ALS Environmental
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March 20, 2019

Analytical Report for Service Request No: K1804876
Revised Service Request No: K1804876.OXY.01

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

RE: Portland Harbor Pre-Remedial Design Investigation / 60566335

Dear Amy,

Enclosed is the revised samples for the sample(s) submitted to our laboratory May 23, 2018
For your reference, these analyses have been assigned our service request number **K1804876.**

Missing CCV was added to this report.

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.

We apologize for any inconvenience this may have created.

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

REVISED
12:21 pm, Mar 20, 2019

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Table of Contents

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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Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com

REVISED
2:31 pm, Feb 27, 2019

Client: AECOM
Project: Portland Harbor Pre-Remedial Design Investigation
Sample Matrix: Water, Sediment

Service Request: K1804876
Date Received: 05/23/2018

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:

Thirteen sediment samples and one water sample were received for analysis at ALS Environmental on 05/23/2018. 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:

Oxychlordane:

Method ALS SOP, Organochlorine Pesticides by GC/MS/MS 07/08/2018: The low matrix spike recovery of Oxychlordane for sample Batch QC was a result of lower sample mass and increased dilution causing the subsequent matrix spike result to be

Approved by _____ Date 02/27/2019

Chain of Custody

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K1804876

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**	**5/23/2018** COC No: 2
AECOM	**Tel: (206) 438-2261 / (206) 438-2010**	**Laboratory Contact: Howard-Holmes**	**Carrier: Courier** 1 of 2 page(s)
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	[x] 21 days		
Project Name: Portland Harbor Pre-Remedial Design Investigation and Baseline Sampling	[ ] Other _____		
Portland, OR			
Project #: 60566335 Study: Surface Sediment			

Sample Identification	Sample Date	Sample Time	Matrix	QC Sample	Sampler's Initials	Total No. of Cont.	Fraction: Pesticides, PAHs, Total Solids, BEHP, Tributyltin 1669M, 8270-SIM, 160.3, 8270-LL, Krone/Unger	Sample Specific Notes:
PDI-SG-B299-BL1	5/21/2018	10:28	SS		NM	1	x	
PDI-SG-B298-BL1	5/21/2018	14:46	SS		NM	1	x	
PDI-SG-B305-BL1	5/21/2018	16:57	SS		NM	1	x	
PDI-SG-B214-BL1	5/21/2018	10:00	SS		NM	1	x	
PDI-SG-B234-BL1	5/22/2018	12:20	SS		AM	1	x	
PDI-SG-B234-BL1-D	5/22/2018	12:30	SS		AM	1	x	
PDI-SG-B246-BL1	5/22/2018	15:10	SS		AM	1	x	
PDI-SG-B251-BL1	5/22/2018	16:10	SS		AM	1	x	
PDI-SG-B257-BL1	5/22/2018	16:45	SS		AM	1	x	
PDI-SG-B315-BL1	5/22/2018	10:37	SS		MM	1	x	
PDI-SG-B315-BL1-D	5/22/2018	10:38	SS		MM	1	x	
PDI-SG-B398-BL1	5/22/2018	13:09	SS		MM	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 [X] Disposal By Lab [X] Archive For 12 Months

Special Instructions/QC Requirements & Comments:

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
	AECOM	5/23/18/1200		AUN	5/23/18 1200
	AUN	5/23/18 1330		AUN	5/23/18 1330
	Company:	Date/Time:	Received by:	Company:	Date/Time:

K1804876

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SURFACE SEDIMENT
CHAIN OF CUSTODY

Client Contact	Project Contact: Amy Dahl / Chelsey Cook	Site Contact: Jennifer Ray / Michaela McCoog	5/23/2018	COC No: 2
AECOM	Tel: (206) 438-2261 / (206) 438-2010	Laboratory Contact: Howard-Holmes	Carrier: Courier	2 of 2 page(s)
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	[x] 21 days			
Project Name: Portland Harbor Pre-Remedial Design Investigation and Baseline Sampling	[ ] Other ____			
Portland, OR				
Project #: 60566335 Study: Surface Sediment				

Sample Identification	Sample Date	Sample Time	Matrix	QC Sample	Sampler's Initials	Total No. of Cont.	Fraction	Pesticides, PAHs, Total Solids, BEHP, Tributyltin 1669M, 8270-SIM, 160.3, 8270-LL, Kron/Unger	WQ - Pesticides 1669M	WQ - PAHs 8270-SIM	WQ - BEHP EPA 8270D-LL	WQ - Tributyltin Krone/Unger	Sample Specific Notes:
PDI-SG-B417-BL1	5/22/2018	14:58	SS		MM	1		x					
PDI-RB-VV-182105	5/22/2018	17:05	W		BC	8			x	x	x	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 [X] Disposal By Lab [X] Archive For 12 Months

Special Instructions/QC Requirements & Comments:

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
[signature]	AECOM	5/23/18 / 1200	[signature]	ALS	5/23/18 1200
[signature]	ALS	5/23/18 1330	[signature]	ALS	5/23/18 1330

PC HH

Cooler Receipt and Preservation Form

Client AECOM Service Request K18 04876

Received: 5/23/18 Opened: 5/23/18 By: BR Unloaded: 5/23/18 By: BR

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? 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
5.3	5.2	5.8	5.7	-0.1	373			
1.8	1.7	3.1	3.0	-0.1	373			

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: _____

Organochlorine Pesticides By GC/MS/MS

ALS Environmental—Kelso Laboratory
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Phone (360)577-7222 Fax (360)636-1068
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REVISED
12:21 pm, Mar 20, 2019

Analytical Report

Client:	AECOM	**Service Request:**	K1804876
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Collected:**	05/21/18 10:28
Sample Matrix:	Sediment	**Date Received:**	05/23/18 13:30
Sample Name:	PDI-SG-B299-BL1	**Units:**	ug/Kg
Lab Code:	K1804876-001	**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
Oxychlordane	ND U	2.4	1.6	10	07/08/18 20:09	5/31/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_Oxychlordane-13C10	51	5 - 144	07/08/18 20:09	

Analytical Report

Client:	AECOM	**Service Request:**	K1804876
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Collected:**	05/21/18 14:46
Sample Matrix:	Sediment	**Date Received:**	05/23/18 13:30
Sample Name:	PDI-SG-B298-BL1	**Units:**	ug/Kg
Lab Code:	K1804876-002	**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
Oxychlordane	ND U	2.0	1.3	10	07/08/18 20:36	5/31/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_Oxychlordane-13C10	49	5 - 144	07/08/18 20:36	

Analytical Report

Client:	AECOM	**Service Request:**	K1804876
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Collected:**	05/21/18 16:57
Sample Matrix:	Sediment	**Date Received:**	05/23/18 13:30
Sample Name:	PDI-SG-B305-BL1	**Units:**	ug/Kg
Lab Code:	K1804876-003	**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
Oxychlordane	ND U	2.0	1.3	10	07/08/18 21:03	5/31/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_Oxychlordane-13C10	47	5 - 144	07/08/18 21:03	

Analytical Report

Client:	AECOM	**Service Request:**	K1804876
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Collected:**	05/21/18 10:00
Sample Matrix:	Sediment	**Date Received:**	05/23/18 13:30
Sample Name:	PDI-SG-B214-BL1	**Units:**	ug/Kg
Lab Code:	K1804876-004	**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
Oxychlordane	ND U	2.0	1.3	10	07/08/18 21:31	5/31/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_Oxychlordane-13C10	35	5 - 144	07/08/18 21:31	

Analytical Report

Client:	AECOM	**Service Request:**	K1804876
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Collected:**	05/22/18 12:20
Sample Matrix:	Sediment	**Date Received:**	05/23/18 13:30
Sample Name:	PDI-SG-B234-BL1	**Units:**	ug/Kg
Lab Code:	K1804876-005	**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
Oxychlordane	ND U	2.5	1.7	10	07/08/18 21:58	5/31/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_Oxychlordane-13C10	74	5 - 144	07/08/18 21:58	

Analytical Report

Client:	AECOM	**Service Request:**	K1804876
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Collected:**	05/22/18 12:30
Sample Matrix:	Sediment	**Date Received:**	05/23/18 13:30
Sample Name:	PDI-SG-B234-BL1-D	**Units:**	ug/Kg
Lab Code:	K1804876-006	**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
Oxychlordane	ND U	2.6	1.7	10	07/08/18 22:26	5/31/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_Oxychlordane-13C10	45	5 - 144	07/08/18 22:26	

Analytical Report

Client:	AECOM	**Service Request:**	K1804876
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Collected:**	05/22/18 15:10
Sample Matrix:	Sediment	**Date Received:**	05/23/18 13:30
Sample Name:	PDI-SG-B246-BL1	**Units:**	ug/Kg
Lab Code:	K1804876-007	**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
Oxychlordane	ND U	2.0	1.3	10	07/08/18 22:53	5/31/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_Oxychlordane-13C10	46	5 - 144	07/08/18 22:53	

Analytical Report

Client:	AECOM	**Service Request:**	K1804876
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Collected:**	05/22/18 16:10
Sample Matrix:	Sediment	**Date Received:**	05/23/18 13:30
Sample Name:	PDI-SG-B251-BL1	**Units:**	ug/Kg
Lab Code:	K1804876-008	**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
Oxychlordane	ND U	2.5	1.7	10	07/08/18 23:20	5/31/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_Oxychlordane-13C10	70	5 - 144	07/08/18 23:20	

Analytical Report

Client:	AECOM	**Service Request:**	K1804876
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Collected:**	05/22/18 16:45
Sample Matrix:	Sediment	**Date Received:**	05/23/18 13:30
Sample Name:	PDI-SG-B257-BL1	**Units:**	ug/Kg
Lab Code:	K1804876-009	**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
Oxychlordane	ND U	2.0	1.3	10	07/08/18 23:49	5/31/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_Oxychlordane-13C10	61	5 - 144	07/08/18 23:49	

Analytical Report

Client:	AECOM	**Service Request:**	K1804876
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Collected:**	05/22/18 10:37
Sample Matrix:	Sediment	**Date Received:**	05/23/18 13:30
Sample Name:	PDI-SG-B315-BL1	**Units:**	ug/Kg
Lab Code:	K1804876-010	**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
Oxychlordane	ND U	2.0	1.3	10	07/09/18 00:16	5/31/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_Oxychlordane-13C10	51	5 - 144	07/09/18 00:16	

Analytical Report

Client:	AECOM	**Service Request:**	K1804876
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Collected:**	05/22/18 10:38
Sample Matrix:	Sediment	**Date Received:**	05/23/18 13:30
Sample Name:	PDI-SG-B315-BL1-D	**Units:**	ug/Kg
Lab Code:	K1804876-011	**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
Oxychlordane	ND U	2.0	1.3	10	07/09/18 00:43	5/31/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_Oxychlordane-13C10	58	5 - 144	07/09/18 00:43	

Analytical Report

Client:	AECOM	**Service Request:**	K1804876
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Collected:**	05/22/18 13:09
Sample Matrix:	Sediment	**Date Received:**	05/23/18 13:30
Sample Name:	PDI-SG-B398-BL1	**Units:**	ug/Kg
Lab Code:	K1804876-012	**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
Oxychlordane	ND U	2.5	1.7	10	07/09/18 01:11	5/31/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_Oxychlordane-13C10	51	5 - 144	07/09/18 01:11	

Analytical Report

Client:	AECOM	**Service Request:**	K1804876
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Collected:**	05/22/18 14:58
Sample Matrix:	Sediment	**Date Received:**	05/23/18 13:30
Sample Name:	PDI-SG-B417-BL1	**Units:**	ug/Kg
Lab Code:	K1804876-013	**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
Oxychlordane	ND U	2.0	1.3	10	07/09/18 01:38	5/31/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_Oxychlordane-13C10	47	5 - 144	07/09/18 01:38	

Analytical Report

Client:	AECOM	**Service Request:**	K1804876
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Collected:**	05/22/18 17:05
Sample Matrix:	Water	**Date Received:**	05/23/18 13:30
Sample Name:	PDI-RB-VV-182105	**Units:**	ng/L
Lab Code:	K1804876-014	**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
Oxychlordane	ND U	5.2	2.1	1	07/03/18 02:35	5/29/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_Oxychlordane-13C10	46	5 - 144	07/03/18 02:35	

Analytical Report

Client:	AECOM	**Service Request:**	K1804876
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:	KQ1807024-04	**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
Oxychlordane	ND U	0.20	0.13	1	07/08/18 18:19	5/31/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_Oxychlordane-13C10	90	5 - 144	07/08/18 18:19	

Analytical Report

Client:	AECOM	**Service Request:**	K1804876
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ng/L
Lab Code:	KQ1807075-03	**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
Oxychlordane	ND U	5.0	2.0	1	07/03/18 01:13	5/29/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_Oxychlordane-13C10	61	5 - 144	07/03/18 01:13	

Client: AECOM **Service Request:** K1804876

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_Oxychlordane-13C10 5-144
PDI-SG-B299-BL1	K1804876-001	51
PDI-SG-B298-BL1	K1804876-002	49
PDI-SG-B305-BL1	K1804876-003	47
PDI-SG-B214-BL1	K1804876-004	35
PDI-SG-B234-BL1	K1804876-005	74
PDI-SG-B234-BL1-D	K1804876-006	45
PDI-SG-B246-BL1	K1804876-007	46
PDI-SG-B251-BL1	K1804876-008	70
PDI-SG-B257-BL1	K1804876-009	61
PDI-SG-B315-BL1	K1804876-010	51
PDI-SG-B315-BL1-D	K1804876-011	58
PDI-SG-B398-BL1	K1804876-012	51
PDI-SG-B417-BL1	K1804876-013	47
Batch QC	K1804878-001	60
Method Blank	KQ1807024-04	90
Lab Control Sample	KQ1807024-03	64
Batch QC	KQ1807024-01	75
Batch QC	KQ1807024-02	88

Client: AECOM **Service Request:** K1804876

Project: Portland Harbor Pre-Remedial Design Investigation/60566335

Sample Matrix: Water

SURROGATE RECOVERY SUMMARY
Organochlorine Pesticides by GC/MS/MS

Analysis Method: ALS SOP

Extraction Method: EPA 3541

Sample Name	Lab Code	S_Oxychlordane-13C10 5-144
PDI-RB-VV-182105	K1804876-014	46
Method Blank	KQ1807075-03	61
Lab Control Sample	KQ1807075-01	51
Duplicate Lab Control Sample	KQ1807075-02	55

Client: AECOM **Service Request:**K1804876
Project: Portland Harbor Pre-Remedial Design Investigation/60566335 **Date Analyzed:**07/03/18 00:46

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

File ID: J:\MS21\Data\070218a\070218aF022.D\ **Lab Code:**KQ1808958-02
Instrument ID: K-MSMS-01 **Analysis Lot:**597310
Analysis Method: ALS SOP **Signal ID:**1

	Pyrene-d10	
	Area	**RT**
Result ==>	12,160	14.1276
Upper Limit ==>	24,321	14.63
Lower Limit ==>	6,080	13.63

Associated Analyses

Method Blank	KQ1807075-03	12317.1	14.1276
Lab Control Sample	KQ1807075-01	13334.2	14.1276
Duplicate Lab Control Sample	KQ1807075-02	12644.2	14.1276
PDI-RB-VV-182105	K1804876-014	13979.2	14.1276

Client: AECOM **Service Request:**K1804876
Project: Portland Harbor Pre-Remedial Design Investigation/60566335 **Date Analyzed:**07/08/18 17:52

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

File ID: J:\MS21\Data\070818a\070818aF014.D\ **Lab Code:**KQ1809156-01
Instrument ID: K-MSMS-01 **Analysis Lot:**597755
Analysis Method: ALS SOP **Signal ID:**1

		Pyrene-d10	
		Area	**RT**
	Result ==>	40,232	14.0863
	Upper Limit ==>	80,465	14.59
	Lower Limit ==>	20,116	13.59
Associated Analyses			
Method Blank	KQ1807024-04	33492.1	14.0862
Lab Control Sample	KQ1807024-03	40504.1	14.0862
Batch QCMS	KQ1807024-01	49158.8	14.0862
Batch QCDMS	KQ1807024-02	51669.4	14.0862
PDI-SG-B299-BL1	K1804876-001	49572.2	14.0862
PDI-SG-B298-BL1	K1804876-002	53519	14.0862
PDI-SG-B305-BL1	K1804876-003	55624.4	14.0862
PDI-SG-B214-BL1	K1804876-004	45309.9	14.0862
PDI-SG-B234-BL1	K1804876-005	51749.8	14.0864
PDI-SG-B234-BL1-D	K1804876-006	49458	14.0862
PDI-SG-B246-BL1	K1804876-007	51438.2	14.0862
PDI-SG-B251-BL1	K1804876-008	47287.8	14.0862
PDI-SG-B257-BL1	K1804876-009	40349.6	14.0862
PDI-SG-B315-BL1	K1804876-010	49267.2	14.0862
PDI-SG-B315-BL1-D	K1804876-011	46437.6	14.0862
PDI-SG-B398-BL1	K1804876-012	42548.8	14.0862
PDI-SG-B417-BL1	K1804876-013	39643.7	14.0862
Batch QC	K1804878-001	49885.9	14.0862

Client:	AECOM	**Service Request:**	K1804876
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Collected:**	N/A
Sample Matrix:	Sediment	**Date Received:**	N/A
		Date Analyzed:	07/8/18
		Date Extracted:	05/31/18

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

Sample Name:	Batch QC	**Units:**	ug/Kg
Lab Code:	K1804878-001	**Basis:**	Dry
Analysis Method:	ALS SOP		
Prep Method:	EPA 3541		

		Matrix Spike KQ1807024-01			**Duplicate Matrix Spike** KQ1807024-02					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Oxychlordane	ND U	ND U	2.39	0 *	ND U	2.40	0 *	53-144	NC	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:**	K1804876
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Analyzed:**	07/08/18
Sample Matrix:	Sediment	**Date Extracted:**	05/31/18

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:	597755

Lab Control Sample
KQ1807024-03

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Oxychlordane	1.79	2.00	89	59-141

Client:	AECOM	**Service Request:**	K1804876
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Analyzed:**	07/03/18
Sample Matrix:	Water	**Date Extracted:**	05/29/18

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:	597310

	Lab Control Sample KQ1807075-01			Duplicate Lab Control Sample KQ1807075-02					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Oxychlordane	15.6	20.0	78	20.1	20.0	101	77-123	26	30

Client:	AECOM	**Service Request:**	K1804876
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Analyzed:**	07/08/18 18:19
Sample Matrix:	Sediment	**Date Extracted:**	05/31/18

Method Blank Summary
Organochlorine Pesticides by GC/MS/MS

Sample Name:	Method Blank	**Instrument ID:**	K-MSMS-01
Lab Code:	KQ1807024-04	**File ID:**	J:\MS21\Data\070818a\070818aF015.D\
Analysis Method:	ALS SOP	**Analysis Lot:**	597755
Prep Method:	EPA 3541	**Extraction Lot:**	314712

This Method Blank applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Lab Control Sample	KQ1807024-03	J:\MS21\Data\070818a\070818aF016.D\	07/08/18 18:46
Batch QCMS	KQ1807024-01	J:\MS21\Data\070818a\070818aF017.D\	07/08/18 19:14
Batch QCDMS	KQ1807024-02	J:\MS21\Data\070818a\070818aF018.D\	07/08/18 19:41
PDI-SG-B299-BL1	K1804876-001	J:\MS21\Data\070818a\070818aF019.D\	07/08/18 20:09
PDI-SG-B298-BL1	K1804876-002	J:\MS21\Data\070818a\070818aF020.D\	07/08/18 20:36
PDI-SG-B305-BL1	K1804876-003	J:\MS21\Data\070818a\070818aF021.D\	07/08/18 21:03
PDI-SG-B214-BL1	K1804876-004	J:\MS21\Data\070818a\070818aF022.D\	07/08/18 21:31
PDI-SG-B234-BL1	K1804876-005	J:\MS21\Data\070818a\070818aF023.D\	07/08/18 21:58
PDI-SG-B234-BL1-D	K1804876-006	J:\MS21\Data\070818a\070818aF024.D\	07/08/18 22:26
PDI-SG-B246-BL1	K1804876-007	J:\MS21\Data\070818a\070818aF025.D\	07/08/18 22:53
PDI-SG-B251-BL1	K1804876-008	J:\MS21\Data\070818a\070818aF026.D\	07/08/18 23:20
PDI-SG-B257-BL1	K1804876-009	J:\MS21\Data\070818a\070818aF027.D\	07/08/18 23:49
PDI-SG-B315-BL1	K1804876-010	J:\MS21\Data\070818a\070818aF028.D\	07/09/18 00:16
PDI-SG-B315-BL1-D	K1804876-011	J:\MS21\Data\070818a\070818aF029.D\	07/09/18 00:43
PDI-SG-B398-BL1	K1804876-012	J:\MS21\Data\070818a\070818aF030.D\	07/09/18 01:11
PDI-SG-B417-BL1	K1804876-013	J:\MS21\Data\070818a\070818aF031.D\	07/09/18 01:38
Batch QC	K1804878-001	J:\MS21\Data\070818a\070818aF032.D\	07/09/18 02:05

Client:	AECOM	**Service Request:**	K1804876
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Analyzed:**	07/03/18 01:13
Sample Matrix:	Water	**Date Extracted:**	05/29/18

Method Blank Summary
Organochlorine Pesticides by GC/MS/MS

Sample Name:	Method Blank	**Instrument ID:**	K-MSMS-01
Lab Code:	KQ1807075-03	**File ID:**	J:\MS21\Data\070218a\070218aF023.D\
Analysis Method:	ALS SOP	**Analysis Lot:**	597310
Prep Method:	EPA 3535A	**Extraction Lot:**	314778

This Method Blank applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Lab Control Sample	KQ1807075-01	J:\MS21\Data\070218a\070218aF024.D\	07/03/18 01:40
Duplicate Lab Control Sample	KQ1807075-02	J:\MS21\Data\070218a\070218aF025.D\	07/03/18 02:08
PDI-RB-VV-182105	K1804876-014	J:\MS21\Data\070218a\070218aF026.D\	07/03/18 02:35

Client:	AECOM	**Service Request:**	K1804876
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Analyzed:**	07/08/18 18:46
Sample Matrix:	Sediment	**Date Extracted:**	05/31/18

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

Sample Name:	Lab Control Sample	**Instrument ID:**	K-MSMS-01
Lab Code:	KQ1807024-03	**File ID:**	J:\MS21\Data\070818a\070818aF016.D\
Analysis Method:	ALS SOP	**Analysis Lot:**	597755
Prep Method:	EPA 3541	**Extraction Lot:**	314712

This Lab Control Sample applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Method Blank	KQ1807024-04	J:\MS21\Data\070818a\070818aF015.D\	07/08/18 18:19
Batch QCMS	KQ1807024-01	J:\MS21\Data\070818a\070818aF017.D\	07/08/18 19:14
Batch QCDMS	KQ1807024-02	J:\MS21\Data\070818a\070818aF018.D\	07/08/18 19:41
PDI-SG-B299-BL1	K1804876-001	J:\MS21\Data\070818a\070818aF019.D\	07/08/18 20:09
PDI-SG-B298-BL1	K1804876-002	J:\MS21\Data\070818a\070818aF020.D\	07/08/18 20:36
PDI-SG-B305-BL1	K1804876-003	J:\MS21\Data\070818a\070818aF021.D\	07/08/18 21:03
PDI-SG-B214-BL1	K1804876-004	J:\MS21\Data\070818a\070818aF022.D\	07/08/18 21:31
PDI-SG-B234-BL1	K1804876-005	J:\MS21\Data\070818a\070818aF023.D\	07/08/18 21:58
PDI-SG-B234-BL1-D	K1804876-006	J:\MS21\Data\070818a\070818aF024.D\	07/08/18 22:26
PDI-SG-B246-BL1	K1804876-007	J:\MS21\Data\070818a\070818aF025.D\	07/08/18 22:53
PDI-SG-B251-BL1	K1804876-008	J:\MS21\Data\070818a\070818aF026.D\	07/08/18 23:20
PDI-SG-B257-BL1	K1804876-009	J:\MS21\Data\070818a\070818aF027.D\	07/08/18 23:49
PDI-SG-B315-BL1	K1804876-010	J:\MS21\Data\070818a\070818aF028.D\	07/09/18 00:16
PDI-SG-B315-BL1-D	K1804876-011	J:\MS21\Data\070818a\070818aF029.D\	07/09/18 00:43
PDI-SG-B398-BL1	K1804876-012	J:\MS21\Data\070818a\070818aF030.D\	07/09/18 01:11
PDI-SG-B417-BL1	K1804876-013	J:\MS21\Data\070818a\070818aF031.D\	07/09/18 01:38
Batch QC	K1804878-001	J:\MS21\Data\070818a\070818aF032.D\	07/09/18 02:05

Client:	AECOM	**Service Request:**	K1804876
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Analyzed:**	07/03/18 01:40
Sample Matrix:	Water	**Date Extracted:**	05/29/18

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

Sample Name:	Lab Control Sample	**Instrument ID:**	K-MSMS-01
Lab Code:	KQ1807075-01	**File ID:**	J:\MS21\Data\070218a\070218aF024.D\
Analysis Method:	ALS SOP	**Analysis Lot:**	597310
Prep Method:	EPA 3535A	**Extraction Lot:**	314778

This Lab Control Sample applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Method Blank	KQ1807075-03	J:\MS21\Data\070218a\070218aF023.D\	07/03/18 01:13
Duplicate Lab Control Sample	KQ1807075-02	J:\MS21\Data\070218a\070218aF025.D\	07/03/18 02:08
PDI-RB-VV-182105	K1804876-014	J:\MS21\Data\070218a\070218aF026.D\	07/03/18 02:35

Client: AECOM **Service Request:**K1804876
Project: Portland Harbor Pre-Remedial Design Investigation/60566335 **Date Analyzed:**07/03/18 00:46

Tune Summary
Organochlorine Pesticides by GC/MS/MS

File ID: J:\MS21\Data\070218a\070218aF022.D\ **Analytical Method:** ALS SOP
Instrument ID: K-MSMS-01 **Analysis Lot:** 597310

Sample Name	Lab Code	File ID:	Date Analyzed:	Q
Continuing Calibration Verification	KQ1808958-02	J:\MS21\Data\070218a\070218aF022.D\	07/03/18 00:46	
Method Blank	KQ1807075-03	J:\MS21\Data\070218a\070218aF023.D\	07/03/18 01:13	
Lab Control Sample	KQ1807075-01	J:\MS21\Data\070218a\070218aF024.D\	07/03/18 01:40	
Duplicate Lab Control Sample	KQ1807075-02	J:\MS21\Data\070218a\070218aF025.D\	07/03/18 02:08	
PDI-RB-VV-182105	K1804876-014	J:\MS21\Data\070218a\070218aF026.D\	07/03/18 02:35	

Client: AECOM **Service Request:**K1804876
Project: Portland Harbor Pre-Remedial Design Investigation/60566335 **Date Analyzed:**07/08/18 17:52

Tune Summary
Organochlorine Pesticides by GC/MS/MS

File ID: J:\MS21\Data\070818a\070818aF014.D\ **Analytical Method:** ALS SOP
Instrument ID: K-MSMS-01 **Analysis Lot:** 597755

Sample Name	Lab Code	File ID:	Date Analyzed:	Q
Continuing Calibration Verification	KQ1809156-01	J:\MS21\Data\070818a\070818aF014.D\	07/08/18 17:52	
Method Blank	KQ1807024-04	J:\MS21\Data\070818a\070818aF015.D\	07/08/18 18:19	
Lab Control Sample	KQ1807024-03	J:\MS21\Data\070818a\070818aF016.D\	07/08/18 18:46	
Batch QC	KQ1807024-01	J:\MS21\Data\070818a\070818aF017.D\	07/08/18 19:14	
Batch QC	KQ1807024-02	J:\MS21\Data\070818a\070818aF018.D\	07/08/18 19:41	
PDI-SG-B299-BL1	K1804876-001	J:\MS21\Data\070818a\070818aF019.D\	07/08/18 20:09	
PDI-SG-B298-BL1	K1804876-002	J:\MS21\Data\070818a\070818aF020.D\	07/08/18 20:36	
PDI-SG-B305-BL1	K1804876-003	J:\MS21\Data\070818a\070818aF021.D\	07/08/18 21:03	
PDI-SG-B214-BL1	K1804876-004	J:\MS21\Data\070818a\070818aF022.D\	07/08/18 21:31	
PDI-SG-B234-BL1	K1804876-005	J:\MS21\Data\070818a\070818aF023.D\	07/08/18 21:58	
PDI-SG-B234-BL1-D	K1804876-006	J:\MS21\Data\070818a\070818aF024.D\	07/08/18 22:26	
PDI-SG-B246-BL1	K1804876-007	J:\MS21\Data\070818a\070818aF025.D\	07/08/18 22:53	
PDI-SG-B251-BL1	K1804876-008	J:\MS21\Data\070818a\070818aF026.D\	07/08/18 23:20	
PDI-SG-B257-BL1	K1804876-009	J:\MS21\Data\070818a\070818aF027.D\	07/08/18 23:49	
PDI-SG-B315-BL1	K1804876-010	J:\MS21\Data\070818a\070818aF028.D\	07/09/18 00:16	
PDI-SG-B315-BL1-D	K1804876-011	J:\MS21\Data\070818a\070818aF029.D\	07/09/18 00:43	
PDI-SG-B398-BL1	K1804876-012	J:\MS21\Data\070818a\070818aF030.D\	07/09/18 01:11	
PDI-SG-B417-BL1	K1804876-013	J:\MS21\Data\070818a\070818aF031.D\	07/09/18 01:38	
Batch QC	K1804878-001	J:\MS21\Data\070818a\070818aF032.D\	07/09/18 02:05	

Client: AECOM **Service Request:** K1804876
Project: Portland Harbor Pre-Remedial Design Investigation **Calibration Date:** 7/6/2018

Initial Calibration Summary
Organochlorine Pesticides by GC/MS/MS

Calibration ID: KC1800333 **Signal ID:** 1
Instrument ID: K-MSMS-01

#	Lab Code	Sample Name	File Location	Acquisition Date
01	KC1800333-01		J:\MS21\Data\070618\070618F015.D	07/06/2018 14:05
02	KC1800333-02		J:\MS21\Data\070618\070618F016.D	07/06/2018 14:32
03	KC1800333-03		J:\MS21\Data\070618\070618F017.D	07/06/2018 14:59
04	KC1800333-04		J:\MS21\Data\070618\070618F018.D	07/06/2018 15:26
05	KC1800333-05		J:\MS21\Data\070618\070618F019.D	07/06/2018 15:54
06	KC1800333-06		J:\MS21\Data\070618\070618F020.D	07/06/2018 16:21
07	KC1800333-07		J:\MS21\Data\070618\070618F021.D	07/06/2018 16:48
08	KC1800333-08		J:\MS21\Data\070618\070618F022.D	07/06/2018 17:16
09	KC1800333-09		J:\MS21\Data\070618\070618F023.D	07/06/2018 17:43

Analyte

Oxychlordane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	1.0	2.286	03	2.0	1.5	04	5.0	1.496	05	10	1.374
06	20	1.429	07	40	1.356	08	60	1.436	09	80	1.379

S_Oxychlordane-13C10

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	20	0.2191	02	20	0.2178	03	20	0.2162	04	20	0.2169
05	20	0.2332	06	20	0.2043	07	20	0.21	08	20	0.2068
09	20	0.205									

Client: AECOM **Service Request:** K1804876
Project: Portland Harbor Pre-Remedial Design Investigation **Calibration Date:** 7/6/2018

Initial Calibration Summary
Organochlorine Pesticides by GC/MS/MS

Calibration ID: KC1800333 **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
Oxychlordane	TRG	Quadratic	COD	0.9988	≥	1.532	0.01
S_Oxychlordane-13C10	SURR	Average RF	% RSD	4.3	≤	0.2144	0.01

Client: AECOM **Service Request:** K1804876
Project: Portland Harbor Pre-Remedial Design Investigation **Calibration Date:** 7/2/2018

Initial Calibration Summary
Organochlorine Pesticides by GC/MS/MS

Calibration ID: KC1800348 **Signal ID:** 1
Instrument ID: K-MSMS-01

#	Lab Code	Sample Name	File Location	Acquisition Date
01	KC1800348-01		J:\MS21\Data\070218\070218F009.D	07/02/2018 19:01
02	KC1800348-02		J:\MS21\Data\070218\070218F010.D	07/02/2018 19:28
03	KC1800348-03		J:\MS21\Data\070218\070218F011.D	07/02/2018 19:55
04	KC1800348-04		J:\MS21\Data\070218\070218F012.D	07/02/2018 20:23
05	KC1800348-05		J:\MS21\Data\070218\070218F013.D	07/02/2018 20:50
06	KC1800348-06		J:\MS21\Data\070218\070218F014.D	07/02/2018 21:18
07	KC1800348-07		J:\MS21\Data\070218\070218F015.D	07/02/2018 21:45
08	KC1800348-08		J:\MS21\Data\070218\070218F016.D	07/02/2018 22:12
09	KC1800348-09		J:\MS21\Data\070218\070218F017.D	07/02/2018 22:39
10	KC1800348-10		J:\MS21\Data\070218\070218F018.D	07/02/2018 23:07

Analyte

Oxychlordane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.5	1.452	02	1.0	1.171	03	2.0	1.01	04	5.0	0.9561
05	10	0.987	06	20	1.053	07	40	0.8937	08	60	0.902
09	80	0.802	10	100	0.9073						

Client: AECOM **Service Request:** K1804876
Project: Portland Harbor Pre-Remedial Design Investigation **Calibration Date:** 7/2/2018

Initial Calibration Summary
Organochlorine Pesticides by GC/MS/MS

Calibration ID: KC1800348 **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
Oxychlordane	TRG	Average RF	% RSD	18.2	≤20	1.014	0.01

Client: AECOM **Service Request:** K1804876
Project: Portland Harbor Pre-Remedial Design Investigation **Calibration Date:** 7/6/2018

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

Calibration ID: KC1800333 **Signal ID:** 1
Instrument ID: K-MSMS-01

#	Lab Code	Sample Name	File Location	Acquisition Date
10	KC1800333-10		J:\MS21\Data\070618\070618F024.D	07/06/2018 18:10

Analyte Name	Expected	Result	Average RF	SSV RF	% D	Criteria	Curve Fit
Oxychlordane	20.0	20.7	1.532E0	1.44E0	3.35	±25	Quadratic

Analyte Name	Expected	Result	Average RF	SSV RF	Rec.	Criteria	Curve Fit
S_Oxychlordane-13C10	20.0	19.1	2.144E-1	2.045E-1	95.5	50-200	Average RF

Client: AECOM **Service Request:** K1804876
Project: Portland Harbor Pre-Remedial Design Investigation **Calibration Date:** 7/2/2018

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

Calibration ID: KC1800348 **Signal ID:** 1
Instrument ID: K-MSMS-01

#	Lab Code	Sample Name	File Location	Acquisition Date
11	KC1800348-11		J:\MS21\Data\070218\070218F019.D	07/02/2018 23:34

Analyte Name	Expected	Result	Average RF	SSV RF	% D	Criteria	Curve Fit
Oxychlordane	20.0	22.9	1.014E0	1.162E0	14.68	±25	Average RF

Client:	AECOM	**Service Request:**	K1804876
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Analyzed:**	07/03/18 00:46

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

Analysis Method:	ALS SOP	**Calibration Date:**	7/2/2018
File ID:	J:\MS21\Data\070218a\070218aF022.D\	**Calibration ID:**	KC1800348
Signal ID:	1	**Analysis Lot:**	597310
		Units:	ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Oxychlordane	20.0	19.6	1.0135	0.9937	-1.9	NA	±25	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	Rec.	% Drift	Criteria	Curve Fit
S_Oxychlordane-13C10	20.0	19.7	NA	NA	98.4	NA	50-200	

Client:	AECOM	**Service Request:**	K1804876
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Analyzed:**	07/08/18 17:52

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

Analysis Method:	ALS SOP	**Calibration Date:**	7/6/2018
File ID:	J:\MS21\Data\070818a\070818aF014.D\	**Calibration ID:**	KC1800333
Signal ID:	1	**Analysis Lot:**	597755
		Units:	ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Oxychlordane	20.0	19.4	1.5321	1.3532	NA	-3.0	±25	Quadratic

Analyte Name	Expected	Result	Average RF	CCV RF	Rec.	% Drift	Criteria	Curve Fit
S_Oxychlordane-13C10	20.0	16.1	0.2144	0.172	80.3	NA	50-200	Average RF

Client: AECOM **Service Request:**K1804876

Project: Portland Harbor Pre-Remedial Design Investigation/60566335

Analysis Run Log
Organochlorine Pesticides by GC/MS/MS

Analysis Method:

Analysis Lot:597310

Instrument ID:K-MSMS-01

Raw Data File	Sample Name	Lab Code	Date Analyzed	Time Analyzed	Q
J:\MS21\Data\070218a\070218aF022.D\	ZZZZZZZ	ZZZZZZZ	7/3/2018	00:46:08	
J:\MS21\Data\070218a\070218aF022.D\	Continuing Calibration Verification	KQ1808958-02	7/3/2018	00:46:08	
J:\MS21\Data\070218a\070218aF023.D\	Method Blank	KQ1807075-03	7/3/2018	01:13:26	
J:\MS21\Data\070218a\070218aF024.D\	Lab Control Sample	KQ1807075-01	7/3/2018	01:40:48	
J:\MS21\Data\070218a\070218aF025.D\	Duplicate Lab Control Sample	KQ1807075-02	7/3/2018	02:08:15	
J:\MS21\Data\070218a\070218aF026.D\	PDI-RB-VV-182105	K1804876-014	7/3/2018	02:35:38	
J:\MS21\Data\070218a\070218aF027.D\	ZZZZZZZ	ZZZZZZZ	7/3/2018	03:02:49	
J:\MS21\Data\070218\070218F028.D\	ZZZZZZZ	ZZZZZZZ	7/3/2018	03:30:11	
J:\MS21\Data\070218\070218F029.D\	ZZZZZZZ	ZZZZZZZ	7/3/2018	03:57:28	
J:\MS21\Data\070218\070218F030.D\	ZZZZZZZ	ZZZZZZZ	7/3/2018	04:24:59	
J:\MS21\Data\070218\070218F031.D\	ZZZZZZZ	ZZZZZZZ	7/3/2018	04:52:15	
J:\MS21\Data\070218\070218F032.D\	ZZZZZZZ	ZZZZZZZ	7/3/2018	05:19:37	
J:\MS21\Data\070218\070218F033.D\	ZZZZZZZ	ZZZZZZZ	7/3/2018	05:46:53	
J:\MS21\Data\070218\070218F034.D\	ZZZZZZZ	ZZZZZZZ	7/3/2018	06:14:08	
J:\MS21\Data\070218\070218F035.D\	ZZZZZZZ	ZZZZZZZ	7/3/2018	06:41:25	
J:\MS21\Data\070218\070218F036.D\	ZZZZZZZ	ZZZZZZZ	7/3/2018	07:08:40	
J:\MS21\Data\070218\070218F037.D\	ZZZZZZZ	ZZZZZZZ	7/3/2018	07:35:57	
J:\MS21\Data\070218\070218F038.D\	ZZZZZZZ	ZZZZZZZ	7/3/2018	08:03:18	
J:\MS21\Data\070218\070218F039.D\	ZZZZZZZ	ZZZZZZZ	7/3/2018	08:30:35	
J:\MS21\Data\070218\070218F040.D\	ZZZZZZZ	ZZZZZZZ	7/3/2018	08:57:57	
J:\MS21\Data\070218\070218F041.D\	ZZZZZZZ	ZZZZZZZ	7/3/2018	09:25:37	
J:\MS21\Data\070218\070218F042.D\	ZZZZZZZ	ZZZZZZZ	7/3/2018	09:53:24	
J:\MS21\Data\070218\070218F044.D\	ZZZZZZZ	ZZZZZZZ	7/3/2018	10:48:52	

Client: AECOM **Service Request:**K1804876

Project: Portland Harbor Pre-Remedial Design Investigation/60566335

Analysis Run Log
Organochlorine Pesticides by GC/MS/MS

Analysis Method: ALS SOP **Analysis Lot:**597755

Instrument ID:K-MSMS-01

Raw Data File	Sample Name	Lab Code	Date Analyzed	Time Analyzed	Q
J:\MS21\Data\070818a\070818aF014.D\	Continuing Calibration Verification	KQ1809156-01	7/8/2018	17:52:27	
J:\MS21\Data\070818a\070818aF015.D\	Method Blank	KQ1807024-04	7/8/2018	18:19:45	
J:\MS21\Data\070818a\070818aF016.D\	Lab Control Sample	KQ1807024-03	7/8/2018	18:46:56	
J:\MS21\Data\070818a\070818aF017.D\	Batch QC MS	KQ1807024-01	7/8/2018	19:14:14	
J:\MS21\Data\070818a\070818aF018.D\	Batch QC DMS	KQ1807024-02	7/8/2018	19:41:36	
J:\MS21\Data\070818a\070818aF019.D\	PDI-SG-B299-BL1	K1804876-001	7/8/2018	20:09:09	
J:\MS21\Data\070818a\070818aF020.D\	PDI-SG-B298-BL1	K1804876-002	7/8/2018	20:36:29	
J:\MS21\Data\070818a\070818aF021.D\	PDI-SG-B305-BL1	K1804876-003	7/8/2018	21:03:52	
J:\MS21\Data\070818a\070818aF022.D\	PDI-SG-B214-BL1	K1804876-004	7/8/2018	21:31:08	
J:\MS21\Data\070818a\070818aF023.D\	PDI-SG-B234-BL1	K1804876-005	7/8/2018	21:58:30	
J:\MS21\Data\070818a\070818aF024.D\	PDI-SG-B234-BL1-D	K1804876-006	7/8/2018	22:26:08	
J:\MS21\Data\070818a\070818aF025.D\	PDI-SG-B246-BL1	K1804876-007	7/8/2018	22:53:29	
J:\MS21\Data\070818a\070818aF026.D\	PDI-SG-B251-BL1	K1804876-008	7/8/2018	23:20:50	
J:\MS21\Data\070818a\070818aF027.D\	PDI-SG-B257-BL1	K1804876-009	7/8/2018	23:49:08	
J:\MS21\Data\070818a\070818aF028.D\	PDI-SG-B315-BL1	K1804876-010	7/9/2018	00:16:30	
J:\MS21\Data\070818a\070818aF029.D\	PDI-SG-B315-BL1-D	K1804876-011	7/9/2018	00:43:47	
J:\MS21\Data\070818a\070818aF030.D\	PDI-SG-B398-BL1	K1804876-012	7/9/2018	01:11:13	
J:\MS21\Data\070818a\070818aF031.D\	PDI-SG-B417-BL1	K1804876-013	7/9/2018	01:38:33	
J:\MS21\Data\070818a\070818aF032.D\	Batch QC	K1804878-001	7/9/2018	02:05:55	
J:\MS21\Data\070818\070818F033.D\	ZZZZZZZ	ZZZZZZZ	7/9/2018	02:33:12	
J:\MS21\Data\070818\070818F034.D\	ZZZZZZZ	ZZZZZZZ	7/9/2018	03:00:40	
J:\MS21\Data\070818\070818F035.D\	ZZZZZZZ	ZZZZZZZ	7/9/2018	03:28:02	
J:\MS21\Data\070818\070818F036.D\	ZZZZZZZ	ZZZZZZZ	7/9/2018	03:55:23	
J:\MS21\Data\070818\070818F037.D\	ZZZZZZZ	ZZZZZZZ	7/9/2018	04:22:44	

Prep Summary Report

Client: AECOM **Service Request:** K1804876
Project: Portland Harbor Pre-Remedial Design Investigation/60566335
Sample Matrix: Sediment

Organochlorine Pesticides by GC/MS/MS

Prep Method: EPA 3541 **Extraction Lot:** 314712
Analytical Method: ALS SOP **Extraction Date:** 05/31/18 09:24

Sample Name	Lab Code	Date Collected	Date Received	Sample Amount	Final Amount	Percent Solids
PDI-SG-B299-BL1	K1804876-001	5/21/18	5/23/18	20.035 g	1 mL	40.8
PDI-SG-B298-BL1	K1804876-002	5/21/18	5/23/18	20.326 g	1 mL	73.1
PDI-SG-B305-BL1	K1804876-003	5/21/18	5/23/18	20.109 g	1 mL	56.6
PDI-SG-B214-BL1	K1804876-004	5/21/18	5/23/18	20.458 g	1 mL	73.8
PDI-SG-B234-BL1	K1804876-005	5/22/18	5/23/18	20.198 g	1 mL	39.5
PDI-SG-B234-BL1-D	K1804876-006	5/22/18	5/23/18	20.023 g	1 mL	38.8
PDI-SG-B246-BL1	K1804876-007	5/22/18	5/23/18	20.278 g	1 mL	53.5
PDI-SG-B251-BL1	K1804876-008	5/22/18	5/23/18	20.173 g	1 mL	40.2
PDI-SG-B257-BL1	K1804876-009	5/22/18	5/23/18	20.287 g	1 mL	84.3
PDI-SG-B315-BL1	K1804876-010	5/22/18	5/23/18	20.345 g	1 mL	70.7
PDI-SG-B315-BL1-D	K1804876-011	5/22/18	5/23/18	20.019 g	1 mL	71.0
PDI-SG-B398-BL1	K1804876-012	5/22/18	5/23/18	20.165 g	1 mL	39.0
PDI-SG-B417-BL1	K1804876-013	5/22/18	5/23/18	20.476 g	1 mL	73.8
Batch QC	K1804878-001	NA	NA	20.481 g	1 mL	41.0
Matrix Spike	KQ1807024-01MS	NA	NA	20.412 g	1 mL	41.0
Duplicate Matrix Spike	KQ1807024-02DMS	NA	NA	20.320 g	1 mL	41.0
Lab Control Sample	KQ1807024-03LCS	NA	NA	10 g	1 mL	
Method Blank	KQ1807024-04MB	NA	NA	20.4810 g	1 mL	

Client: AECOM **Service Request:** K1804876
Project: Portland Harbor Pre-Remedial Design Investigation/60566335
Sample Matrix: Water

Organochlorine Pesticides by GC/MS/MS

Prep Method: EPA 3535A **Extraction Lot:** 314778
Analytical Method: ALS SOP **Extraction Date:** 05/29/18 09:12

Sample Name	Lab Code	Date Collected	Date Received	Sample Amount	Final Amount	Percent Solids
PDI-RB-VV-182105	K1804876-014	5/22/18	5/23/18	960.0000 mL	1 mL	
Lab Control Sample	KQ1807075-01LCS	NA	NA	1000 mL	1 mL	
Duplicate Lab Control Sample	KQ1807075-02DLCS	NA	NA	1000 mL	1 mL	
Method Blank	KQ1807075-03MB	NA	NA	1000 mL	1 mL	

Raw Data

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Phone (360)577-7222 Fax (360)636-1068
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REVISED
12:22 pm, Mar 20, 2019

Organochlorine Pesticides By GC/MS/MS

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