ALS Environmental
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August 15, 2018

Analytical Report for Service Request No: K1804985B

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 25, 2018
For your reference, these analyses have been assigned our service request number **K1804985.**

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

for 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.pjlabs.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/bsdw/labservice.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/anlayte is offered by that state.

Case Narrative

ALS Environmental—Kelso Laboratory
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Client: AECOM
Project: Portland Harbor Pre-Remedial Design Investigation
Sample Matrix: Sediment

Service Request: K1804985
Date Received: 05/25/2018

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:

Eleven sediment samples were received for analysis at ALS Environmental on 05/25/2018. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4ºC upon receipt at the laboratory.

Semivolatiles by GC/MS:

Method 8270D SIM-PAH, 07/26/2018:The matrix spike recovery of Phenanthrene, Fluoranthene, Pyrene, Chrysene and Benzo (b)fluoranthene for sample PDI-SG-S204 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.

Method 8270D SIM-PAH, 07/26/2018:The recovery of Phenanthrene, Fluoranthene, Chrysene, Benzo(b)fluoranthene and Benzo (a)pyrene in the Duplicate Matrix Spike (DMS) KWG1803256-2 was outside the recovery control limits listed in the results summary. The DMSS is used to evaluate batch precision. The relative percent difference (RPD) was within control limits indicating the quality of the sample data was not significantly affected. No further corrective action was taken.

Method 8270D, Organochlorine Pesticides by GC/MS/MS: The upper control criterion was exceeded for 4,4'-DDT (120, 78-116) in Laboratory Control Sample (LCS) KQ1808749-03. The analytes in question were not detected in the associated field samples above the MRL with the exception of samples PDI-SG-S097 (1.2ug/Kg), PDI-SG-S115 (33 ug/Kg), and PDI-SG-S135 (19 ug/Kg). The error associated with elevated recovery indicated a high bias. The sample data has been flagged to indicate the problem.

Method ALS SOP, Organochlorine Pesticides by GC/MS/MS 08/08/2018: The duplicate matrix spike recovery of 2,4'-DDD (27, 32-169), 2,4'-DDT (163, 55-161), 4,4'-DDD (413, 10-190), 4,4'-DDE (241, 35-162), and 4,4'-DDT (257, 24-183) for sample PDI-SG-S135 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.

Approved by Noe D. Dan Date 08/15/2018

Chain of Custody

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K1804985

ALS-Environmental-Kelso 1317-S-13th-Ave Kelso, WA 98626 Ph: 360-577-7222 Fax: 360-636-1068	**SURFACE SEDIMENT** **CHAIN OF CUSTODY**		
Client Contact	**Project Contact: Amy Dahl / Chelsey Cook**	**Site Contact: Jennifer Ray / Michaela McCoog**	**5/25/2018** COC No: 3
AECOM	**Tel: (206) 438-2261 / (206) 438-2010**	**Laboratory Contact: Howard-Holmes**	**Carrier: courier** 1 of 1 pages
1111 3rd Ave Suite 1600	**Analysis Turnaround Time**		
Seattle, WA 98101	Calendar (C) or Work Days (W) _____		
Phone: (206) 438-2700 Fax: 1+(866) 495-5288	☐ 21 days		
Project Name: Portland Harbor Pre-Remedial Design Investigation and Baseline Sampling	☐ Other _____		
Portland, OR			
Project #: 60566335 Study: Surface Sediment - SMA			

Sample Identification	Sample Date	Sample Time	Matrix	QC Sample	Sampler's Initials	Total No. of Cont.	Fraction	Hold -20 C	Pesticides, PAHs, Total Solids 1669M, 8270-SIM, 160.3	Sample Specific Notes:
PDI-SG-S204	5/3/2018	16:25	SS			1		x	H	Frozen 5/3/18 08:00
PDI-SG-S147	5/4/2018	17:19	SS			1		x	H	Frozen 5/4/18 18:30
PDI-SG-S084	5/8/2018	13:40	SS			1		x	H	Frozen 5/8/18 18:20
PDI-SG-S090	5/9/2018	14:34	SS			1		x	H	Frozen 5/9/18 18:50
PDI-SG-S010	5/9/2018	17:30	SS			1		x	H	Frozen 5/9/18 18:50
PDI-SG-S255	5/11/2018	12:40	SS			1		x	H	Frozen 5/14/18 10:45
PDI-SG-S097	5/13/2018	11:45	SS			1		x	H	Frozen 5/13/18 18:45
PDI-SG-S115	5/12/2018	12:21	SS			1		x	H	Frozen 5/12/18 17:15
PDI-SG-S078	5/12/2018	15:50	SS			1		x	H	Frozen 5/12/18 17:15
~~PDI-SG-S155~~	~~5/14/2018~~	~~11:15~~	~~SS~~			~~1~~		~~x~~	~~H~~	Frozen 5/15/18 11:15
PDI-SG-S135	5/14/2018	10:15	SS			1		x	H	Frozen 5/15/18 11:15
PDI-SG-S157	5/14/2018	15:45	SS			1		x	H	Frozen 5/15/18 11:15

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 ☒ sposal By Lab ☒ rchive For **12** Months

Special Instructions/QC Requirements & Comments:

Please hold in freezer pending approval of analyses marked H.

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
	AECOM	5-25-18			
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
	HW	5/25/18 1405		HW	5/25/18 1405
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

PC HH

Cooler Receipt and Preservation Form

Client AECOM Service Request K1804985

Received: 5/25/18 Opened: 5/25/18 By: BR Unloaded: 5/25/18 By: BR

1. Samples were received via? *USPS* *FedEx* *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 (NA)	Tracking Number (NA)	Filed
3.3	3.1	4.9	4.8	-0.2	351			
3.9	3.8	3.4	3.4	0.0	374			
3.8	3.8	2.1	2.1	0.0	325			

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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Analytical Report

Client:	AECOM	**Service Request:**	K1804985
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Collected:**	05/03/18 - 05/14/18
Sample Matrix:	Sediment	**Date Received:**	05/25/18
Analysis Method:	160.3 Modified	**Units:**	Percent
Prep Method:	None	**Basis:**	As Received

Solids, Total

Sample Name	Lab Code	Result	MRL	MDL	Dil.	Date Analyzed	Q
PDI-SG-S204	K1804985-001	**70.3**	-	-	1	06/28/18 15:55	
PDI-SG-S147	K1804985-002	**54.8**	-	-	1	06/28/18 15:55	
PDI-SG-S084	K1804985-003	**82.3**	-	-	1	06/28/18 15:55	
PDI-SG-S090	K1804985-004	**75.2**	-	-	1	06/28/18 15:55	
PDI-SG-S010	K1804985-005	**75.9**	-	-	1	06/28/18 15:55	
PDI-SG-S255	K1804985-006	**62.4**	-	-	1	06/28/18 15:55	
PDI-SG-S097	K1804985-007	**62.5**	-	-	1	06/28/18 15:55	
PDI-SG-S115	K1804985-008	**74.0**	-	-	1	06/28/18 15:55	
PDI-SG-S078	K1804985-009	**55.1**	-	-	1	06/28/18 15:55	
PDI-SG-S135	K1804985-010	**70.5**	-	-	1	06/28/18 15:55	
PDI-SG-S157	K1804985-011	**60.6**	-	-	1	06/28/18 15:55	

QA/QC Report

Client:	AECOM	**Service Request:**	K1804985
Project	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Collected:**	05/03/18 - 05/14/18
Sample Matrix:	Sediment	**Date Received:**	05/25/18
Analysis Method:	160.3 Modified	**Units:**	Percent
Prep Method:	None	**Basis:**	As Received

Duplicate Sample Summary
Inorganic Parameters

Sample Name:	Lab Code:	MRL	Sample Result	Duplicate Result	Average	RPD	RPD Limit	Date Analyzed
PDI-SG-S204	K1804985-001DUP	-	70.3	69.4	69.9	1	20	06/28/18
PDI-SG-S157	K1804985-011DUP	-	60.6	61.2	60.9	<1	20	06/28/18

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 By GC/MS/MS

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Analytical Report

Client:	AECOM	**Service Request:**	K1804985
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Collected:**	05/03/18 16:25
Sample Matrix:	Sediment	**Date Received:**	05/25/18 14:05
Sample Name:	PDI-SG-S204	**Units:**	ug/Kg
Lab Code:	K1804985-001	**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	0.66	0.42	1	08/08/18 23:14	7/25/18	
2,4'-DDE	ND U	0.66	0.53	1	08/08/18 23:14	7/25/18	
2,4'-DDT	ND U	0.66	0.63	1	08/08/18 23:14	7/25/18	
4,4'-DDD	**0.94**	0.66	0.24	1	08/08/18 23:14	7/25/18	
4,4'-DDE	**0.88**	0.66	0.47	1	08/08/18 23:14	7/25/18	
4,4'-DDT	ND U	0.66	0.32	1	08/08/18 23:14	7/25/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_4,4'DDD-d4	86	5 - 120	08/08/18 23:14	
S_4,4'-DDT-d4	92	13 - 200	08/08/18 23:14	

Analytical Report

Client:	AECOM	**Service Request:**	K1804985
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Collected:**	05/04/18 17:19
Sample Matrix:	Sediment	**Date Received:**	05/25/18 14:05
Sample Name:	PDI-SG-S147	**Units:**	ug/Kg
Lab Code:	K1804985-002	**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	**1.3**	0.89	0.57	1	08/08/18 23:41	7/25/18	
2,4'-DDE	ND U	0.89	0.71	1	08/08/18 23:41	7/25/18	
2,4'-DDT	ND U	0.89	0.84	1	08/08/18 23:41	7/25/18	
4,4'-DDD	**4.6**	0.89	0.32	1	08/08/18 23:41	7/25/18	
4,4'-DDE	**2.2**	0.89	0.63	1	08/08/18 23:41	7/25/18	
4,4'-DDT	**1.7**	0.89	0.42	1	08/08/18 23:41	7/25/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_4,4'DDD-d4	81	5 - 120	08/08/18 23:41	
S_4,4'-DDT-d4	89	13 - 200	08/08/18 23:41	

Analytical Report

Client:	AECOM	**Service Request:**	K1804985
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Collected:**	05/08/18 13:40
Sample Matrix:	Sediment	**Date Received:**	05/25/18 14:05
Sample Name:	PDI-SG-S084	**Units:**	ug/Kg
Lab Code:	K1804985-003	**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	0.59	0.38	1	08/09/18 00:08	7/25/18	
2,4'-DDE	ND U	0.59	0.47	1	08/09/18 00:08	7/25/18	
2,4'-DDT	ND U	0.59	0.56	1	08/09/18 00:08	7/25/18	
4,4'-DDD	ND U	0.59	0.21	1	08/09/18 00:08	7/25/18	
4,4'-DDE	ND U	0.59	0.42	1	08/09/18 00:08	7/25/18	
4,4'-DDT	ND U	0.59	0.28	1	08/09/18 00:08	7/25/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_4,4'DDD-d4	85	5 - 120	08/09/18 00:08	
S_4,4'-DDT-d4	96	13 - 200	08/09/18 00:08	

Analytical Report

Client:	AECOM	**Service Request:**	K1804985
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Collected:**	05/09/18 14:24
Sample Matrix:	Sediment	**Date Received:**	05/25/18 14:05
Sample Name:	PDI-SG-S090	**Units:**	ug/Kg
Lab Code:	K1804985-004	**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	0.66	0.63	10	07/17/18 17:46	7/2/18	
2,4'-DDE	ND U	0.79	0.79	10	07/17/18 17:46	7/2/18	
2,4'-DDT	ND U	0.94	0.94	10	07/17/18 17:46	7/2/18	
4,4'-DDD	**0.81**	0.66	0.35	10	07/17/18 17:46	7/2/18	
4,4'-DDE	ND U	0.70	0.70	10	07/17/18 17:46	7/2/18	
4,4'-DDT	ND U	0.66	0.47	10	07/17/18 17:46	7/2/18	*

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_4,4'DDD-d4	68	5 - 120	07/17/18 17:46	
S_4,4'-DDT-d4	31	13 - 200	07/17/18 17:46	

Analytical Report

Client:	AECOM	**Service Request:**	K1804985
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Collected:**	05/09/18 17:30
Sample Matrix:	Sediment	**Date Received:**	05/25/18 14:05
Sample Name:	PDI-SG-S010	**Units:**	ug/Kg
Lab Code:	K1804985-005	**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	0.66	0.63	10	07/17/18 18:13	7/2/18	
2,4'-DDE	ND U	0.79	0.79	10	07/17/18 18:13	7/2/18	
2,4'-DDT	ND U	0.94	0.94	10	07/17/18 18:13	7/2/18	
4,4'-DDD	ND U	0.66	0.35	10	07/17/18 18:13	7/2/18	
4,4'-DDE	ND U	0.70	0.70	10	07/17/18 18:13	7/2/18	
4,4'-DDT	ND U	0.66	0.47	10	07/17/18 18:13	7/2/18	*

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_4,4'DDD-d4	98	5 - 120	07/17/18 18:13	
S_4,4'-DDT-d4	70	13 - 200	07/17/18 18:13	

Analytical Report

Client:	AECOM	**Service Request:**	K1804985
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Collected:**	05/11/18 12:40
Sample Matrix:	Sediment	**Date Received:**	05/25/18 14:05
Sample Name:	PDI-SG-S255	**Units:**	ug/Kg
Lab Code:	K1804985-006	**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	0.78	0.63	10	07/17/18 18:41	7/2/18	
2,4'-DDE	ND U	0.79	0.79	10	07/17/18 18:41	7/2/18	
2,4'-DDT	ND U	0.94	0.94	10	07/17/18 18:41	7/2/18	
4,4'-DDD	ND U	0.78	0.35	10	07/17/18 18:41	7/2/18	
4,4'-DDE	ND U	0.78	0.70	10	07/17/18 18:41	7/2/18	
4,4'-DDT	ND U	0.78	0.47	10	07/17/18 18:41	7/2/18	*

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_4,4'DDD-d4	96	5 - 120	07/17/18 18:41	
S_4,4'-DDT-d4	81	13 - 200	07/17/18 18:41	

Analytical Report

Client:	AECOM	**Service Request:**	K1804985
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Collected:**	05/13/18 11:45
Sample Matrix:	Sediment	**Date Received:**	05/25/18 14:05
Sample Name:	PDI-SG-S097	**Units:**	ug/Kg
Lab Code:	K1804985-007	**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	**0.76**	**J**	0.79	0.63	10	07/17/18 19:08	7/2/18	
2,4'-DDE	ND	U	0.79	0.79	10	07/17/18 19:08	7/2/18	
2,4'-DDT	ND	U	0.94	0.94	10	07/17/18 19:08	7/2/18	
4,4'-DDD	**3.3**		0.79	0.35	10	07/17/18 19:08	7/2/18	
4,4'-DDE	**0.99**		0.79	0.70	10	07/17/18 19:08	7/2/18	
4,4'-DDT	**1.2**		0.79	0.47	10	07/17/18 19:08	7/2/18	*

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_4,4'DDD-d4	98	5 - 120	07/17/18 19:08	
S_4,4'-DDT-d4	91	13 - 200	07/17/18 19:08	

Analytical Report

Client:	AECOM	**Service Request:**	K1804985
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Collected:**	05/12/18 12:21
Sample Matrix:	Sediment	**Date Received:**	05/25/18 14:05
Sample Name:	PDI-SG-S115	**Units:**	ug/Kg
Lab Code:	K1804985-008	**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	**2.2**	0.67	0.63	10	07/17/18 19:35	7/2/18	
2,4'-DDE	ND U	0.79	0.79	10	07/17/18 19:35	7/2/18	
2,4'-DDT	**1.7**	0.94	0.94	10	07/17/18 19:35	7/2/18	
4,4'-DDD	**4.4**	0.67	0.35	10	07/17/18 19:35	7/2/18	
4,4'-DDE	**0.74**	0.70	0.70	10	07/17/18 19:35	7/2/18	
4,4'-DDT	**33**	0.67	0.47	10	07/17/18 19:35	7/2/18	*

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_4,4'DDD-d4	92	5 - 120	07/17/18 19:35	
S_4,4'-DDT-d4	65	13 - 200	07/17/18 19:35	

Analytical Report

Client:	AECOM	**Service Request:**	K1804985
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Collected:**	05/12/18 15:50
Sample Matrix:	Sediment	**Date Received:**	05/25/18 14:05
Sample Name:	PDI-SG-S078	**Units:**	ug/Kg
Lab Code:	K1804985-009	**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	**1.0**	0.90	0.63	10	07/17/18 20:03	7/2/18	
2,4'-DDE	ND U	0.90	0.79	10	07/17/18 20:03	7/2/18	
2,4'-DDT	ND U	0.94	0.94	10	07/17/18 20:03	7/2/18	
4,4'-DDD	**2.8**	0.90	0.35	10	07/17/18 20:03	7/2/18	
4,4'-DDE	**1.2**	0.90	0.70	10	07/17/18 20:03	7/2/18	
4,4'-DDT	ND U	0.90	0.47	10	07/17/18 20:03	7/2/18	*

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_4,4'DDD-d4	101	5 - 120	07/17/18 20:03	
S_4,4'-DDT-d4	90	13 - 200	07/17/18 20:03	

Analytical Report

Client:	AECOM	**Service Request:**	K1804985
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Collected:**	05/14/18 10:15
Sample Matrix:	Sediment	**Date Received:**	05/25/18 14:05
Sample Name:	PDI-SG-S135	**Units:**	ug/Kg
Lab Code:	K1804985-010	**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	**12**	0.71	0.63	10	07/17/18 20:30	7/2/18	
2,4'-DDE	**2.8**	0.79	0.79	10	07/17/18 20:30	7/2/18	
2,4'-DDT	**8.4**	0.94	0.94	10	07/17/18 20:30	7/2/18	
4,4'-DDD	**21**	0.71	0.35	10	07/17/18 20:30	7/2/18	
4,4'-DDE	**56**	0.65	0.46	1	08/08/18 20:30	7/26/18	
4,4'-DDT	**19**	0.71	0.47	10	07/17/18 20:30	7/2/18	*

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_4,4'DDD-d4	109	5 - 120	07/17/18 20:30	
S_4,4'-DDT-d4	103	13 - 200	07/17/18 20:30	

Analytical Report

Client:	AECOM	**Service Request:**	K1804985
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Collected:**	05/14/18 15:45
Sample Matrix:	Sediment	**Date Received:**	05/25/18 14:05
Sample Name:	PDI-SG-S157	**Units:**	ug/Kg
Lab Code:	K1804985-011	**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	**2.3**	0.81	0.63	10	07/17/18 20:57	7/2/18	
2,4'-DDE	ND U	0.81	0.79	10	07/17/18 20:57	7/2/18	
2,4'-DDT	ND U	0.94	0.94	10	07/17/18 20:57	7/2/18	
4,4'-DDD	**6.4**	0.81	0.35	10	07/17/18 20:57	7/2/18	
4,4'-DDE	**2.9**	0.81	0.70	10	07/17/18 20:57	7/2/18	
4,4'-DDT	**0.80 J**	0.81	0.47	10	07/17/18 20:57	7/2/18	*

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_4,4'DDD-d4	92	5 - 120	07/17/18 20:57	
S_4,4'-DDT-d4	144	13 - 200	07/17/18 20:57	

Analytical Report

Client:	AECOM	**Service Request:**	K1804985
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ug/Kg
Lab Code:	KQ1808749-04	**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	07/17/18 11:42	7/2/18	
2,4'-DDE	ND U	0.079	0.079	1	07/17/18 11:42	7/2/18	
2,4'-DDT	ND U	0.094	0.094	1	07/17/18 11:42	7/2/18	
4,4'-DDD	ND U	0.049	0.035	1	07/17/18 11:42	7/2/18	
4,4'-DDE	ND U	0.070	0.070	1	07/17/18 11:42	7/2/18	
4,4'-DDT	ND U	0.049	0.047	1	07/17/18 11:42	7/2/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_4,4'DDD-d4	90	5 - 120	07/17/18 11:42	
S_4,4'-DDT-d4	90	13 - 200	07/17/18 11:42	

Analytical Report

Client:	AECOM	**Service Request:**	K1804985
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ug/Kg
Lab Code:	KQ1809809-04	**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	0.10	0.063	1	08/08/18 20:57	7/25/18	
2,4'-DDE	ND U	0.10	0.079	1	08/08/18 20:57	7/25/18	
2,4'-DDT	ND U	0.10	0.094	1	08/08/18 20:57	7/25/18	
4,4'-DDD	ND U	0.10	0.035	1	08/08/18 20:57	7/25/18	
4,4'-DDE	ND U	0.10	0.070	1	08/08/18 20:57	7/25/18	
4,4'-DDT	ND U	0.10	0.047	1	08/08/18 20:57	7/25/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_4,4'DDD-d4	86	5 - 120	08/08/18 20:57	
S_4,4'-DDT-d4	92	13 - 200	08/08/18 20:57	

Analytical Report

Client:	AECOM	**Service Request:**	K1804985
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ug/Kg
Lab Code:	KQ1810142-04	**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	0.10	0.063	1	08/08/18 16:52	7/26/18	
2,4'-DDE	ND U	0.10	0.079	1	08/08/18 16:52	7/26/18	
2,4'-DDT	ND U	0.10	0.094	1	08/08/18 16:52	7/26/18	
4,4'-DDD	ND U	0.10	0.035	1	08/08/18 16:52	7/26/18	
4,4'-DDE	ND U	0.10	0.070	1	08/08/18 16:52	7/26/18	
4,4'-DDT	ND U	0.10	0.047	1	08/08/18 16:52	7/26/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_4,4'DDD-d4	97	5 - 120	08/08/18 16:52	
S_4,4'-DDT-d4	88	13 - 200	08/08/18 16:52	

Client: AECOM **Service Request:** K1804985
Project: Portland Harbor Pre-Remedial Design Investigation/60566335
Sample Matrix: Sediment

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 5-120	S_4,4'-DDT-d4 13-200
Batch QC	K1804214-016	84	92
PDI-SG-S204	K1804985-001	86	92
PDI-SG-S147	K1804985-002	81	89
PDI-SG-S084	K1804985-003	85	96
PDI-SG-S090	K1804985-004	68	31
PDI-SG-S010	K1804985-005	98	70
PDI-SG-S255	K1804985-006	96	81
PDI-SG-S097	K1804985-007	98	91
PDI-SG-S115	K1804985-008	92	65
PDI-SG-S078	K1804985-009	101	90
PDI-SG-S135	K1804985-010	109	103
PDI-SG-S157	K1804985-011	92	144
Method Blank	KQ1808749-04	90	90
Method Blank	KQ1809809-04	86	92
Method Blank	KQ1810142-04	97	88
Lab Control Sample	KQ1808749-03	95	98
Lab Control Sample	KQ1809809-03	92	92
Lab Control Sample	KQ1810142-03	82	82
Batch QC	KQ1809809-01	70	77
Batch QC	KQ1809809-02	82	89
PDI-SG-S135	KQ1810142-01	98	110
PDI-SG-S135	KQ1810142-02	97	104

Client: AECOM **Service Request:**K1804985
Project: Portland Harbor Pre-Remedial Design Investigation/60566335 **Date Analyzed:**07/17/18 09:24

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

File ID: J:\MS21\Data\071718\071718F003.D\ **Lab Code:**KQ1809698-01
Instrument ID: K-MSMS-01 **Analysis Lot:**599082
Analysis Method: ALS SOP **Signal ID:**1

		Pyrene-d10	
		Area	**RT**
	ICAL Result ==>	10,627	14.6397
	Upper Limit ==>	21,254	15.14
	Lower Limit ==>	5,313	14.14
Associated Analyses			
Continuing Calibration Verification	KQ1809698-01	14232.6	14.614
Method Blank	KQ1808749-04	12134.1	14.6396
Lab Control Sample	KQ1808749-03	14790.8	14.6397
PDI-SG-S090	K1804985-004	17347.4	14.6396
PDI-SG-S010	K1804985-005	17984.9	14.6397
PDI-SG-S255	K1804985-006	18295.8	14.6397
PDI-SG-S097	K1804985-007	25817.4	14.6398
PDI-SG-S115	K1804985-008	17360.6	14.6397
PDI-SG-S078	K1804985-009	22369.5	14.6397
PDI-SG-S135	K1804985-010	20649.8	14.6396
PDI-SG-S157	K1804985-011	22083.4	14.6396

Client: AECOM **Service Request:** K1804985
Project: Portland Harbor Pre-Remedial Design Investigation/60566335 **Date Analyzed:** 08/08/18 16:24

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

File ID: J:\MS21\Data\080818\080818F023.D\ **Lab Code:** KQ1810800-01
Instrument ID: K-MSMS-01 **Analysis Lot:** 601814
Analysis Method: ALS SOP **Signal ID:** 1

		Pyrene-d10	
		Area	**RT**
	ICAL Result ==>	46,754	14.366
	Upper Limit ==>	93,508	14.87
	Lower Limit ==>	23,377	13.87
Associated Analyses			
Continuing Calibration Verification	KQ1810800-01	36958.7	14.366
Method Blank	KQ1810142-04	28855.4	14.366
Lab Control Sample	KQ1810142-03	32258.9	14.366
PDI-SG-S135MS	KQ1810142-01	31577.2	14.366
PDI-SG-S135DMS	KQ1810142-02	44421.1	14.366
PDI-SG-S135	K1804985-010	47723.1	14.366
Method Blank	KQ1809809-04	50691	14.366
Lab Control Sample	KQ1809809-03	50318.1	14.3661
Batch QCMS	KQ1809809-01	63294.5	14.3918
Batch QCDMS	KQ1809809-02	60758.4	14.366
Batch QC	K1804214-016	60868.1	14.3661
PDI-SG-S204	K1804985-001	72685.3	14.366
PDI-SG-S147	K1804985-002	64024.6	14.366
PDI-SG-S084	K1804985-003	58820.2	14.3661

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	AECOM	**Service Request:**	K1804985
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Collected:**	05/14/18
Sample Matrix:	Sediment	**Date Received:**	05/25/18
		Date Analyzed:	08/8/18
		Date Extracted:	07/26/18

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

Sample Name:	PDI-SG-S135	**Units:**	ug/Kg
Lab Code:	K1804985-010	**Basis:**	Dry
Analysis Method:	ALS SOP		
Prep Method:	EPA 3541		

		Matrix Spike KQ1810142-01			**Duplicate Matrix Spike** KQ1810142-02					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
2,4'-DDD	12	19.3	12.1	61	49.0	13.4	277 *	32-169	87*	40
2,4'-DDE	2.8	10.1	12.1	60	17.0	13.4	106	43-155	51*	40
2,4'-DDT	8.4	15.9	12.1	62	30.2	13.4	163 *	55-161	62*	40
4,4'-DDD	21	32.2	12.1	90	76.5 E	13.4	413 *	10-190	82*	40
4,4'-DDE	56	65.1	12.1	71 #	88.7 E	13.4	241 #	35-162	31	40
4,4'-DDT	19	30.9	12.1	99	53.3	13.4	257 *	24-183	53*	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.

Client:	AECOM	**Service Request:**	K1804985
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Analyzed:**	07/17/18
Sample Matrix:	Sediment	**Date Extracted:**	07/02/18

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:	599082

Lab Control Sample
KQ1808749-03

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
2,4'-DDD	1.89	2.00	95	73-122
2,4'-DDE	1.30	2.00	65	54-145
2,4'-DDT	2.22	2.00	111	77-118
4,4'-DDD	2.17	2.00	108	74-117
4,4'-DDE	1.93	2.00	97	66-132
4,4'-DDT	2.41	2.00	120 *	78-116

Client:	AECOM	**Service Request:**	K1804985
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Analyzed:**	08/08/18
Sample Matrix:	Sediment	**Date Extracted:**	07/25/18

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:	601814

Lab Control Sample
KQ1809809-03

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
2,4'-DDD	1.68	2.00	84	73-122
2,4'-DDE	1.28	2.00	64	54-145
2,4'-DDT	1.65	2.00	82	77-118
4,4'-DDD	1.87	2.00	93	74-117
4,4'-DDE	1.54	2.00	77	66-132
4,4'-DDT	2.01	2.00	100	78-116

Client:	AECOM	**Service Request:**	K1804985
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Analyzed:**	08/08/18
Sample Matrix:	Sediment	**Date Extracted:**	07/26/18

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:	601814

Lab Control Sample
KQ1810142-03

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
2,4'-DDD	1.68	2.00	84	73-122
2,4'-DDE	1.27	2.00	64	54-145
2,4'-DDT	1.56	2.00	78	77-118
4,4'-DDD	1.94	2.00	97	74-117
4,4'-DDE	1.52	2.00	76	66-132
4,4'-DDT	1.90	2.00	95	78-116

Client:	AECOM	**Service Request:**	K1804985
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Analyzed:**	07/17/18 11:42
Sample Matrix:	Sediment	**Date Extracted:**	07/02/18

Method Blank Summary
Organochlorine Pesticides by GC/MS/MS

Sample Name:	Method Blank	**Instrument ID:**	K-MSMS-01
Lab Code:	KQ1808749-04	**File ID:**	J:\MS21\Data\071718\071718F008.D\
Analysis Method:	ALS SOP	**Analysis Lot:**	599082
Prep Method:	EPA 3541	**Extraction Lot:**	316876

This Method Blank applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Lab Control Sample	KQ1808749-03	J:\MS21\Data\071718\071718F009.D\	07/17/18 12:09
PDI-SG-S090	K1804985-004	J:\MS21\Data\071718\071718F018.D\	07/17/18 17:46
PDI-SG-S010	K1804985-005	J:\MS21\Data\071718\071718F019.D\	07/17/18 18:13
PDI-SG-S255	K1804985-006	J:\MS21\Data\071718\071718F020.D\	07/17/18 18:41
PDI-SG-S097	K1804985-007	J:\MS21\Data\071718\071718F021.D\	07/17/18 19:08
PDI-SG-S115	K1804985-008	J:\MS21\Data\071718\071718F022.D\	07/17/18 19:35
PDI-SG-S078	K1804985-009	J:\MS21\Data\071718\071718F023.D\	07/17/18 20:03
PDI-SG-S135	K1804985-010	J:\MS21\Data\071718\071718F024.D\	07/17/18 20:30
PDI-SG-S157	K1804985-011	J:\MS21\Data\071718\071718F025.D\	07/17/18 20:57

Client:	AECOM	**Service Request:**	K1804985
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Analyzed:**	08/08/18 16:52
Sample Matrix:	Sediment	**Date Extracted:**	07/26/18

Method Blank Summary
Organochlorine Pesticides by GC/MS/MS

Sample Name:	Method Blank	**Instrument ID:**	K-MSMS-01
Lab Code:	KQ1810142-04	**File ID:**	J:\MS21\Data\080818\080818F024.D\
Analysis Method:	ALS SOP	**Analysis Lot:**	601814
Prep Method:	EPA 3541	**Extraction Lot:**	318564

This Method Blank applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Lab Control Sample	KQ1810142-03	J:\MS21\Data\080818\080818F025.D\	08/08/18 17:19
PDI-SG-S135MS	KQ1810142-01	J:\MS21\Data\080818\080818F026.D\	08/08/18 17:46
PDI-SG-S135DMS	KQ1810142-02	J:\MS21\Data\080818\080818F027.D\	08/08/18 18:14
PDI-SG-S135	K1804985-010	J:\MS21\Data\080818\080818F032.D\	08/08/18 20:30

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QA/QC Report

Client:	AECOM	**Service Request:**	K1804985
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Analyzed:**	08/08/18 20:57
Sample Matrix:	Sediment	**Date Extracted:**	07/25/18

Method Blank Summary
Organochlorine Pesticides by GC/MS/MS

Sample Name:	Method Blank	**Instrument ID:**	K-MSMS-01
Lab Code:	KQ1809809-04	**File ID:**	J:\MS21\Data\080818\080818F033.D\
Analysis Method:	ALS SOP	**Analysis Lot:**	601814
Prep Method:	EPA 3541	**Extraction Lot:**	318127

This Method Blank applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Lab Control Sample	KQ1809809-03	J:\MS21\Data\080818\080818F034.D\	08/08/18 21:25
Batch QCMS	KQ1809809-01	J:\MS21\Data\080818\080818F035.D\	08/08/18 21:52
Batch QCDMS	KQ1809809-02	J:\MS21\Data\080818\080818F036.D\	08/08/18 22:19
Batch QC	K1804214-016	J:\MS21\Data\080818\080818F037.D\	08/08/18 22:46
PDI-SG-S204	K1804985-001	J:\MS21\Data\080818\080818F038.D\	08/08/18 23:14
PDI-SG-S147	K1804985-002	J:\MS21\Data\080818\080818F039.D\	08/08/18 23:41
PDI-SG-S084	K1804985-003	J:\MS21\Data\080818\080818F040.D\	08/09/18 00:08

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QA/QC Report

Client:	AECOM	**Service Request:**	K1804985
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Analyzed:**	08/08/18 16:52
Sample Matrix:	Sediment	**Date Extracted:**	07/26/18

Method Blank Summary
Organochlorine Pesticides by GC/MS/MS

Sample Name:	Method Blank	**Instrument ID:**	K-MSMS-01
Lab Code:	KQ1810142-04	**File ID:**	J:\MS21\Data\080818\080818F024.D\
Analysis Method:	ALS SOP	**Analysis Lot:**	601814
Prep Method:	EPA 3541	**Extraction Lot:**	318564

This Method Blank applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Lab Control Sample	KQ1810142-03	J:\MS21\Data\080818\080818F025.D\	08/08/18 17:19
PDI-SG-S135MS	KQ1810142-01	J:\MS21\Data\080818\080818F026.D\	08/08/18 17:46
PDI-SG-S135DMS	KQ1810142-02	J:\MS21\Data\080818\080818F027.D\	08/08/18 18:14
PDI-SG-S135	K1804985-010	J:\MS21\Data\080818\080818F032.D\	08/08/18 20:30

ALS Group USA, Corp.
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QA/QC Report

Client:	AECOM	**Service Request:**	K1804985
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Analyzed:**	08/08/18 20:57
Sample Matrix:	Sediment	**Date Extracted:**	07/25/18

Method Blank Summary
Organochlorine Pesticides by GC/MS/MS

Sample Name:	Method Blank	**Instrument ID:**	K-MSMS-01
Lab Code:	KQ1809809-04	**File ID:**	J:\MS21\Data\080818\080818F033.D\
Analysis Method:	ALS SOP	**Analysis Lot:**	601814
Prep Method:	EPA 3541	**Extraction Lot:**	318127

This Method Blank applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Lab Control Sample	KQ1809809-03	J:\MS21\Data\080818\080818F034.D\	08/08/18 21:25
Batch QCMS	KQ1809809-01	J:\MS21\Data\080818\080818F035.D\	08/08/18 21:52
Batch QCDMS	KQ1809809-02	J:\MS21\Data\080818\080818F036.D\	08/08/18 22:19
Batch QC	K1804214-016	J:\MS21\Data\080818\080818F037.D\	08/08/18 22:46
PDI-SG-S204	K1804985-001	J:\MS21\Data\080818\080818F038.D\	08/08/18 23:14
PDI-SG-S147	K1804985-002	J:\MS21\Data\080818\080818F039.D\	08/08/18 23:41
PDI-SG-S084	K1804985-003	J:\MS21\Data\080818\080818F040.D\	08/09/18 00:08

Client:	AECOM	**Service Request:**	K1804985
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Analyzed:**	07/17/18 12:09
Sample Matrix:	Sediment	**Date Extracted:**	07/02/18

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

Sample Name:	Lab Control Sample	**Instrument ID:**	K-MSMS-01
Lab Code:	KQ1808749-03	**File ID:**	J:\MS21\Data\071718\071718F009.D\
Analysis Method:	ALS SOP	**Analysis Lot:**	599082
Prep Method:	EPA 3541	**Extraction Lot:**	316876

This Lab Control Sample applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Method Blank	KQ1808749-04	J:\MS21\Data\071718\071718F008.D\	07/17/18 11:42
PDI-SG-S090	K1804985-004	J:\MS21\Data\071718\071718F018.D\	07/17/18 17:46
PDI-SG-S010	K1804985-005	J:\MS21\Data\071718\071718F019.D\	07/17/18 18:13
PDI-SG-S255	K1804985-006	J:\MS21\Data\071718\071718F020.D\	07/17/18 18:41
PDI-SG-S097	K1804985-007	J:\MS21\Data\071718\071718F021.D\	07/17/18 19:08
PDI-SG-S115	K1804985-008	J:\MS21\Data\071718\071718F022.D\	07/17/18 19:35
PDI-SG-S078	K1804985-009	J:\MS21\Data\071718\071718F023.D\	07/17/18 20:03
PDI-SG-S135	K1804985-010	J:\MS21\Data\071718\071718F024.D\	07/17/18 20:30
PDI-SG-S157	K1804985-011	J:\MS21\Data\071718\071718F025.D\	07/17/18 20:57

Client:	AECOM	**Service Request:**	K1804985
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Analyzed:**	08/08/18 17:19
Sample Matrix:	Sediment	**Date Extracted:**	07/26/18

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

Sample Name:	Lab Control Sample	**Instrument ID:**	K-MSMS-01
Lab Code:	KQ1810142-03	**File ID:**	J:\MS21\Data\080818\080818F025.D\
Analysis Method:	ALS SOP	**Analysis Lot:**	601814
Prep Method:	EPA 3541	**Extraction Lot:**	318564

This Lab Control Sample applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Method Blank	KQ1810142-04	J:\MS21\Data\080818\080818F024.D\	08/08/18 16:52
PDI-SG-S135MS	KQ1810142-01	J:\MS21\Data\080818\080818F026.D\	08/08/18 17:46
PDI-SG-S135DMS	KQ1810142-02	J:\MS21\Data\080818\080818F027.D\	08/08/18 18:14
PDI-SG-S135	K1804985-010	J:\MS21\Data\080818\080818F032.D\	08/08/18 20:30

Client:	AECOM	**Service Request:**	K1804985
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Analyzed:**	08/08/18 21:25
Sample Matrix:	Sediment	**Date Extracted:**	07/25/18

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

Sample Name:	Lab Control Sample	**Instrument ID:**	K-MSMS-01
Lab Code:	KQ1809809-03	**File ID:**	J:\MS21\Data\080818\080818F034.D\
Analysis Method:	ALS SOP	**Analysis Lot:**	601814
Prep Method:	EPA 3541	**Extraction Lot:**	318127

This Lab Control Sample applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Method Blank	KQ1809809-04	J:\MS21\Data\080818\080818F033.D\	08/08/18 20:57
Batch QCMS	KQ1809809-01	J:\MS21\Data\080818\080818F035.D\	08/08/18 21:52
Batch QCDMS	KQ1809809-02	J:\MS21\Data\080818\080818F036.D\	08/08/18 22:19
Batch QC	K1804214-016	J:\MS21\Data\080818\080818F037.D\	08/08/18 22:46
PDI-SG-S204	K1804985-001	J:\MS21\Data\080818\080818F038.D\	08/08/18 23:14
PDI-SG-S147	K1804985-002	J:\MS21\Data\080818\080818F039.D\	08/08/18 23:41
PDI-SG-S084	K1804985-003	J:\MS21\Data\080818\080818F040.D\	08/09/18 00:08

Client:	AECOM	**Service Request:**	K1804985
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Analyzed:**	08/08/18 17:19
Sample Matrix:	Sediment	**Date Extracted:**	07/26/18

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

Sample Name:	Lab Control Sample	**Instrument ID:**	K-MSMS-01
Lab Code:	KQ1810142-03	**File ID:**	J:\MS21\Data\080818\080818F025.D\
Analysis Method:	ALS SOP	**Analysis Lot:**	601814
Prep Method:	EPA 3541	**Extraction Lot:**	318564

This Lab Control Sample applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Method Blank	KQ1810142-04	J:\MS21\Data\080818\080818F024.D\	08/08/18 16:52
PDI-SG-S135MS	KQ1810142-01	J:\MS21\Data\080818\080818F026.D\	08/08/18 17:46
PDI-SG-S135DMS	KQ1810142-02	J:\MS21\Data\080818\080818F027.D\	08/08/18 18:14
PDI-SG-S135	K1804985-010	J:\MS21\Data\080818\080818F032.D\	08/08/18 20:30

Client:	AECOM	**Service Request:**	K1804985
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Analyzed:**	08/08/18 21:25
Sample Matrix:	Sediment	**Date Extracted:**	07/25/18

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

Sample Name:	Lab Control Sample	**Instrument ID:**	K-MSMS-01
Lab Code:	KQ1809809-03	**File ID:**	J:\MS21\Data\080818\080818F034.D\
Analysis Method:	ALS SOP	**Analysis Lot:**	601814
Prep Method:	EPA 3541	**Extraction Lot:**	318127

This Lab Control Sample applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Method Blank	KQ1809809-04	J:\MS21\Data\080818\080818F033.D\	08/08/18 20:57
Batch QCMS	KQ1809809-01	J:\MS21\Data\080818\080818F035.D\	08/08/18 21:52
Batch QCDMS	KQ1809809-02	J:\MS21\Data\080818\080818F036.D\	08/08/18 22:19
Batch QC	K1804214-016	J:\MS21\Data\080818\080818F037.D\	08/08/18 22:46
PDI-SG-S204	K1804985-001	J:\MS21\Data\080818\080818F038.D\	08/08/18 23:14
PDI-SG-S147	K1804985-002	J:\MS21\Data\080818\080818F039.D\	08/08/18 23:41
PDI-SG-S084	K1804985-003	J:\MS21\Data\080818\080818F040.D\	08/09/18 00:08

Client: AECOM **Service Request:**K1804985
Project: Portland Harbor Pre-Remedial Design Investigation/60566335 **Date Analyzed:**07/17/18 09:24

Tune Summary
Organochlorine Pesticides by GC/MS/MS

File ID: J:\MS21\Data\071718\071718F003.D\ **Analytical Method:** ALS SOP
Instrument ID: K-MSMS-01 **Analysis Lot:** 599082

Sample Name	Lab Code	File ID:	Date Analyzed:	Q
Continuing Calibration Verification	KQ1809698-01	J:\MS21\Data\071718\071718F003.D\	07/17/18 09:24	
Method Blank	KQ1808749-04	J:\MS21\Data\071718\071718F008.D\	07/17/18 11:42	
Lab Control Sample	KQ1808749-03	J:\MS21\Data\071718\071718F009.D\	07/17/18 12:09	
PDI-SG-S090	K1804985-004	J:\MS21\Data\071718\071718F018.D\	07/17/18 17:46	
PDI-SG-S010	K1804985-005	J:\MS21\Data\071718\071718F019.D\	07/17/18 18:13	
PDI-SG-S255	K1804985-006	J:\MS21\Data\071718\071718F020.D\	07/17/18 18:41	
PDI-SG-S097	K1804985-007	J:\MS21\Data\071718\071718F021.D\	07/17/18 19:08	
PDI-SG-S115	K1804985-008	J:\MS21\Data\071718\071718F022.D\	07/17/18 19:35	
PDI-SG-S078	K1804985-009	J:\MS21\Data\071718\071718F023.D\	07/17/18 20:03	
PDI-SG-S135	K1804985-010	J:\MS21\Data\071718\071718F024.D\	07/17/18 20:30	
PDI-SG-S157	K1804985-011	J:\MS21\Data\071718\071718F025.D\	07/17/18 20:57	

Client: AECOM **Service Request:**K1804985
Project: Portland Harbor Pre-Remedial Design Investigation/60566335 **Date Analyzed:**08/08/18 16:24

Tune Summary
Organochlorine Pesticides by GC/MS/MS

File ID: J:\MS21\Data\080818\080818F023.D\ **Analytical Method:** ALS SOP
Instrument ID: K-MSMS-01 **Analysis Lot:** 601814

Sample Name	Lab Code	File ID:	Date Analyzed:	Q
Continuing Calibration Verification	KQ1810800-01	J:\MS21\Data\080818\080818F023.D\	08/08/18 16:24	
Method Blank	KQ1810142-04	J:\MS21\Data\080818\080818F024.D\	08/08/18 16:52	
Lab Control Sample	KQ1810142-03	J:\MS21\Data\080818\080818F025.D\	08/08/18 17:19	
PDI-SG-S135	KQ1810142-01	J:\MS21\Data\080818\080818F026.D\	08/08/18 17:46	
PDI-SG-S135	KQ1810142-02	J:\MS21\Data\080818\080818F027.D\	08/08/18 18:14	
PDI-SG-S135	K1804985-010	J:\MS21\Data\080818\080818F032.D\	08/08/18 20:30	
Method Blank	KQ1809809-04	J:\MS21\Data\080818\080818F033.D\	08/08/18 20:57	
Lab Control Sample	KQ1809809-03	J:\MS21\Data\080818\080818F034.D\	08/08/18 21:25	
Batch QC	KQ1809809-01	J:\MS21\Data\080818\080818F035.D\	08/08/18 21:52	
Batch QC	KQ1809809-02	J:\MS21\Data\080818\080818F036.D\	08/08/18 22:19	
Batch QC	K1804214-016	J:\MS21\Data\080818\080818F037.D\	08/08/18 22:46	
PDI-SG-S204	K1804985-001	J:\MS21\Data\080818\080818F038.D\	08/08/18 23:14	
PDI-SG-S147	K1804985-002	J:\MS21\Data\080818\080818F039.D\	08/08/18 23:41	
PDI-SG-S084	K1804985-003	J:\MS21\Data\080818\080818F040.D\	08/09/18 00:08	

Client: AECOM **Service Request:** K1804985
Project: Portland Harbor Pre-Remedial Design Investigation **Calibration Date:** 8/8/2018

Initial Calibration Summary
Organochlorine Pesticides by GC/MS/MS

Calibration ID: KC1800383 **Signal ID:** 1
Instrument ID: K-MSMS-01

#	Lab Code	Sample Name	File Location	Acquisition Date
01	KC1800383-01		J:\MS21\Data\080818\080818F007.D	08/08/2018 09:40
02	KC1800383-02		J:\MS21\Data\080818\080818F008.D	08/08/2018 10:07
03	KC1800383-03		J:\MS21\Data\080818\080818F009.D	08/08/2018 10:34
04	KC1800383-04		J:\MS21\Data\080818\080818F010.D	08/08/2018 11:01
05	KC1800383-05		J:\MS21\Data\080818\080818F011.D	08/08/2018 11:29
06	KC1800383-06		J:\MS21\Data\080818\080818F012.D	08/08/2018 11:56
07	KC1800383-07		J:\MS21\Data\080818\080818F013.D	08/08/2018 12:24
08	KC1800383-08		J:\MS21\Data\080818\080818F014.D	08/08/2018 12:51
09	KC1800383-09		J:\MS21\Data\080818\080818F015.D	08/08/2018 13:18
10	KC1800383-10		J:\MS21\Data\080818\080818F017.D	08/08/2018 13:55

Analyte

2,4'-DDD

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.5	0.5477	02	1.0	0.5496	03	2.0	0.5262	04	5.0	0.4703
05	10	0.4637	06	20	0.4781	07	40	0.4704	08	60	0.4754
09	80	0.4787	10	100	0.5019						

2,4'-DDE

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.5	0.4932	02	1.0	0.4756	03	2.0	0.4244	04	5.0	0.3937
05	10	0.3865	06	20	0.4	07	40	0.4142	08	60	0.4024
09	80	0.4056	10	100	0.4321						

2,4'-DDT

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.5	0.8213	02	1.0	0.7949	03	2.0	0.8055	04	5.0	0.7268
05	10	0.6951	06	20	0.7234	07	40	0.7269	08	60	0.722
09	80	0.6962	10	100	0.754						

4,4'-DDD

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.5	0.5588	02	1.0	0.5829	03	2.0	0.5159	04	5.0	0.4659
05	10	0.4382	06	20	0.4684	07	40	0.4609	08	60	0.4862
09	80	0.4835	10	100	0.5075						

4,4'-DDE

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.5	0.3817	02	1.0	0.3376	03	2.0	0.3532	04	5.0	0.296
05	10	0.3056	06	20	0.3178	07	40	0.3125	08	60	0.3218
09	80	0.3163	10	100	0.3435						

4,4'-DDT

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.5	0.7602	02	1.0	0.7698	03	2.0	0.7411	04	5.0	0.6687
05	10	0.6714	06	20	0.6892	07	40	0.6891	08	60	0.6963

Client: AECOM **Service Request:** K1804985
Project: Portland Harbor Pre-Remedial Design Investigation **Calibration Date:** 8/8/2018

Initial Calibration Summary
Organochlorine Pesticides by GC/MS/MS

Calibration ID: KC1800383 **Signal ID:** 1
Instrument ID: K-MSMS-01

Analyte

4,4'-DDT

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
09	80	0.6815	10	100	0.7118						

Client: AECOM **Service Request:** K1804985
Project: Portland Harbor Pre-Remedial Design Investigation **Calibration Date:** 8/8/2018

Initial Calibration Summary
Organochlorine Pesticides by GC/MS/MS

Calibration ID: KC1800383 **Signal ID:** 1
Instrument ID: K-MSMS-01

		Calibration Evaluation				Calibration Evaluation	
Analyte Name	Compound Type	Fit Type	Eval	Eval Result	Control Criteria	Average RRF	Minimum RRF
2,4'-DDD	TRG	Average RF	% RSD	6.7	≤20	0.4962	0.01
2,4'-DDE	TRG	Average RF	% RSD	8.4	≤20	0.4228	0.01
2,4'-DDT	TRG	Average RF	% RSD	6.1	≤20	0.7466	0.01
4,4'-DDD	TRG	Average RF	% RSD	9.1	≤20	0.4968	0.01
4,4'-DDE	TRG	Average RF	% RSD	7.8	≤20	0.3286	0.01
4,4'-DDT	TRG	Average RF	% RSD	5.2	≤20	0.7079	0.01

Client: AECOM **Service Request:** K1804985
Project: Portland Harbor Pre-Remedial Design Investigation **Calibration Date:** 7/16/2018

Initial Calibration Summary
Organochlorine Pesticides by GC/MS/MS

Calibration ID: KC1800352 **Signal ID:** 1
Instrument ID: K-MSMS-01

#	Lab Code	Sample Name	File Location	Acquisition Date
01	KC1800352-01		J:\MS21\Data\071618\071618F007.D	07/16/2018 14:08
02	KC1800352-02		J:\MS21\Data\071618\071618F008.D	07/16/2018 14:35
03	KC1800352-03		J:\MS21\Data\071618\071618F009.D	07/16/2018 15:03
04	KC1800352-04		J:\MS21\Data\071618\071618F010.D	07/16/2018 15:30
05	KC1800352-05		J:\MS21\Data\071618\071618F011.D	07/16/2018 15:58
06	KC1800352-06		J:\MS21\Data\071618\071618F012.D	07/16/2018 16:25
07	KC1800352-07		J:\MS21\Data\071618\071618F013.D	07/16/2018 16:52
08	KC1800352-08		J:\MS21\Data\071618\071618F014.D	07/16/2018 17:20
09	KC1800352-09		J:\MS21\Data\071618\071618F015.D	07/16/2018 17:47
10	KC1800352-10		J:\MS21\Data\071618\071618F016.D	07/16/2018 18:14

Analyte

2,4'-DDD

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.5	0.4891	02	1.0	0.4833	03	2.0	0.4486	04	5.0	0.4179
05	10	0.4052	06	20	0.4275	07	40	0.417	08	60	0.4479
09	80	0.4222	10	100	0.4403						

2,4'-DDE

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.5	0.3632	02	1.0	0.4434	03	2.0	0.4083	04	5.0	0.4028
05	10	0.4043	06	20	0.4086	07	40	0.4324	08	60	0.4674
09	80	0.4477	10	100	0.4665						

2,4'-DDT

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.5	0.6081	02	1.0	0.6104	03	2.0	0.4854	04	5.0	0.5108
05	10	0.4988	06	20	0.5146	07	40	0.4556	08	60	0.5274
09	80	0.5247	10	100	0.521						

4,4'-DDD

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.5	0.6984	02	1.0	0.7338	03	2.0	0.6302	04	5.0	0.5842
05	10	0.5716	06	20	0.5812	07	40	0.5647	08	60	0.5773
09	80	0.5519	10	100	0.5614						

4,4'-DDE

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.5	0.3057	02	1.0	0.3453	03	2.0	0.3201	04	5.0	0.2935
05	10	0.2952	06	20	0.3063	07	40	0.3133	08	60	0.3301
09	80	0.3249	10	100	0.3306						

4,4'-DDT

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.5	0.698	02	1.0	0.8232	03	2.0	0.6279	04	5.0	0.6583
05	10	0.6403	06	20	0.6351	07	40	0.5565	08	60	0.6269

Client: AECOM **Service Request:** K1804985
Project: Portland Harbor Pre-Remedial Design Investigation **Calibration Date:** 7/16/2018

Initial Calibration Summary
Organochlorine Pesticides by GC/MS/MS

Calibration ID: KC1800352 **Signal ID:** 1
Instrument ID: K-MSMS-01

Analyte

4,4'-DDT

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
09	80	0.6279	10	100	0.6						

S_4,4'-DDT-d4

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	5	3.821	02	5	3.871	03	5	4.238	04	5	3.652
05	5	3.831	06	5	3.651	07	5	3.859	08	5	3.882
09	5	3.751	10	5	3.855						

S_4,4'DDD-d4

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	5	7.633	02	5	7.882	03	5	8.109	04	5	7.527
05	5	8.037	06	5	7.599	07	5	7.034	08	5	7.456
09	5	7.512	10	5	7.311						

Client: AECOM **Service Request:** K1804985
Project: Portland Harbor Pre-Remedial Design Investigation **Calibration Date:** 7/16/2018

Initial Calibration Summary
Organochlorine Pesticides by GC/MS/MS

Calibration ID: KC1800352 **Signal ID:** 1
Instrument ID: K-MSMS-01

		Calibration Evaluation				Calibration Evaluation	
Analyte Name	Compound Type	Fit Type	Eval	Eval Result	Control Criteria	Average RRF	Minimum RRF
2,4'-DDD	TRG	Average RF	% RSD	6.4	≤20	0.4399	0.01
2,4'-DDE	TRG	Average RF	% RSD	7.7	≤20	0.4245	0.01
2,4'-DDT	TRG	Average RF	% RSD	9.3	≤20	0.5257	0.01
4,4'-DDD	TRG	Average RF	% RSD	10.3	≤20	0.6055	0.01
4,4'-DDE	TRG	Average RF	% RSD	5.3	≤20	0.3165	0.01
4,4'-DDT	TRG	Average RF	% RSD	10.9	≤20	0.6494	0.01
S_4,4'-DDT-d4	SURR	Average RF	% RSD	4.3	≤	3.841	0.01
S_4,4'DDD-d4	SURR	Average RF	% RSD	4.3	≤	7.61	0.01

Client: AECOM **Service Request:** K1804985
Project: Portland Harbor Pre-Remedial Design Investigation **Calibration Date:** 8/8/2018

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

Calibration ID: KC1800383 **Signal ID:** 1
Instrument ID: K-MSMS-01

#	Lab Code	Sample Name	File Location	Acquisition Date
11	KC1800383-11		J:\MS21\Data\080818\080818F018.D	08/08/2018 14:19

Analyte Name	Expected	Result	Average RF	SSV RF	% D	Criteria	Curve Fit
2,4'-DDD	20.0	18.2	4.962E-1	4.504E-1	-9.239	±25	Average RF
2,4'-DDE	20.0	18.9	4.228E-1	3.998E-1	-5.445	±25	Average RF
2,4'-DDT	20.0	18.2	7.466E-1	6.791E-1	-9.043	±25	Average RF
4,4'-DDD	20.0	19.2	4.968E-1	4.781E-1	-3.771	±25	Average RF
4,4'-DDE	20.0	18.9	3.286E-1	3.112E-1	-5.300	±25	Average RF
4,4'-DDT	20.0	19.5	7.079E-1	6.892E-1	-2.635	±25	Average RF

Client: AECOM **Service Request:** K1804985
Project: Portland Harbor Pre-Remedial Design Investigation **Calibration Date:** 7/16/2018

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

Calibration ID: KC1800352 **Signal ID:** 1
Instrument ID: K-MSMS-01

#	Lab Code	Sample Name	File Location	Acquisition Date
11	KC1800352-11		J:\MS21\Data\071618\071618F017.D	07/16/2018 18:42

Analyte Name	Expected	Result	Average RF	SSV RF	% D	Criteria	Curve Fit
2,4'-DDD	20.0	18.1	4.399E-1	3.971E-1	-9.724	±25	Average RF
2,4'-DDE	20.0	21.3	4.245E-1	4.526E-1	6.63	±25	Average RF
2,4'-DDT	20.0	17.1	5.257E-1	4.487E-1	-14.653	±25	Average RF
4,4'-DDD	20.0	18.3	6.055E-1	5.528E-1	-8.699	±25	Average RF
4,4'-DDE	20.0	19.6	3.165E-1	3.095E-1	-2.209	±25	Average RF
4,4'-DDT	20.0	19.0	6.494E-1	6.166E-1	-5.051	±25	Average RF

Analyte Name	Expected	Result	Average RF	SSV RF	Rec.	Criteria	Curve Fit
S_4,4'DDD-d4	5.00	5.28	7.61E0	8.032E0	106	50-200	Average RF
S_4,4'-DDT-d4	5.00	4.86	3.841E0	3.731E0	97.2	50-200	Average RF

Client:	AECOM	**Service Request:**	K1804985
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Analyzed:**	07/17/18 09:24

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

Analysis Method:	ALS SOP	**Calibration Date:**	7/16/2018
File ID:	J:\MS21\Data\071718\071718F003.D\	**Calibration ID:**	KC1800352
Signal ID:	1	**Analysis Lot:**	599082
		Units:	ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
2,4'-DDD	20.0	18.3	0.4399	0.4033	-8.3	NA	±25	Average RF
2,4'-DDE	20.0	15.4	0.4245	0.3277	-22.8	NA	±25	Average RF
2,4'-DDT	20.0	18.5	0.5257	0.4865	-7.5	NA	±25	Average RF
4,4'-DDD	20.0	19.2	0.6055	0.5801	-4.2	NA	±25	Average RF
4,4'-DDE	20.0	17.2	0.3165	0.2724	-13.9	NA	±25	Average RF
4,4'-DDT	20.0	19.3	0.6494	0.6273	-3.4	NA	±25	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	Rec.	% Drift	Criteria	Curve Fit
S_4,4'DDD-d4	5.00	5.26	7.6099	8.0107	105	NA	50-200	Average RF
S_4,4'-DDT-d4	5.00	4.98	3.8412	3.8256	99.6	NA	50-200	Average RF

Client:	AECOM	**Service Request:**	K1804985
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Analyzed:**	08/08/18 16:24

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

Analysis Method:	ALS SOP	**Calibration Date:**	8/8/2018
File ID:	J:\MS21\Data\080818\080818F023.D\	**Calibration ID:**	KC1800383
Signal ID:	1	**Analysis Lot:**	601814
		Units:	ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
2,4'-DDD	20.0	18.4	0.4962	0.4573	-7.8	NA	±25	Average RF
2,4'-DDE	20.0	18.5	0.4228	0.39	-7.7	NA	±25	Average RF
2,4'-DDT	20.0	22.0	0.7466	0.8212	10.0	NA	±25	Average RF
4,4'-DDD	20.0	19.3	0.4968	0.4785	-3.7	NA	±25	Average RF
4,4'-DDE	20.0	19.1	0.3286	0.314	-4.4	NA	±25	Average RF
4,4'-DDT	20.0	20.3	0.7079	0.7201	1.7	NA	±25	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	Rec.	% Drift	Criteria	Curve Fit
S_4,4'DDD-d4	5.00	5.08	NA	NA	102	NA	50-200	
S_4,4'-DDT-d4	5.00	4.32	NA	NA	86.4	NA	50-200	

Client: AECOM **Service Request:**K1804985
Project: Portland Harbor Pre-Remedial Design Investigation/60566335

Analysis Run Log
Organochlorine Pesticides by GC/MS/MS

Analysis Method: ALS SOP **Analysis Lot:**599082
Instrument ID:K-MSMS-01

Raw Data File	Sample Name	Lab Code	Date Analyzed	Time Analyzed	Q
J:\MS21\Data\071718\071718F003.D\	Continuing Calibration Verification	KQ1809698-01	7/17/2018	09:24:11	
J:\MS21\Data\071718\071718F004.D\	ZZZZZZZ	ZZZZZZZ	7/17/2018	09:56:23	
J:\MS21\Data\071718\071718F005.D\	ZZZZZZZ	ZZZZZZZ	7/17/2018	10:20:37	
J:\MS21\Data\071718\071718F006.D\	ZZZZZZZ	ZZZZZZZ	7/17/2018	10:48:03	
J:\MS21\Data\071718\071718F007.D\	ZZZZZZZ	ZZZZZZZ	7/17/2018	11:15:21	
J:\MS21\Data\071718\071718F008.D\	Method Blank	KQ1808749-04	7/17/2018	11:42:42	
J:\MS21\Data\071718\071718F009.D\	Lab Control Sample	KQ1808749-03	7/17/2018	12:09:55	
J:\MS21\Data\071718\071718F013.D\	ZZZZZZZ	ZZZZZZZ	7/17/2018	15:30:13	
J:\MS21\Data\071718\071718F017.D\	ZZZZZZZ	ZZZZZZZ	7/17/2018	17:19:23	
J:\MS21\Data\071718\071718F018.D\	PDI-SG-S090	K1804985-004	7/17/2018	17:46:41	
J:\MS21\Data\071718\071718F019.D\	PDI-SG-S010	K1804985-005	7/17/2018	18:13:59	
J:\MS21\Data\071718\071718F020.D\	PDI-SG-S255	K1804985-006	7/17/2018	18:41:17	
J:\MS21\Data\071718\071718F021.D\	PDI-SG-S097	K1804985-007	7/17/2018	19:08:35	
J:\MS21\Data\071718\071718F022.D\	PDI-SG-S115	K1804985-008	7/17/2018	19:35:53	
J:\MS21\Data\071718\071718F023.D\	PDI-SG-S078	K1804985-009	7/17/2018	20:03:10	
J:\MS21\Data\071718\071718F024.D\	PDI-SG-S135	K1804985-010	7/17/2018	20:30:28	
J:\MS21\Data\071718\071718F025.D\	PDI-SG-S157	K1804985-011	7/17/2018	20:57:45	

Client: AECOM **Service Request:**K1804985
Project: Portland Harbor Pre-Remedial Design Investigation/60566335

Analysis Run Log
Organochlorine Pesticides by GC/MS/MS

Analysis Method: ALS SOP **Analysis Lot:**601814
Instrument ID:K-MSMS-01

Raw Data File	Sample Name	Lab Code	Date Analyzed	Time Analyzed	Q
J:\MS21\Data\080818\080818F023.D\	Continuing Calibration Verification	KQ1810800-01	8/8/2018	16:24:55	
J:\MS21\Data\080818\080818F024.D\	Method Blank	KQ1810142-04	8/8/2018	16:52:15	
J:\MS21\Data\080818\080818F025.D\	Lab Control Sample	KQ1810142-03	8/8/2018	17:19:33	
J:\MS21\Data\080818\080818F026.D\	PDI-SG-S135 MS	KQ1810142-01	8/8/2018	17:46:49	
J:\MS21\Data\080818\080818F027.D\	PDI-SG-S135 DMS	KQ1810142-02	8/8/2018	18:14:01	
J:\MS21\Data\080818\080818F028.D\	ZZZZZZZ	ZZZZZZZ	8/8/2018	18:41:23	
J:\MS21\Data\080818\080818F029.D\	ZZZZZZZ	ZZZZZZZ	8/8/2018	19:08:40	
J:\MS21\Data\080818\080818F030.D\	ZZZZZZZ	ZZZZZZZ	8/8/2018	19:35:54	
J:\MS21\Data\080818\080818F031.D\	ZZZZZZZ	ZZZZZZZ	8/8/2018	20:03:11	
J:\MS21\Data\080818\080818F032.D\	PDI-SG-S135	K1804985-010	8/8/2018	20:30:28	
J:\MS21\Data\080818\080818F033.D\	Method Blank	KQ1809809-04	8/8/2018	20:57:40	
J:\MS21\Data\080818\080818F034.D\	Lab Control Sample	KQ1809809-03	8/8/2018	21:25:01	
J:\MS21\Data\080818\080818F035.D\	Batch QC MS	KQ1809809-01	8/8/2018	21:52:15	
J:\MS21\Data\080818\080818F036.D\	Batch QC DMS	KQ1809809-02	8/8/2018	22:19:31	
J:\MS21\Data\080818\080818F037.D\	Batch QC	K1804214-016	8/8/2018	22:46:43	
J:\MS21\Data\080818\080818F038.D\	PDI-SG-S204	K1804985-001	8/8/2018	23:14:04	
J:\MS21\Data\080818\080818F039.D\	PDI-SG-S147	K1804985-002	8/8/2018	23:41:20	
J:\MS21\Data\080818\080818F040.D\	PDI-SG-S084	K1804985-003	8/9/2018	00:08:36	
J:\MS21\Data\080818\080818F041.D\	ZZZZZZZ	ZZZZZZZ	8/9/2018	00:35:50	
J:\MS21\Data\080818\080818F042.D\	ZZZZZZZ	ZZZZZZZ	8/9/2018	01:03:07	
J:\MS21\Data\080818\080818F043.D\	ZZZZZZZ	ZZZZZZZ	8/9/2018	01:30:32	
J:\MS21\Data\080818\080818F044.D\	ZZZZZZZ	ZZZZZZZ	8/9/2018	01:57:54	

Prep Summary Report

Client: AECOM **Service Request:** K1804985
Project: Portland Harbor Pre-Remedial Design Investigation/60566335
Sample Matrix: Sediment

Organochlorine Pesticides by GC/MS/MS

Prep Method: EPA 3541 **Extraction Lot:** 318127
Analytical Method: ALS SOP **Extraction Date:** 07/25/18 13:18

Sample Name	Lab Code	Date Collected	Date Received	Sample Amount	Final Amount	Percent Solids
Batch QC	K1804214-016	NA	NA	5.472 g	1 mL	74.2
PDI-SG-S204	K1804985-001	5/3/18	5/25/18	2.142 g	1 mL	70.3
PDI-SG-S147	K1804985-002	5/4/18	5/25/18	2.052 g	1 mL	54.8
PDI-SG-S084	K1804985-003	5/8/18	5/25/18	2.054 g	1 mL	82.3
Matrix Spike	KQ1809809-01MS	NA	NA	5.360 g	1 mL	74.2
Duplicate Matrix Spike	KQ1809809-02DMS	NA	NA	5.218 g	1 mL	74.2
Lab Control Sample	KQ1809809-03LCS	NA	NA	10 g	1 mL	
Method Blank	KQ1809809-04MB	NA	NA	10 g	1 mL	

Prep Summary Report

Client: AECOM **Service Request:**K1804985
Project: Portland Harbor Pre-Remedial Design Investigation/60566335
Sample Matrix: Sediment

Organochlorine Pesticides by GC/MS/MS

Prep Method: EPA 3541 **Extraction Lot:** 316876
Analytical Method: ALS SOP **Extraction Date:** 07/02/18 13:28

Sample Name	Lab Code	Date Collected	Date Received	Sample Amount	Final Amount	Percent Solids
PDI-SG-S090	K1804985-004	5/9/18	5/25/18	20.296 g	1 mL	75.2
PDI-SG-S010	K1804985-005	5/9/18	5/25/18	20.068 g	1 mL	75.9
PDI-SG-S255	K1804985-006	5/11/18	5/25/18	20.418 g	1 mL	62.4
PDI-SG-S097	K1804985-007	5/13/18	5/25/18	20.232 g	1 mL	62.5
PDI-SG-S115	K1804985-008	5/12/18	5/25/18	20.228 g	1 mL	74.0
PDI-SG-S078	K1804985-009	5/12/18	5/25/18	20.203 g	1 mL	55.1
PDI-SG-S135	K1804985-010	5/14/18	5/25/18	20.012 g	1 mL	70.5
PDI-SG-S157	K1804985-011	5/14/18	5/25/18	20.480 g	1 mL	60.6
Lab Control Sample	KQ1808749-03LCS	NA	NA	10.0000 g	1 mL	
Method Blank	KQ1808749-04MB	NA	NA	20.4800 g	1 mL	

Prep Summary Report

Client: AECOM **Service Request:** K1804985
Project: Portland Harbor Pre-Remedial Design Investigation/60566335
Sample Matrix: Sediment

Organochlorine Pesticides by GC/MS/MS

Prep Method: EPA 3541 **Extraction Lot:** 318564
Analytical Method: ALS SOP **Extraction Date:** 07/26/18 16:21

Sample Name	Lab Code	Date Collected	Date Received	Sample Amount	Final Amount	Percent Solids
PDI-SG-S135	K1804985-010	5/14/18	5/25/18	2.170 g	1 mL	70.5
Matrix Spike	KQ1810142-01MS	5/14/18	5/25/18	2.349 g	1 mL	70.5
Duplicate Matrix Spike	KQ1810142-02DMS	5/14/18	5/25/18	2.124 g	1 mL	70.5
Lab Control Sample	KQ1810142-03LCS	NA	NA	10 g	1 mL	
Method Blank	KQ1810142-04MB	NA	NA	10 g	1 mL	