



ALS Environmental
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February 22, 2019

**Analytical Report for Service Request No: K1803202
Revised Service Request No: K1803202OXY**

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 report for the sample(s) submitted to our laboratory April 06, 2018. For your reference, these analyses have been assigned our service request number **K1803202**. This report contains Oxychlordane data.

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

A handwritten signature in black ink, appearing to read "Howard Holmes".

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.cdpb.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/lbservice.htm	WA01276
New Jersey DEP	http://www.nj.gov/dep/enforcement/oqa.html	WA005
New York - DOH	https://www.wadsworth.org/regulatory/elap	12060
North Carolina DEQ	https://deq.nc.gov/about/divisions/water-resources/water-resources-data/water-sciences-home-page/laboratory-certification-branch/non-field-lab-certification	605
Oklahoma DEQ	http://www.deq.state.ok.us/CSDnew/labcert.htm	9801
Oregon – DEQ (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	WA100010
South Carolina DHEC	http://www.scdhec.gov/environment/EnvironmentalLabCertification/	61002
Texas CEQ	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704427
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C544
Wyoming (EPA Region 8)	https://www.epa.gov/region8-waterops/epa-region-8-certified-drinking-water	-
Kelso Laboratory Website	www.alsglobal.com	NA

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

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



Case Narrative

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com



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

Service Request: K1803202
Date Received: 04/06/2018

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:

Fourteen sediment samples were received for analysis at ALS Environmental on 04/06/2018. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

Semivolatiles by GC/MS:

The detection limits were elevated for many samples due to less than optimal sample mass extracted for analysis. The samples contained low percent solids which prevented extraction of the sample mass necessary to achieve target detection limits.
Oxychlordane:

Method ALS SOP, Organochlorine Pesticides by GC/MS/MS 05/21/2018: The matrix spike recovery of Oxychlordane for sample PDI-SG-B047-BL1 was outside control criteria. Recovery in the Laboratory Control Sample (LCS) was acceptable, which indicated the analytical batch was in control. The analyte in question was not detected in the associated field samples. The error associated with elevated recovery indicated a high bias. The sample data was not significantly affected. No further corrective

Approved by _____

A handwritten signature in black ink is placed over a horizontal line.

Date _____ 02/21/2019



Chain of Custody

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K1803202

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Ph: 360-577-7222 Fax: 360-636-1068

Client Contact
AECOM
1111 3rd Ave Suite 1600
Seattle, WA 98101
Phone: (206) 438-2700 Fax: 1+(866) 495-5288
Project Name: Portland Harbor Pre-Remedial Design
Investigation and Baseline Sampling
Portland, OR
Project #: 60566335 Study: Surface Sediment

SURFACE SEDIMENT CHAIN OF CUSTODY

Client Contact		Project Contact: Amy Dahl / Chelsey Cook		Site Contact: Jennifer Ray / Michaela McCoog		Date: 4/16/18	COC No:			
		Tel: (206) 438-2261 / (206) 438-2010		Laboratory Contact: Howard-Holmes		Carrier:	1 of 2 COCs			
		Analysis Turnaround Time		Project: PDI-S, Total Solids, BEHP, Tributyltin 1669NM, X270-STNT, 160-3, 3270-L1, Konz/Unser						
		Calendar (C) or Work Days (W)								
		<input checked="" type="checkbox"/> 21 days <input type="checkbox"/> Other _____								
Sample Identification		Sample Date	Sample Time	Matrix	QC Sample	Sampler's Initials	Total No. of Cont.	Fraction	Sample Specific Notes:	
PDI-SG-B049-BL1		4/4/2018	10:23	SS		DH	1	x		
PDI-SG-B048-BL1		4/4/2018	12:32	SS		DH	1	x		
PDI-SG-B047-BL1		4/4/2018	14:07	SS	MS/MSD	DH	2	x		
PDI-SG-B051-BL1		4/4/2018	15:08	SS		DH	1	x		
PDI-SG-B050-BL1		4/4/2018	16:27	SS		DH	1	x		
PDI-SG-B055-BL1		4/4/2018	17:56	SS		DH	1	x		
PDI-SG-B052-BL1		4/5/2018	10:41	SS		DH	1	x		
PDI-SG-B053-BL1		4/5/2018	11:47	SS		DH	1	x		
PDI-SG-B057-BL1		4/5/2018	12:43	SS		DH	1	x		
PDI-SG-B056-BL1		4/5/2018	16:23	SS		DH	1	x		
PDI-SG-B058-BL1		4/5/2018	15:20	SS		DH	1	x		
PDI-SG-B060-BL1		4/5/2018	14:02	SS		DH	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, H ₃ PO ₄ = Phosphoric Acid, HNO ₃ = Nitric Acid										
Fraction: D = Dissolved, PRT = Particulate, T = Total (unfiltered)								Sample Disposal <input type="checkbox"/> Return To Client <input checked="" type="checkbox"/> Disposal By Lab <input checked="" type="checkbox"/> Archive For 12 Months		

Special Instructions/QC Requirements & Comments:

Relinquished by: 	Company: AECOM	Date/Time: 4/16/18 1148	Received by:	Company: ALS	Date/Time: 4/16/18 1148
Relinquished by: 	Company: ALS	Date/Time: 4/16/18 1430	Received by:	Company: ALS-K	Date/Time: 4/16/18 1430
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

K1803202

ALS-Environmental-Kelso
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Ph: 360-577-7222 Fax: 360-636-1068
Client Contact
AECOM 1111 3rd Ave Suite 1600 Seattle, WA 98101 Phone: (206) 438-2700 Fax: 1+(866) 495-5288 Project Name: Portland Harbor Pre-Remedial Design Investigation and Baseline Sampling Portland, OR Project #: 60566335 Study: Surface Sediment

SURFACE SEDIMENT CHAIN OF CUSTODY

Project Contact: Amy Dahl / Chelsey Cook Tel: (206) 438-2261 / (206) 438-2010		Site Contact: Jennifer Ray / Michaela McCoog Laboratory Contact: Howard-Holmes		Date: <u>4/16/18</u>	COC No: <u>2</u> of <u>2</u> COCs					
				Carrier:						
Analysis Turnaround Time Calendar (C) or Work Days (W)		<input checked="" type="checkbox"/> 21 days								
		<input type="checkbox"/> Other _____								
Sample Identification		Sample Date	Sample Time	Matrix	QC Sample	Sampler's Initials	Total No. of Cont.	Fraction: Particulates, PAHs, Total Solids, BEHP, Tributaryin 1660ML, 8270-SHM, 1603, 8270-L,L, KronoFilter	Sample Specific Notes:	
PDI-SG-B060-BL1-D		4/5/2018	14:02	SS		DH	1	x		
PDI-SG-B061-BL1		4/5/2018	17:17	SS		DH	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
<input type="checkbox"/> Return To Client <input checked="" type="checkbox"/> Disposal By Lab <input checked="" type="checkbox"/> Archive For 12 Months										

Special Instructions/QC Requirements & Comments:

Relinquished by: <i>Jennifer Ray</i>	Company: <u>AECOM</u>	Date/Time: <u>4/16/18 1148</u>	Received by: <i>J. M. Ray</i>	Company: <u>ALS</u>	Date/Time: <u>4/16/18 1148</u>
Relinquished by: <i>Howard</i>	Company: <u>ALS</u>	Date/Time: <u>4/16/18 1430</u>	Received by: <i>DANIE ALLEN</i>	Company: <u>ALS-KC</u>	Date/Time: <u>4/16/18 1430</u>
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

(ALS)

PC H1**Cooler Receipt and Preservation Form**Client AECON

Service Request K180 3202

Received: 4/6/18Opened: 4/6/18By: JSPUnloaded: 4/6/18By: JSP1. Samples were received via? **USPS** **Fed Ex** **UPS** **DHL** **PDX** **Courier** **Hand Delivered**2. Samples were received in: (circle) **Cooler** **Box** **Envelope** **Other** NA3. Were custody seals on coolers? NA Y N If yes, how many and where? 1 Top FrontIf present, were custody seals intact? Y N If present, were they signed and dated?

Raw Cooler Temp	Corrected. Cooler Temp	Raw Temp Blank	Corrected Temp Blank	Corr. Factor	Thermometer ID	Cooler/COC ID	Tracking Number	NA	Filed
5.3	5.3	4.1	4.1	0.0	389	NA			

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 N6. Were samples received in good condition (temperature, unbroken)? *Indicate in the table below.* NA Y NIf applicable, tissue samples were received: **Frozen** **Partially Thawed** **Thawed**7. Were all sample labels complete (i.e analysis, preservation, etc.)? NA Y N8. Did all sample labels and tags agree with custody papers? *Indicate major discrepancies in the table on page 2.* NA Y N9. Were appropriate bottles/containers and volumes received for the tests indicated? NA Y N10. Were the pH-preserved bottles (see SMO GEN SOP) received at the appropriate pH? *Indicate in the table below* NA Y N11. Were VOA vials received without headspace? *Indicate in the table below.* NA Y N12. 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

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ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: AECOM
Project: Portland Harbor Pre-Remedial Design Investigation/60566335
Sample Matrix: Sediment
Sample Name: PDI-SG-B049-BL1
Lab Code: K1803202-001
Service Request: K1803202
Date Collected: 04/04/18 10:23
Date Received: 04/06/18 14:30
Units: ug/Kg
Basis: Dry

Organochlorine Pesticides by GC/MS/MS

Analysis Method: ALS SOP
Prep Method: EPA 3541

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Oxychlordane	ND U	1.1	0.73	5	05/21/18 21:29	4/13/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_Oxychlordane-13C10	50	5 - 144	05/21/18 21:29	

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Analytical Report

Client: AECOM
Project: Portland Harbor Pre-Remedial Design Investigation/60566335
Sample Matrix: Sediment
Sample Name: PDI-SG-B048-BL1
Lab Code: K1803202-002
Service Request: K1803202
Date Collected: 04/04/18 12:32
Date Received: 04/06/18 14:30
Units: ug/Kg
Basis: Dry

Organochlorine Pesticides by GC/MS/MS

Analysis Method: ALS SOP
Prep Method: EPA 3541

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Oxychlordane	ND U	1.0	0.65	5	05/21/18 21:56	4/13/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_Oxychlordane-13C10	56	5 - 144	05/21/18 21:56	

ALS Group USA, Corp.
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Analytical Report

Client: AECOM
Project: Portland Harbor Pre-Remedial Design Investigation/60566335
Sample Matrix: Sediment
Sample Name: PDI-SG-B047-BL1
Lab Code: K1803202-003

Service Request: K1803202
Date Collected: 04/04/18 14:07
Date Received: 04/06/18 14:30

Units: ug/Kg
Basis: Dry

Organochlorine Pesticides by GC/MS/MS

Analysis Method: ALS SOP
Prep Method: EPA 3541

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Oxychlordane	ND U	1.2	0.79	5	05/21/18 22:24	4/13/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_Oxychlordane-13C10	45	5 - 144	05/21/18 22:24	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: AECOM
Project: Portland Harbor Pre-Remedial Design Investigation/60566335
Sample Matrix: Sediment
Sample Name: PDI-SG-B051-BL1
Lab Code: K1803202-004

Service Request: K1803202
Date Collected: 04/04/18 15:08
Date Received: 04/06/18 14:30

Units: ug/Kg
Basis: Dry

Organochlorine Pesticides by GC/MS/MS

Analysis Method: ALS SOP
Prep Method: EPA 3541

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Oxychlordane	ND U	1.2	0.80	5	05/21/18 22:51	4/13/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_Oxychlordane-13C10	64	5 - 144	05/21/18 22:51	

ALS Group USA, Corp.
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Analytical Report

Client: AECOM
Project: Portland Harbor Pre-Remedial Design Investigation/60566335
Sample Matrix: Sediment
Sample Name: PDI-SG-B050-BL1
Lab Code: K1803202-005
Service Request: K1803202
Date Collected: 04/04/18 16:27
Date Received: 04/06/18 14:30
Units: ug/Kg
Basis: Dry

Organochlorine Pesticides by GC/MS/MS

Analysis Method: ALS SOP
Prep Method: EPA 3541

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Oxychlordane	ND U	1.0	0.65	5	05/21/18 23:18	4/13/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_Oxychlordane-13C10	42	5 - 144	05/21/18 23:18	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: AECOM
Project: Portland Harbor Pre-Remedial Design Investigation/60566335
Sample Matrix: Sediment
Sample Name: PDI-SG-B055-BL1
Lab Code: K1803202-006

Service Request: K1803202
Date Collected: 04/04/18 17:56
Date Received: 04/06/18 14:30

Units: ug/Kg
Basis: Dry

Organochlorine Pesticides by GC/MS/MS

Analysis Method: ALS SOP
Prep Method: EPA 3541

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Oxychlordane	ND U	1.0	0.65	5	05/21/18 23:46	4/13/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_Oxychlordane-13C10	31	5 - 144	05/21/18 23:46	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: AECOM
Project: Portland Harbor Pre-Remedial Design Investigation/60566335
Sample Matrix: Sediment
Sample Name: PDI-SG-B052-BL1
Lab Code: K1803202-007
Service Request: K1803202
Date Collected: 04/05/18 10:41
Date Received: 04/06/18 14:30
Units: ug/Kg
Basis: Dry

Organochlorine Pesticides by GC/MS/MS

Analysis Method: ALS SOP
Prep Method: EPA 3541

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Oxychlordane	ND U	1.0	0.65	5	05/22/18 00:13	4/13/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_Oxychlordane-13C10	94	5 - 144	05/22/18 00:13	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: AECOM
Project: Portland Harbor Pre-Remedial Design Investigation/60566335
Sample Matrix: Sediment
Sample Name: PDI-SG-B053-BL1
Lab Code: K1803202-008
Service Request: K1803202
Date Collected: 04/05/18 11:47
Date Received: 04/06/18 14:30
Units: ug/Kg
Basis: Dry

Organochlorine Pesticides by GC/MS/MS

Analysis Method: ALS SOP
Prep Method: EPA 3541

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Oxychlordane	ND U	1.0	0.65	5	05/22/18 00:41	4/13/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_Oxychlordane-13C10	48	5 - 144	05/22/18 00:41	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: AECOM
Project: Portland Harbor Pre-Remedial Design Investigation/60566335
Sample Matrix: Sediment
Sample Name: PDI-SG-B057-BL1
Lab Code: K1803202-009
Service Request: K1803202
Date Collected: 04/05/18 12:43
Date Received: 04/06/18 14:30
Units: ug/Kg
Basis: Dry

Organochlorine Pesticides by GC/MS/MS

Analysis Method: ALS SOP
Prep Method: EPA 3541

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Oxychlordane	ND U	1.0	0.65	5	05/22/18 01:08	4/13/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_Oxychlordane-13C10	56	5 - 144	05/22/18 01:08	

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dba ALS Environmental

Analytical Report

Client: AECOM
Project: Portland Harbor Pre-Remedial Design Investigation/60566335
Sample Matrix: Sediment
Sample Name: PDI-SG-B056-BL1
Lab Code: K1803202-010

Service Request: K1803202
Date Collected: 04/05/18 16:23
Date Received: 04/06/18 14:30

Units: ug/Kg
Basis: Dry

Organochlorine Pesticides by GC/MS/MS

Analysis Method: ALS SOP
Prep Method: EPA 3541

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Oxychlordane	ND U	1.1	0.74	5	05/22/18 01:35	4/13/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_Oxychlordane-13C10	44	5 - 144	05/22/18 01:35	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: AECOM
Project: Portland Harbor Pre-Remedial Design Investigation/60566335
Sample Matrix: Sediment
Sample Name: PDI-SG-B058-BL1
Lab Code: K1803202-011

Service Request: K1803202
Date Collected: 04/05/18 15:20
Date Received: 04/06/18 14:30

Units: ug/Kg
Basis: Dry

Organochlorine Pesticides by GC/MS/MS

Analysis Method: ALS SOP
Prep Method: EPA 3541

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Oxychlordane	ND U	1.0	0.65	5	05/22/18 02:03	4/13/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_Oxychlordane-13C10	48	5 - 144	05/22/18 02:03	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: AECOM
Project: Portland Harbor Pre-Remedial Design Investigation/60566335
Sample Matrix: Sediment
Sample Name: PDI-SG-B060-BL1
Lab Code: K1803202-012
Service Request: K1803202
Date Collected: 04/05/18 14:02
Date Received: 04/06/18 14:30
Units: ug/Kg
Basis: Dry

Organochlorine Pesticides by GC/MS/MS

Analysis Method: ALS SOP
Prep Method: EPA 3541

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Oxychlordane	ND U	1.0	0.65	5	05/22/18 02:30	4/13/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_Oxychlordane-13C10	25	5 - 144	05/22/18 02:30	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: AECOM
Project: Portland Harbor Pre-Remedial Design Investigation/60566335
Sample Matrix: Sediment
Sample Name: PDI-SG-B060-BL1-D
Lab Code: K1803202-013
Service Request: K1803202
Date Collected: 04/05/18 14:02
Date Received: 04/06/18 14:30
Units: ug/Kg
Basis: Dry

Organochlorine Pesticides by GC/MS/MS

Analysis Method: ALS SOP
Prep Method: EPA 3541

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Oxychlordane	ND U	1.0	0.65	5	05/22/18 02:58	4/13/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_Oxychlordane-13C10	48	5 - 144	05/22/18 02:58	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: AECOM
Project: Portland Harbor Pre-Remedial Design Investigation/60566335
Sample Matrix: Sediment
Sample Name: PDI-SG-B061-BL1
Lab Code: K1803202-014

Service Request: K1803202
Date Collected: 04/05/18 17:17
Date Received: 04/06/18 14:30

Units: ug/Kg
Basis: Dry

Organochlorine Pesticides by GC/MS/MS

Analysis Method: ALS SOP
Prep Method: EPA 3541

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Oxychlordane	ND U	1.0	0.66	5	05/22/18 03:25	4/13/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_Oxychlordane-13C10	35	5 - 144	05/22/18 03:25	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: AECOM
Project: Portland Harbor Pre-Remedial Design Investigation/60566335
Sample Matrix: Sediment
Sample Name: Method Blank
Lab Code: KQ1804618-04

Service Request: K1803202
Date Collected: NA
Date Received: NA
Units: ug/Kg
Basis: Dry

Organochlorine Pesticides by GC/MS/MS

Analysis Method: ALS SOP
Prep Method: EPA 3541

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Oxychlordane	ND U	0.20	0.13	1	05/21/18 19:38	4/13/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_Oxychlordane-13C10	52	5 - 144	05/21/18 19:38	

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dba ALS Environmental

QA/QC Report

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

Service Request: K1803202

SURROGATE RECOVERY SUMMARY
Organochlorine Pesticides by GC/MS/MS

Analysis Method: ALS SOP
Extraction Method: EPA 3541

S_Oxychlordane-13C10

Sample Name	Lab Code	5-144
PDI-SG-B049-BL1	K1803202-001	50
PDI-SG-B048-BL1	K1803202-002	56
PDI-SG-B047-BL1	K1803202-003	45
PDI-SG-B051-BL1	K1803202-004	64
PDI-SG-B050-BL1	K1803202-005	42
PDI-SG-B055-BL1	K1803202-006	31
PDI-SG-B052-BL1	K1803202-007	94
PDI-SG-B053-BL1	K1803202-008	48
PDI-SG-B057-BL1	K1803202-009	56
PDI-SG-B056-BL1	K1803202-010	44
PDI-SG-B058-BL1	K1803202-011	48
PDI-SG-B060-BL1	K1803202-012	25
PDI-SG-B060-BL1-D	K1803202-013	48
PDI-SG-B061-BL1	K1803202-014	35
Method Blank	KQ1804618-04	52
Lab Control Sample	KQ1804618-03	36
PDI-SG-B047-BL1	KQ1804618-01	35
PDI-SG-B047-BL1	KQ1804618-02	40

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QA/QC Report

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

Service Request:K1803202
Date Analyzed:05/21/18 19:11

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

File ID: J:\MS21\Data\052118a\052118F023.D\
Instrument ID: K-MSMS-01
Analysis Method: ALS SOP

Lab Code:KQ1806700-01
Analysis Lot:591721
Signal ID:1

	Pyrene-d10	
	Area	RT
Result ==>	29,454	14.1471
Upper Limit ==>	58,907	14.65
Lower Limit ==>	14,727	13.65

Associated Analyses

Method Blank	KQ1804618-04	27096.5	14.1457
Lab Control Sample	KQ1804618-03	35623.5	14.1471
PDI-SG-B047-BL1MS	KQ1804618-01	33631.1	14.1471
PDI-SG-B047-BL1DMS	KQ1804618-02	34648.8	14.1471
PDI-SG-B049-BL1	K1803202-001	42496.7	14.1471
PDI-SG-B048-BL1	K1803202-002	25368.3	14.146
PDI-SG-B047-BL1	K1803202-003	35033.1	14.1471
PDI-SG-B051-BL1	K1803202-004	38609.1	14.1471
PDI-SG-B050-BL1	K1803202-005	22993.5	14.1457
PDI-SG-B055-BL1	K1803202-006	24688.2	14.1472
PDI-SG-B052-BL1	K1803202-007	54730.7	14.1728
PDI-SG-B053-BL1	K1803202-008	24355.4	14.1458
PDI-SG-B057-BL1	K1803202-009	24857.2	14.1471
PDI-SG-B056-BL1	K1803202-010	36966.7	14.1471
PDI-SG-B058-BL1	K1803202-011	34038.4	14.1471
PDI-SG-B060-BL1	K1803202-012	33766.6	14.1471
PDI-SG-B060-BL1-D	K1803202-013	30125.5	14.1471
PDI-SG-B061-BL1	K1803202-014	39743.2	14.1471

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

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

Service Request: K1803202
Date Collected: 04/04/18
Date Received: 04/06/18
Date Analyzed: 05/21/18
Date Extracted: 04/13/18

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

Sample Name: PDI-SG-B047-BL1 **Units:** ug/Kg
Lab Code: K1803202-003 **Basis:** Dry
Analysis Method: ALS SOP
Prep Method: EPA 3541

Analyte Name	Matrix Spike KQ1804618-01					Duplicate Matrix Spike KQ1804618-02				
	Sample Result	Result	Spike Amount	% Rec	Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
Oxychlordane	ND U	4.50	2.45	184 *	3.94	2.43	162 *	53-144	13	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.

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: AECOM **Service Request:** K1803202
Project: Portland Harbor Pre-Remedial Design Investigation/60566335 **Date Analyzed:** 05/21/18
Sample Matrix: Sediment **Date Extracted:** 04/13/18

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: 591721

Lab Control Sample
KQ1804618-03

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Oxychlordane	2.50	2.00	125	59-141

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QA/QC Report

Client: AECOM **Service Request:** K1803202
Project: Portland Harbor Pre-Remedial Design Investigation/60566335 **Date Analyzed:** 05/21/18 19:38
Sample Matrix: Sediment **Date Extracted:** 04/13/18

Method Blank Summary

Organochlorine Pesticides by GC/MS/MS

Sample Name: Method Blank **Instrument ID:**K-MSMS-01
Lab Code: KQ1804618-04 **File ID:**J:\MS21\Data\052118a\052118F024.D\
Analysis Method: ALS SOP **Analysis Lot:**591721
Prep Method: EPA 3541 **Extraction Lot:**311677

This Method Blank applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Lab Control Sample	KQ1804618-03	J:\MS21\Data\052118a\052118F025.D\	05/21/18 20:06
PDI-SG-B047-BL1MS	KQ1804618-01	J:\MS21\Data\052118a\052118F026.D\	05/21/18 20:34
PDI-SG-B047-BL1DMS	KQ1804618-02	J:\MS21\Data\052118a\052118F027.D\	05/21/18 21:01
PDI-SG-B049-BL1	K1803202-001	J:\MS21\Data\052118a\052118F028.D\	05/21/18 21:29
PDI-SG-B048-BL1	K1803202-002	J:\MS21\Data\052118a\052118F029.D\	05/21/18 21:56
PDI-SG-B047-BL1	K1803202-003	J:\MS21\Data\052118a\052118F030.D\	05/21/18 22:24
PDI-SG-B051-BL1	K1803202-004	J:\MS21\Data\052118a\052118F031.D\	05/21/18 22:51
PDI-SG-B050-BL1	K1803202-005	J:\MS21\Data\052118a\052118F032.D\	05/21/18 23:18
PDI-SG-B055-BL1	K1803202-006	J:\MS21\Data\052118a\052118F033.D\	05/21/18 23:46
PDI-SG-B052-BL1	K1803202-007	J:\MS21\Data\052118a\052118F034.D\	05/22/18 00:13
PDI-SG-B053-BL1	K1803202-008	J:\MS21\Data\052118a\052118F035.D\	05/22/18 00:41
PDI-SG-B057-BL1	K1803202-009	J:\MS21\Data\052118a\052118F036.D\	05/22/18 01:08
PDI-SG-B056-BL1	K1803202-010	J:\MS21\Data\052118a\052118F037.D\	05/22/18 01:35
PDI-SG-B058-BL1	K1803202-011	J:\MS21\Data\052118a\052118F038.D\	05/22/18 02:03
PDI-SG-B060-BL1	K1803202-012	J:\MS21\Data\052118a\052118F039.D\	05/22/18 02:30
PDI-SG-B060-BL1-D	K1803202-013	J:\MS21\Data\052118a\052118F040.D\	05/22/18 02:58
PDI-SG-B061-BL1	K1803202-014	J:\MS21\Data\052118a\052118F041.D\	05/22/18 03:25

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dba ALS Environmental

QA/QC Report

Client: AECOM **Service Request:** K1803202
Project: Portland Harbor Pre-Remedial Design Investigation/60566335 **Date Analyzed:** 05/21/18 20:06
Sample Matrix: Sediment **Date Extracted:** 04/13/18

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

Sample Name: Lab Control Sample **Instrument ID:**K-MSMS-01
Lab Code: KQ1804618-03 **File ID:**J:\MS21\Data\052118a\052118F025.D\
Analysis Method: ALS SOP **Analysis Lot:**591721
Prep Method: EPA 3541 **Extraction Lot:**311677

This Lab Control Sample applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Method Blank	KQ1804618-04	J:\MS21\Data\052118a\052118F024.D\	05/21/18 19:38
PDI-SG-B047-BL1MS	KQ1804618-01	J:\MS21\Data\052118a\052118F026.D\	05/21/18 20:34
PDI-SG-B047-BL1DMS	KQ1804618-02	J:\MS21\Data\052118a\052118F027.D\	05/21/18 21:01
PDI-SG-B049-BL1	K1803202-001	J:\MS21\Data\052118a\052118F028.D\	05/21/18 21:29
PDI-SG-B048-BL1	K1803202-002	J:\MS21\Data\052118a\052118F029.D\	05/21/18 21:56
PDI-SG-B047-BL1	K1803202-003	J:\MS21\Data\052118a\052118F030.D\	05/21/18 22:24
PDI-SG-B051-BL1	K1803202-004	J:\MS21\Data\052118a\052118F031.D\	05/21/18 22:51
PDI-SG-B050-BL1	K1803202-005	J:\MS21\Data\052118a\052118F032.D\	05/21/18 23:18
PDI-SG-B055-BL1	K1803202-006	J:\MS21\Data\052118a\052118F033.D\	05/21/18 23:46
PDI-SG-B052-BL1	K1803202-007	J:\MS21\Data\052118a\052118F034.D\	05/22/18 00:13
PDI-SG-B053-BL1	K1803202-008	J:\MS21\Data\052118a\052118F035.D\	05/22/18 00:41
PDI-SG-B057-BL1	K1803202-009	J:\MS21\Data\052118a\052118F036.D\	05/22/18 01:08
PDI-SG-B056-BL1	K1803202-010	J:\MS21\Data\052118a\052118F037.D\	05/22/18 01:35
PDI-SG-B058-BL1	K1803202-011	J:\MS21\Data\052118a\052118F038.D\	05/22/18 02:03
PDI-SG-B060-BL1	K1803202-012	J:\MS21\Data\052118a\052118F039.D\	05/22/18 02:30
PDI-SG-B060-BL1-D	K1803202-013	J:\MS21\Data\052118a\052118F040.D\	05/22/18 02:58
PDI-SG-B061-BL1	K1803202-014	J:\MS21\Data\052118a\052118F041.D\	05/22/18 03:25

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dba ALS Environmental

QC/QC Report

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

Service Request:K1803202
Date Analyzed:05/21/18 19:11

Tune Summary

Organochlorine Pesticides by GC/MS/MS

File ID: J:\MS21\Data\052118a\052118F023.D\ **Analytical Method:** ALS SOP
Instrument ID: K-MSMS-01 **Analysis Lot:** 591721

Sample Name	Lab Code	File ID:	Date Analyzed:	Q
Continuing Calibration Verification	KQ1806700-01	J:\MS21\Data\052118a\052118F023.D\	05/21/18 19:11	
Method Blank	KQ1804618-04	J:\MS21\Data\052118a\052118F024.D\	05/21/18 19:38	
Lab Control Sample	KQ1804618-03	J:\MS21\Data\052118a\052118F025.D\	05/21/18 20:06	
PDI-SG-B047-BL1	KQ1804618-01	J:\MS21\Data\052118a\052118F026.D\	05/21/18 20:34	
PDI-SG-B047-BL1	KQ1804618-02	J:\MS21\Data\052118a\052118F027.D\	05/21/18 21:01	
PDI-SG-B049-BL1	K1803202-001	J:\MS21\Data\052118a\052118F028.D\	05/21/18 21:29	
PDI-SG-B048-BL1	K1803202-002	J:\MS21\Data\052118a\052118F029.D\	05/21/18 21:56	
PDI-SG-B047-BL1	K1803202-003	J:\MS21\Data\052118a\052118F030.D\	05/21/18 22:24	
PDI-SG-B051-BL1	K1803202-004	J:\MS21\Data\052118a\052118F031.D\	05/21/18 22:51	
PDI-SG-B050-BL1	K1803202-005	J:\MS21\Data\052118a\052118F032.D\	05/21/18 23:18	
PDI-SG-B055-BL1	K1803202-006	J:\MS21\Data\052118a\052118F033.D\	05/21/18 23:46	
PDI-SG-B052-BL1	K1803202-007	J:\MS21\Data\052118a\052118F034.D\	05/22/18 00:13	
PDI-SG-B053-BL1	K1803202-008	J:\MS21\Data\052118a\052118F035.D\	05/22/18 00:41	
PDI-SG-B057-BL1	K1803202-009	J:\MS21\Data\052118a\052118F036.D\	05/22/18 01:08	
PDI-SG-B056-BL1	K1803202-010	J:\MS21\Data\052118a\052118F037.D\	05/22/18 01:35	
PDI-SG-B058-BL1	K1803202-011	J:\MS21\Data\052118a\052118F038.D\	05/22/18 02:03	
PDI-SG-B060-BL1	K1803202-012	J:\MS21\Data\052118a\052118F039.D\	05/22/18 02:30	
PDI-SG-B060-BL1-D	K1803202-013	J:\MS21\Data\052118a\052118F040.D\	05/22/18 02:58	
PDI-SG-B061-BL1	K1803202-014	J:\MS21\Data\052118a\052118F041.D\	05/22/18 03:25	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

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

Service Request: K1803202
Calibration Date: 5/19/2018

Initial Calibration Summary
Organochlorine Pesticides by GC/MS/MS

Calibration ID: KC1800193

Signal ID: 1

Instrument ID: K-MSMS-01

#	Lab Code	Sample Name	File Location	Acquisition Date
01	KC1800193-01		J:\MS21\Data\051918\051918F005.D	05/19/2018 17:35
02	KC1800193-02		J:\MS21\Data\051918\051918F006.D	05/19/2018 18:02
03	KC1800193-03		J:\MS21\Data\051918\051918F007.D	05/19/2018 18:30
04	KC1800193-04		J:\MS21\Data\051918\051918F008.D	05/19/2018 18:57
05	KC1800193-05		J:\MS21\Data\051918\051918F009.D	05/19/2018 19:24
06	KC1800193-06		J:\MS21\Data\051918\051918F010.D	05/19/2018 19:52
07	KC1800193-07		J:\MS21\Data\051918\051918F011.D	05/19/2018 20:19
08	KC1800193-08		J:\MS21\Data\051918\051918F012.D	05/19/2018 20:46
09	KC1800193-09		J:\MS21\Data\051918\051918F013.D	05/19/2018 21:13
10	KC1800193-10		J:\MS21\Data\051918\051918F014.D	05/19/2018 21:42

Analyte

Oxychlordane

#	Amount	RF									
02	1.0	1.227	03	2.0	0.6875	04	5.0	0.7651	05	10	0.7295
06	20	0.7484	07	40	0.7888	08	60	0.7605	09	80	0.6754

S_Oxychlordane-13C10

#	Amount	RF									
01	20	0.1511	02	20	0.163	03	20	0.1416	04	20	0.1221
05	20	0.1409	06	20	0.1415	07	20	0.1367	08	20	0.1331
09	20	0.1562	10	20	0.1197						

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

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

Service Request: K1803202
Calibration Date: 5/19/2018

Initial Calibration Summary
Organochlorine Pesticides by GC/MS/MS

Calibration ID: KC1800193

Signal ID: 1

Instrument ID: K-MSMS-01

Analyte Name	Compound Type	Calibration Evaluation			Calibration Evaluation		
		Fit Type	Eval	Eval Result	Control Criteria	Average RRF	Minimum RRF
Oxychlordane	TRG	Quadratic	COD	0.9953		0.7978	0.01
S_Oxychlordane-13C10	SURR	Average RF	% RSD	9.8		0.1406	0.01

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

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

Service Request: K1803202
Calibration Date: 5/19/2018

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

Calibration ID: KC1800193
Instrument ID: K-MSMS-01

Signal ID: 1

#	Lab Code	Sample Name	File Location			Acquisition Date		
11	KC1800193-11		J:\MS21\Data\051918\051918F015.D			05/19/2018 22:09		

Analyte Name	Expected	Result	Average RF	SSV RF	% D	Criteria	Curve Fit
Oxychlordane	20.0	22.7	7.978E-1	8.78E-1	13.73	±25	Quadratic

Analyte Name	Expected	Result	Average RF	SSV RF	Rec.	Criteria	Curve Fit
S_Oxychlordane-13C10	20.0	21.3	1.406E-1	1.498E-1	107	50-200	Average RF

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: AECOM **Service Request:** K1803202
Project: Portland Harbor Pre-Remedial Design Investigation/60566335 **Date Analyzed:** 05/21/18 19:11

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

Analysis Method: ALS SOP **Calibration Date:** 5/19/2018
File ID: J:\MS21\Data\052118a\052118F023.D\
Signal ID: 1 **Calibration ID:** KC1800193
Analysis Lot: 591721
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Oxychlordane	20.0	19.2	0.7978	0.7469	NA	-3.9	±25	Quadratic
Analyte Name	Expected	Result	Average RF	CCV RF	Rec.	% Drift	Criteria	Curve Fit
S_Oxychlordane-13C10	20.0	21.4	0.1406	0.1502	107	NA	50-200	Average RF

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: AECOM **Service Request:**K1803202
Project: Portland Harbor Pre-Remedial Design Investigation/60566335

Analysis Run Log
Organochlorine Pesticides by GC/MS/MS

Analysis Method: ALS SOP

Analysis Lot:591721

Instrument ID:K-MSMS-01

Raw Data File	Sample Name	Lab Code	Date Analyzed	Time Analyzed	Q
J:\MS21\Data\052118a\052118F023.D\	Continuing Calibration Verification	KQ1806700-01	5/21/2018	19:11:34	
J:\MS21\Data\052118a\052118F024.D\	Method Blank	KQ1804618-04	5/21/2018	19:38:53	
J:\MS21\Data\052118a\052118F025.D\	Lab Control Sample	KQ1804618-03	5/21/2018	20:06:13	
J:\MS21\Data\052118a\052118F026.D\	PDI-SG-B047-BL1 MS	KQ1804618-01	5/21/2018	20:34:33	
J:\MS21\Data\052118a\052118F027.D\	PDI-SG-B047-BL1 DMS	KQ1804618-02	5/21/2018	21:01:52	
J:\MS21\Data\052118a\052118F028.D\	PDI-SG-B049-BL1	K1803202-001	5/21/2018	21:29:14	
J:\MS21\Data\052118a\052118F029.D\	PDI-SG-B048-BL1	K1803202-002	5/21/2018	21:56:58	
J:\MS21\Data\052118a\052118F030.D\	PDI-SG-B047-BL1	K1803202-003	5/21/2018	22:24:17	
J:\MS21\Data\052118a\052118F031.D\	PDI-SG-B051-BL1	K1803202-004	5/21/2018	22:51:36	
J:\MS21\Data\052118a\052118F032.D\	PDI-SG-B050-BL1	K1803202-005	5/21/2018	23:18:55	
J:\MS21\Data\052118a\052118F033.D\	PDI-SG-B055-BL1	K1803202-006	5/21/2018	23:46:16	
J:\MS21\Data\052118a\052118F034.D\	PDI-SG-B052-BL1	K1803202-007	5/22/2018	00:13:49	
J:\MS21\Data\052118a\052118F035.D\	PDI-SG-B053-BL1	K1803202-008	5/22/2018	00:41:08	
J:\MS21\Data\052118a\052118F036.D\	PDI-SG-B057-BL1	K1803202-009	5/22/2018	01:08:26	
J:\MS21\Data\052118a\052118F037.D\	PDI-SG-B056-BL1	K1803202-010	5/22/2018	01:35:46	
J:\MS21\Data\052118a\052118F038.D\	PDI-SG-B058-BL1	K1803202-011	5/22/2018	02:03:07	
J:\MS21\Data\052118a\052118F039.D\	PDI-SG-B060-BL1	K1803202-012	5/22/2018	02:30:28	
J:\MS21\Data\052118a\052118F040.D\	PDI-SG-B060-BL1-D	K1803202-013	5/22/2018	02:58:10	
J:\MS21\Data\052118a\052118F041.D\	PDI-SG-B061-BL1	K1803202-014	5/22/2018	03:25:32	

ALS Group USA, Corp.
dba ALS Environmental

Prep Summary Report

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

Service Request: K1803202

Organochlorine Pesticides by GC/MS/MS

Prep Method: EPA 3541
Analytical Method: ALS SOP

Extraction Lot: 311677
Extraction Date: 04/13/18 10:30

Sample Name	Lab Code	Date Collected	Date Received	Sample Amount	Final Amount	Percent Solids
PDI-SG-B049-BL1	K1803202-001	4/4/18	4/6/18	20.100 g	1 mL	44.8
PDI-SG-B048-BL1	K1803202-002	4/4/18	4/6/18	20.231 g	1 mL	79.3
PDI-SG-B047-BL1	K1803202-003	4/4/18	4/6/18	20.425 g	1 mL	40.5
PDI-SG-B051-BL1	K1803202-004	4/4/18	4/6/18	20.327 g	1 mL	40.1
PDI-SG-B050-BL1	K1803202-005	4/4/18	4/6/18	20.404 g	1 mL	74.5
PDI-SG-B055-BL1	K1803202-006	4/4/18	4/6/18	20.360 g	1 mL	61.1
PDI-SG-B052-BL1	K1803202-007	4/5/18	4/6/18	20.071 g	1 mL	54.3
PDI-SG-B053-BL1	K1803202-008	4/5/18	4/6/18	20.342 g	1 mL	73.2
PDI-SG-B057-BL1	K1803202-009	4/5/18	4/6/18	20.285 g	1 mL	60.8
PDI-SG-B056-BL1	K1803202-010	4/5/18	4/6/18	20.163 g	1 mL	43.6
PDI-SG-B058-BL1	K1803202-011	4/5/18	4/6/18	20.027 g	1 mL	50.5
PDI-SG-B060-BL1	K1803202-012	4/5/18	4/6/18	20.426 g	1 mL	59.9
PDI-SG-B060-BL1-D	K1803202-013	4/5/18	4/6/18	20.393 g	1 mL	60.9
PDI-SG-B061-BL1	K1803202-014	4/5/18	4/6/18	20.137 g	1 mL	49.4
Matrix Spike	KQ1804618-01MS	4/4/18	4/6/18	20.168 g	1 mL	40.5
Duplicate Matrix Spike	KQ1804618-02DMS	4/4/18	4/6/18	20.314 g	1 mL	40.5
Lab Control Sample	KQ1804618-03LCS	NA	NA	10 g	1 mL	
Method Blank	KQ1804618-04MB	NA	NA	20.4260 g	1 mL	