12:25	5/10/18	*

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_4,4'DDD-d4	65	5 - 120	06/26/18 12:25	
S_4,4'-DDT-d4	57	13 - 200	06/26/18 12:25	

ALS Group USA, Corp.
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Analytical Report

Client: AECOM
Project: Portland Harbor Pre-Remedial Design Investigation/60566335
Sample Matrix: Sediment

Sample Name: PDI-SG-S186
Lab Code: K1804181-020

Service Request: K1804181
Date Collected: 05/03/18 15:27
Date Received: 05/04/18 12:50

Units: ug/Kg
Basis: Dry

Organochlorine Pesticides by GC/MS/MS

Analysis Method: ALS SOP
Prep Method: EPA 3541

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
2,4'-DDD	0.64 J	0.66	0.42	5	06/18/18 07:57	5/10/18	
2,4'-DDE	ND U	0.66	0.52	5	06/18/18 07:57	5/10/18	
2,4'-DDT	ND U	0.66	0.62	5	06/18/18 07:57	5/10/18	*
4,4'-DDD	2.3	0.66	0.23	5	06/18/18 07:57	5/10/18	
4,4'-DDE	3.3	0.66	0.46	5	06/18/18 07:57	5/10/18	*
4,4'-DDT	0.51 J	0.66	0.31	5	06/18/18 07:57	5/10/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_4,4'DDD-d4	28	5 - 120	06/18/18 07:57	
S_4,4'-DDT-d4	28	13 - 200	06/18/18 07:57	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: AECOM
Project: Portland Harbor Pre-Remedial Design Investigation/60566335
Sample Matrix: Sediment

Sample Name: PDI-SG-S172
Lab Code: K1804181-021

Service Request: K1804181
Date Collected: 05/03/18 17:13
Date Received: 05/04/18 12:50

Units: ug/Kg
Basis: Dry

Organochlorine Pesticides by GC/MS/MS

Analysis Method: ALS SOP
Prep Method: EPA 3541

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
2,4'-DDD	0.93	0.40	0.32	5	06/18/18 08:24	5/10/18	
2,4'-DDE	ND U	0.40	0.40	5	06/18/18 08:24	5/10/18	
2,4'-DDT	0.57	0.47	0.47	5	06/18/18 08:24	5/10/18	*
4,4'-DDD	2.6	0.40	0.18	5	06/18/18 08:24	5/10/18	
4,4'-DDE	1.4	0.40	0.35	5	06/18/18 08:24	5/10/18	*
4,4'-DDT	1.6	0.40	0.24	5	06/18/18 08:24	5/10/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_4,4'DDD-d4	27	5 - 120	06/18/18 08:24	
S_4,4'-DDT-d4	28	13 - 200	06/18/18 08:24	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: AECOM
Project: Portland Harbor Pre-Remedial Design Investigation/60566335
Sample Matrix: Sediment

Sample Name: PDI-SG-S123
Lab Code: K1804181-022

Service Request: K1804181
Date Collected: 05/03/18 12:00
Date Received: 05/04/18 12:50

Units: ug/Kg
Basis: Dry

Organochlorine Pesticides by GC/MS/MS

Analysis Method: ALS SOP
Prep Method: EPA 3541

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
2,4'-DDD	0.71	0.40	0.32	5	06/17/18 16:38	5/10/18	
2,4'-DDE	ND U	0.40	0.40	5	06/17/18 16:38	5/10/18	
2,4'-DDT	0.54	0.47	0.47	5	06/17/18 16:38	5/10/18	
4,4'-DDD	1.8	0.40	0.18	5	06/17/18 16:38	5/10/18	
4,4'-DDE	3.7	0.40	0.35	5	06/17/18 16:38	5/10/18	
4,4'-DDT	1.3	0.40	0.24	5	06/17/18 16:38	5/10/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_4,4'DDD-d4	61	5 - 120	06/17/18 16:38	
S_4,4'-DDT-d4	67	13 - 200	06/17/18 16:38	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: AECOM
Project: Portland Harbor Pre-Remedial Design Investigation/60566335
Sample Matrix: Sediment

Sample Name: PDI-SG-S125
Lab Code: K1804181-023

Service Request: K1804181
Date Collected: 05/03/18 13:40
Date Received: 05/04/18 12:50

Units: ug/Kg
Basis: Dry

Organochlorine Pesticides by GC/MS/MS

Analysis Method: ALS SOP
Prep Method: EPA 3541

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
2,4'-DDD	1.4	0.55	0.35	5	06/17/18 17:05	5/10/18	
2,4'-DDE	0.57	0.55	0.44	5	06/17/18 17:05	5/10/18	
2,4'-DDT	0.96	0.55	0.52	5	06/17/18 17:05	5/10/18	
4,4'-DDD	4.5	0.55	0.20	5	06/17/18 17:05	5/10/18	
4,4'-DDE	9.0	0.55	0.39	5	06/17/18 17:05	5/10/18	
4,4'-DDT	1.8	0.55	0.26	5	06/17/18 17:05	5/10/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_4,4'DDD-d4	60	5 - 120	06/17/18 17:05	
S_4,4'-DDT-d4	61	13 - 200	06/17/18 17:05	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: AECOM
Project: Portland Harbor Pre-Remedial Design Investigation/60566335
Sample Matrix: Sediment

Sample Name: PDI-SG-S128
Lab Code: K1804181-024

Service Request: K1804181
Date Collected: 05/03/18 14:30
Date Received: 05/04/18 12:50

Units: ug/Kg
Basis: Dry

Organochlorine Pesticides by GC/MS/MS

Analysis Method: ALS SOP
Prep Method: EPA 3541

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
2,4'-DDD	ND U	0.34	0.32	5	06/17/18 17:33	5/10/18	
2,4'-DDE	ND U	0.40	0.40	5	06/17/18 17:33	5/10/18	
2,4'-DDT	ND U	0.47	0.47	5	06/17/18 17:33	5/10/18	
4,4'-DDD	ND U	0.34	0.18	5	06/17/18 17:33	5/10/18	
4,4'-DDE	ND U	0.35	0.35	5	06/17/18 17:33	5/10/18	
4,4'-DDT	ND U	0.34	0.24	5	06/17/18 17:33	5/10/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_4,4'DDD-d4	67	5 - 120	06/17/18 17:33	
S_4,4'-DDT-d4	66	13 - 200	06/17/18 17:33	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: AECOM
Project: Portland Harbor Pre-Remedial Design Investigation/60566335
Sample Matrix: Sediment

Sample Name: PDI-SG-S126
Lab Code: K1804181-025

Service Request: K1804181
Date Collected: 05/03/18 15:30
Date Received: 05/04/18 12:50

Units: ug/Kg
Basis: Dry

Organochlorine Pesticides by GC/MS/MS

Analysis Method: ALS SOP
Prep Method: EPA 3541

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
2,4'-DDD	2.5	0.51	0.33	5	06/17/18 18:00	5/10/18	
2,4'-DDE	0.56	0.51	0.41	5	06/17/18 18:00	5/10/18	
2,4'-DDT	ND U	0.51	0.48	5	06/17/18 18:00	5/10/18	
4,4'-DDD	2.6	0.51	0.18	5	06/17/18 18:00	5/10/18	
4,4'-DDE	7.9	0.51	0.36	5	06/17/18 18:00	5/10/18	
4,4'-DDT	0.73	0.51	0.24	5	06/17/18 18:00	5/10/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_4,4'DDD-d4	61	5 - 120	06/17/18 18:00	
S_4,4'-DDT-d4	90	13 - 200	06/17/18 18:00	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: AECOM
Project: Portland Harbor Pre-Remedial Design Investigation/60566335
Sample Matrix: Sediment

Sample Name: PDI-SG-S126-D
Lab Code: K1804181-026

Service Request: K1804181
Date Collected: 05/03/18 15:33
Date Received: 05/04/18 12:50

Units: ug/Kg
Basis: Dry

Organochlorine Pesticides by GC/MS/MS

Analysis Method: ALS SOP
Prep Method: EPA 3541

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
2,4'-DDD	3.0	0.52	0.33	5	06/17/18 18:27	5/10/18	
2,4'-DDE	0.56	0.52	0.42	5	06/17/18 18:27	5/10/18	
2,4'-DDT	ND U	0.52	0.50	5	06/17/18 18:27	5/10/18	
4,4'-DDD	3.6	0.52	0.19	5	06/17/18 18:27	5/10/18	
4,4'-DDE	9.2	0.52	0.37	5	06/17/18 18:27	5/10/18	
4,4'-DDT	2.4	0.52	0.25	5	06/17/18 18:27	5/10/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_4,4'DDD-d4	50	5 - 120	06/17/18 18:27	
S_4,4'-DDT-d4	77	13 - 200	06/17/18 18:27	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: AECOM
Project: Portland Harbor Pre-Remedial Design Investigation/60566335
Sample Matrix: Water

Service Request: K1804181
Date Collected: 05/02/18 17:00
Date Received: 05/04/18 12:50

Sample Name: PDI-RB-VV-180502-1700
Lab Code: K1804181-027

Units: ng/L
Basis: NA

Organochlorine Pesticides by GC/MS/MS

Analysis Method: ALS SOP
Prep Method: EPA 3535A

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
2,4'-DDD	ND U	0.52	0.12	1	06/14/18 16:56	5/8/18	
2,4'-DDE	ND U	0.52	0.12	1	06/14/18 16:56	5/8/18	
2,4'-DDT	ND U	0.52	0.091	1	06/14/18 16:56	5/8/18	
4,4'-DDD	ND U	0.52	0.11	1	06/14/18 16:56	5/8/18	
4,4'-DDE	0.13 J	0.52	0.079	1	06/14/18 16:56	5/8/18	
4,4'-DDT	ND U	0.52	0.092	1	06/14/18 16:56	5/8/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_4,4'DDD-d4	90	5 - 120	06/14/18 16:56	
S_4,4'-DDT-d4	92	13 - 200	06/14/18 16:56	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: AECOM
Project: Portland Harbor Pre-Remedial Design Investigation/60566335
Sample Matrix: Water

Sample Name: PDI-RB-VV-180502-1730
Lab Code: K1804181-028

Service Request: K1804181
Date Collected: 05/02/18 17:30
Date Received: 05/04/18 12:50

Units: ng/L
Basis: NA

Organochlorine Pesticides by GC/MS/MS

Analysis Method: ALS SOP
Prep Method: EPA 3535A

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
2,4'-DDD	ND U	0.57	0.13	1	06/14/18 17:24	5/8/18	
2,4'-DDE	ND U	0.57	0.13	1	06/14/18 17:24	5/8/18	
2,4'-DDT	ND U	0.57	0.10	1	06/14/18 17:24	5/8/18	
4,4'-DDD	ND U	0.57	0.12	1	06/14/18 17:24	5/8/18	
4,4'-DDE	ND U	0.57	0.087	1	06/14/18 17:24	5/8/18	
4,4'-DDT	ND U	0.57	0.11	1	06/14/18 17:24	5/8/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_4,4'DDD-d4	101	5 - 120	06/14/18 17:24	
S_4,4'-DDT-d4	102	13 - 200	06/14/18 17:24	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: AECOM
Project: Portland Harbor Pre-Remedial Design Investigation/60566335
Sample Matrix: Sediment

Sample Name: Method Blank
Lab Code: KQ1805756-06

Service Request: K1804181
Date Collected: NA
Date Received: NA

Units: ug/Kg
Basis: Dry

Organochlorine Pesticides by GC/MS/MS

Analysis Method: ALS SOP
Prep Method: EPA 3541

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
2,4'-DDD	ND U	0.063	0.063	1	06/17/18 13:27	5/10/18	
2,4'-DDE	ND U	0.079	0.079	1	06/17/18 13:27	5/10/18	
2,4'-DDT	ND U	0.094	0.094	1	06/17/18 13:27	5/10/18	
4,4'-DDD	ND U	0.049	0.035	1	06/17/18 13:27	5/10/18	
4,4'-DDE	ND U	0.070	0.070	1	06/17/18 13:27	5/10/18	
4,4'-DDT	ND U	0.049	0.047	1	06/17/18 13:27	5/10/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_4,4'DDD-d4	69	5 - 120	06/17/18 13:27	
S_4,4'-DDT-d4	68	13 - 200	06/17/18 13:27	

ALS Group USA, Corp.
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Analytical Report

Client: AECOM
Project: Portland Harbor Pre-Remedial Design Investigation/60566335
Sample Matrix: Sediment

Sample Name: Method Blank
Lab Code: KQ1805895-04

Service Request: K1804181
Date Collected: NA
Date Received: NA

Units: ug/Kg
Basis: Dry

Organochlorine Pesticides by GC/MS/MS

Analysis Method: ALS SOP
Prep Method: EPA 3541

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
2,4'-DDD	ND U	0.063	0.063	1	06/25/18 22:44	5/10/18	*
2,4'-DDE	ND U	0.079	0.079	1	06/25/18 22:44	5/10/18	*
2,4'-DDT	ND U	0.094	0.094	1	06/25/18 22:44	5/10/18	*
4,4'-DDD	ND U	0.049	0.035	1	06/25/18 22:44	5/10/18	*
4,4'-DDE	ND U	0.070	0.070	1	06/25/18 22:44	5/10/18	*
4,4'-DDT	ND U	0.049	0.047	1	06/25/18 22:44	5/10/18	*

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_4,4'DDD-d4	57	5 - 120	06/25/18 22:44	
S_4,4'-DDT-d4	58	13 - 200	06/25/18 22:44	

ALS Group USA, Corp.
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Analytical Report

Client: AECOM
Project: Portland Harbor Pre-Remedial Design Investigation/60566335
Sample Matrix: Water

Sample Name: Method Blank
Lab Code: KQ1805983-03

Service Request: K1804181
Date Collected: NA
Date Received: NA

Units: ng/L
Basis: NA

Organochlorine Pesticides by GC/MS/MS

Analysis Method: ALS SOP
Prep Method: EPA 3535A

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
2,4'-DDD	ND U	0.50	0.11	1	06/14/18 15:33	5/8/18	
2,4'-DDE	ND U	0.50	0.11	1	06/14/18 15:33	5/8/18	
2,4'-DDT	ND U	0.50	0.087	1	06/14/18 15:33	5/8/18	
4,4'-DDD	ND U	0.50	0.10	1	06/14/18 15:33	5/8/18	
4,4'-DDE	ND U	0.50	0.075	1	06/14/18 15:33	5/8/18	
4,4'-DDT	ND U	0.50	0.088	1	06/14/18 15:33	5/8/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_4,4'DDD-d4	107	5 - 120	06/14/18 15:33	
S_4,4'-DDT-d4	100	13 - 200	06/14/18 15:33	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: AECOM
Project: Portland Harbor Pre-Remedial Design Investigation/60566335
Sample Matrix: Sediment

Service Request: K1804181

SURROGATE RECOVERY SUMMARY
Organochlorine Pesticides by GC/MS/MS

Analysis Method: ALS SOP
Extraction Method: EPA 3541

Sample Name	Lab Code	S_4,4'DDD-d4	S_4,4'-DDT-d4
		5-120	13-200
PDI-SG-S239	K1804181-001	29	33
PDI-SG-S236	K1804181-002	66	71
PDI-SG-S242	K1804181-003	55	61
PDI-SG-S233	K1804181-004	51	57
PDI-SG-S037	K1804181-005	82	89
PDI-SG-S038	K1804181-006	69	70
PDI-SG-S039	K1804181-007	58	57
PDI-SG-S037-D	K1804181-008	70	68
PDI-SG-S040	K1804181-009	50	49
PDI-SG-S041	K1804181-010	58	59
PDI-SG-S043	K1804181-011	60	57
PDI-SG-S044	K1804181-012	50	49
PDI-SG-S062	K1804181-013	64	70
PDI-SG-S063	K1804181-014	50	59
PDI-SG-S198	K1804181-015	43	52
PDI-SG-S201	K1804181-016	46	48
PDI-SG-S200	K1804181-017	69	72
PDI-SG-S194	K1804181-018	46	48
PDI-SG-S193	K1804181-019	65	57
PDI-SG-S186	K1804181-020	28	28
PDI-SG-S172	K1804181-021	27	28
PDI-SG-S123	K1804181-022	61	67
PDI-SG-S125	K1804181-023	60	61
PDI-SG-S128	K1804181-024	67	66
PDI-SG-S126	K1804181-025	61	90
PDI-SG-S126-D	K1804181-026	50	77
Method Blank	KQ1805756-06	69	68
Method Blank	KQ1805895-04	57	58
Lab Control Sample	KQ1805756-05	94	100
Lab Control Sample	KQ1805895-03	64	69
PDI-SG-S200	KQ1805756-03	67	77
PDI-SG-S200	KQ1805756-04	63	66
PDI-SG-S236	KQ1805895-01	63	61
PDI-SG-S236	KQ1805895-02	51	50

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: AECOM
Project: Portland Harbor Pre-Remedial Design Investigation/60566335
Sample Matrix: Water

Service Request: K1804181

SURROGATE RECOVERY SUMMARY
Organochlorine Pesticides by GC/MS/MS

Analysis Method: ALS SOP
Extraction Method: EPA 3541

Sample Name	Lab Code	S_4,4'-DDD-d4	S_4,4'-DDT-d4
		5-120	13-200
PDI-RB-VV-180502-1700	K1804181-027	90	92
PDI-RB-VV-180502-1730	K1804181-028	101	102
Method Blank	KQ1805983-03	107	100
Lab Control Sample	KQ1805983-01	104	106
Duplicate Lab Control Sample	KQ1805983-02	96	100

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: AECOM
Project: Portland Harbor Pre-Remedial Design Investigation/60566335

Service Request: K1804181
Date Analyzed: 06/14/18 15:06

Internal Standard Area and RT SUMMARY
Organochlorine Pesticides by GC/MS/MS

File ID: J:\MS21\Data\061418\061418F014.D\
Instrument ID: K-MSMS-01
Analysis Method: ALS SOP

Lab Code: KQ1807999-01
Analysis Lot: 594754
Signal ID: 1

	Pyrene-d10	
	Area	RT
ICAL Result ==>	34,051	14.1471
Upper Limit ==>	68,101	14.65
Lower Limit ==>	17,025	13.65

Associated Analyses

Continuing Calibration Verification	KQ1807999-01	29766.9	14.1471
Method Blank	KQ1805983-03	25074.2	14.1471
Lab Control Sample	KQ1805983-01	25412	14.1472
Duplicate Lab Control Sample	KQ1805983-02	23870.2	14.1471
PDI-RB-VV-180502-1700	K1804181-027	25566.3	14.1471
PDI-RB-VV-180502-1730	K1804181-028	26393.8	14.1472

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: AECOM
Project: Portland Harbor Pre-Remedial Design Investigation/60566335

Service Request: K1804181
Date Analyzed: 06/17/18 12:59

Internal Standard Area and RT SUMMARY
Organochlorine Pesticides by GC/MS/MS

File ID: J:\MS21\Data\061718\06172018F010.D\
Instrument ID: K-MSMS-01
Analysis Method: ALS SOP

Lab Code: KQ1808144-01
Analysis Lot: 595022
Signal ID: 1

	Pyrene-d10	
	Area	RT
ICAL Result ==>	34,051	14.1471
Upper Limit ==>	68,101	14.65
Lower Limit ==>	17,025	13.65

Associated Analyses

Continuing Calibration Verification	KQ1808144-01	43714	14.1728
Method Blank	KQ1805756-06	40217.9	14.1728
Lab Control Sample	KQ1805756-05	32323.7	14.1728
PDI-SG-S200MS	KQ1805756-03	52043.3	14.1728
PDI-SG-S200DMS	KQ1805756-04	53578.8	14.1728
PDI-SG-S200	K1804181-017	55435.3	14.1728
PDI-SG-S123	K1804181-022	51357.9	14.1728
PDI-SG-S125	K1804181-023	55047.5	14.1728
PDI-SG-S128	K1804181-024	49146.7	14.1728
PDI-SG-S126	K1804181-025	61286.3	14.1983
PDI-SG-S126-D	K1804181-026	58239.8	14.1983

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QA/QC Report

Client: AECOM
Project: Portland Harbor Pre-Remedial Design Investigation/60566335

Service Request: K1804181
Date Analyzed: 06/17/18 23:17

Internal Standard Area and RT SUMMARY
Organochlorine Pesticides by GC/MS/MS

File ID: J:\MS21\Data\061718\06172018F033.D\
Instrument ID: K-MSMS-01
Analysis Method: ALS SOP

Lab Code: KQ1808145-01
Analysis Lot: 595023
Signal ID: 1

	Pyrene-d10	
	Area	RT
ICAL Result ==>	34,051	14.1471
Upper Limit ==>	68,101	14.65
Lower Limit ==>	17,025	13.65

Associated Analyses

Continuing Calibration Verification	KQ1808145-01	47142	14.1729
PDI-SG-S186	K1804181-020	62046.5	14.1728
PDI-SG-S172	K1804181-021	63467.3	14.1728

ALS Group USA, Corp.
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QA/QC Report

Client: AECOM
Project: Portland Harbor Pre-Remedial Design Investigation/60566335

Service Request: K1804181
Date Analyzed: 06/25/18 22:16

Internal Standard Area and RT SUMMARY
Organochlorine Pesticides by GC/MS/MS

File ID: J:\MS21\Data\062518\062518F033.D\
Instrument ID: K-MSMS-01
Analysis Method: ALS SOP

Lab Code: KQ1808516-01
Analysis Lot: 596046
Signal ID: 1

	Pyrene-d10	
	Area	RT
ICAL Result ==>	34,126	14.53
Upper Limit ==>	68,253	15.03
Lower Limit ==>	17,063	14.03

Associated Analyses

Continuing Calibration Verification	KQ1808516-01	35332	14.5042
Method Blank	KQ1805895-04	47665.2	14.5042
Lab Control Sample	KQ1805895-03	55902.2	14.53
PDI-SG-S236MS	KQ1805895-01	55638.6	14.5044
PDI-SG-S236DMS	KQ1805895-02	49123.1	14.53
PDI-SG-S239	K1804181-001	54025.6	14.53
PDI-SG-S236	K1804181-002	53512.4	14.53
PDI-SG-S242	K1804181-003	49728.9	14.53
PDI-SG-S233	K1804181-004	59229.7	14.53
PDI-SG-S037	K1804181-005	43130.7	14.5042
PDI-SG-S038	K1804181-006	59716.8	14.53
PDI-SG-S039	K1804181-007	58542.9	14.53
PDI-SG-S037-D	K1804181-008	60610.8	14.53
PDI-SG-S040	K1804181-009	54070.6	14.5044
PDI-SG-S041	K1804181-010	52185	14.5043
PDI-SG-S043	K1804181-011	55946.5	14.5043
PDI-SG-S044	K1804181-012	62996.8	14.5299
PDI-SG-S062	K1804181-013	55971.2	14.5042
PDI-SG-S063	K1804181-014	54020.7	14.5043
PDI-SG-S198	K1804181-015	55608.1	14.5042
PDI-SG-S201	K1804181-016	67078.1	14.5042

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QA/QC Report

Client: AECOM
Project: Portland Harbor Pre-Remedial Design Investigation/60566335

Service Request: K1804181
Date Analyzed: 06/26/18 09:40

Internal Standard Area and RT SUMMARY
Organochlorine Pesticides by GC/MS/MS

File ID: J:\MS21\Data\062618\062618F003.D\
Instrument ID: K-MSMS-01
Analysis Method: ALS SOP

Lab Code: KQ1808594-01
Analysis Lot: 596299
Signal ID: 1

	Pyrene-d10	
	Area	RT
ICAL Result ==>	34,126	14.53
Upper Limit ==>	68,253	15.03
Lower Limit ==>	17,063	14.03

Associated Analyses

Continuing Calibration Verification	KQ1808594-01	49336.1	14.5042
PDI-SG-S194	K1804181-018	53212.6	14.5043
PDI-SG-S193	K1804181-019	57155.3	14.5299

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QA/QC Report

Client: AECOM
Project: Portland Harbor Pre-Remedial Design Investigation/60566335
Sample Matrix: Sediment

Service Request: K1804181
Date Collected: 05/03/18
Date Received: 05/04/18
Date Analyzed: 06/17/18
Date Extracted: 05/10/18

Duplicate Matrix Spike Summary
Organochlorine Pesticides by GC/MS/MS

Sample Name: PDI-SG-S200
Lab Code: K1804181-017
Analysis Method: ALS SOP
Prep Method: EPA 3541

Units: ug/Kg
Basis: Dry

Analyte Name	Sample Result	Result	Matrix Spike KQ1805756-03		Result	Duplicate Matrix Spike KQ1805756-04		% Rec Limits	RPD	RPD Limit
			Spike Amount	% Rec		Spike Amount	% Rec			
2,4'-DDD	0.72	9.95	2.57	359 *	3.57	2.56	111	32-169	94*	40
2,4'-DDE	ND U	3.31	2.57	129	2.84	2.56	111	43-155	15	40
2,4'-DDT	ND U	4.90	2.57	190 *	3.02	2.56	118	55-161	48*	40
4,4'-DDD	2.1	15.6	2.57	522 *	5.90	2.56	147	10-190	90*	40
4,4'-DDE	3.0	6.22	2.57	127	5.92	2.56	116	35-162	5	40
4,4'-DDT	0.44 J	5.44	2.57	194 *	3.12	2.56	105	24-183	54*	40

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

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QA/QC Report

Client: AECOM
Project: Portland Harbor Pre-Remedial Design Investigation/60566335
Sample Matrix: Sediment

Service Request: K1804181
Date Collected: 05/02/18
Date Received: 05/04/18
Date Analyzed: 06/25/18
Date Extracted: 05/10/18

Duplicate Matrix Spike Summary
Organochlorine Pesticides by GC/MS/MS

Sample Name: PDI-SG-S236
Lab Code: K1804181-002
Analysis Method: ALS SOP
Prep Method: EPA 3541

Units: ug/Kg
Basis: Dry

Analyte Name	Sample Result	Result	Matrix Spike KQ1805895-01		Result	Duplicate Matrix Spike KQ1805895-02		% Rec Limits	RPD	RPD Limit
			Spike Amount	% Rec		Spike Amount	% Rec			
2,4'-DDD	ND U	2.58	2.17	119	2.80	2.14	131	32-169	8	40
2,4'-DDE	ND U	2.70	2.17	125	2.49	2.14	116	43-155	8	40
2,4'-DDT	ND U	2.91	2.17	134	5.43	2.14	253 *	55-161	60*	40
4,4'-DDD	0.93 J	2.91	2.17	92	3.41	2.14	116	10-190	16	40
4,4'-DDE	1.8	4.36	2.17	116	4.81	2.14	138	35-162	10	40
4,4'-DDT	ND U	2.36	2.17	109	2.68	2.14	125	24-183	12	40

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

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QA/QC Report

Client:	AECOM	Service Request:	K1804181
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	Date Analyzed:	06/17/18
Sample Matrix:	Sediment	Date Extracted:	05/10/18

Lab Control Sample Summary
Organochlorine Pesticides by GC/MS/MS

Analysis Method:	ALS SOP	Units:	ug/Kg
Prep Method:	EPA 3541	Basis:	Dry
		Analysis Lot:	595022

Lab Control Sample
KQ1805756-05

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
2,4'-DDD	2.03	2.00	101	73-122
2,4'-DDE	1.77	2.00	88	54-145
2,4'-DDT	1.95	2.00	98	77-118
4,4'-DDD	2.30	2.00	115	74-117
4,4'-DDE	1.96	2.00	98	66-132
4,4'-DDT	1.87	2.00	93	78-116

ALS Group USA, Corp.
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QA/QC Report

Client:	AECOM	Service Request:	K1804181
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	Date Analyzed:	06/25/18
Sample Matrix:	Sediment	Date Extracted:	05/10/18

Lab Control Sample Summary
Organochlorine Pesticides by GC/MS/MS

Analysis Method:	ALS SOP	Units:	ug/Kg
Prep Method:	EPA 3541	Basis:	Dry
		Analysis Lot:	596046

Lab Control Sample
KQ1805895-03

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
2,4'-DDD	2.39	2.00	120	73-122
2,4'-DDE	2.74	2.00	137	54-145
2,4'-DDT	2.40	2.00	120 *	77-118
4,4'-DDD	2.00	2.00	100	74-117
4,4'-DDE	2.72	2.00	136 *	66-132
4,4'-DDT	1.97	2.00	99	78-116

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QA/QC Report

Client:	AECOM	Service Request:	K1804181
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	Date Analyzed:	06/14/18
Sample Matrix:	Water	Date Extracted:	05/08/18

Duplicate Lab Control Sample Summary
Organochlorine Pesticides by GC/MS/MS

Analysis Method:	ALS SOP	Units:	ng/L
Prep Method:	EPA 3535A	Basis:	NA
		Analysis Lot:	594754

Lab Control Sample
KQ1805983-01

Duplicate Lab Control Sample
KQ1805983-02

Analyte Name	Result	Spike Amount	% Rec	Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
2,4'-DDD	17.6	20.0	88	18.2	20.0	91	79-113	4	30
2,4'-DDE	16.7	20.0	83	16.3	20.0	82	75-117	2	30
2,4'-DDT	19.1	20.0	96	19.2	20.0	96	77-114	<1	30
4,4'-DDD	19.3	20.0	96	20.1	20.0	101	78-114	4	30
4,4'-DDE	15.8	20.0	79	16.7	20.0	83	76-115	6	30
4,4'-DDT	20.0	20.0	100	20.2	20.0	101	85-113	1	30

ALS Group USA, Corp.

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QA/QC Report

Client: AECOM**Project:** Portland Harbor Pre-Remedial Design Investigation/60566335**Sample Matrix:** Sediment**Service Request:** K1804181**Date Analyzed:** 06/17/18 13:27**Date Extracted:** 05/10/18**Method Blank Summary**
Organochlorine Pesticides by GC/MS/MS**Sample Name:** Method Blank**Instrument ID:** K-MSMS-01**Lab Code:** KQ1805756-06**File ID:** J:\MS21\Data\061718\06172018F011.D**Analysis Method:** ALS SOP**Analysis Lot:** 595022**Prep Method:** EPA 3541**Extraction Lot:** 313135

This Method Blank applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Lab Control Sample	KQ1805756-05	J:\MS21\Data\061718\06172018F012.D\	06/17/18 13:54
PDI-SG-S200MS	KQ1805756-03	J:\MS21\Data\061718\06172018F015.D\	06/17/18 15:16
PDI-SG-S200DMS	KQ1805756-04	J:\MS21\Data\061718\06172018F016.D\	06/17/18 15:43
PDI-SG-S200	K1804181-017	J:\MS21\Data\061718\06172018F017.D\	06/17/18 16:10
PDI-SG-S123	K1804181-022	J:\MS21\Data\061718\06172018F018.D\	06/17/18 16:38
PDI-SG-S125	K1804181-023	J:\MS21\Data\061718\06172018F019.D\	06/17/18 17:05
PDI-SG-S128	K1804181-024	J:\MS21\Data\061718\06172018F020.D\	06/17/18 17:33
PDI-SG-S126	K1804181-025	J:\MS21\Data\061718\06172018F021.D\	06/17/18 18:00
PDI-SG-S126-D	K1804181-026	J:\MS21\Data\061718\06172018F022.D\	06/17/18 18:27

QA/QC Report

Service Request: K1804181
Date Analyzed: 06/25/18 22:44
Date Extracted: 05/10/18

Sample Name:	Method Blank	Instrument ID: K-MSMS-01
Lab Code:	KQ1805895-04	File ID: J:\MS21\Data\062518\062518F034.D\
Analysis Method:	ALS SOP	Analysis Lot: 595023,596046,596299
Prep Method:	EPA 3541	Extraction Lot: 313295

Sample Name	Lab Code	File ID	Date Analyzed
PDI-SG-S186	K1804181-020	J:\MS21\Data\061718\06172018F052.D\	06/18/18 07:57
PDI-SG-S172	K1804181-021	J:\MS21\Data\061718\06172018F053.D\	06/18/18 08:24
Lab Control Sample	KQ1805895-03	J:\MS21\Data\062518\062518F035.D\	06/25/18 23:11
PDI-SG-S236MS	KQ1805895-01	J:\MS21\Data\062518\062518F036.D\	06/25/18 23:38
PDI-SG-S236DMS	KQ1805895-02	J:\MS21\Data\062518\062518F037.D\	06/26/18 00:06
PDI-SG-S239	K1804181-001	J:\MS21\Data\062518\062518F040.D\	06/26/18 01:28
PDI-SG-S236	K1804181-002	J:\MS21\Data\062518\062518F041.D\	06/26/18 01:55
PDI-SG-S242	K1804181-003	J:\MS21\Data\062518\062518F042.D\	06/26/18 02:23
PDI-SG-S233	K1804181-004	J:\MS21\Data\062518\062518F043.D\	06/26/18 02:50
PDI-SG-S037	K1804181-005	J:\MS21\Data\062518\062518F044.D\	06/26/18 03:17
PDI-SG-S038	K1804181-006	J:\MS21\Data\062518\062518F045.D\	06/26/18 03:44
PDI-SG-S039	K1804181-007	J:\MS21\Data\062518\062518F046.D\	06/26/18 04:12
PDI-SG-S037-D	K1804181-008	J:\MS21\Data\062518\062518F047.D\	06/26/18 04:39
PDI-SG-S040	K1804181-009	J:\MS21\Data\062518\062518F048.D\	06/26/18 05:06
PDI-SG-S041	K1804181-010	J:\MS21\Data\062518\062518F049.D\	06/26/18 05:34
PDI-SG-S043	K1804181-011	J:\MS21\Data\062518\062518F050.D\	06/26/18 06:01
PDI-SG-S044	K1804181-012	J:\MS21\Data\062518\062518F051.D\	06/26/18 06:28
PDI-SG-S062	K1804181-013	J:\MS21\Data\062518\062518F052.D\	06/26/18 06:56
PDI-SG-S063	K1804181-014	J:\MS21\Data\062518\062518F053.D\	06/26/18 07:23
PDI-SG-S198	K1804181-015	J:\MS21\Data\062518\062518F054.D\	06/26/18 07:50
PDI-SG-S201	K1804181-016	J:\MS21\Data\062518\062518F055.D\	06/26/18 08:17
PDI-SG-S194	K1804181-018	J:\MS21\Data\062618\062618F009.D\	06/26/18 11:57
PDI-SG-S193	K1804181-019	J:\MS21\Data\062618\062618F010.D\	06/26/18 12:25

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QA/QC Report

Client: AECOM**Project:** Portland Harbor Pre-Remedial Design Investigation/60566335**Sample Matrix:** Water**Service Request:** K1804181**Date Analyzed:** 06/14/18 15:33**Date Extracted:** 05/08/18**Method Blank Summary**
Organochlorine Pesticides by GC/MS/MS**Sample Name:** Method Blank**Instrument ID:**K-MSMS-01**Lab Code:** KQ1805983-03**File ID:**J:\MS21\Data\061418\061418F015.D**Analysis Method:** ALS SOP**Analysis Lot:**594754**Prep Method:** EPA 3535A**Extraction Lot:**313414

This Method Blank applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Lab Control Sample	KQ1805983-01	J:\MS21\Data\061418\061418F016.D\	06/14/18 16:01
Duplicate Lab Control Sample	KQ1805983-02	J:\MS21\Data\061418\061418F017.D\	06/14/18 16:29
PDI-RB-VV-180502-1700	K1804181-027	J:\MS21\Data\061418\061418F018.D\	06/14/18 16:56
PDI-RB-VV-180502-1730	K1804181-028	J:\MS21\Data\061418\061418F019.D\	06/14/18 17:24

ALS Group USA, Corp.

dba ALS Environmental

QA/QC Report

Client: AECOM**Project:** Portland Harbor Pre-Remedial Design Investigation/60566335**Sample Matrix:** Sediment**Service Request:** K1804181**Date Analyzed:** 06/17/18 13:54**Date Extracted:** 05/10/18**Lab Control Sample Summary**
Organochlorine Pesticides by GC/MS/MS**Sample Name:** Lab Control Sample**Instrument ID:** K-MSMS-01**Lab Code:** KQ1805756-05**File ID:** J:\MS21\Data\061718\06172018F012.D**Analysis Method:** ALS SOP**Analysis Lot:** 595022**Prep Method:** EPA 3541**Extraction Lot:** 313135

This Lab Control Sample applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Method Blank	KQ1805756-06	J:\MS21\Data\061718\06172018F011.D\	06/17/18 13:27
PDI-SG-S200MS	KQ1805756-03	J:\MS21\Data\061718\06172018F015.D\	06/17/18 15:16
PDI-SG-S200DMS	KQ1805756-04	J:\MS21\Data\061718\06172018F016.D\	06/17/18 15:43
PDI-SG-S200	K1804181-017	J:\MS21\Data\061718\06172018F017.D\	06/17/18 16:10
PDI-SG-S123	K1804181-022	J:\MS21\Data\061718\06172018F018.D\	06/17/18 16:38
PDI-SG-S125	K1804181-023	J:\MS21\Data\061718\06172018F019.D\	06/17/18 17:05
PDI-SG-S128	K1804181-024	J:\MS21\Data\061718\06172018F020.D\	06/17/18 17:33
PDI-SG-S126	K1804181-025	J:\MS21\Data\061718\06172018F021.D\	06/17/18 18:00
PDI-SG-S126-D	K1804181-026	J:\MS21\Data\061718\06172018F022.D\	06/17/18 18:27

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QA/QC Report

Client: AECOM
Project: Portland Harbor Pre-Remedial Design Investigation/60566335
Sample Matrix: Sediment

Service Request: K1804181
Date Analyzed: 06/25/18 23:11
Date Extracted: 05/10/18

Lab Control Sample Summary
Organochlorine Pesticides by GC/MS/MS

Sample Name: Lab Control Sample
Lab Code: KQ1805895-03
Instrument ID: K-MSMS-01
File ID: J:\MS21\Data\062518\062518F035.D\
Analysis Method: ALS SOP
Prep Method: EPA 3541
Analysis Lot: 595023,596046,596299
Extraction Lot: 313295

This Lab Control Sample applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
PDI-SG-S186	K1804181-020	J:\MS21\Data\061718\06172018F052.D\	06/18/18 07:57
PDI-SG-S172	K1804181-021	J:\MS21\Data\061718\06172018F053.D\	06/18/18 08:24
Method Blank	KQ1805895-04	J:\MS21\Data\062518\062518F034.D\	06/25/18 22:44
PDI-SG-S236MS	KQ1805895-01	J:\MS21\Data\062518\062518F036.D\	06/25/18 23:38
PDI-SG-S236DMS	KQ1805895-02	J:\MS21\Data\062518\062518F037.D\	06/26/18 00:06
PDI-SG-S239	K1804181-001	J:\MS21\Data\062518\062518F040.D\	06/26/18 01:28
PDI-SG-S236	K1804181-002	J:\MS21\Data\062518\062518F041.D\	06/26/18 01:55
PDI-SG-S242	K1804181-003	J:\MS21\Data\062518\062518F042.D\	06/26/18 02:23
PDI-SG-S233	K1804181-004	J:\MS21\Data\062518\062518F043.D\	06/26/18 02:50
PDI-SG-S037	K1804181-005	J:\MS21\Data\062518\062518F044.D\	06/26/18 03:17
PDI-SG-S038	K1804181-006	J:\MS21\Data\062518\062518F045.D\	06/26/18 03:44
PDI-SG-S039	K1804181-007	J:\MS21\Data\062518\062518F046.D\	06/26/18 04:12
PDI-SG-S037-D	K1804181-008	J:\MS21\Data\062518\062518F047.D\	06/26/18 04:39
PDI-SG-S040	K1804181-009	J:\MS21\Data\062518\062518F048.D\	06/26/18 05:06
PDI-SG-S041	K1804181-010	J:\MS21\Data\062518\062518F049.D\	06/26/18 05:34
PDI-SG-S043	K1804181-011	J:\MS21\Data\062518\062518F050.D\	06/26/18 06:01
PDI-SG-S044	K1804181-012	J:\MS21\Data\062518\062518F051.D\	06/26/18 06:28
PDI-SG-S062	K1804181-013	J:\MS21\Data\062518\062518F052.D\	06/26/18 06:56
PDI-SG-S063	K1804181-014	J:\MS21\Data\062518\062518F053.D\	06/26/18 07:23
PDI-SG-S198	K1804181-015	J:\MS21\Data\062518\062518F054.D\	06/26/18 07:50
PDI-SG-S201	K1804181-016	J:\MS21\Data\062518\062518F055.D\	06/26/18 08:17
PDI-SG-S194	K1804181-018	J:\MS21\Data\062618\062618F009.D\	06/26/18 11:57
PDI-SG-S193	K1804181-019	J:\MS21\Data\062618\062618F010.D\	06/26/18 12:25

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QA/QC Report

Client: AECOM**Project:** Portland Harbor Pre-Remedial Design Investigation/60566335**Sample Matrix:** Water**Service Request:** K1804181**Date Analyzed:** 06/14/18 16:01**Date Extracted:** 05/08/18**Lab Control Sample Summary**
Organochlorine Pesticides by GC/MS/MS**Sample Name:** Lab Control Sample**Instrument ID:**K-MSMS-01**Lab Code:** KQ1805983-01**File ID:**J:\MS21\Data\061418\061418F016.D**Analysis Method:** ALS SOP**Analysis Lot:**594754**Prep Method:** EPA 3535A**Extraction Lot:**313414

This Lab Control Sample applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Method Blank	KQ1805983-03	J:\MS21\Data\061418\061418F015.D\	06/14/18 15:33
Duplicate Lab Control Sample	KQ1805983-02	J:\MS21\Data\061418\061418F017.D\	06/14/18 16:29
PDI-RB-VV-180502-1700	K1804181-027	J:\MS21\Data\061418\061418F018.D\	06/14/18 16:56
PDI-RB-VV-180502-1730	K1804181-028	J:\MS21\Data\061418\061418F019.D\	06/14/18 17:24

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QC/QC Report

Client: AECOM
Project: Portland Harbor Pre-Remedial Design Investigation/60566335

Service Request: K1804181
Date Analyzed: 06/14/18 15:06

Tune Summary
Organochlorine Pesticides by GC/MS/MS

File ID: J:\MS21\Data\061418\061418F014.D\
Instrument ID: K-MSMS-01

Analytical Method: ALS SOP
Analysis Lot: 594754

Sample Name	Lab Code	File ID:	Date Analyzed:	Q
Continuing Calibration Verification	KQ1807999-01	J:\MS21\Data\061418\061418F014.D\	06/14/18 15:06	
Method Blank	KQ1805983-03	J:\MS21\Data\061418\061418F015.D\	06/14/18 15:33	
Lab Control Sample	KQ1805983-01	J:\MS21\Data\061418\061418F016.D\	06/14/18 16:01	
Duplicate Lab Control Sample	KQ1805983-02	J:\MS21\Data\061418\061418F017.D\	06/14/18 16:29	
PDI-RB-VV-180502-1700	K1804181-027	J:\MS21\Data\061418\061418F018.D\	06/14/18 16:56	
PDI-RB-VV-180502-1730	K1804181-028	J:\MS21\Data\061418\061418F019.D\	06/14/18 17:24	

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QC/QC Report

Client: AECOM
Project: Portland Harbor Pre-Remedial Design Investigation/60566335

Service Request: K1804181
Date Analyzed: 06/17/18 12:59

Tune Summary
Organochlorine Pesticides by GC/MS/MS

File ID: J:\MS21\Data\061718\06172018F010.D\
Instrument ID: K-MSMS-01

Analytical Method: ALS SOP
Analysis Lot: 595022

Sample Name	Lab Code	File ID:	Date Analyzed:	Q
Continuing Calibration Verification	KQ1808144-01	J:\MS21\Data\061718\06172018F010.D\	06/17/18 12:59	
Method Blank	KQ1805756-06	J:\MS21\Data\061718\06172018F011.D\	06/17/18 13:27	
Lab Control Sample	KQ1805756-05	J:\MS21\Data\061718\06172018F012.D\	06/17/18 13:54	
PDI-SG-S200	KQ1805756-03	J:\MS21\Data\061718\06172018F015.D\	06/17/18 15:16	
PDI-SG-S200	KQ1805756-04	J:\MS21\Data\061718\06172018F016.D\	06/17/18 15:43	
PDI-SG-S200	K1804181-017	J:\MS21\Data\061718\06172018F017.D\	06/17/18 16:10	
PDI-SG-S123	K1804181-022	J:\MS21\Data\061718\06172018F018.D\	06/17/18 16:38	
PDI-SG-S125	K1804181-023	J:\MS21\Data\061718\06172018F019.D\	06/17/18 17:05	
PDI-SG-S128	K1804181-024	J:\MS21\Data\061718\06172018F020.D\	06/17/18 17:33	
PDI-SG-S126	K1804181-025	J:\MS21\Data\061718\06172018F021.D\	06/17/18 18:00	
PDI-SG-S126-D	K1804181-026	J:\MS21\Data\061718\06172018F022.D\	06/17/18 18:27	

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QC/QC Report

Client: AECOM
Project: Portland Harbor Pre-Remedial Design Investigation/60566335

Service Request: K1804181
Date Analyzed: 06/17/18 23:17

Tune Summary
Organochlorine Pesticides by GC/MS/MS

File ID: J:\MS21\Data\061718\06172018F033.D\
Instrument ID: K-MSMS-01

Analytical Method: ALS SOP
Analysis Lot: 595023

Sample Name	Lab Code	File ID:	Date Analyzed:	Q
Continuing Calibration Verification	KQ1808145-01	J:\MS21\Data\061718\06172018F033.D\	06/17/18 23:17	
PDI-SG-S186	K1804181-020	J:\MS21\Data\061718\06172018F052.D\	06/18/18 07:57	
PDI-SG-S172	K1804181-021	J:\MS21\Data\061718\06172018F053.D\	06/18/18 08:24	

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QC/QC Report

Client: AECOM
Project: Portland Harbor Pre-Remedial Design Investigation/60566335

Service Request: K1804181
Date Analyzed: 06/25/18 22:16

Tune Summary
Organochlorine Pesticides by GC/MS/MS

File ID: J:\MS21\Data\062518\062518F033.D\
Instrument ID: K-MSMS-01

Analytical Method: ALS SOP
Analysis Lot: 596046

Sample Name	Lab Code	File ID:	Date Analyzed:	Q
Continuing Calibration Verification	KQ1808516-01	J:\MS21\Data\062518\062518F033.D\	06/25/18 22:16	
Method Blank	KQ1805895-04	J:\MS21\Data\062518\062518F034.D\	06/25/18 22:44	
Lab Control Sample	KQ1805895-03	J:\MS21\Data\062518\062518F035.D\	06/25/18 23:11	
PDI-SG-S236	KQ1805895-01	J:\MS21\Data\062518\062518F036.D\	06/25/18 23:38	
PDI-SG-S236	KQ1805895-02	J:\MS21\Data\062518\062518F037.D\	06/26/18 00:06	
PDI-SG-S239	K1804181-001	J:\MS21\Data\062518\062518F040.D\	06/26/18 01:28	
PDI-SG-S236	K1804181-002	J:\MS21\Data\062518\062518F041.D\	06/26/18 01:55	
PDI-SG-S242	K1804181-003	J:\MS21\Data\062518\062518F042.D\	06/26/18 02:23	
PDI-SG-S233	K1804181-004	J:\MS21\Data\062518\062518F043.D\	06/26/18 02:50	
PDI-SG-S037	K1804181-005	J:\MS21\Data\062518\062518F044.D\	06/26/18 03:17	
PDI-SG-S038	K1804181-006	J:\MS21\Data\062518\062518F045.D\	06/26/18 03:44	
PDI-SG-S039	K1804181-007	J:\MS21\Data\062518\062518F046.D\	06/26/18 04:12	
PDI-SG-S037-D	K1804181-008	J:\MS21\Data\062518\062518F047.D\	06/26/18 04:39	
PDI-SG-S040	K1804181-009	J:\MS21\Data\062518\062518F048.D\	06/26/18 05:06	
PDI-SG-S041	K1804181-010	J:\MS21\Data\062518\062518F049.D\	06/26/18 05:34	
PDI-SG-S043	K1804181-011	J:\MS21\Data\062518\062518F050.D\	06/26/18 06:01	
PDI-SG-S044	K1804181-012	J:\MS21\Data\062518\062518F051.D\	06/26/18 06:28	
PDI-SG-S062	K1804181-013	J:\MS21\Data\062518\062518F052.D\	06/26/18 06:56	
PDI-SG-S063	K1804181-014	J:\MS21\Data\062518\062518F053.D\	06/26/18 07:23	
PDI-SG-S198	K1804181-015	J:\MS21\Data\062518\062518F054.D\	06/26/18 07:50	
PDI-SG-S201	K1804181-016	J:\MS21\Data\062518\062518F055.D\	06/26/18 08:17	

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QC/QC Report

Client: AECOM
Project: Portland Harbor Pre-Remedial Design Investigation/60566335

Service Request: K1804181
Date Analyzed: 06/26/18 09:40

Tune Summary
Organochlorine Pesticides by GC/MS/MS

File ID: J:\MS21\Data\062618\062618F003.D\
Instrument ID: K-MSMS-01

Analytical Method: ALS SOP
Analysis Lot: 596299

Sample Name	Lab Code	File ID:	Date Analyzed:	Q
Continuing Calibration Verification	KQ1808594-01	J:\MS21\Data\062618\062618F003.D\	06/26/18 09:40	
PDI-SG-S194	K1804181-018	J:\MS21\Data\062618\062618F009.D\	06/26/18 11:57	
PDI-SG-S193	K1804181-019	J:\MS21\Data\062618\062618F010.D\	06/26/18 12:25	

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QA/QC Report

Client: AECOM
Project: Portland Harbor Pre-Remedial Design Investigation

Service Request: K1804181
Calibration Date: 6/25/2018

Initial Calibration Summary
Organochlorine Pesticides by GC/MS/MS

Calibration ID: KC1800340
Instrument ID: K-MSMS-01

Signal ID: 1

#	Lab Code	Sample Name	File Location	Acquisition Date
01	KC1800340-01		J:\MS21\Data\062518\062518F006.D	06/25/2018 10:38
02	KC1800340-02		J:\MS21\Data\062518\062518F007.D	06/25/2018 11:02
03	KC1800340-03		J:\MS21\Data\062518\062518F008.D	06/25/2018 11:29
04	KC1800340-04		J:\MS21\Data\062518\062518F009.D	06/25/2018 11:56
05	KC1800340-05		J:\MS21\Data\062518\062518F010.D	06/25/2018 12:23
06	KC1800340-06		J:\MS21\Data\062518\062518F011.D	06/25/2018 12:51
07	KC1800340-07		J:\MS21\Data\062518\062518F012.D	06/25/2018 13:18
08	KC1800340-08		J:\MS21\Data\062518\062518F013.D	06/25/2018 13:45
09	KC1800340-09		J:\MS21\Data\062518\062518F014.D	06/25/2018 14:13
10	KC1800340-10		J:\MS21\Data\062518\062518F015.D	06/25/2018 14:40

Analyte

2,4'-DDD

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.5	0.5642	02	1.0	0.5158	03	2.0	0.49	04	5.0	0.4456
05	10	0.4593	06	20	0.4455	07	40	0.4367	08	60	0.4305
09	80	0.4389	10	100	0.4412						

2,4'-DDE

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.5	0.2674	02	1.0	0.2704	03	2.0	0.2518	04	5.0	0.2543
05	10	0.2781	06	20	0.2632	07	40	0.2614	08	60	0.2829
09	80	0.2951	10	100	0.2694						

2,4'-DDT

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.5	0.609	02	1.0	0.5675	03	2.0	0.5218	04	5.0	0.5373
05	10	0.5301	06	20	0.5247	07	40	0.5289	08	60	0.5005
09	80	0.4887	10	100	0.5458						

4,4'-DDD

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.5	0.7791	02	1.0	0.6892	03	2.0	0.6471	04	5.0	0.6062
05	10	0.6081	06	20	0.6041	07	40	0.5955	08	60	0.6079
09	80	0.6326	10	100	0.6035						

4,4'-DDE

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.5	0.3513	02	1.0	0.3223	03	2.0	0.2837	04	5.0	0.2617
05	10	0.2707	06	20	0.2669	07	40	0.2719	08	60	0.2609
09	80	0.2647	10	100	0.2761						

4,4'-DDT

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.5	0.702	02	1.0	0.6871	03	2.0	0.6739	04	5.0	0.6383
05	10	0.6297	06	20	0.6224	07	40	0.618	08	60	0.6326

ALS Group USA, Corp.
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QA/QC Report

Client: AECOM
Project: Portland Harbor Pre-Remedial Design Investigation

Service Request: K1804181
Calibration Date: 6/25/2018

Initial Calibration Summary
Organochlorine Pesticides by GC/MS/MS

Calibration ID: KC1800340
Instrument ID: K-MSMS-01

Signal ID: 1

Analyte

4,4'-DDT

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
09	80	0.6232	10	100	0.6308						

S_4,4'-DDT-d4

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	5	4.944	02	5	4.785	03	5	4.993	04	5	4.776
05	5	4.709	06	5	4.93	07	5	4.879	08	5	5.179
09	5	5.212	10	5	4.823						

S_4,4'DDD-d4

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	5	8.481	02	5	8.005	03	5	8.624	04	5	8.698
05	5	8.328	06	5	8.531	07	5	8.421	08	5	8.839
09	5	8.641	10	5	8.336						

Client: AECOM
Project: Portland Harbor Pre-Remedial Design Investigation

Service Request: K1804181
Calibration Date: 6/25/2018

Initial Calibration Summary Organochlorine Pesticides by GC/MS/MS

Calibration ID: KC1800340
Instrument ID: K-MSMS-01

Signal ID: 1

Analyte Name	Compound Type	Calibration Evaluation				Calibration Evaluation	
		Fit Type	Eval	Eval Result	Control Criteria	Average RRF	Minimum RRF
2,4'-DDD	TRG	Average RF	% RSD	9.3	≤20	0.4668	0.01
2,4'-DDE	TRG	Average RF	% RSD	4.9	≤20	0.2694	0.01
2,4'-DDT	TRG	Average RF	% RSD	6.3	≤20	0.5354	0.01
4,4'-DDD	TRG	Average RF	% RSD	9.0	≤20	0.6373	0.01
4,4'-DDE	TRG	Average RF	% RSD	10.6	≤20	0.283	0.01
4,4'-DDT	TRG	Average RF	% RSD	4.7	≤20	0.6458	0.01
S_4,4'-DDT-d4	SURR	Average RF	% RSD	3.4	≤	4.923	0.01
S_4,4'DDD-d4	SURR	Average RF	% RSD	2.8	≤	8.49	0.01

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QA/QC Report

Client: AECOM
Project: Portland Harbor Pre-Remedial Design Investigation

Service Request: K1804181
Calibration Date: 6/14/2018

Initial Calibration Summary
Organochlorine Pesticides by GC/MS/MS

Calibration ID: KC1800293
Instrument ID: K-MSMS-01

Signal ID: 1

#	Lab Code	Sample Name	File Location	Acquisition Date
01	KC1800293-01		J:\MS21\Data\061418\061418F004.D	06/14/2018 10:33
02	KC1800293-02		J:\MS21\Data\061418\061418F005.D	06/14/2018 11:00
03	KC1800293-03		J:\MS21\Data\061418\061418F006.D	06/14/2018 11:27
04	KC1800293-04		J:\MS21\Data\061418\061418F007.D	06/14/2018 11:55
05	KC1800293-05		J:\MS21\Data\061418\061418F008.D	06/14/2018 12:22
06	KC1800293-06		J:\MS21\Data\061418\061418F009.D	06/14/2018 12:49
07	KC1800293-07		J:\MS21\Data\061418\061418F010.D	06/14/2018 13:17
08	KC1800293-08		J:\MS21\Data\061418\061418F011.D	06/14/2018 13:44
09	KC1800293-09		J:\MS21\Data\061418\061418F012.D	06/14/2018 14:11
10	KC1800293-10		J:\MS21\Data\061418\061418F013.D	06/14/2018 14:39

Analyte

2,4'-DDD

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.5	0.6846	02	1.0	0.5756	03	2.0	0.5148	04	5.0	0.5014
05	10	0.4975	06	20	0.4999	07	40	0.4802	08	60	0.4703
09	80	0.4876	10	100	0.5103						

2,4'-DDE

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.5	0.5607	02	1.0	0.4722	03	2.0	0.427	04	5.0	0.4026
05	10	0.3895	06	20	0.4154	07	40	0.3763	08	60	0.3857
09	80	0.413	10	100	0.4081						

2,4'-DDT

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.5	0.6557	02	1.0	0.6016	03	2.0	0.5724	04	5.0	0.549
05	10	0.5996	06	20	0.6189	07	40	0.539	08	60	0.5844
09	80	0.5717	10	100	0.588						

4,4'-DDD

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.5	0.8332	02	1.0	0.6685	03	2.0	0.617	04	5.0	0.5806
05	10	0.5815	06	20	0.596	07	40	0.598	08	60	0.6046
09	80	0.6378	10	100	0.6284						

4,4'-DDE

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.5	0.4519	02	1.0	0.4104	03	2.0	0.3595	04	5.0	0.3478
05	10	0.3464	06	20	0.3498	07	40	0.3436	08	60	0.3408
09	80	0.351	10	100	0.3615						

4,4'-DDT

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.5	0.7844	02	1.0	0.7505	03	2.0	0.6359	04	5.0	0.6313
05	10	0.6584	06	20	0.6779	07	40	0.6265	08	60	0.6785

ALS Group USA, Corp.
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QA/QC Report

Client: AECOM
Project: Portland Harbor Pre-Remedial Design Investigation

Service Request: K1804181
Calibration Date: 6/14/2018

Initial Calibration Summary
Organochlorine Pesticides by GC/MS/MS

Calibration ID: KC1800293
Instrument ID: K-MSMS-01

Signal ID: 1

Analyte

4,4'-DDT

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
09	80	0.6854	10	100	0.6914						

S_4,4'-DDT-d4

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	5	3.55	02	5	3.635	03	5	3.6	04	5	3.829
05	5	3.933	06	5	3.83	07	5	4.098	08	5	4.093
09	5	4.149	10	5	4.054						

S_4,4'DDD-d4

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	5	6.696	02	5	6.588	03	5	6.608	04	5	6.789
05	5	6.882	06	5	6.667	07	5	6.426	08	5	6.878
09	5	6.631	10	5	6.498						

Client: AECOM
Project: Portland Harbor Pre-Remedial Design Investigation

Service Request: K1804181
Calibration Date: 6/14/2018

Initial Calibration Summary Organochlorine Pesticides by GC/MS/MS

Calibration ID: KC1800293

Signal ID: 1

Instrument ID: K-MSMS-01

Analyte Name	Compound Type	Calibration Evaluation				Calibration Evaluation	
		Fit Type	Eval	Eval Result	Control Criteria	Average RRF	Minimum RRF
2,4'-DDD	TRG	Average RF	% RSD	12.2	≤20	0.5222	0.01
2,4'-DDE	TRG	Average RF	% RSD	12.9	≤20	0.4251	0.01
2,4'-DDT	TRG	Average RF	% RSD	5.8	≤20	0.588	0.01
4,4'-DDD	TRG	Average RF	% RSD	11.8	≤20	0.6346	0.01
4,4'-DDE	TRG	Average RF	% RSD	9.9	≤20	0.3663	0.01
4,4'-DDT	TRG	Average RF	% RSD	7.5	≤20	0.682	0.01
S_4,4'-DDT-d4	SURR	Average RF	% RSD	5.8	≤	3.877	0.01
S_4,4'DDD-d4	SURR	Average RF	% RSD	2.3	≤	6.666	0.01

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QA/QC Report

Client: AECOM
Project: Portland Harbor Pre-Remedial Design Investigation

Service Request: K1804181
Calibration Date: 6/25/2018

Initial Calibration Verification Summary
Organochlorine Pesticides by GC/MS/MS

Calibration ID: KC1800340
Instrument ID: K-MSMS-01

Signal ID: 1

#	Lab Code	Sample Name	File Location	Acquisition Date
11	KC1800340-11		J:\MS21\Data\062518\062518F016.D	06/25/2018 15:07

Analyte Name	Expected	Result	Average RF	SSV RF	% D	Criteria	Curve Fit
2,4'-DDD	20.0	18.2	4.668E-1	4.256E-1	-8.829	±25	Average RF
2,4'-DDE	20.0	21.2	2.694E-1	2.856E-1	6.02	±25	Average RF
2,4'-DDT	20.0	18.7	5.354E-1	4.995E-1	-6.705	±25	Average RF
4,4'-DDD	20.0	18.7	6.373E-1	5.968E-1	-6.369	±25	Average RF
4,4'-DDE	20.0	19.7	2.83E-1	2.783E-1	-1.660	±25	Average RF
4,4'-DDT	20.0	19.9	6.458E-1	6.414E-1	-0.688	±25	Average RF

Analyte Name	Expected	Result	Average RF	SSV RF	Rec.	Criteria	Curve Fit
S_4,4'DDD-d4	5.00	5.02	8.49E0	8.531E0	100	50-200	Average RF
S_4,4'-DDT-d4	5.00	4.77	4.923E0	4.7E0	95.4	50-200	Average RF

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: AECOM
Project: Portland Harbor Pre-Remedial Design Investigation

Service Request: K1804181
Calibration Date: 6/14/2018

Initial Calibration Verification Summary
Organochlorine Pesticides by GC/MS/MS

Calibration ID: KC1800293
Instrument ID: K-MSMS-01

Signal ID: 1

#	Lab Code	Sample Name	File Location	Acquisition Date
11	KC1800293-11		J:\MS21\Data\061418\061418F014.D	06/14/2018 15:06

Analyte Name	Expected	Result	Average RF	SSV RF	% D	Criteria	Curve Fit
2,4'-DDD	20.0	18.4	5.222E-1	4.812E-1	-7.847	±25	Average RF
2,4'-DDE	20.0	19.1	4.251E-1	4.066E-1	-4.348	±25	Average RF
2,4'-DDT	20.0	18.8	5.88E-1	5.514E-1	-6.235	±25	Average RF
4,4'-DDD	20.0	18.9	6.346E-1	5.99E-1	-5.610	±25	Average RF
4,4'-DDE	20.0	19.0	3.663E-1	3.473E-1	-5.185	±25	Average RF
4,4'-DDT	20.0	18.7	6.82E-1	6.378E-1	-6.488	±25	Average RF

Analyte Name	Expected	Result	Average RF	SSV RF	Rec.	Criteria	Curve Fit
S_4,4'DDD-d4	5.00	5.06	6.666E0	6.752E0	101	50-200	Average RF
S_4,4'-DDT-d4	5.00	5.20	3.877E0	4.03E0	104	50-200	Average RF

ALS Group USA, Corp.
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QA/QC Report

Client: AECOM
Project: Portland Harbor Pre-Remedial Design Investigation/60566335

Service Request: K1804181
Date Analyzed: 06/14/18 15:06

**Continuing Calibration Verification (CCV) Summary
Organochlorine Pesticides by GC/MS/MS**

Analysis Method: ALS SOP
File ID: J:\MS21\Data\061418\061418F014.D\
Signal ID: 1

Calibration Date: 6/14/2018
Calibration ID: KC1800293
Analysis Lot: 594754
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
2,4'-DDD	20.0	18.4	0.5222	0.4812	-7.8	NA	±25	Average RF
2,4'-DDE	20.0	19.1	0.4251	0.4066	-4.3	NA	±25	Average RF
2,4'-DDT	20.0	18.8	0.588	0.5514	-6.2	NA	±25	Average RF
4,4'-DDD	20.0	18.9	0.6346	0.599	-5.6	NA	±25	Average RF
4,4'-DDE	20.0	19.0	0.3663	0.3473	-5.2	NA	±25	Average RF
4,4'-DDT	20.0	18.7	0.682	0.6378	-6.5	NA	±25	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	Rec.	% Drift	Criteria	Curve Fit
S_4,4'DDD-d4	5.00	5.06	6.6663	6.7523	101	NA	50-200	Average RF
S_4,4'-DDT-d4	5.00	5.20	3.877	4.0305	104	NA	50-200	Average RF

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QA/QC Report

Client: AECOM
Project: Portland Harbor Pre-Remedial Design Investigation/60566335

Service Request: K1804181
Date Analyzed: 06/17/18 12:59

**Continuing Calibration Verification (CCV) Summary
Organochlorine Pesticides by GC/MS/MS**

Analysis Method: ALS SOP
File ID: J:\MS21\Data\061718\06172018F010.D\
Signal ID: 1

Calibration Date: 6/14/2018
Calibration ID: KC1800293
Analysis Lot: 595022
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
2,4'-DDD	20.0	19.2	0.5222	0.5007	-4.1	NA	±25	Average RF
2,4'-DDE	20.0	20.1	0.4251	0.4278	0.6	NA	±25	Average RF
2,4'-DDT	20.0	20.6	0.588	0.605	2.9	NA	±25	Average RF
4,4'-DDD	20.0	21.4	0.6346	0.6778	6.8	NA	±25	Average RF
4,4'-DDE	20.0	20.4	0.3663	0.3729	1.8	NA	±25	Average RF
4,4'-DDT	20.0	18.5	0.682	0.6293	-7.7	NA	±25	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	Rec.	% Drift	Criteria	Curve Fit
S_4,4'DDD-d4	5.00	4.43	6.6663	5.9083	88.6	NA	50-200	Average RF
S_4,4'-DDT-d4	5.00	4.10	3.877	3.1789	82.0	NA	50-200	Average RF

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QA/QC Report

Client: AECOM
Project: Portland Harbor Pre-Remedial Design Investigation/60566335

Service Request: K1804181
Date Analyzed: 06/17/18 23:17

Continuing Calibration Verification (CCV) Summary
Organochlorine Pesticides by GC/MS/MS

Analysis Method: ALS SOP
File ID: J:\MS21\Data\061718\06172018F033.D\
Signal ID: 1

Calibration Date: 6/14/2018
Calibration ID: KC1800293
Analysis Lot: 595023
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
2,4'-DDD	20.0	19.5	0.5222	0.508	-2.7	NA	±25	Average RF
2,4'-DDE	20.0	20.4	0.4251	0.4337	2.0	NA	±25	Average RF
2,4'-DDT	20.0	20.1	0.588	0.5906	0.4	NA	±25	Average RF
4,4'-DDD	20.0	21.1	0.6346	0.6691	5.4	NA	±25	Average RF
4,4'-DDE	20.0	19.9	0.3663	0.3638	-0.7	NA	±25	Average RF
4,4'-DDT	20.0	18.3	0.682	0.6255	-8.3	NA	±25	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	Rec.	% Drift	Criteria	Curve Fit
S_4,4'DDD-d4	5.00	4.45	6.6663	5.9344	89.0	NA	50-200	Average RF
S_4,4'-DDT-d4	5.00	4.39	3.877	3.4006	87.7	NA	50-200	Average RF

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QA/QC Report

Client: AECOM
Project: Portland Harbor Pre-Remedial Design Investigation/60566335

Service Request: K1804181
Date Analyzed: 06/25/18 22:16

**Continuing Calibration Verification (CCV) Summary
Organochlorine Pesticides by GC/MS/MS**

Analysis Method: ALS SOP
File ID: J:\MS21\Data\062518\062518F033.D\
Signal ID: 1

Calibration Date: 6/25/2018
Calibration ID: KC1800340
Analysis Lot: 596046
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
2,4'-DDD	20.0	18.6	0.4668	0.4337	-7.1	NA	±25	Average RF
2,4'-DDE	20.0	24.1	0.2694	0.3246	20.5	NA	±25	Average RF
2,4'-DDT	20.0	19.7	0.5354	0.5262	-1.7	NA	±25	Average RF
4,4'-DDD	20.0	17.8	0.6373	0.5687	-10.8	NA	±25	Average RF
4,4'-DDE	20.0	19.5	0.283	0.2763	-2.4	NA	±25	Average RF
4,4'-DDT	20.0	18.8	0.6458	0.6058	-6.2	NA	±25	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	Rec.	% Drift	Criteria	Curve Fit
S_4,4'DDD-d4	5.00	4.80	8.4903	8.1528	96.0	NA	50-200	Average RF
S_4,4'-DDT-d4	5.00	4.78	4.9232	4.7024	95.5	NA	50-200	Average RF

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QA/QC Report

Client: AECOM
Project: Portland Harbor Pre-Remedial Design Investigation/60566335

Service Request: K1804181
Date Analyzed: 06/26/18 09:40

**Continuing Calibration Verification (CCV) Summary
Organochlorine Pesticides by GC/MS/MS**

Analysis Method: ALS SOP
File ID: J:\MS21\Data\062618\062618F003.D\
Signal ID: 1

Calibration Date: 6/25/2018
Calibration ID: KC1800340
Analysis Lot: 596299
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
2,4'-DDD	20.0	19.7	0.4668	0.459	-1.7	NA	±25	Average RF
2,4'-DDE	20.0	24.3	0.2694	0.3269	21.3	NA	±25	Average RF
2,4'-DDT	20.0	19.4	0.5354	0.5192	-3.0	NA	±25	Average RF
4,4'-DDD	20.0	18.2	0.6373	0.5807	-8.9	NA	±25	Average RF
4,4'-DDE	20.0	20.5	0.283	0.2897	2.4	NA	±25	Average RF
4,4'-DDT	20.0	18.4	0.6458	0.5942	-8.0	NA	±25	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	Rec.	% Drift	Criteria	Curve Fit
S_4,4'DDD-d4	5.00	4.23	8.4903	7.1797	84.6	NA	50-200	Average RF
S_4,4'-DDT-d4	5.00	4.67	4.9232	4.594	93.3	NA	50-200	Average RF

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QA/QC Report

Client: AECOM**Service Request:**K1804181**Project:** Portland Harbor Pre-Remedial Design Investigation/60566335**Analysis Run Log
Organochlorine Pesticides by GC/MS/MS****Analysis Method:** ALS SOP**Analysis Lot:**594754**Instrument ID:**K-MSMS-01

Raw Data File	Sample Name	Lab Code	Date Analyzed	Time Analyzed	Q
J:\MS21\Data\061418\061418F014.D\	Continuing Calibration Verification	KQ1807999-01	6/14/2018	15:06:39	
J:\MS21\Data\061418\061418F015.D\	Method Blank	KQ1805983-03	6/14/2018	15:33:58	
J:\MS21\Data\061418\061418F016.D\	Lab Control Sample	KQ1805983-01	6/14/2018	16:01:46	
J:\MS21\Data\061418\061418F017.D\	Duplicate Lab Control Sample	KQ1805983-02	6/14/2018	16:29:08	
J:\MS21\Data\061418\061418F018.D\	PDI-RB-VV-180502-1700	K1804181-027	6/14/2018	16:56:29	
J:\MS21\Data\061418\061418F019.D\	PDI-RB-VV-180502-1730	K1804181-028	6/14/2018	17:24:01	
J:\MS21\Data\061418\061418F020.D\	ZZZZZZZ	ZZZZZZZ	6/14/2018	17:51:21	

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QA/QC Report

Client: AECOM

Service Request:K1804181

Project: Portland Harbor Pre-Remedial Design Investigation/60566335

**Analysis Run Log
Organochlorine Pesticides by GC/MS/MS**

Analysis Method: ALS SOP

Analysis Lot:595022

Instrument ID:K-MSMS-01

Raw Data File	Sample Name	Lab Code	Date Analyzed	Time Analyzed	Q
J:\MS21\Data\061718\06172018F010.D\	Continuing Calibration Verification	KQ1808144-01	6/17/2018	12:59:57	
J:\MS21\Data\061718\06172018F011.D\	Method Blank	KQ1805756-06	6/17/2018	13:27:14	
J:\MS21\Data\061718\06172018F012.D\	Lab Control Sample	KQ1805756-05	6/17/2018	13:54:27	
J:\MS21\Data\061718\06172018F013.D\	ZZZZZZZ	ZZZZZZZ	6/17/2018	14:21:42	
J:\MS21\Data\061718\06172018F014.D\	ZZZZZZZ	ZZZZZZZ	6/17/2018	14:48:57	
J:\MS21\Data\061718\06172018F015.D\	PDI-SG-S200 MS	KQ1805756-03	6/17/2018	15:16:17	
J:\MS21\Data\061718\06172018F016.D\	PDI-SG-S200 DMS	KQ1805756-04	6/17/2018	15:43:30	
J:\MS21\Data\061718\06172018F017.D\	PDI-SG-S200	K1804181-017	6/17/2018	16:10:46	
J:\MS21\Data\061718\06172018F018.D\	PDI-SG-S123	K1804181-022	6/17/2018	16:38:33	
J:\MS21\Data\061718\06172018F019.D\	PDI-SG-S125	K1804181-023	6/17/2018	17:05:49	
J:\MS21\Data\061718\06172018F020.D\	PDI-SG-S128	K1804181-024	6/17/2018	17:33:08	
J:\MS21\Data\061718\06172018F021.D\	PDI-SG-S126	K1804181-025	6/17/2018	18:00:23	
J:\MS21\Data\061718\06172018F022.D\	PDI-SG-S126-D	K1804181-026	6/17/2018	18:27:41	
J:\MS21\Data\061718\06172018F024.D\	ZZZZZZZ	ZZZZZZZ	6/17/2018	19:22:23	
J:\MS21\Data\061718\06172018F025.D\	ZZZZZZZ	ZZZZZZZ	6/17/2018	19:49:39	
J:\MS21\Data\061718\06172018F026.D\	ZZZZZZZ	ZZZZZZZ	6/17/2018	20:16:52	
J:\MS21\Data\061718\06172018F027.D\	ZZZZZZZ	ZZZZZZZ	6/17/2018	20:44:14	
J:\MS21\Data\061718\06172018F028.D\	ZZZZZZZ	ZZZZZZZ	6/17/2018	21:11:33	
J:\MS21\Data\061718\06172018F029.D\	ZZZZZZZ	ZZZZZZZ	6/17/2018	21:38:48	
J:\MS21\Data\061718\06172018F030.D\	ZZZZZZZ	ZZZZZZZ	6/17/2018	22:06:06	

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QA/QC Report

Client: AECOM

Service Request:K1804181

Project: Portland Harbor Pre-Remedial Design Investigation/60566335

**Analysis Run Log
Organochlorine Pesticides by GC/MS/MS**

Analysis Method: ALS SOP

Analysis Lot:595023

Instrument ID:K-MSMS-01

Raw Data File	Sample Name	Lab Code	Date Analyzed	Time Analyzed	Q
J:\MS21\Data\061718\06172018F033.D\	Continuing Calibration Verification	KQ1808145-01	6/17/2018	23:17:46	
J:\MS21\Data\061718\06172018F034.D\	ZZZZZZZZ	ZZZZZZZZ	6/17/2018	23:45:01	
J:\MS21\Data\061718\06172018F035.D\	ZZZZZZZZ	ZZZZZZZZ	6/18/2018	00:12:15	
J:\MS21\Data\061718\06172018F036.D\	ZZZZZZZZ	ZZZZZZZZ	6/18/2018	00:39:40	
J:\MS21\Data\061718\06172018F037.D\	ZZZZZZZZ	ZZZZZZZZ	6/18/2018	01:06:56	
J:\MS21\Data\061718\06172018F038.D\	ZZZZZZZZ	ZZZZZZZZ	6/18/2018	01:34:10	
J:\MS21\Data\061718\06172018F039.D\	ZZZZZZZZ	ZZZZZZZZ	6/18/2018	02:01:25	
J:\MS21\Data\061718\06172018F040.D\	ZZZZZZZZ	ZZZZZZZZ	6/18/2018	02:28:39	
J:\MS21\Data\061718\06172018F041.D\	ZZZZZZZZ	ZZZZZZZZ	6/18/2018	02:55:53	
J:\MS21\Data\061718\06172018F042.D\	ZZZZZZZZ	ZZZZZZZZ	6/18/2018	03:23:06	
J:\MS21\Data\061718\06172018F043.D\	ZZZZZZZZ	ZZZZZZZZ	6/18/2018	03:50:20	
J:\MS21\Data\061718\06172018F044.D\	ZZZZZZZZ	ZZZZZZZZ	6/18/2018	04:17:34	
J:\MS21\Data\061718\06172018F045.D\	ZZZZZZZZ	ZZZZZZZZ	6/18/2018	04:44:50	
J:\MS21\Data\061718\06172018F046.D\	ZZZZZZZZ	ZZZZZZZZ	6/18/2018	05:12:09	
J:\MS21\Data\061718\06172018F047.D\	ZZZZZZZZ	ZZZZZZZZ	6/18/2018	05:39:23	
J:\MS21\Data\061718\06172018F048.D\	ZZZZZZZZ	ZZZZZZZZ	6/18/2018	06:07:38	
J:\MS21\Data\061718\06172018F049.D\	ZZZZZZZZ	ZZZZZZZZ	6/18/2018	06:34:54	
J:\MS21\Data\061718\06172018F050.D\	ZZZZZZZZ	ZZZZZZZZ	6/18/2018	07:02:10	
J:\MS21\Data\061718\06172018F051.D\	ZZZZZZZZ	ZZZZZZZZ	6/18/2018	07:29:24	
J:\MS21\Data\061718\06172018F052.D\	PDI-SG-S186	K1804181-020	6/18/2018	07:57:00	
J:\MS21\Data\061718\06172018F053.D\	PDI-SG-S172	K1804181-021	6/18/2018	08:24:20	

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QA/QC Report

Client: AECOM

Service Request: K1804181

Project: Portland Harbor Pre-Remedial Design Investigation/60566335

Analysis Run Log
Organochlorine Pesticides by GC/MS/MS

Analysis Method: ALS SOP

Analysis Lot: 596046

Instrument ID: K-MSMS-01

Raw Data File	Sample Name	Lab Code	Date Analyzed	Time Analyzed	Q
J:\MS21\Data\062518\062518F033.D\	Continuing Calibration Verification	KQ1808516-01	6/25/2018	22:16:32	
J:\MS21\Data\062518\062518F034.D\	Method Blank	KQ1805895-04	6/25/2018	22:44:07	*
J:\MS21\Data\062518\062518F035.D\	Lab Control Sample	KQ1805895-03	6/25/2018	23:11:24	*
J:\MS21\Data\062518\062518F036.D\	PDI-SG-S236 MS	KQ1805895-01	6/25/2018	23:38:51	*
J:\MS21\Data\062518\062518F037.D\	PDI-SG-S236 DMS	KQ1805895-02	6/26/2018	00:06:58	*
J:\MS21\Data\062518\062518F038.D\	ZZZZZZZ	ZZZZZZZ	6/26/2018	00:34:13	
J:\MS21\Data\062518\062518F039.D\	ZZZZZZZ	ZZZZZZZ	6/26/2018	01:01:30	
J:\MS21\Data\062518\062518F040.D\	PDI-SG-S239	K1804181-001	6/26/2018	01:28:44	*
J:\MS21\Data\062518\062518F041.D\	PDI-SG-S236	K1804181-002	6/26/2018	01:55:54	*
J:\MS21\Data\062518\062518F042.D\	PDI-SG-S242	K1804181-003	6/26/2018	02:23:14	*
J:\MS21\Data\062518\062518F043.D\	PDI-SG-S233	K1804181-004	6/26/2018	02:50:31	*
J:\MS21\Data\062518\062518F044.D\	PDI-SG-S037	K1804181-005	6/26/2018	03:17:46	*
J:\MS21\Data\062518\062518F045.D\	PDI-SG-S038	K1804181-006	6/26/2018	03:44:58	*
J:\MS21\Data\062518\062518F046.D\	PDI-SG-S039	K1804181-007	6/26/2018	04:12:19	*
J:\MS21\Data\062518\062518F047.D\	PDI-SG-S037-D	K1804181-008	6/26/2018	04:39:36	*
J:\MS21\Data\062518\062518F048.D\	PDI-SG-S040	K1804181-009	6/26/2018	05:06:51	*
J:\MS21\Data\062518\062518F049.D\	PDI-SG-S041	K1804181-010	6/26/2018	05:34:07	*
J:\MS21\Data\062518\062518F050.D\	PDI-SG-S043	K1804181-011	6/26/2018	06:01:24	*
J:\MS21\Data\062518\062518F051.D\	PDI-SG-S044	K1804181-012	6/26/2018	06:28:39	*
J:\MS21\Data\062518\062518F052.D\	PDI-SG-S062	K1804181-013	6/26/2018	06:56:00	*
J:\MS21\Data\062518\062518F053.D\	PDI-SG-S063	K1804181-014	6/26/2018	07:23:16	*
J:\MS21\Data\062518\062518F054.D\	PDI-SG-S198	K1804181-015	6/26/2018	07:50:31	*
J:\MS21\Data\062518\062518F055.D\	PDI-SG-S201	K1804181-016	6/26/2018	08:17:44	*

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QA/QC Report

Client: AECOM

Service Request: K1804181

Project: Portland Harbor Pre-Remedial Design Investigation/60566335

**Analysis Run Log
Organochlorine Pesticides by GC/MS/MS**

Analysis Method: ALS SOP

Analysis Lot: 596299

Instrument ID: K-MSMS-01

Raw Data File	Sample Name	Lab Code	Date Analyzed	Time Analyzed	Q
J:\MS21\Data\062618\062618F003.D\	Continuing Calibration Verification	KQ1808594-01	6/26/2018	09:40:29	
J:\MS21\Data\062618\062618F005.D\	ZZZZZZZZ	ZZZZZZZZ	6/26/2018	10:10:24	
J:\MS21\Data\062618\062618F006.D\	ZZZZZZZZ	ZZZZZZZZ	6/26/2018	10:35:16	
J:\MS21\Data\062618\062618F007.D\	ZZZZZZZZ	ZZZZZZZZ	6/26/2018	11:02:43	
J:\MS21\Data\062618\062618F008.D\	ZZZZZZZZ	ZZZZZZZZ	6/26/2018	11:30:44	
J:\MS21\Data\062618\062618F009.D\	PDI-SG-S194	K1804181-018	6/26/2018	11:57:59	*
J:\MS21\Data\062618\062618F010.D\	PDI-SG-S193	K1804181-019	6/26/2018	12:25:20	*
J:\MS21\Data\062618\062618F013.D\	ZZZZZZZZ	ZZZZZZZZ	6/26/2018	13:47:07	
J:\MS21\Data\062618\062618F014.D\	ZZZZZZZZ	ZZZZZZZZ	6/26/2018	14:14:27	
J:\MS21\Data\062618\062618F015.D\	ZZZZZZZZ	ZZZZZZZZ	6/26/2018	14:41:49	
J:\MS21\Data\062618\062618F016.D\	ZZZZZZZZ	ZZZZZZZZ	6/26/2018	15:09:04	
J:\MS21\Data\062618\062618F017.D\	ZZZZZZZZ	ZZZZZZZZ	6/26/2018	15:36:20	
J:\MS21\Data\062618\062618F018.D\	ZZZZZZZZ	ZZZZZZZZ	6/26/2018	16:03:37	
J:\MS21\Data\062618\062618F019.D\	ZZZZZZZZ	ZZZZZZZZ	6/26/2018	16:30:54	
J:\MS21\Data\062618\062618F020.D\	ZZZZZZZZ	ZZZZZZZZ	6/26/2018	16:58:14	
J:\MS21\Data\062618\062618F021.D\	ZZZZZZZZ	ZZZZZZZZ	6/26/2018	17:25:30	
J:\MS21\Data\062618\062618F022.D\	ZZZZZZZZ	ZZZZZZZZ	6/26/2018	17:52:46	
J:\MS21\Data\062618\062618F023.D\	ZZZZZZZZ	ZZZZZZZZ	6/26/2018	18:20:02	
J:\MS21\Data\062618\062618F024.D\	ZZZZZZZZ	ZZZZZZZZ	6/26/2018	18:47:18	
J:\MS21\Data\062618\062618F025.D\	ZZZZZZZZ	ZZZZZZZZ	6/26/2018	19:15:26	
J:\MS21\Data\062618\062618F026.D\	ZZZZZZZZ	ZZZZZZZZ	6/26/2018	19:43:02	

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Prep Summary Report

Client: AECOM
Project: Portland Harbor Pre-Remedial Design Investigation/60566335
Sample Matrix: Sediment

Service Request: K1804181

Organochlorine Pesticides by GC/MS/MS

Prep Method: EPA 3541
Analytical Method: ALS SOP

Extraction Lot: 313295
Extraction Date: 05/10/18 04:37

Sample Name	Lab Code	Date Collected	Date Received	Sample Amount	Final Amount	Percent Solids
PDI-SG-S239	K1804181-001	5/2/18	5/4/18	20.042 g	1 mL	33.2
PDI-SG-S236	K1804181-002	5/2/18	5/4/18	20.165 g	1 mL	45.7
PDI-SG-S242	K1804181-003	5/2/18	5/4/18	20.264 g	1 mL	73.8
PDI-SG-S233	K1804181-004	5/2/18	5/4/18	20.428 g	1 mL	32.7
PDI-SG-S037	K1804181-005	5/2/18	5/4/18	20.227 g	1 mL	53.8
PDI-SG-S038	K1804181-006	5/2/18	5/4/18	20.028 g	1 mL	55.4
PDI-SG-S039	K1804181-007	5/2/18	5/4/18	20.222 g	1 mL	54.2
PDI-SG-S037-D	K1804181-008	5/2/18	5/4/18	20.398 g	1 mL	54.6
PDI-SG-S040	K1804181-009	5/2/18	5/4/18	20.439 g	1 mL	54.4
PDI-SG-S041	K1804181-010	5/2/18	5/4/18	20.390 g	1 mL	44.8
PDI-SG-S043	K1804181-011	5/2/18	5/4/18	20.272 g	1 mL	42.9
PDI-SG-S044	K1804181-012	5/2/18	5/4/18	20.181 g	1 mL	46.7
PDI-SG-S062	K1804181-013	5/2/18	5/4/18	20.130 g	1 mL	39.8
PDI-SG-S063	K1804181-014	5/3/18	5/4/18	20.225 g	1 mL	39.3
PDI-SG-S198	K1804181-015	5/3/18	5/4/18	20.257 g	1 mL	36.4
PDI-SG-S201	K1804181-016	5/3/18	5/4/18	20.324 g	1 mL	36.0
PDI-SG-S194	K1804181-018	5/3/18	5/4/18	20.289 g	1 mL	36.1
PDI-SG-S193	K1804181-019	5/3/18	5/4/18	20.278 g	1 mL	33.7
PDI-SG-S186	K1804181-020	5/3/18	5/4/18	20.388 g	1 mL	37.4
PDI-SG-S172	K1804181-021	5/3/18	5/4/18	20.156 g	1 mL	62.0
Matrix Spike	KQ1805895-01MS	5/2/18	5/4/18	20.193 g	1 mL	45.7
Duplicate Matrix Spike	KQ1805895-02DMS	5/2/18	5/4/18	20.406 g	1 mL	45.7
Lab Control Sample	KQ1805895-03LCS	NA	NA	10 g	1 mL	
Method Blank	KQ1805895-04MB	NA	NA	20.4390 g	1 mL	

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Prep Summary Report

Client: AECOM
Project: Portland Harbor Pre-Remedial Design Investigation/60566335
Sample Matrix: Sediment

Service Request:K1804181

Organochlorine Pesticides by GC/MS/MS

Prep Method: EPA 3541
Analytical Method: ALS SOP

Extraction Lot: 313135
Extraction Date: 05/10/18 16:37

Sample Name	Lab Code	Date Collected	Date Received	Sample Amount	Final Amount	Percent Solids
PDI-SG-S200	K1804181-017	5/3/18	5/4/18	20.241 g	1 mL	38.7
PDI-SG-S123	K1804181-022	5/3/18	5/4/18	20.087 g	1 mL	62.0
PDI-SG-S125	K1804181-023	5/3/18	5/4/18	20.225 g	1 mL	45.2
PDI-SG-S128	K1804181-024	5/3/18	5/4/18	20.047 g	1 mL	72.5
PDI-SG-S126	K1804181-025	5/3/18	5/4/18	20.073 g	1 mL	48.8
PDI-SG-S126-D	K1804181-026	5/3/18	5/4/18	20.134 g	1 mL	47.6
Matrix Spike	KQ1805756-03MS	5/3/18	5/4/18	20.089 g	1 mL	38.7
Duplicate Matrix Spike	KQ1805756-04DMS	5/3/18	5/4/18	20.172 g	1 mL	38.7
Lab Control Sample	KQ1805756-05LCS	NA	NA	10 g	1 mL	
Method Blank	KQ1805756-06MB	NA	NA	20.4500 g	1 mL	

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dba ALS Environmental

Prep Summary Report

Client: AECOM
Project: Portland Harbor Pre-Remedial Design Investigation/60566335
Sample Matrix: Water

Service Request:K1804181

Organochlorine Pesticides by GC/MS/MS

Prep Method: EPA 3535A
Analytical Method: ALS SOP

Extraction Lot: 313414
Extraction Date: 05/08/18 16:07

Sample Name	Lab Code	Date Collected	Date Received	Sample Amount	Final Amount	Percent Solids
PDI-RB-VV-180502-1700	K1804181-027	5/2/18	5/4/18	960.0000 mL	1 mL	
PDI-RB-VV-180502-1730	K1804181-028	5/2/18	5/4/18	870.0000 mL	1 mL	
Lab Control Sample	KQ1805983-01LCS	NA	NA	1000 mL	1 mL	
Duplicate Lab Control Sample	KQ1805983-02DLCS	NA	NA	1000 mL	1 mL	
Method Blank	KQ1805983-03MB	NA	NA	1000 mL	1 mL	