



ALS Environmental
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July 03, 2018

Analytical Report for Service Request No: K1803942B

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

RE: Portland Harbor Pre-Remedial Design Investigation / 60566335

Dear Amy,

Enclosed are the results of the sample(s) submitted to our laboratory April 27, 2018
For your reference, these analyses have been assigned our service request number **K1803942**.

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

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

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Howard Holmes
Project Manager



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Acronyms

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

Inorganic Data Qualifiers

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

Metals Data Qualifiers

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

Organic Data Qualifiers

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

Additional Petroleum Hydrocarbon Specific Qualifiers

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

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

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

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

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



Case Narrative

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

Service Request: K1803942
Date Received: 04/27/2018

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 and two water samples were received for analysis at ALS Environmental on 04/27/2018. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

Semivolatiles by GC/MS:

Method 8270D SIM-PAH, 05/23/2018: The following analyte could not be adequately resolved in sample PDI-SG-B3220BL1: Dibenz(a,h)anthracene. The result for the affected analyte was flagged with "X" to indicate the issue.

Method 8270D SIM-PAH, 05/23/2018 :The duplicate matrix spike recovery of Indeno(1,2,3-cd)pyrene for sample PDI-SG-B322-BL1 was outside control criteria. Recovery in the Laboratory Control Sample (LCS) was acceptable, which indicated the analytical batch was in control. The matrix spike outlier suggested a potential high bias in this matrix. No further corrective action was appropriate.

Method 8270D, 05/05/2018: The Method Blank KQ1803942-015 contained low levels of Bis(2-ethylhexyl)Phthalate above the Method Reporting Limit (MRL). In accordance with ALS QA/QC policy, all sample results less than twenty times the level found in the Method Blank were flagged as estimated. The samples were not re-extracted and re-analyzed because insufficient sample remained for additional testing. (If another reason for not rerunning the samples was used, then explain it.)

The detection limits were slightly elevated for sample PDI-SG-RB-VVSS-042618-1 due to less than optimal sample volume received for analysis.

The following analyte was flagged as outside the control criterion for Continuing Calibration Verification (CCV) MS20 \0507F002.D: Anthracene. In accordance with the EPA Method, 80% or more of the CCV analytes must pass within 20% of the true value. The ALS SOP allows for 40% difference for the remaining analytes. The CCV met these criteria. The quality of the sample data was not significantly affected. No further corrective action was required.

Method ALS SOP, 06/18/2018: The detection limit was elevated for all sediment samples. The sample extract was diluted prior to instrumental analysis due to relatively high levels of non-target background components. The non-target matrix interference has been shown to interfere with the internal standards for this project; these samples were diluted based on historical data. The reporting limits were adjusted to reflect the dilution.

Method ALS SOP, 06/18/2018: The analysis of all sediment samples was initially performed past the recommended holding time by two days due to instrument capacity issues. The data was flagged to indicate the holding time violation.

Method ALS SOP, 06/17/2018: The ALS control criterion for the following analyte was not met in Continuing Calibration Verification (CCV) MS21\06172018F033.D: cis-Nonachlor. The error associated with reduced recovery indicated a potential low bias. Additional analysis of the associated field samples was not performed because the holding time had already elapsed. The data was flagged to indicate the problem. No further corrective action was taken.

Method ALS SOP, 06/18/2018: The upper control criterion was exceeded for trans-Nonachlor in the Duplicate Matrix Spike (DMS) for sample PDI-SG-B325-BL1. The analyte in question was not detected above the Method Reporting Limit (MRL) in the



Approved by _____

Date 07/03/2018

associated field samples. The error associated with elevated recovery indicated a high bias. The sample data was not significantly affected. No further corrective action was appropriate.

Method ALS SOP, 06/18/2018: The Relative Percent Difference (RPD) for alpha-Chlordane, cis-Nonachlor and trans-Nonachlor in the replicate matrix spike analyses of sample PDI-SG-B325-BL1 was outside control criteria. The analyte in question was not detected above the Method Reporting Limit (MRL) in the associated field samples. The sample data was not significantly affected. No further corrective action was taken.

Semivoa GC:

Method ALS SOP, 06/11/2018: The upper control criterion was exceeded for Tri-n-butyltin Cation and Tri-n-propyltin in Continuing Calibration Verification (CCV) GC26\0611F030.D. The field samples analyzed in this sequence did not contain the analyte(s) in question. Since the apparent problem indicated a potential high bias, the data quality was not affected. No further corrective action was required.



Approved by _____

Date 07/03/2018



Chain of Custody

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K1 803942

[illegible]

K1803942

[illegible]

PC H2

Cooler Receipt and Preservation Form

Client Aecom Service Request K18 03942
Received: 4/27/18 Opened: 4/27/18 By: CG Unloaded: 4/27/18 By: CG

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

Raw Cooler Temp	Corrected Cooler Temp	Raw Temp Blank	Corrected Temp Blank	Corr. Factor	Thermometer ID	Cooler/COC ID	Tracking Number	NA	Filed
0.4	0.3	5.6	5.5	-0.1	380	1 of 2			
1.6	1.4	5.4	5.2	-0.2	379	2 of 2			

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)? ☐ 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? ☐ 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? ☐ NA ☒ Y ☐ N
11. Were VOA vials received without headspace? ☐ 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

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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-B321-BL1
Lab Code: K1803942-001

Service Request: K1803942
Date Collected: 04/26/18 10:13
Date Received: 04/27/18 13:00

Units: ug/Kg
Basis: Dry

Organochlorine Pesticides by GC/MS/MS

Analysis Method: ALS SOP
Prep Method: EPA 3541

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
2,4'-DDD	ND U	0.61	0.39	5	06/18/18 01:34	5/3/18	*
2,4'-DDE	ND U	0.61	0.49	5	06/18/18 01:34	5/3/18	*
2,4'-DDT	ND U	0.61	0.58	5	06/18/18 01:34	5/3/18	*
4,4'-DDD	1.1	0.61	0.22	5	06/18/18 01:34	5/3/18	*
4,4'-DDE	2.6	0.61	0.43	5	06/18/18 01:34	5/3/18	*
4,4'-DDT	0.31 J	0.61	0.29	5	06/18/18 01:34	5/3/18	*
Aldrin	ND U	0.61	0.49	5	06/18/18 01:34	5/3/18	*
alpha-Chlordane	ND U	1.2	0.38	5	06/18/18 01:34	5/3/18	*
cis-Nonachlor	ND U	0.61	0.60	5	06/18/18 01:34	5/3/18	**
Dieldrin	ND U	1.2	0.47	5	06/18/18 01:34	5/3/18	*
gamma-BHC (Lindane)	ND U	0.61	0.19	5	06/18/18 01:34	5/3/18	*
gamma-Chlordane	ND U	1.2	0.39	5	06/18/18 01:34	5/3/18	*
Heptachlor	ND U	0.61	0.24	5	06/18/18 01:34	5/3/18	*
trans-Nonachlor	ND U	1.2	0.36	5	06/18/18 01:34	5/3/18	*

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_4,4'DDD-d4	53	5 - 120	06/18/18 01:34	
S_4,4'-DDT-d4	56	13 - 200	06/18/18 01:34	
S_Aldrin-13C12	51	10 - 143	06/18/18 01:34	
S_Endrin-13C12	68	20 - 157	06/18/18 01:34	
S_GBHCDD6	41	5 - 124	06/18/18 01:34	
S_Heptachlor-13C10	59	10 - 177	06/18/18 01:34	
S_Heptachlrepox13C10	63	8 - 146	06/18/18 01:34	
S_Oxychlordane-13C10	69	5 - 144	06/18/18 01:34	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

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

Service Request: K1803942
Date Collected: 04/26/18 11:03
Date Received: 04/27/18 13:00

Sample Name: PDI-SG-B322-BL1
Lab Code: K1803942-002

Units: ug/Kg
Basis: Dry

Organochlorine Pesticides by GC/MS/MS

Analysis Method: ALS SOP
Prep Method: EPA 3541

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
2,4'-DDD	ND U	0.68	0.43	5	06/18/18 02:01	5/3/18	*
2,4'-DDE	ND U	0.68	0.54	5	06/18/18 02:01	5/3/18	*
2,4'-DDT	ND U	0.68	0.64	5	06/18/18 02:01	5/3/18	*
4,4'-DDD	1.2	0.68	0.24	5	06/18/18 02:01	5/3/18	*
4,4'-DDE	2.6	0.68	0.48	5	06/18/18 02:01	5/3/18	*
4,4'-DDT	0.36 J	0.68	0.32	5	06/18/18 02:01	5/3/18	*
Aldrin	ND U	0.68	0.54	5	06/18/18 02:01	5/3/18	*
alpha-Chlordane	ND U	1.4	0.42	5	06/18/18 02:01	5/3/18	*
cis-Nonachlor	ND U	0.68	0.66	5	06/18/18 02:01	5/3/18	**
Dieldrin	ND U	1.4	0.53	5	06/18/18 02:01	5/3/18	*
gamma-BHC (Lindane)	ND U	0.68	0.21	5	06/18/18 02:01	5/3/18	*
gamma-Chlordane	ND U	1.4	0.44	5	06/18/18 02:01	5/3/18	*
Heptachlor	ND U	0.68	0.27	5	06/18/18 02:01	5/3/18	*
trans-Nonachlor	ND U	1.4	0.40	5	06/18/18 02:01	5/3/18	*

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_4,4'DDD-d4	65	5 - 120	06/18/18 02:01	
S_4,4'-DDT-d4	71	13 - 200	06/18/18 02:01	
S_Aldrin-13C12	52	10 - 143	06/18/18 02:01	
S_Endrin-13C12	110	20 - 157	06/18/18 02:01	
S_GBHCDD6	44	5 - 124	06/18/18 02:01	
S_Heptachlor-13C10	66	10 - 177	06/18/18 02:01	
S_Heptachlrepox13C10	95	8 - 146	06/18/18 02:01	
S_Oxychlordane-13C10	70	5 - 144	06/18/18 02:01	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

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

Service Request: K1803942
Date Collected: 04/26/18 12:20
Date Received: 04/27/18 13:00

Sample Name: PDI-SG-B325-BL1
Lab Code: K1803942-003

Units: ug/Kg
Basis: Dry

Organochlorine Pesticides by GC/MS/MS

Analysis Method: ALS SOP
Prep Method: EPA 3541

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
2,4'-DDD	ND U	0.70	0.45	5	06/18/18 02:28	5/3/18	*
2,4'-DDE	ND U	0.70	0.56	5	06/18/18 02:28	5/3/18	*
2,4'-DDT	ND U	0.70	0.67	5	06/18/18 02:28	5/3/18	*
4,4'-DDD	1.4	0.70	0.25	5	06/18/18 02:28	5/3/18	*
4,4'-DDE	3.3	0.70	0.50	5	06/18/18 02:28	5/3/18	*
4,4'-DDT	0.66 J	0.70	0.34	5	06/18/18 02:28	5/3/18	*
Aldrin	ND U	0.70	0.56	5	06/18/18 02:28	5/3/18	*
alpha-Chlordane	ND U	1.4	0.44	5	06/18/18 02:28	5/3/18	*
cis-Nonachlor	ND U	0.70	0.69	5	06/18/18 02:28	5/3/18	**
Dieldrin	ND U	1.4	0.55	5	06/18/18 02:28	5/3/18	*
gamma-BHC (Lindane)	ND U	0.70	0.22	5	06/18/18 02:28	5/3/18	*
gamma-Chlordane	ND U	1.4	0.45	5	06/18/18 02:28	5/3/18	*
Heptachlor	ND U	0.70	0.28	5	06/18/18 02:28	5/3/18	*
trans-Nonachlor	ND U	1.4	0.41	5	06/18/18 02:28	5/3/18	*

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_4,4'DDD-d4	48	5 - 120	06/18/18 02:28	
S_4,4'-DDT-d4	53	13 - 200	06/18/18 02:28	
S_Aldrin-13C12	59	10 - 143	06/18/18 02:28	
S_Endrin-13C12	99	20 - 157	06/18/18 02:28	
S_GBHC6	44	5 - 124	06/18/18 02:28	
S_Heptachlor-13C10	59	10 - 177	06/18/18 02:28	
S_Heptachlrepox13C10	73	8 - 146	06/18/18 02:28	
S_Oxychlordane-13C10	83	5 - 144	06/18/18 02:28	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

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

Sample Name: PDI-SG-B327-BL1
Lab Code: K1803942-004

Service Request: K1803942
Date Collected: 04/26/18 13:10
Date Received: 04/27/18 13:00

Units: ug/Kg
Basis: Dry

Organochlorine Pesticides by GC/MS/MS

Analysis Method: ALS SOP
Prep Method: EPA 3541

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
2,4'-DDD	ND U	0.77	0.49	5	06/18/18 02:55	5/3/18	*
2,4'-DDE	ND U	0.77	0.61	5	06/18/18 02:55	5/3/18	*
2,4'-DDT	ND U	0.77	0.72	5	06/18/18 02:55	5/3/18	*
4,4'-DDD	1.5	0.77	0.27	5	06/18/18 02:55	5/3/18	*
4,4'-DDE	3.5	0.77	0.54	5	06/18/18 02:55	5/3/18	*
4,4'-DDT	0.73 J	0.77	0.36	5	06/18/18 02:55	5/3/18	*
Aldrin	ND U	0.77	0.61	5	06/18/18 02:55	5/3/18	*
alpha-Chlordane	ND U	1.5	0.48	5	06/18/18 02:55	5/3/18	*
cis-Nonachlor	ND U	0.77	0.75	5	06/18/18 02:55	5/3/18	**
Dieldrin	ND U	1.5	0.59	5	06/18/18 02:55	5/3/18	*
gamma-BHC (Lindane)	ND U	0.77	0.24	5	06/18/18 02:55	5/3/18	*
gamma-Chlordane	ND U	1.5	0.50	5	06/18/18 02:55	5/3/18	*
Heptachlor	ND U	0.77	0.30	5	06/18/18 02:55	5/3/18	*
trans-Nonachlor	ND U	1.5	0.45	5	06/18/18 02:55	5/3/18	*

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_4,4'DDD-d4	53	5 - 120	06/18/18 02:55	
S_4,4'-DDT-d4	60	13 - 200	06/18/18 02:55	
S_Aldrin-13C12	67	10 - 143	06/18/18 02:55	
S_Endrin-13C12	110	20 - 157	06/18/18 02:55	
S_GBHC6	49	5 - 124	06/18/18 02:55	
S_Heptachlor-13C10	75	10 - 177	06/18/18 02:55	
S_Heptachlrepox13C10	116	8 - 146	06/18/18 02:55	
S_Oxychlordane-13C10	109	5 - 144	06/18/18 02:55	

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Analytical Report

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

Service Request: K1803942
Date Collected: 04/26/18 14:27
Date Received: 04/27/18 13:00

Sample Name: PDI-SG-B394-BL1
Lab Code: K1803942-005

Units: ug/Kg
Basis: Dry

Organochlorine Pesticides by GC/MS/MS

Analysis Method: ALS SOP
Prep Method: EPA 3541

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
2,4'-DDD	ND U	0.50	0.32	5	06/18/18 03:23	5/3/18	*
2,4'-DDE	ND U	0.50	0.40	5	06/18/18 03:23	5/3/18	*
2,4'-DDT	ND U	0.50	0.47	5	06/18/18 03:23	5/3/18	*
4,4'-DDD	0.51	0.50	0.18	5	06/18/18 03:23	5/3/18	*
4,4'-DDE	1.1	0.50	0.35	5	06/18/18 03:23	5/3/18	*
4,4'-DDT	ND U	0.50	0.24	5	06/18/18 03:23	5/3/18	*
Aldrin	ND U	0.50	0.40	5	06/18/18 03:23	5/3/18	*
alpha-Chlordane	ND U	1.0	0.31	5	06/18/18 03:23	5/3/18	*
cis-Nonachlor	ND U	0.50	0.49	5	06/18/18 03:23	5/3/18	**
Dieldrin	ND U	1.0	0.39	5	06/18/18 03:23	5/3/18	*
gamma-BHC (Lindane)	ND U	0.50	0.16	5	06/18/18 03:23	5/3/18	*
gamma-Chlordane	ND U	1.0	0.32	5	06/18/18 03:23	5/3/18	*
Heptachlor	ND U	0.50	0.20	5	06/18/18 03:23	5/3/18	*
trans-Nonachlor	ND U	1.0	0.29	5	06/18/18 03:23	5/3/18	*

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_4,4'DDD-d4	56	5 - 120	06/18/18 03:23	
S_4,4'-DDT-d4	52	13 - 200	06/18/18 03:23	
S_Aldrin-13C12	39	10 - 143	06/18/18 03:23	
S_Endrin-13C12	81	20 - 157	06/18/18 03:23	
S_GBHCD6	44	5 - 124	06/18/18 03:23	
S_Heptachlor-13C10	50	10 - 177	06/18/18 03:23	
S_Heptachlrepox13C10	70	8 - 146	06/18/18 03:23	
S_Oxychlordane-13C10	51	5 - 144	06/18/18 03:23	

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Analytical Report

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

Service Request: K1803942
Date Collected: 04/26/18 15:49
Date Received: 04/27/18 13:00

Sample Name: PDI-SG-B401-BL1
Lab Code: K1803942-006

Units: ug/Kg
Basis: Dry

Organochlorine Pesticides by GC/MS/MS

Analysis Method: ALS SOP
Prep Method: EPA 3541

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
2,4'-DDD	ND U	0.46	0.32	5	06/18/18 03:50	5/3/18	*
2,4'-DDE	ND U	0.46	0.40	5	06/18/18 03:50	5/3/18	*
2,4'-DDT	ND U	0.47	0.47	5	06/18/18 03:50	5/3/18	*
4,4'-DDD	0.51	0.46	0.18	5	06/18/18 03:50	5/3/18	*
4,4'-DDE	1.2	0.46	0.35	5	06/18/18 03:50	5/3/18	*
4,4'-DDT	0.28 J	0.46	0.24	5	06/18/18 03:50	5/3/18	*
Aldrin	ND U	0.46	0.40	5	06/18/18 03:50	5/3/18	*
alpha-Chlordane	ND U	0.92	0.31	5	06/18/18 03:50	5/3/18	*
cis-Nonachlor	ND U	0.49	0.49	5	06/18/18 03:50	5/3/18	**
Dieldrin	ND U	1.0	0.39	5	06/18/18 03:50	5/3/18	*
gamma-BHC (Lindane)	ND U	0.46	0.16	5	06/18/18 03:50	5/3/18	*
gamma-Chlordane	ND U	0.92	0.32	5	06/18/18 03:50	5/3/18	*
Heptachlor	ND U	0.46	0.20	5	06/18/18 03:50	5/3/18	*
trans-Nonachlor	ND U	0.92	0.29	5	06/18/18 03:50	5/3/18	*

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_4,4'DDD-d4	58	5 - 120	06/18/18 03:50	
S_4,4'-DDT-d4	57	13 - 200	06/18/18 03:50	
S_Aldrin-13C12	53	10 - 143	06/18/18 03:50	
S_Endrin-13C12	107	20 - 157	06/18/18 03:50	
S_GBHCDD6	50	5 - 124	06/18/18 03:50	
S_Heptachlor-13C10	65	10 - 177	06/18/18 03:50	
S_Heptachlrepox13C10	79	8 - 146	06/18/18 03:50	
S_Oxychlordane-13C10	87	5 - 144	06/18/18 03:50	

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Analytical Report

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

Sample Name: PDI-SG-B308-BL1
Lab Code: K1803942-007

Service Request: K1803942
Date Collected: 04/26/18 09:55
Date Received: 04/27/18 13:00

Units: ug/Kg
Basis: Dry

Organochlorine Pesticides by GC/MS/MS

Analysis Method: ALS SOP
Prep Method: EPA 3541

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
2,4'-DDD	ND U	0.88	0.56	5	06/18/18 04:17	5/3/18	*
2,4'-DDE	ND U	0.88	0.70	5	06/18/18 04:17	5/3/18	*
2,4'-DDT	ND U	0.88	0.83	5	06/18/18 04:17	5/3/18	*
4,4'-DDD	1.8	0.88	0.31	5	06/18/18 04:17	5/3/18	*
4,4'-DDE	4.2	0.88	0.62	5	06/18/18 04:17	5/3/18	*
4,4'-DDT	0.45 J	0.88	0.42	5	06/18/18 04:17	5/3/18	*
Aldrin	ND U	0.88	0.70	5	06/18/18 04:17	5/3/18	*
alpha-Chlordane	ND U	1.8	0.55	5	06/18/18 04:17	5/3/18	*
cis-Nonachlor	ND U	0.88	0.86	5	06/18/18 04:17	5/3/18	**
Dieldrin	ND U	1.8	0.68	5	06/18/18 04:17	5/3/18	*
gamma-BHC (Lindane)	ND U	0.88	0.28	5	06/18/18 04:17	5/3/18	*
gamma-Chlordane	ND U	1.8	0.57	5	06/18/18 04:17	5/3/18	*
Heptachlor	ND U	0.88	0.35	5	06/18/18 04:17	5/3/18	*
trans-Nonachlor	ND U	1.8	0.51	5	06/18/18 04:17	5/3/18	*

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_4,4'DDD-d4	55	5 - 120	06/18/18 04:17	
S_4,4'-DDT-d4	54	13 - 200	06/18/18 04:17	
S_Aldrin-13C12	68	10 - 143	06/18/18 04:17	
S_Endrin-13C12	65	20 - 157	06/18/18 04:17	
S_GBHC6	45	5 - 124	06/18/18 04:17	
S_Heptachlor-13C10	60	10 - 177	06/18/18 04:17	
S_Heptachlrepox13C10	69	8 - 146	06/18/18 04:17	
S_Oxychlordane-13C10	76	5 - 144	06/18/18 04:17	

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Analytical Report

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

Sample Name: PDI-SG-B313-BL1
Lab Code: K1803942-008

Service Request: K1803942
Date Collected: 04/26/18 10:40
Date Received: 04/27/18 13:00

Units: ug/Kg
Basis: Dry

Organochlorine Pesticides by GC/MS/MS

Analysis Method: ALS SOP
Prep Method: EPA 3541

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
2,4'-DDD	0.64 J	0.75	0.48	5	06/18/18 04:44	5/3/18	*
2,4'-DDE	ND U	0.75	0.60	5	06/18/18 04:44	5/3/18	*
2,4'-DDT	ND U	0.75	0.71	5	06/18/18 04:44	5/3/18	*
4,4'-DDD	2.3	0.75	0.27	5	06/18/18 04:44	5/3/18	*
4,4'-DDE	4.5	0.75	0.53	5	06/18/18 04:44	5/3/18	*
4,4'-DDT	0.81	0.75	0.36	5	06/18/18 04:44	5/3/18	*
Aldrin	ND U	0.75	0.60	5	06/18/18 04:44	5/3/18	*
alpha-Chlordane	ND U	1.5	0.47	5	06/18/18 04:44	5/3/18	*
cis-Nonachlor	ND U	0.75	0.74	5	06/18/18 04:44	5/3/18	**
Dieldrin	ND U	1.5	0.58	5	06/18/18 04:44	5/3/18	*
gamma-BHC (Lindane)	ND U	0.75	0.24	5	06/18/18 04:44	5/3/18	*
gamma-Chlordane	ND U	1.5	0.49	5	06/18/18 04:44	5/3/18	*
Heptachlor	ND U	0.75	0.30	5	06/18/18 04:44	5/3/18	*
trans-Nonachlor	0.52 J	1.5	0.44	5	06/18/18 04:44	5/3/18	*

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_4,4'DDD-d4	45	5 - 120	06/18/18 04:44	
S_4,4'-DDT-d4	44	13 - 200	06/18/18 04:44	
S_Aldrin-13C12	51	10 - 143	06/18/18 04:44	
S_Endrin-13C12	55	20 - 157	06/18/18 04:44	
S_GBHC6	37	5 - 124	06/18/18 04:44	
S_Heptachlor-13C10	59	10 - 177	06/18/18 04:44	
S_Heptachlrepox13C10	61	8 - 146	06/18/18 04:44	
S_Oxychlordane-13C10	71	5 - 144	06/18/18 04:44	

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Analytical Report

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

Service Request: K1803942
Date Collected: 04/26/18 10:40
Date Received: 04/27/18 13:00

Sample Name: PDI-SG-B313-BL1-D
Lab Code: K1803942-009

Units: ug/Kg
Basis: Dry

Organochlorine Pesticides by GC/MS/MS

Analysis Method: ALS SOP
Prep Method: EPA 3541

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
2,4'-DDD	0.64 J	0.75	0.48	5	06/18/18 05:12	5/3/18	*
2,4'-DDE	ND U	0.75	0.60	5	06/18/18 05:12	5/3/18	*
2,4'-DDT	ND U	0.75	0.71	5	06/18/18 05:12	5/3/18	*
4,4'-DDD	2.4	0.75	0.27	5	06/18/18 05:12	5/3/18	*
4,4'-DDE	4.5	0.75	0.53	5	06/18/18 05:12	5/3/18	*
4,4'-DDT	0.53 J	0.75	0.36	5	06/18/18 05:12	5/3/18	*
Aldrin	ND U	0.75	0.60	5	06/18/18 05:12	5/3/18	*
alpha-Chlordane	ND U	1.5	0.47	5	06/18/18 05:12	5/3/18	*
cis-Nonachlor	ND U	0.75	0.73	5	06/18/18 05:12	5/3/18	**
Dieldrin	ND U	1.5	0.58	5	06/18/18 05:12	5/3/18	*
gamma-BHC (Lindane)	0.30 J	0.75	0.24	5	06/18/18 05:12	5/3/18	*
gamma-Chlordane	0.56 J	1.5	0.49	5	06/18/18 05:12	5/3/18	*
Heptachlor	ND U	0.75	0.30	5	06/18/18 05:12	5/3/18	*
trans-Nonachlor	0.47 J	1.5	0.44	5	06/18/18 05:12	5/3/18	*

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_4,4'DDD-d4	57	5 - 120	06/18/18 05:12	
S_4,4'-DDT-d4	65	13 - 200	06/18/18 05:12	
S_Aldrin-13C12	88	10 - 143	06/18/18 05:12	
S_Endrin-13C12	107	20 - 157	06/18/18 05:12	
S_GBHC6	64	5 - 124	06/18/18 05:12	
S_Heptachlor-13C10	102	10 - 177	06/18/18 05:12	
S_Heptachlrepox13C10	105	8 - 146	06/18/18 05:12	
S_Oxychlordane-13C10	102	5 - 144	06/18/18 05:12	

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Analytical Report

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

Service Request: K1803942
Date Collected: 04/26/18 13:00
Date Received: 04/27/18 13:00

Sample Name: PDI-SG-B270-BL1
Lab Code: K1803942-010

Units: ug/Kg
Basis: Dry

Organochlorine Pesticides by GC/MS/MS

Analysis Method: ALS SOP
Prep Method: EPA 3541

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
2,4'-DDD	ND U	0.51	0.33	5	06/18/18 05:39	5/3/18	*
2,4'-DDE	ND U	0.51	0.41	5	06/18/18 05:39	5/3/18	*
2,4'-DDT	ND U	0.51	0.49	5	06/18/18 05:39	5/3/18	*
4,4'-DDD	0.83	0.51	0.18	5	06/18/18 05:39	5/3/18	*
4,4'-DDE	1.7	0.51	0.36	5	06/18/18 05:39	5/3/18	*
4,4'-DDT	ND U	0.51	0.25	5	06/18/18 05:39	5/3/18	*
Aldrin	ND U	0.51	0.41	5	06/18/18 05:39	5/3/18	*
alpha-Chlordane	ND U	1.0	0.32	5	06/18/18 05:39	5/3/18	*
cis-Nonachlor	ND U	0.51	0.50	5	06/18/18 05:39	5/3/18	**
Dieldrin	ND U	1.0	0.40	5	06/18/18 05:39	5/3/18	*
gamma-BHC (Lindane)	ND U	0.51	0.16	5	06/18/18 05:39	5/3/18	*
gamma-Chlordane	ND U	1.0	0.33	5	06/18/18 05:39	5/3/18	*
Heptachlor	ND U	0.51	0.20	5	06/18/18 05:39	5/3/18	*
trans-Nonachlor	ND U	1.0	0.30	5	06/18/18 05:39	5/3/18	*

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_4,4'DDD-d4	59	5 - 120	06/18/18 05:39	
S_4,4'-DDT-d4	66	13 - 200	06/18/18 05:39	
S_Aldrin-13C12	101	10 - 143	06/18/18 05:39	
S_Endrin-13C12	121	20 - 157	06/18/18 05:39	
S_GBHC6	80	5 - 124	06/18/18 05:39	
S_Heptachlor-13C10	115	10 - 177	06/18/18 05:39	
S_Heptachlrepox13C10	115	8 - 146	06/18/18 05:39	
S_Oxychlordane-13C10	99	5 - 144	06/18/18 05:39	

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Analytical Report

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

Service Request: K1803942
Date Collected: 04/26/18 14:15
Date Received: 04/27/18 13:00

Sample Name: PDI-SG-B276-BL1
Lab Code: K1803942-011

Units: ug/Kg
Basis: Dry

Organochlorine Pesticides by GC/MS/MS

Analysis Method: ALS SOP
Prep Method: EPA 3541

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
2,4'-DDD	ND U	0.50	0.32	5	06/18/18 06:07	5/3/18	*
2,4'-DDE	ND U	0.50	0.40	5	06/18/18 06:07	5/3/18	*
2,4'-DDT	ND U	0.50	0.48	5	06/18/18 06:07	5/3/18	*
4,4'-DDD	0.86	0.50	0.18	5	06/18/18 06:07	5/3/18	*
4,4'-DDE	1.8	0.50	0.36	5	06/18/18 06:07	5/3/18	*
4,4'-DDT	0.25 J	0.50	0.24	5	06/18/18 06:07	5/3/18	*
Aldrin	ND U	0.50	0.40	5	06/18/18 06:07	5/3/18	*
alpha-Chlordane	ND U	1.0	0.32	5	06/18/18 06:07	5/3/18	*
cis-Nonachlor	ND U	0.50	0.49	5	06/18/18 06:07	5/3/18	**
Dieldrin	ND U	1.0	0.39	5	06/18/18 06:07	5/3/18	*
gamma-BHC (Lindane)	ND U	0.50	0.16	5	06/18/18 06:07	5/3/18	*
gamma-Chlordane	ND U	1.0	0.33	5	06/18/18 06:07	5/3/18	*
Heptachlor	ND U	0.50	0.20	5	06/18/18 06:07	5/3/18	*
trans-Nonachlor	ND U	1.0	0.30	5	06/18/18 06:07	5/3/18	*

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_4,4'DDD-d4	53	5 - 120	06/18/18 06:07	
S_4,4'-DDT-d4	63	13 - 200	06/18/18 06:07	
S_Aldrin-13C12	73	10 - 143	06/18/18 06:07	
S_Endrin-13C12	89	20 - 157	06/18/18 06:07	
S_GBHCDD6	53	5 - 124	06/18/18 06:07	
S_Heptachlor-13C10	78	10 - 177	06/18/18 06:07	
S_Heptachlrepox13C10	94	8 - 146	06/18/18 06:07	
S_Oxychlordane-13C10	91	5 - 144	06/18/18 06:07	

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Analytical Report

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

Service Request: K1803942
Date Collected: 04/26/18 15:30
Date Received: 04/27/18 13:00

Sample Name: PDI-SG-B287-BL1
Lab Code: K1803942-012

Units: ug/Kg
Basis: Dry

Organochlorine Pesticides by GC/MS/MS

Analysis Method: ALS SOP
Prep Method: EPA 3541

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
2,4'-DDD	ND U	0.55	0.35	5	06/18/18 06:34	5/3/18	*
2,4'-DDE	ND U	0.55	0.44	5	06/18/18 06:34	5/3/18	*
2,4'-DDT	ND U	0.55	0.53	5	06/18/18 06:34	5/3/18	*
4,4'-DDD	0.72	0.55	0.20	5	06/18/18 06:34	5/3/18	*
4,4'-DDE	1.6	0.55	0.39	5	06/18/18 06:34	5/3/18	*
4,4'-DDT	0.36 J	0.55	0.27	5	06/18/18 06:34	5/3/18	*
Aldrin	ND U	0.55	0.44	5	06/18/18 06:34	5/3/18	*
alpha-Chlordane	ND U	1.1	0.35	5	06/18/18 06:34	5/3/18	*
cis-Nonachlor	ND U	0.55	0.54	5	06/18/18 06:34	5/3/18	**
Dieldrin	ND U	1.1	0.43	5	06/18/18 06:34	5/3/18	*
gamma-BHC (Lindane)	ND U	0.55	0.18	5	06/18/18 06:34	5/3/18	*
gamma-Chlordane	ND U	1.1	0.36	5	06/18/18 06:34	5/3/18	*
Heptachlor	ND U	0.55	0.22	5	06/18/18 06:34	5/3/18	*
trans-Nonachlor	ND U	1.1	0.33	5	06/18/18 06:34	5/3/18	*

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_4,4'DDD-d4	48	5 - 120	06/18/18 06:34	
S_4,4'-DDT-d4	46	13 - 200	06/18/18 06:34	
S_Aldrin-13C12	40	10 - 143	06/18/18 06:34	
S_Endrin-13C12	70	20 - 157	06/18/18 06:34	
S_GBHCDD6	43	5 - 124	06/18/18 06:34	
S_Heptachlor-13C10	49	10 - 177	06/18/18 06:34	
S_Heptachlrepox13C10	51	8 - 146	06/18/18 06:34	
S_Oxychlordane-13C10	54	5 - 144	06/18/18 06:34	

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Analytical Report

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

Service Request: K1803942
Date Collected: 04/26/18 16:15
Date Received: 04/27/18 13:00

Sample Name: PDI-SG-B295-BL1
Lab Code: K1803942-013

Units: ug/Kg
Basis: Dry

Organochlorine Pesticides by GC/MS/MS

Analysis Method: ALS SOP
Prep Method: EPA 3541

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
2,4'-DDD	ND U	0.55	0.35	5	06/18/18 07:02	5/3/18	*
2,4'-DDE	ND U	0.55	0.44	5	06/18/18 07:02	5/3/18	*
2,4'-DDT	ND U	0.55	0.53	5	06/18/18 07:02	5/3/18	*
4,4'-DDD	0.77	0.55	0.20	5	06/18/18 07:02	5/3/18	*
4,4'-DDE	1.9	0.55	0.39	5	06/18/18 07:02	5/3/18	*
4,4'-DDT	0.43 J	0.55	0.27	5	06/18/18 07:02	5/3/18	*
Aldrin	ND U	0.55	0.44	5	06/18/18 07:02	5/3/18	*
alpha-Chlordane	ND U	1.1	0.35	5	06/18/18 07:02	5/3/18	*
cis-Nonachlor	ND U	0.55	0.54	5	06/18/18 07:02	5/3/18	**
Dieldrin	ND U	1.1	0.43	5	06/18/18 07:02	5/3/18	*
gamma-BHC (Lindane)	ND U	0.55	0.18	5	06/18/18 07:02	5/3/18	*
gamma-Chlordane	ND U	1.1	0.36	5	06/18/18 07:02	5/3/18	*
Heptachlor	ND U	0.55	0.22	5	06/18/18 07:02	5/3/18	*
trans-Nonachlor	ND U	1.1	0.33	5	06/18/18 07:02	5/3/18	*

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_4,4'DDD-d4	56	5 - 120	06/18/18 07:02	
S_4,4'-DDT-d4	57	13 - 200	06/18/18 07:02	
S_Aldrin-13C12	64	10 - 143	06/18/18 07:02	
S_Endrin-13C12	93	20 - 157	06/18/18 07:02	
S_GBHC6	62	5 - 124	06/18/18 07:02	
S_Heptachlor-13C10	69	10 - 177	06/18/18 07:02	
S_Heptachlrepox13C10	71	8 - 146	06/18/18 07:02	
S_Oxychlordane-13C10	82	5 - 144	06/18/18 07:02	

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Analytical Report

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

Sample Name: PDI-SG-B311-BL1
Lab Code: K1803942-014

Service Request: K1803942
Date Collected: 04/26/18 17:00
Date Received: 04/27/18 13:00

Units: ug/Kg
Basis: Dry

Organochlorine Pesticides by GC/MS/MS

Analysis Method: ALS SOP
Prep Method: EPA 3541

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
2,4'-DDD	ND U	0.35	0.32	5	06/18/18 07:29	5/3/18	*
2,4'-DDE	ND U	0.40	0.40	5	06/18/18 07:29	5/3/18	*
2,4'-DDT	ND U	0.47	0.47	5	06/18/18 07:29	5/3/18	*
4,4'-DDD	0.27 J	0.35	0.18	5	06/18/18 07:29	5/3/18	*
4,4'-DDE	0.36	0.35	0.35	5	06/18/18 07:29	5/3/18	*
4,4'-DDT	ND U	0.35	0.24	5	06/18/18 07:29	5/3/18	*
Aldrin	ND U	0.40	0.40	5	06/18/18 07:29	5/3/18	*
alpha-Chlordane	ND U	0.70	0.31	5	06/18/18 07:29	5/3/18	*
cis-Nonachlor	ND U	0.49	0.49	5	06/18/18 07:29	5/3/18	**
Dieldrin	ND U	1.0	0.39	5	06/18/18 07:29	5/3/18	*
gamma-BHC (Lindane)	ND U	0.35	0.16	5	06/18/18 07:29	5/3/18	*
gamma-Chlordane	ND U	0.70	0.32	5	06/18/18 07:29	5/3/18	*
Heptachlor	ND U	0.35	0.20	5	06/18/18 07:29	5/3/18	*
trans-Nonachlor	ND U	0.70	0.29	5	06/18/18 07:29	5/3/18	*

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_4,4'DDD-d4	64	5 - 120	06/18/18 07:29	
S_4,4'-DDT-d4	60	13 - 200	06/18/18 07:29	
S_Aldrin-13C12	72	10 - 143	06/18/18 07:29	
S_Endrin-13C12	107	20 - 157	06/18/18 07:29	
S_GBHCDD6	69	5 - 124	06/18/18 07:29	
S_Heptachlor-13C10	74	10 - 177	06/18/18 07:29	
S_Heptachlrepox13C10	80	8 - 146	06/18/18 07:29	
S_Oxychlordane-13C10	73	5 - 144	06/18/18 07:29	

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Analytical Report

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

Service Request: K1803942
Date Collected: 04/26/18 17:55
Date Received: 04/27/18 13:00

Sample Name: PDI-SG-RB-180426-1755
Lab Code: K1803942-015

Units: ng/L
Basis: NA

Organochlorine Pesticides by GC/MS/MS

Analysis Method: ALS SOP
Prep Method: EPA 3535A

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
2,4'-DDD	ND U	0.52	0.12	1	06/12/18 13:58	5/3/18	
2,4'-DDE	ND U	0.52	0.12	1	06/12/18 13:58	5/3/18	
2,4'-DDT	ND U	0.52	0.091	1	06/12/18 13:58	5/3/18	
4,4'-DDD	ND U	0.52	0.11	1	06/12/18 13:58	5/3/18	
4,4'-DDE	ND U	0.52	0.079	1	06/12/18 13:58	5/3/18	
4,4'-DDT	ND U	0.52	0.092	1	06/12/18 13:58	5/3/18	
Aldrin	ND U	1.0	0.48	1	06/12/18 13:58	5/3/18	
alpha-Chlordane	0.30 J	0.52	0.14	1	06/12/18 13:58	5/3/18	
cis-Nonachlor	ND U	0.52	0.18	1	06/12/18 13:58	5/3/18	
Dieldrin	ND U	5.2	0.78	1	06/12/18 13:58	5/3/18	
gamma-BHC (Lindane)	ND U	0.52	0.32	1	06/12/18 13:58	5/3/18	
gamma-Chlordane	ND U	0.52	0.18	1	06/12/18 13:58	5/3/18	
Heptachlor	ND U	1.0	0.13	1	06/12/18 13:58	5/3/18	
trans-Nonachlor	0.32 J	0.52	0.13	1	06/12/18 13:58	5/3/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_4,4'DDD-d4	109	5 - 120	06/12/18 13:58	
S_4,4'-DDT-d4	114	13 - 200	06/12/18 13:58	
S_Aldrin-13C12	78	5 - 126	06/12/18 13:58	
S_Endrin-13C12	109	20 - 157	06/12/18 13:58	
S_GBHC6	106	5 - 124	06/12/18 13:58	
S_Heptachlor-13C10	103	5 - 128	06/12/18 13:58	
S_Heptachlrepox13C10	77	8 - 146	06/12/18 13:58	
S_Oxychlordane-13C10	98	5 - 144	06/12/18 13:58	

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Analytical Report

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

Sample Name: PDI-SG-RB-VVSS-042618-1750
Lab Code: K1803942-016

Service Request: K1803942
Date Collected: 04/26/18 17:50
Date Received: 04/27/18 13:00

Units: ng/L
Basis: NA

Organochlorine Pesticides by GC/MS/MS

Analysis Method: ALS SOP
Prep Method: EPA 3535A

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
2,4'-DDD	ND U	0.54	0.12	1	06/12/18 14:26	5/3/18	
2,4'-DDE	ND U	0.54	0.12	1	06/12/18 14:26	5/3/18	
2,4'-DDT	ND U	0.54	0.094	1	06/12/18 14:26	5/3/18	
4,4'-DDD	ND U	0.54	0.11	1	06/12/18 14:26	5/3/18	
4,4'-DDE	ND U	0.54	0.081	1	06/12/18 14:26	5/3/18	
4,4'-DDT	ND U	0.54	0.095	1	06/12/18 14:26	5/3/18	
Aldrin	ND U	1.1	0.50	1	06/12/18 14:26	5/3/18	
alpha-Chlordane	ND U	0.54	0.14	1	06/12/18 14:26	5/3/18	
cis-Nonachlor	ND U	0.54	0.19	1	06/12/18 14:26	5/3/18	
Dieldrin	ND U	5.4	0.80	1	06/12/18 14:26	5/3/18	
gamma-BHC (Lindane)	ND U	0.54	0.33	1	06/12/18 14:26	5/3/18	
gamma-Chlordane	ND U	0.54	0.19	1	06/12/18 14:26	5/3/18	
Heptachlor	ND U	1.1	0.13	1	06/12/18 14:26	5/3/18	
trans-Nonachlor	0.31 J	0.54	0.13	1	06/12/18 14:26	5/3/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_4,4'DDD-d4	120	5 - 120	06/12/18 14:26	
S_4,4'-DDT-d4	123	13 - 200	06/12/18 14:26	
S_Aldrin-13C12	72	5 - 126	06/12/18 14:26	
S_Endrin-13C12	134	20 - 157	06/12/18 14:26	
S_GBHC6	98	5 - 124	06/12/18 14:26	
S_Heptachlor-13C10	102	5 - 128	06/12/18 14:26	
S_Heptachlrepox13C10	81	8 - 146	06/12/18 14:26	
S_Oxychlordane-13C10	78	5 - 144	06/12/18 14:26	

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Analytical Report

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

Sample Name: Method Blank
Lab Code: KQ1805507-04

Service Request: K1803942
Date Collected: NA
Date Received: NA

Units: ug/Kg
Basis: Dry

Organochlorine Pesticides by GC/MS/MS

Analysis Method: ALS SOP
Prep Method: EPA 3541

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
2,4'-DDD	ND U	0.063	0.063	1	06/17/18 23:45	5/3/18	*
2,4'-DDE	ND U	0.079	0.079	1	06/17/18 23:45	5/3/18	*
2,4'-DDT	ND U	0.094	0.094	1	06/17/18 23:45	5/3/18	*
4,4'-DDD	ND U	0.049	0.035	1	06/17/18 23:45	5/3/18	*
4,4'-DDE	ND U	0.070	0.070	1	06/17/18 23:45	5/3/18	*
4,4'-DDT	ND U	0.049	0.047	1	06/17/18 23:45	5/3/18	*
Aldrin	ND U	0.079	0.079	1	06/17/18 23:45	5/3/18	*
alpha-Chlordane	ND U	0.098	0.062	1	06/17/18 23:45	5/3/18	*
cis-Nonachlor	ND U	0.097	0.097	1	06/17/18 23:45	5/3/18	*
Dieldrin	ND U	0.20	0.077	1	06/17/18 23:45	5/3/18	*
gamma-BHC (Lindane)	ND U	0.049	0.031	1	06/17/18 23:45	5/3/18	*
gamma-Chlordane	ND U	0.098	0.064	1	06/17/18 23:45	5/3/18	*
Heptachlor	ND U	0.049	0.039	1	06/17/18 23:45	5/3/18	*
trans-Nonachlor	ND U	0.098	0.058	1	06/17/18 23:45	5/3/18	*

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_4,4'DDD-d4	54	5 - 120	06/17/18 23:45	
S_4,4'-DDT-d4	58	13 - 200	06/17/18 23:45	
S_Aldrin-13C12	37	10 - 143	06/17/18 23:45	
S_Endrin-13C12	74	20 - 157	06/17/18 23:45	
S_GBHC6	39	5 - 124	06/17/18 23:45	
S_Heptachlor-13C10	28	10 - 177	06/17/18 23:45	
S_Heptachlrepox13C10	52	8 - 146	06/17/18 23:45	
S_Oxychlordane-13C10	41	5 - 144	06/17/18 23:45	

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Analytical Report

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

Sample Name: Method Blank
Lab Code: KQ1805734-03

Service Request: K1803942
Date Collected: NA
Date Received: NA

Units: ng/L
Basis: NA

Organochlorine Pesticides by GC/MS/MS

Analysis Method: ALS SOP
Prep Method: EPA 3535A

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
2,4'-DDD	ND U	0.50	0.11	1	06/12/18 12:36	5/3/18	
2,4'-DDE	ND U	0.50	0.11	1	06/12/18 12:36	5/3/18	
2,4'-DDT	ND U	0.50	0.087	1	06/12/18 12:36	5/3/18	
4,4'-DDD	ND U	0.50	0.10	1	06/12/18 12:36	5/3/18	
4,4'-DDE	ND U	0.50	0.075	1	06/12/18 12:36	5/3/18	
4,4'-DDT	ND U	0.50	0.088	1	06/12/18 12:36	5/3/18	
Aldrin	ND U	1.0	0.46	1	06/12/18 12:36	5/3/18	
alpha-Chlordane	0.13 J	0.50	0.13	1	06/12/18 12:36	5/3/18	
cis-Nonachlor	ND U	0.50	0.17	1	06/12/18 12:36	5/3/18	
Dieldrin	ND U	5.0	0.74	1	06/12/18 12:36	5/3/18	
gamma-BHC (Lindane)	ND U	0.50	0.30	1	06/12/18 12:36	5/3/18	
gamma-Chlordane	ND U	0.50	0.17	1	06/12/18 12:36	5/3/18	
Heptachlor	ND U	1.0	0.12	1	06/12/18 12:36	5/3/18	
trans-Nonachlor	0.21 J	0.50	0.12	1	06/12/18 12:36	5/3/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_4,4'DDD-d4	110	5 - 120	06/12/18 12:36	
S_4,4'-DDT-d4	112	13 - 200	06/12/18 12:36	
S_Aldrin-13C12	67	5 - 126	06/12/18 12:36	
S_Endrin-13C12	111	20 - 157	06/12/18 12:36	
S_GBHC6	92	5 - 124	06/12/18 12:36	
S_Heptachlor-13C10	106	5 - 128	06/12/18 12:36	
S_Heptachlrepox13C10	67	8 - 146	06/12/18 12:36	
S_Oxychlordane-13C10	93	5 - 144	06/12/18 12:36	

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QA/QC Report

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

Service Request: K1803942

SURROGATE RECOVERY SUMMARY
Organochlorine Pesticides by GC/MS/MS

Analysis Method: ALS SOP
Extraction Method: EPA 3541

Sample Name	Lab Code	S_4,4'DDD-d4	S_4,4'-DDT-d4	S_Aldrin-13C12
		5-120	13-200	10-143
PDI-SG-B321-BL1	K1803942-001	53	56	51
PDI-SG-B322-BL1	K1803942-002	65	71	52
PDI-SG-B325-BL1	K1803942-003	48	53	59
PDI-SG-B327-BL1	K1803942-004	53	60	67
PDI-SG-B394-BL1	K1803942-005	56	52	39
PDI-SG-B401-BL1	K1803942-006	58	57	53
PDI-SG-B308-BL1	K1803942-007	55	54	68
PDI-SG-B313-BL1	K1803942-008	45	44	51
PDI-SG-B313-BL1-D	K1803942-009	57	65	88
PDI-SG-B270-BL1	K1803942-010	59	66	101
PDI-SG-B276-BL1	K1803942-011	53	63	73
PDI-SG-B287-BL1	K1803942-012	48	46	40
PDI-SG-B295-BL1	K1803942-013	56	57	64
PDI-SG-B311-BL1	K1803942-014	64	60	72
Method Blank	KQ1805507-04	54	58	37
Lab Control Sample	KQ1805507-03	62	71	126
PDI-SG-B325-BL1	KQ1805507-01	61	67	93
PDI-SG-B325-BL1	KQ1805507-02	56	65	40

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QA/QC Report

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

Service Request: K1803942

SURROGATE RECOVERY SUMMARY
Organochlorine Pesticides by GC/MS/MS

Analysis Method: ALS SOP
Extraction Method: EPA 3541

Sample Name	Lab Code	S_Endrin-13C12	S_GBHCD6	S_Heptachlor-13C10
		20-157	5-124	10-177
PDI-SG-B321-BL1	K1803942-001	68	41	59
PDI-SG-B322-BL1	K1803942-002	110	44	66
PDI-SG-B325-BL1	K1803942-003	99	44	59
PDI-SG-B327-BL1	K1803942-004	110	49	75
PDI-SG-B394-BL1	K1803942-005	81	44	50
PDI-SG-B401-BL1	K1803942-006	107	50	65
PDI-SG-B308-BL1	K1803942-007	65	45	60
PDI-SG-B313-BL1	K1803942-008	55	37	59
PDI-SG-B313-BL1-D	K1803942-009	107	64	102
PDI-SG-B270-BL1	K1803942-010	121	80	115
PDI-SG-B276-BL1	K1803942-011	89	53	78
PDI-SG-B287-BL1	K1803942-012	70	43	49
PDI-SG-B295-BL1	K1803942-013	93	62	69
PDI-SG-B311-BL1	K1803942-014	107	69	74
Method Blank	KQ1805507-04	74	39	28
Lab Control Sample	KQ1805507-03	102	72	135
PDI-SG-B325-BL1	KQ1805507-01	99	49	73
PDI-SG-B325-BL1	KQ1805507-02	66	43	45

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QA/QC Report

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

Service Request: K1803942
Date Analyzed: 06/12/18 11:17

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

File ID: J:\MS21\Data\061218\06122018F008.D\
Instrument ID: K-MSMS-01
Analysis Method: ALS SOP

Lab Code: KQ1807867-01
Analysis Lot: 594432
Signal ID: 1

	Pyrene-d10	
	Area	RT
ICAL Result ==>	44,144	14.1457
Upper Limit ==>	88,288	14.65
Lower Limit ==>	22,072	13.65

Associated Analyses

Continuing Calibration Verification	KQ1807867-01	44351.6	14.1471
Method Blank	KQ1805734-03	36704.6	14.1471
Lab Control Sample	KQ1805734-01	34031.7	14.1471
Duplicate Lab Control Sample	KQ1805734-02	33303.2	14.1471
PDI-SG-RB-180426-1755	K1803942-015	33682.2	14.1458
PDI-SG-RB-VVSS-042618-1750	K1803942-016	34272.1	14.1472

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

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

Service Request: K1803942
Date Analyzed: 06/17/18 23:17

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

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

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

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

Associated Analyses

Continuing Calibration Verification	KQ1808145-01	47142	14.1729
Method Blank	KQ1805507-04	47295.4	14.1728
Lab Control Sample	KQ1805507-03	50222.1	14.1728
PDI-SG-B325-BL1MS	KQ1805507-01	53118	14.1728
PDI-SG-B325-BL1DMS	KQ1805507-02	51714.7	14.1728
PDI-SG-B321-BL1	K1803942-001	53793.5	14.1728
PDI-SG-B322-BL1	K1803942-002	54003.3	14.1728
PDI-SG-B325-BL1	K1803942-003	55112.2	14.1713
PDI-SG-B327-BL1	K1803942-004	56232.4	14.1728
PDI-SG-B394-BL1	K1803942-005	53007.9	14.1728
PDI-SG-B401-BL1	K1803942-006	54857.9	14.1728
PDI-SG-B308-BL1	K1803942-007	52741.3	14.1728
PDI-SG-B313-BL1	K1803942-008	58151.8	14.1728
PDI-SG-B313-BL1-D	K1803942-009	60826.8	14.1728
PDI-SG-B270-BL1	K1803942-010	60518.3	14.1728
PDI-SG-B276-BL1	K1803942-011	60880.2	14.173
PDI-SG-B287-BL1	K1803942-012	59606.9	14.1728
PDI-SG-B295-BL1	K1803942-013	59019.5	14.1728
PDI-SG-B311-BL1	K1803942-014	60802.8	14.1728

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: K1803942
Date Collected: 04/26/18
Date Received: 04/27/18
Date Analyzed: 06/18/18
Date Extracted: 05/3/18

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

Sample Name: PDI-SG-B325-BL1
Lab Code: K1803942-003
Analysis Method: ALS SOP
Prep Method: EPA 3541

Units: ug/Kg
Basis: Dry

Analyte Name	Sample Result	Matrix Spike KQ1805507-01			Duplicate Matrix Spike KQ1805507-02			% Rec Limits	RPD	RPD Limit
		Result	Spike	% Rec	Result	Spike	% Rec			
			Amount			Amount				
2,4'-DDD	ND U	3.46	2.81	123	3.62	2.83	128	32-169	5	40
2,4'-DDE	ND U	3.48	2.81	124	2.80	2.83	99	43-155	21	40
2,4'-DDT	ND U	3.79	2.81	135	3.41	2.83	121	55-161	10	40
4,4'-DDD	1.4	4.63	2.81	116	4.78	2.83	121	10-190	3	40
4,4'-DDE	3.3	6.07	2.81	97	5.84	2.83	89	35-162	4	40
4,4'-DDT	0.66 J	3.35	2.81	96	3.95	2.83	116	24-183	16	40
Aldrin	ND U	2.72	2.81	97	2.44	2.83	86	52-151	11	40
alpha-Chlordane	ND U	2.37	2.81	85	4.40	2.83	155	31-156	60*	40
cis-Nonachlor	ND U	2.27	2.81	81	3.76	2.83	133	27-144	49*	40
Dieldrin	ND U	2.54	2.81	90	3.38	2.83	119	28-150	28	40
gamma-BHC (Lindane)	ND U	3.09	2.81	110	2.78	2.83	98	64-135	10	40
gamma-Chlordane	ND U	3.09	2.81	110	3.67	2.83	130	31-158	17	40
Heptachlor	ND U	2.92	2.81	104	2.44	2.83	86	76-117	18	40
trans-Nonachlor	ND U	2.92	2.81	104	4.72	2.83	167 *	35-153	47*	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.
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QA/QC Report

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

Service Request: K1803942
Date Analyzed: 06/18/18
Date Extracted: 05/03/18

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

Analysis Method: ALS SOP
Prep Method: EPA 3541

Units: ug/Kg
Basis: Dry
Analysis Lot: 595023

Lab Control Sample
KQ1805507-03

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
2,4'-DDD	2.29	2.00	114	73-122
2,4'-DDE	2.62	2.00	131	54-145
2,4'-DDT	2.30	2.00	115	77-118
4,4'-DDD	2.30	2.00	115	74-117
4,4'-DDE	2.33	2.00	116	66-132
4,4'-DDT	1.90	2.00	95	78-116
Aldrin	2.06	2.00	103	74-122
alpha-Chlordane	1.94	2.00	97	74-130
cis-Nonachlor	1.40	2.00	70	69-134
Dieldrin	2.05	2.00	102	62-131
gamma-BHC (Lindane)	2.01	2.00	100	79-116
gamma-Chlordane	2.10	2.00	105	76-128
Heptachlor	1.90	2.00	95	81-114
trans-Nonachlor	2.02	2.00	101	76-124

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QA/QC Report

Client:	AECOM	Service Request:	K1803942
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	Date Analyzed:	06/12/18
Sample Matrix:	Water	Date Extracted:	05/03/18

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:	594432

Lab Control Sample
KQ1805734-01

Duplicate Lab Control Sample
KQ1805734-02

Analyte Name	Result	Spike Amount	% Rec	Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
2,4'-DDD	16.3	20.0	82	16.7	20.0	83	79-113	2	30
2,4'-DDE	22.6	20.0	113	23.2	20.0	116	75-117	3	30
2,4'-DDT	18.2	20.0	91	19.0	20.0	95	77-114	4	30
4,4'-DDD	21.8	20.0	109	21.8	20.0	109	78-114	<1	30
4,4'-DDE	19.9	20.0	100	19.9	20.0	100	76-115	<1	30
4,4'-DDT	19.1	20.0	96	19.4	20.0	97	85-113	1	30
Aldrin	19.6	20.0	98	19.4	20.0	97	81-113	1	30
alpha-Chlordane	19.1	20.0	95	21.5	20.0	108	69-130	12	30
cis-Nonachlor	19.9	20.0	100	23.3	20.0	116	59-138	16	30
Dieldrin	16.1	20.0	80	14.3	20.0	72	62-111	12	30
gamma-BHC (Lindane)	18.2	20.0	91	19.5	20.0	98	66-130	7	30
gamma-Chlordane	18.2	20.0	91	19.8	20.0	99	72-127	9	30
Heptachlor	21.9	20.0	109	21.1	20.0	106	81-115	4	30
trans-Nonachlor	17.9	20.0	89	20.6	20.0	103	72-127	14	30

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QA/QC Report

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

Service Request: K1803942
Date Analyzed: 06/17/18 23:45
Date Extracted: 05/03/18

Method Blank Summary
Organochlorine Pesticides by GC/MS/MS

Sample Name: Method Blank **Instrument ID:** K-MSMS-01
Lab Code: KQ1805507-04 **File ID:** J:\MS21\Data\061718\06172018F034.D\
Analysis Method: ALS SOP **Analysis Lot:** 595023
Prep Method: EPA 3541 **Extraction Lot:** 312837

This Method Blank applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Lab Control Sample	KQ1805507-03	J:\MS21\Data\061718\06172018F035.D\	06/18/18 00:12
PDI-SG-B325-BL1MS	KQ1805507-01	J:\MS21\Data\061718\06172018F036.D\	06/18/18 00:39
PDI-SG-B325-BL1DMS	KQ1805507-02	J:\MS21\Data\061718\06172018F037.D\	06/18/18 01:06
PDI-SG-B321-BL1	K1803942-001	J:\MS21\Data\061718\06172018F038.D\	06/18/18 01:34
PDI-SG-B322-BL1	K1803942-002	J:\MS21\Data\061718\06172018F039.D\	06/18/18 02:01
PDI-SG-B325-BL1	K1803942-003	J:\MS21\Data\061718\06172018F040.D\	06/18/18 02:28
PDI-SG-B327-BL1	K1803942-004	J:\MS21\Data\061718\06172018F041.D\	06/18/18 02:55
PDI-SG-B394-BL1	K1803942-005	J:\MS21\Data\061718\06172018F042.D\	06/18/18 03:23
PDI-SG-B401-BL1	K1803942-006	J:\MS21\Data\061718\06172018F043.D\	06/18/18 03:50
PDI-SG-B308-BL1	K1803942-007	J:\MS21\Data\061718\06172018F044.D\	06/18/18 04:17
PDI-SG-B313-BL1	K1803942-008	J:\MS21\Data\061718\06172018F045.D\	06/18/18 04:44
PDI-SG-B313-BL1-D	K1803942-009	J:\MS21\Data\061718\06172018F046.D\	06/18/18 05:12
PDI-SG-B270-BL1	K1803942-010	J:\MS21\Data\061718\06172018F047.D\	06/18/18 05:39
PDI-SG-B276-BL1	K1803942-011	J:\MS21\Data\061718\06172018F048.D\	06/18/18 06:07
PDI-SG-B287-BL1	K1803942-012	J:\MS21\Data\061718\06172018F049.D\	06/18/18 06:34
PDI-SG-B295-BL1	K1803942-013	J:\MS21\Data\061718\06172018F050.D\	06/18/18 07:02
PDI-SG-B311-BL1	K1803942-014	J:\MS21\Data\061718\06172018F051.D\	06/18/18 07:29

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QA/QC Report

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

Service Request: K1803942
Date Analyzed: 06/12/18 12:36
Date Extracted: 05/03/18

Method Blank Summary
Organochlorine Pesticides by GC/MS/MS

Sample Name:	Method Blank	Instrument ID:	K-MSMS-01
Lab Code:	KQ1805734-03	File ID:	J:\MS21\Data\061218\06122018F011.D\
Analysis Method:	ALS SOP	Analysis Lot:	594432
Prep Method:	EPA 3535A	Extraction Lot:	313114

This Method Blank applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Lab Control Sample	KQ1805734-01	J:\MS21\Data\061218\06122018F012.D\	06/12/18 13:04
Duplicate Lab Control Sample	KQ1805734-02	J:\MS21\Data\061218\06122018F013.D\	06/12/18 13:31
PDI-SG-RB-180426-1755	K1803942-015	J:\MS21\Data\061218\06122018F014.D\	06/12/18 13:58
PDI-SG-RB-VVSS-042618-1750	K1803942-016	J:\MS21\Data\061218\06122018F015.D\	06/12/18 14:26

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QA/QC Report

Client: AECOM**Project:** Portland Harbor Pre-Remedial Design Investigation/60566335**Sample Matrix:** Sediment**Service Request:** K1803942**Date Analyzed:** 06/18/18 00:12**Date Extracted:** 05/03/18**Lab Control Sample Summary**
Organochlorine Pesticides by GC/MS/MS**Sample Name:** Lab Control Sample**Instrument ID:** K-MSMS-01**Lab Code:** KQ1805507-03**File ID:** J:\MS21\Data\061718\06172018F035.D**Analysis Method:** ALS SOP**Analysis Lot:** 595023**Prep Method:** EPA 3541**Extraction Lot:** 312837

This Lab Control Sample applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Method Blank	KQ1805507-04	J:\MS21\Data\061718\06172018F034.D\	06/17/18 23:45
PDI-SG-B325-BL1MS	KQ1805507-01	J:\MS21\Data\061718\06172018F036.D\	06/18/18 00:39
PDI-SG-B325-BL1DMS	KQ1805507-02	J:\MS21\Data\061718\06172018F037.D\	06/18/18 01:06
PDI-SG-B321-BL1	K1803942-001	J:\MS21\Data\061718\06172018F038.D\	06/18/18 01:34
PDI-SG-B322-BL1	K1803942-002	J:\MS21\Data\061718\06172018F039.D\	06/18/18 02:01
PDI-SG-B325-BL1	K1803942-003	J:\MS21\Data\061718\06172018F040.D\	06/18/18 02:28
PDI-SG-B327-BL1	K1803942-004	J:\MS21\Data\061718\06172018F041.D\	06/18/18 02:55
PDI-SG-B394-BL1	K1803942-005	J:\MS21\Data\061718\06172018F042.D\	06/18/18 03:23
PDI-SG-B401-BL1	K1803942-006	J:\MS21\Data\061718\06172018F043.D\	06/18/18 03:50
PDI-SG-B308-BL1	K1803942-007	J:\MS21\Data\061718\06172018F044.D\	06/18/18 04:17
PDI-SG-B313-BL1	K1803942-008	J:\MS21\Data\061718\06172018F045.D\	06/18/18 04:44
PDI-SG-B313-BL1-D	K1803942-009	J:\MS21\Data\061718\06172018F046.D\	06/18/18 05:12
PDI-SG-B270-BL1	K1803942-010	J:\MS21\Data\061718\06172018F047.D\	06/18/18 05:39
PDI-SG-B276-BL1	K1803942-011	J:\MS21\Data\061718\06172018F048.D\	06/18/18 06:07
PDI-SG-B287-BL1	K1803942-012	J:\MS21\Data\061718\06172018F049.D\	06/18/18 06:34
PDI-SG-B295-BL1	K1803942-013	J:\MS21\Data\061718\06172018F050.D\	06/18/18 07:02
PDI-SG-B311-BL1	K1803942-014	J:\MS21\Data\061718\06172018F051.D\	06/18/18 07:29

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QA/QC Report

Client: AECOM**Project:** Portland Harbor Pre-Remedial Design Investigation/60566335**Sample Matrix:** Water**Service Request:** K1803942**Date Analyzed:** 06/12/18 13:04**Date Extracted:** 05/03/18**Lab Control Sample Summary
Organochlorine Pesticides by GC/MS/MS****Sample Name:** Lab Control Sample**Instrument ID:**K-MSMS-01**Lab Code:** KQ1805734-01**File ID:**J:\MS21\Data\061218\06122018F012.D**Analysis Method:** ALS SOP**Analysis Lot:**594432**Prep Method:** EPA 3535A**Extraction Lot:**313114

This Lab Control Sample applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Method Blank	KQ1805734-03	J:\MS21\Data\061218\06122018F011.D\	06/12/18 12:36
Duplicate Lab Control Sample	KQ1805734-02	J:\MS21\Data\061218\06122018F013.D\	06/12/18 13:31
PDI-SG-RB-180426-1755	K1803942-015	J:\MS21\Data\061218\06122018F014.D\	06/12/18 13:58
PDI-SG-RB-VVSS-042618-1750	K1803942-016	J:\MS21\Data\061218\06122018F015.D\	06/12/18 14:26

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QC/QC Report

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

Service Request: K1803942
Date Analyzed: 06/12/18 11:17

Tune Summary
Organochlorine Pesticides by GC/MS/MS

File ID: J:\MS21\Data\061218\06122018F008.D\
Instrument ID: K-MSMS-01

Analytical Method: ALS SOP
Analysis Lot: 594432

Sample Name	Lab Code	File ID:	Date Analyzed:	Q
Continuing Calibration Verification	KQ1807867-01	J:\MS21\Data\061218\06122018F008.D\	06/12/18 11:17	
Method Blank	KQ1805734-03	J:\MS21\Data\061218\06122018F011.D\	06/12/18 12:36	
Lab Control Sample	KQ1805734-01	J:\MS21\Data\061218\06122018F012.D\	06/12/18 13:04	
Duplicate Lab Control Sample	KQ1805734-02	J:\MS21\Data\061218\06122018F013.D\	06/12/18 13:31	
PDI-SG-RB-180426-1755	K1803942-015	J:\MS21\Data\061218\06122018F014.D\	06/12/18 13:58	
PDI-SG-RB-VVSS-042618-1750	K1803942-016	J:\MS21\Data\061218\06122018F015.D\	06/12/18 14:26	

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QC/QC Report

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

Service Request: K1803942
Date Analyzed: 06/17/18 23:17

Tune Summary
Organochlorine Pesticides by GC/MS/MS

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

Analytical Method: ALS SOP
Analysis Lot: 595023

Sample Name	Lab Code	File ID:	Date Analyzed:	Q
Continuing Calibration Verification	KQ1808145-01	J:\MS21\Data\061718\06172018F033.D\	06/17/18 23:17	
Method Blank	KQ1805507-04	J:\MS21\Data\061718\06172018F034.D\	06/17/18 23:45	
Lab Control Sample	KQ1805507-03	J:\MS21\Data\061718\06172018F035.D\	06/18/18 00:12	
PDI-SG-B325-BL1	KQ1805507-01	J:\MS21\Data\061718\06172018F036.D\	06/18/18 00:39	
PDI-SG-B325-BL1	KQ1805507-02	J:\MS21\Data\061718\06172018F037.D\	06/18/18 01:06	
PDI-SG-B321-BL1	K1803942-001	J:\MS21\Data\061718\06172018F038.D\	06/18/18 01:34	
PDI-SG-B322-BL1	K1803942-002	J:\MS21\Data\061718\06172018F039.D\	06/18/18 02:01	
PDI-SG-B325-BL1	K1803942-003	J:\MS21\Data\061718\06172018F040.D\	06/18/18 02:28	
PDI-SG-B327-BL1	K1803942-004	J:\MS21\Data\061718\06172018F041.D\	06/18/18 02:55	
PDI-SG-B394-BL1	K1803942-005	J:\MS21\Data\061718\06172018F042.D\	06/18/18 03:23	
PDI-SG-B401-BL1	K1803942-006	J:\MS21\Data\061718\06172018F043.D\	06/18/18 03:50	
PDI-SG-B308-BL1	K1803942-007	J:\MS21\Data\061718\06172018F044.D\	06/18/18 04:17	
PDI-SG-B313-BL1	K1803942-008	J:\MS21\Data\061718\06172018F045.D\	06/18/18 04:44	
PDI-SG-B313-BL1-D	K1803942-009	J:\MS21\Data\061718\06172018F046.D\	06/18/18 05:12	
PDI-SG-B270-BL1	K1803942-010	J:\MS21\Data\061718\06172018F047.D\	06/18/18 05:39	
PDI-SG-B276-BL1	K1803942-011	J:\MS21\Data\061718\06172018F048.D\	06/18/18 06:07	
PDI-SG-B287-BL1	K1803942-012	J:\MS21\Data\061718\06172018F049.D\	06/18/18 06:34	
PDI-SG-B295-BL1	K1803942-013	J:\MS21\Data\061718\06172018F050.D\	06/18/18 07:02	
PDI-SG-B311-BL1	K1803942-014	J:\MS21\Data\061718\06172018F051.D\	06/18/18 07:29	

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QA/QC Report

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

Service Request: K1803942
Calibration Date: 6/14/2018

Initial Calibration Summary
Organochlorine Pesticides by GC/MS/MS

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

Signal ID: 1

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

Analyte

2,4'-DDD

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

2,4'-DDE

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

2,4'-DDT

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

4,4'-DDD

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

4,4'-DDE

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

4,4'-DDT

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

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QA/QC Report

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

Service Request: K1803942
Calibration Date: 6/14/2018

Initial Calibration Summary
Organochlorine Pesticides by GC/MS/MS

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

Signal ID: 1

Analyte

4,4'-DDT

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

Aldrin

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.5	1.586	02	1.0	1.225	03	2.0	0.9057	04	5.0	0.8314
05	10	0.7724	06	20	0.7663	07	40	0.8276	08	60	0.8454
09	80	0.857	10	100	0.8009						

Dieldrin

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	1.0	1.15	03	2.0	1.053	04	5.0	0.7957	05	10	1.058
06	20	0.8778	07	40	0.9558	08	60	0.9312	09	80	1.055
10	100	0.9313									

Heptachlor

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.5	1.419	02	1.0	1.291	03	2.0	1.066	04	5.0	0.9561
05	10	0.9303	06	20	0.953	07	40	0.8824	08	60	0.9281
09	80	0.9193	10	100	0.8845						

S_4,4'-DDT-d4

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

S_4,4'DDD-d4

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

S_Aldrin-13C12

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	20	0.2361	02	20	0.2249	03	20	0.2235	04	20	0.2213
05	20	0.229	06	20	0.225	07	20	0.2208	08	20	0.2123
09	20	0.2099	10	20	0.2248						

S_Endrin-13C12

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	20	0.1152	02	20	0.1111	03	20	0.1171	04	20	0.1182
05	20	0.1103	06	20	0.1128	07	20	0.1079	08	20	0.1124
09	20	0.1044	10	20	0.1177						

S_GBHCD6

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	20	0.6754	02	20	0.6298	03	20	0.6359	04	20	0.6455

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QA/QC Report

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

Service Request: K1803942
Calibration Date: 6/14/2018

Initial Calibration Summary
Organochlorine Pesticides by GC/MS/MS

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

Signal ID: 1

Analyte

S_GBHCD6

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
05	20	0.6374	06	20	0.6317	07	20	0.6191	08	20	0.6349
09	20	0.6856	10	20	0.6793						

S_Heptachlor-13C10

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	20	0.3792	02	20	0.3632	03	20	0.383	04	20	0.3723
05	20	0.3818	06	20	0.3967	07	20	0.4103	08	20	0.4093
09	20	0.44	10	20	0.4489						

S_Heptachlrepox13C10

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	20	0.1666	02	20	0.163	03	20	0.1753	04	20	0.1747
05	20	0.1633	06	20	0.1562	07	20	0.1486	08	20	0.1689
09	20	0.165	10	20	0.1621						

S_Oxychlordane-13C10

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	20	0.1039	02	20	0.09224	03	20	0.1103	04	20	0.09972
05	20	0.1086	06	20	0.1036	07	20	0.09542	08	20	0.1025
09	20	0.117	10	20	0.1109						

alpha-Chlordane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.5	3.504	02	1.0	3.481	03	2.0	2.599	04	5.0	2.472
05	10	2.269	06	20	2.618	07	40	2.705	08	60	2.507
09	80	2.25	10	100	2.415						

cis-Nonachlor

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.5	3.374	02	1.0	3.509	03	2.0	2.482	04	5.0	2.464
05	10	2.27	06	20	2.328	07	40	2.549	08	60	2.437
09	80	2.243	10	100	2.381						

gamma-BHC (Lindane)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.5	0.6793	02	1.0	0.6805	03	2.0	0.5457	04	5.0	0.522
05	10	0.5312	06	20	0.5037	07	40	0.5111	08	60	0.5013
09	80	0.4933	10	100	0.4996						

gamma-Chlordane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.5	4.699	02	1.0	3.864	03	2.0	2.557	04	5.0	3.111
05	10	2.569	06	20	2.724	07	40	2.75	08	60	2.584
09	80	2.468	10	100	2.686						

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Project: Portland Harbor Pre-Remedial Design Investigation

Service Request: K1803942
Calibration Date: 6/14/2018

Initial Calibration Summary
Organochlorine Pesticides by GC/MS/MS

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

Signal ID: 1

Analyte

trans-Nonachlor

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.5	2.168	02	1.0	1.821	03	2.0	2.199	04	5.0	2.036
05	10	1.869	06	20	2.319	07	40	1.981	08	60	1.931
09	80	1.816	10	100	1.903						

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

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Initial Calibration Summary Organochlorine Pesticides by GC/MS/MS

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

Signal ID: 1

Analyte Name	Compound Type	Calibration Evaluation				Calibration Evaluation	
		Fit Type	Eval	Eval Result	Control Criteria	Average RRF	Minimum RRF
2,4'-DDD	TRG	Average RF	% RSD	12.2	≤20	0.5222	0.01
2,4'-DDE	TRG	Average RF	% RSD	12.9	≤20	0.4251	0.01
2,4'-DDT	TRG	Average RF	% RSD	5.8	≤20	0.588	0.01
4,4'-DDD	TRG	Average RF	% RSD	11.8	≤20	0.6346	0.01
4,4'-DDE	TRG	Average RF	% RSD	9.9	≤20	0.3663	0.01
4,4'-DDT	TRG	Average RF	% RSD	7.5	≤20	0.682	0.01
Aldrin	TRG	Quadratic	COD	0.9972	≥	0.9418	0.01
Dieldrin	TRG	Average RF	% RSD	11.2	≤20	0.9786	0.01
Heptachlor	TRG	Average RF	% RSD	18.1	≤20	1.023	0.01
S_4,4'-DDT-d4	SURR	Average RF	% RSD	5.8	≤	3.877	0.01
S_4,4'DDD-d4	SURR	Average RF	% RSD	2.3	≤	6.666	0.01
S_Aldrin-13C12	SURR	Average RF	% RSD	3.4	≤	0.2228	0.01
S_Endrin-13C12	SURR	Average RF	% RSD	4.0	≤	0.1127	0.01
S_GBHCD6	SURR	Average RF	% RSD	3.6	≤	0.6475	0.01
S_Heptachlor-13C10	SURR	Average RF	% RSD	7.2	≤	0.3985	0.01
S_Heptachlrepox13C10	SURR	Average RF	% RSD	4.9	≤	0.1644	0.01
S_Oxychlordane-13C10	SURR	Average RF	% RSD	7.2	≤	0.1044	0.01
alpha-Chlordane	TRG	Average RF	% RSD	16.8	≤20	2.682	0.01
cis-Nonachlor	TRG	Quadratic	COD	0.9973	≥	2.604	0.01
gamma-BHC (Lindane)	TRG	Average RF	% RSD	13.2	≤20	0.5468	0.01
gamma-Chlordane	TRG	Quadratic	COD	0.9968	≥	3.001	0.01
trans-Nonachlor	TRG	Average RF	% RSD	8.6	≤20	2.004	0.01

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Service Request: K1803942
Calibration Date: 6/11/2018

Initial Calibration Summary
Organochlorine Pesticides by GC/MS/MS

Calibration ID: KC1800295
Instrument ID: K-MSMS-01

Signal ID: 1

#	Lab Code	Sample Name	File Location	Acquisition Date
01	KC1800295-01		J:\MS21\Data\061118\061118F004.D	06/11/2018 19:16
02	KC1800295-02		J:\MS21\Data\061118\061118F005.D	06/11/2018 19:43
03	KC1800295-03		J:\MS21\Data\061118\061118F006.D	06/11/2018 20:10
04	KC1800295-04		J:\MS21\Data\061118\061118F007.D	06/11/2018 20:37
05	KC1800295-05		J:\MS21\Data\061118\061118F008.D	06/11/2018 21:05
06	KC1800295-06		J:\MS21\Data\061118\061118F009.D	06/11/2018 21:32
07	KC1800295-07		J:\MS21\Data\061118\061118F010.D	06/11/2018 21:59
08	KC1800295-08		J:\MS21\Data\061118\061118F011.D	06/11/2018 22:27
09	KC1800295-09		J:\MS21\Data\061118\061118F012.D	06/11/2018 22:54
10	KC1800295-10		J:\MS21\Data\061118\061118F013.D	06/11/2018 23:21

Analyte

2,4'-DDD

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.5	0.6501	02	1.0	0.6624	03	2.0	0.499	04	5.0	0.5467
05	10	0.5091	06	20	0.5074	07	40	0.4464	08	60	0.4889
09	80	0.5044	10	100	0.514						

2,4'-DDE

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.5	0.4121	02	1.0	0.4339	03	2.0	0.2763	04	5.0	0.3209
05	10	0.2808	06	20	0.3092	07	40	0.2452	08	60	0.2699
09	80	0.2753	10	100	0.2884						

2,4'-DDT

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.5	0.5716	02	1.0	0.697	03	2.0	0.5278	04	5.0	0.5011
05	10	0.5159	06	20	0.568	07	40	0.4861	08	60	0.5109
09	80	0.5499	10	100	0.5565						

4,4'-DDD

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.5	0.6364	02	1.0	0.6925	03	2.0	0.6449	04	5.0	0.6176
05	10	0.6019	06	20	0.5753	07	40	0.5335	08	60	0.5748
09	80	0.5836	10	100	0.5924						

4,4'-DDE

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.5	0.3687	02	1.0	0.4064	03	2.0	0.2504	04	5.0	0.2775
05	10	0.2694	06	20	0.2979	07	40	0.2341	08	60	0.2527
09	80	0.2869	10	100	0.2858						

4,4'-DDT

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.5	0.7371	02	1.0	0.8422	03	2.0	0.7471	04	5.0	0.6772
05	10	0.7069	06	20	0.7097	07	40	0.6775	08	60	0.717

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Service Request: K1803942
Calibration Date: 6/11/2018

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Organochlorine Pesticides by GC/MS/MS

Calibration ID: KC1800295
Instrument ID: K-MSMS-01

Signal ID: 1

Analyte

4,4'-DDT

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
09	80	0.7139	10	100	0.7338						

Aldrin

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.5	1.063	02	1.0	1.089	03	2.0	1.042	04	5.0	0.9381
05	10	0.8134	06	20	0.8388	07	40	0.7854	08	60	0.801
09	80	0.7614	10	100	0.7948						

Dieldrin

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.5	1.43	02	1.0	1.341	03	2.0	1.346	04	5.0	1.037
05	10	1.05	06	20	0.8574	07	40	0.9076	08	60	0.8875
09	80	0.8721	10	100	0.8495						

Heptachlor

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.5	1.419	02	1.0	1.362	03	2.0	1.211	04	5.0	0.9571
05	10	0.9784	06	20	0.9304	07	40	0.8357	08	60	0.8695
09	80	0.8811	10	100	0.8467						

S_4,4'-DDT-d4

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	5	2.715	02	5	2.774	03	5	3.275	04	5	3.199
05	5	3.01	06	5	2.768	07	5	2.977	08	5	2.921
09	5	2.662	10	5	2.71						

S_4,4'DDD-d4

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	5	4.709	02	5	4.944	03	5	6.096	04	5	5.466
05	5	5.28	06	5	4.793	07	5	5.338	08	5	5.039
09	5	4.346	10	5	4.373						

S_Aldrin-13C12

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	20	0.1523	02	20	0.1568	03	20	0.166	04	20	0.1639
05	20	0.1605	06	20	0.1516	07	20	0.1439	08	20	0.1348
09	20	0.1332	10	20	0.1294						

S_Endrin-13C12

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	20	0.07306	02	20	0.07409	03	20	0.07743	04	20	0.07985
05	20	0.07635	06	20	0.07371	07	20	0.07491	08	20	0.07813
09	20	0.07162	10	20	0.07709						

S_GBHCD6

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	20	0.4515	02	20	0.4635	03	20	0.5041	04	20	0.4923

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Organochlorine Pesticides by GC/MS/MS

Calibration ID: KC1800295
Instrument ID: K-MSMS-01

Signal ID: 1

Analyte

S_GBHCD6

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
05	20	0.4648	06	20	0.4186	07	20	0.4532	08	20	0.4224
09	20	0.376	10	20	0.4027						

S_Heptachlor-13C10

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	20	0.2072	02	20	0.2345	03	20	0.2049	04	20	0.2143
05	20	0.1845	06	20	0.2297	07	20	0.2304	08	20	0.1788
09	20	0.2256	10	20	0.2432						

S_Heptachlrepox13C10

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	20	0.1278	02	20	0.1342	03	20	0.1402	04	20	0.1443
05	20	0.1466	06	20	0.1289	07	20	0.1402	08	20	0.1353
09	20	0.1352	10	20	0.1302						

S_Oxychlordan-13C10

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	20	0.0877	02	20	0.09161	03	20	0.09044	04	20	0.09267
05	20	0.0875	06	20	0.08949	07	20	0.08752	08	20	0.07961
09	20	0.08994	10	20	0.07903						

alpha-Chlordane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.5	2.15	02	1.0	2.035	03	2.0	2.324	04	5.0	2.218
05	10	2.388	06	20	2.092	07	40	2.19	08	60	2.637
09	80	1.997	10	100	2.482						

cis-Nonachlor

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.5	3.122	02	1.0	2.626	03	2.0	2.178	04	5.0	2.552
05	10	2.412	06	20	2.069	07	40	2.056	08	60	2.298
09	80	1.906	10	100	2.31						

gamma-BHC (Lindane)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.5	0.6115	02	1.0	0.6575	03	2.0	0.6238	04	5.0	0.5377
05	10	0.4919	06	20	0.4973	07	40	0.4549	08	60	0.493
09	80	0.5263	10	100	0.4901						

gamma-Chlordane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.5	3.725	02	1.0	2.276	03	2.0	2.693	04	5.0	2.498
05	10	2.322	06	20	2.238	07	40	2.364	08	60	2.801
09	80	2.217	10	100	2.591						

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QA/QC Report

Client: AECOM
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Service Request: K1803942
Calibration Date: 6/11/2018

Initial Calibration Summary
Organochlorine Pesticides by GC/MS/MS

Calibration ID: KC1800295
Instrument ID: K-MSMS-01

Signal ID: 1

Analyte

trans-Nonachlor

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.5	2.467	02	1.0	2.357	03	2.0	2.262	04	5.0	1.538
05	10	1.776	06	20	1.652	07	40	1.701	08	60	1.979
09	80	1.541	10	100	1.938						

Client: AECOM
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Calibration Date: 6/11/2018

Initial Calibration Summary Organochlorine Pesticides by GC/MS/MS

Calibration ID: KC1800295
Instrument ID: K-MSMS-01

Signal ID: 1

Analyte Name	Compound Type	Calibration Evaluation				Calibration Evaluation	
		Fit Type	Eval	Eval Result	Control Criteria	Average RRF	Minimum RRF
2,4'-DDD	TRG	Average RF	% RSD	13.1	≤20	0.5328	0.01
2,4'-DDE	TRG	Quadratic	COD	0.9972	≥	0.3112	0.01
2,4'-DDT	TRG	Average RF	% RSD	10.9	≤20	0.5485	0.01
4,4'-DDD	TRG	Average RF	% RSD	7.4	≤20	0.6053	0.01
4,4'-DDE	TRG	Quadratic	COD	0.9958	≥	0.293	0.01
4,4'-DDT	TRG	Average RF	% RSD	6.4	≤20	0.7262	0.01
Aldrin	TRG	Average RF	% RSD	14.4	≤20	0.8927	0.01
Dieldrin	TRG	Quadratic	COD	0.9995	≥	1.058	0.01
Heptachlor	TRG	Quadratic	COD	0.9991	≥	1.029	0.01
S_4,4'-DDT-d4	SURR	Average RF	% RSD	7.3	≤	2.901	0.01
S_4,4'DDD-d4	SURR	Average RF	% RSD	10.6	≤	5.039	0.01
S_Aldrin-13C12	SURR	Average RF	% RSD	8.9	≤	0.1492	0.01
S_Endrin-13C12	SURR	Average RF	% RSD	3.4	≤	0.07562	0.01
S_GBHCD6	SURR	Average RF	% RSD	9.0	≤	0.4449	0.01
S_Heptachlor-13C10	SURR	Average RF	% RSD	10.0	≤	0.2153	0.01
S_Heptachlrepox13C10	SURR	Average RF	% RSD	4.7	≤	0.1363	0.01
S_Oxychlordane-13C10	SURR	Average RF	% RSD	5.3	≤	0.08755	0.01
alpha-Chlordane	TRG	Average RF	% RSD	9.1	≤20	2.251	0.01
cis-Nonachlor	TRG	Average RF	% RSD	14.9	≤20	2.353	0.01
gamma-BHC (Lindane)	TRG	Average RF	% RSD	12.7	≤20	0.5384	0.01
gamma-Chlordane	TRG	Average RF	% RSD	17.5	≤20	2.572	0.01
trans-Nonachlor	TRG	Average RF	% RSD	17.7	≤20	1.921	0.01

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QA/QC Report

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

Service Request: K1803942
Calibration Date: 6/14/2018

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

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

Signal ID: 1

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

Analyte Name	Expected	Result	Average RF	SSV RF	% D	Criteria	Curve Fit
2,4'-DDD	20.0	18.4	5.222E-1	4.812E-1	-7.847	±25	Average RF
2,4'-DDE	20.0	19.1	4.251E-1	4.066E-1	-4.348	±25	Average RF
2,4'-DDT	20.0	18.8	5.88E-1	5.514E-1	-6.235	±25	Average RF
4,4'-DDD	20.0	18.9	6.346E-1	5.99E-1	-5.610	±25	Average RF
4,4'-DDE	20.0	19.0	3.663E-1	3.473E-1	-5.185	±25	Average RF
4,4'-DDT	20.0	18.7	6.82E-1	6.378E-1	-6.488	±25	Average RF
Aldrin	20.0	19.1	9.418E-1	7.803E-1	-4.440	±25	Quadratic
alpha-Chlordane	20.0	19.8	2.682E0	2.651E0	-1.155	±25	Average RF
cis-Nonachlor	20.0	19.3	2.604E0	2.335E0	-3.570	±25	Quadratic
Dieldrin	20.0	17.8	9.786E-1	8.689E-1	-11.213	±25	Average RF
gamma-BHC (Lindane)	20.0	17.6	5.468E-1	4.8E-1	-12.216	±25	Average RF
gamma-Chlordane	20.0	21.8	3.001E0	2.896E0	8.99	±25	Quadratic
Heptachlor	20.0	18.3	1.023E0	9.376E-1	-8.339	±25	Average RF
trans-Nonachlor	20.0	20.1	2.004E0	2.019E0	0.716	±25	Average RF

Analyte Name	Expected	Result	Average RF	SSV RF	Rec.	Criteria	Curve Fit
S_4,4'DDD-d4	5.00	5.06	6.666E0	6.752E0	101	50-200	Average RF
S_4,4'-DDT-d4	5.00	5.20	3.877E0	4.03E0	104	50-200	Average RF
S_Aldrin-13C12	20.0	22.0	2.228E-1	2.456E-1	110	50-200	Average RF
S_Endrin-13C12	20.0	22.0	1.127E-1	1.242E-1	110	50-200	Average RF
S_GBHCd6	20.0	20.3	6.475E-1	6.578E-1	102	50-200	Average RF
S_Heptachlor-13C10	20.0	20.6	3.985E-1	4.105E-1	103	50-200	Average RF
S_Heptachlrepox13C10	20.0	21.2	1.644E-1	1.738E-1	106	50-200	Average RF
S_Oxychlordane-13C10	20.0	20.5	1.044E-1	1.073E-1	103	50-200	Average RF

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QA/QC Report

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

Service Request: K1803942
Calibration Date: 6/11/2018

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

Calibration ID: KC1800295
Instrument ID: K-MSMS-01

Signal ID: 1

#	Lab Code	Sample Name	File Location	Acquisition Date
11	KC1800295-11		J:\MS21\Data\061118\061118F014.D	06/11/2018 23:48

Analyte Name	Expected	Result	Average RF	SSV RF	% D	Criteria	Curve Fit
2,4'-DDD	20.0	18.7	5.328E-1	4.977E-1	-6.601	±25	Average RF
2,4'-DDE	20.0	22.2	3.112E-1	2.993E-1	10.76	±25	Quadratic
2,4'-DDT	20.0	17.4	5.485E-1	4.766E-1	-13.114	±25	Average RF
4,4'-DDD	20.0	19.6	6.053E-1	5.929E-1	-2.040	±25	Average RF
4,4'-DDE	20.0	21.3	2.93E-1	2.719E-1	6.68	±25	Quadratic
4,4'-DDT	20.0	19.8	7.262E-1	7.2E-1	-0.856	±25	Average RF
Aldrin	20.0	17.3	8.927E-1	7.727E-1	-13.444	±25	Average RF
alpha-Chlordane	20.0	21.2	2.251E0	2.39E0	6.17	±25	Average RF
cis-Nonachlor	20.0	18.5	2.353E0	2.182E0	-7.263	±25	Average RF
Dieldrin	20.0	16.9	1.058E0	7.972E-1	-15.403	±25	Quadratic
gamma-BHC (Lindane)	20.0	20.7	5.384E-1	5.564E-1	3.34	±25	Average RF
gamma-Chlordane	20.0	19.7	2.572E0	2.53E0	-1.656	±25	Average RF
Heptachlor	20.0	18.7	1.029E0	8.501E-1	-6.319	±25	Quadratic
trans-Nonachlor	20.0	19.0	1.921E0	1.829E0	-4.798	±25	Average RF

Analyte Name	Expected	Result	Average RF	SSV RF	Rec.	Criteria	Curve Fit
S_4,4'DDD-d4	5.00	4.60	5.039E0	4.64E0	92.0	50-200	Average RF
S_4,4'-DDT-d4	5.00	4.76	2.901E0	2.763E0	95.2	50-200	Average RF
S_Aldrin-13C12	20.0	17.6	1.492E-1	1.315E-1	88.0	50-200	Average RF
S_Endrin-13C12	20.0	21.2	7.562E-2	8.032E-2	106	50-200	Average RF
S_GBHCd6	20.0	16.7	4.449E-1	3.705E-1	83.5	50-200	Average RF
S_Heptachlor-13C10	20.0	7.88	2.153E-1	8.487E-2	39.4*	50-200	Average RF
S_Heptachlrepox13C10	20.0	19.7	1.363E-1	1.34E-1	98.5	50-200	Average RF
S_Oxychlordane-13C10	20.0	20.1	8.755E-2	8.787E-2	101	50-200	Average RF

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QA/QC Report

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

Service Request: K1803942
Date Analyzed: 06/12/18 11:17

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

Analysis Method: ALS SOP
File ID: J:\MS21\Data\061218\06122018F008.D\
Signal ID: 1

Calibration Date: 6/11/2018
Calibration ID: KC1800295
Analysis Lot: 594432
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
2,4'-DDD	20.0	17.9	0.5328	0.4761	-10.7	NA	±25	Average RF
2,4'-DDE	20.0	25.0	0.3112	0.3373	NA	24.8	±25	Quadratic
2,4'-DDT	20.0	16.8	0.5485	0.4601	-16.1	NA	±25	Average RF
4,4'-DDD	20.0	23.5	0.6053	0.7124	17.7	NA	±25	Average RF
4,4'-DDE	20.0	22.9	0.293	0.2918	NA	14.3	±25	Quadratic
4,4'-DDT	20.0	18.7	0.7262	0.6787	-6.5	NA	±25	Average RF
Aldrin	20.0	20.3	0.8927	0.908	1.7	NA	±25	Average RF
alpha-Chlordane	20.0	18.9	2.2514	2.133	-5.3	NA	±25	Average RF
cis-Nonachlor	20.0	15.1	2.3531	1.7816	-24.3	NA	±25	Average RF
Dieldrin	20.0	15.2	1.0579	0.9677	NA	-23.8	±25	Quadratic
gamma-BHC (Lindane)	20.0	19.7	0.5384	0.5302	-1.5	NA	±25	Average RF
gamma-Chlordane	20.0	18.0	2.5724	2.3132	-10.1	NA	±25	Average RF
Heptachlor	20.0	19.8	1.029	1.0183	NA	-1.0	±25	Quadratic
trans-Nonachlor	20.0	15.5	1.9211	1.488	-22.5	NA	±25	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	Rec.	% Drift	Criteria	Curve Fit
S_4,4'DDD-d4	5.00	5.87	5.0386	5.9183	117	NA	50-200	Average RF
S_4,4'-DDT-d4	5.00	6.35	2.9011	3.6859	127	NA	50-200	Average RF
S_Aldrin-13C12	20.0	17.0	0.1492	0.1266	84.9	NA	50-200	Average RF
S_Endrin-13C12	20.0	19.3	0.0756	0.0729	96.4	NA	50-200	Average RF
S_GBHCD6	20.0	21.9	0.4449	0.4863	109	NA	50-200	Average RF
S_Heptachlor-13C10	20.0	10.3	0.2153	0.1106	51.4	NA	50-200	Average RF
S_Heptachlrepox13C10	20.0	14.9	0.1363	0.1017	74.6	NA	50-200	Average RF
S_Oxychlordane-13C10	20.0	21.5	0.0876	0.0943	108	NA	50-200	Average RF

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QA/QC Report

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

Service Request: K1803942
Date Analyzed: 06/17/18 23:17

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

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

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

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
2,4'-DDD	20.0	19.5	0.5222	0.508	-2.7	NA	±25	Average RF
2,4'-DDE	20.0	20.4	0.4251	0.4337	2.0	NA	±25	Average RF
2,4'-DDT	20.0	20.1	0.588	0.5906	0.4	NA	±25	Average RF
4,4'-DDD	20.0	21.1	0.6346	0.6691	5.4	NA	±25	Average RF
4,4'-DDE	20.0	19.9	0.3663	0.3638	-0.7	NA	±25	Average RF
4,4'-DDT	20.0	18.3	0.682	0.6255	-8.3	NA	±25	Average RF
Aldrin	20.0	19.8	0.9418	0.8091	NA	-0.9	±25	Quadratic
alpha-Chlordane	20.0	19.6	2.6819	2.6321	-1.9	NA	±25	Average RF
cis-Nonachlor	20.0	14.6	2.6037	1.7752	NA	-27.1*	±25	Quadratic
Dieldrin	20.0	19.6	0.9786	0.9591	-2.0	NA	±25	Average RF
gamma-BHC (Lindane)	20.0	18.6	0.5468	0.5095	-6.8	NA	±25	Average RF
gamma-Chlordane	20.0	20.7	3.0011	2.7567	NA	3.7	±25	Quadratic
Heptachlor	20.0	18.8	1.0229	0.964	-5.8	NA	±25	Average RF
trans-Nonachlor	20.0	19.2	2.0043	1.9193	-4.2	NA	±25	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	Rec.	% Drift	Criteria	Curve Fit
S_4,4'DDD-d4	5.00	4.45	6.6663	5.9344	89.0	NA	50-200	Average RF
S_4,4'-DDT-d4	5.00	4.39	3.877	3.4006	87.7	NA	50-200	Average RF
S_Aldrin-13C12	20.0	25.0	0.2228	0.279	125	NA	50-200	Average RF
S_Endrin-13C12	20.0	23.0	0.1127	0.1293	115	NA	50-200	Average RF
S_GBHCD6	20.0	26.3	0.6475	0.8526	132	NA	50-200	Average RF
S_Heptachlor-13C10	20.0	26.2	0.3985	0.5224	131	NA	50-200	Average RF
S_Heptachlrepox13C10	20.0	25.6	0.1644	0.2103	128	NA	50-200	Average RF
S_Oxychlordane-13C10	20.0	23.0	0.1044	0.1203	115	NA	50-200	Average RF

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QA/QC Report

Client: AECOM

Service Request: K1803942

Project: Portland Harbor Pre-Remedial Design Investigation/60566335

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

Analysis Method: ALS SOP

Analysis Lot: 594432

Instrument ID: K-MSMS-01

Raw Data File	Sample Name	Lab Code	Date Analyzed	Time Analyzed	Q
J:\MS21\Data\061218\06122018F008.D\	Continuing Calibration Verification	KQ1807867-01	6/12/2018	11:17:22	
J:\MS21\Data\061218\06122018F011.D\	Method Blank	KQ1805734-03	6/12/2018	12:36:35	
J:\MS21\Data\061218\06122018F012.D\	Lab Control Sample	KQ1805734-01	6/12/2018	13:04:29	
J:\MS21\Data\061218\06122018F013.D\	Duplicate Lab Control Sample	KQ1805734-02	6/12/2018	13:31:44	
J:\MS21\Data\061218\06122018F014.D\	PDI-SG-RB-180426-1755	K1803942-015	6/12/2018	13:58:57	
J:\MS21\Data\061218\06122018F015.D\	PDI-SG-RB-VVSS-042618-1750	K1803942-016	6/12/2018	14:26:11	
J:\MS21\Data\061218\06122018F016.D\	ZZZZZZZ	ZZZZZZZ	6/12/2018	14:53:23	
J:\MS21\Data\061218\06122018F017.D\	ZZZZZZZ	ZZZZZZZ	6/12/2018	15:20:47	
J:\MS21\Data\061218\06122018F018.D\	ZZZZZZZ	ZZZZZZZ	6/12/2018	15:48:02	
J:\MS21\Data\061218\06122018F019.D\	ZZZZZZZ	ZZZZZZZ	6/12/2018	16:15:16	
J:\MS21\Data\061218\06122018F020.D\	ZZZZZZZ	ZZZZZZZ	6/12/2018	16:42:30	
J:\MS21\Data\061218\06122018F021.D\	ZZZZZZZ	ZZZZZZZ	6/12/2018	17:09:43	
J:\MS21\Data\061218\06122018F022.D\	ZZZZZZZ	ZZZZZZZ	6/12/2018	17:37:26	
J:\MS21\Data\061218\06122018F023.D\	ZZZZZZZ	ZZZZZZZ	6/12/2018	18:05:24	
J:\MS21\Data\061218\06122018F024.D\	ZZZZZZZ	ZZZZZZZ	6/12/2018	18:32:38	
J:\MS21\Data\061218\06122018F025.D\	ZZZZZZZ	ZZZZZZZ	6/12/2018	18:59:51	
J:\MS21\Data\061218\06122018F026.D\	ZZZZZZZ	ZZZZZZZ	6/12/2018	19:27:38	
J:\MS21\Data\061218\06122018F027.D\	ZZZZZZZ	ZZZZZZZ	6/12/2018	19:54:51	
J:\MS21\Data\061218\06122018F028.D\	ZZZZZZZ	ZZZZZZZ	6/12/2018	20:22:46	
J:\MS21\Data\061218\06122018F029.D\	ZZZZZZZ	ZZZZZZZ	6/12/2018	20:50:02	
J:\MS21\Data\061218\06122018F030.D\	ZZZZZZZ	ZZZZZZZ	6/12/2018	21:17:17	

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QA/QC Report

Client: AECOM

Service Request:K1803942

Project: Portland Harbor Pre-Remedial Design Investigation/60566335

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

Analysis Method: ALS SOP

Analysis Lot:595023

Instrument ID:K-MSMS-01

Raw Data File	Sample Name	Lab Code	Date Analyzed	Time Analyzed	Q
J:\MS21\Data\061718\06172018F033.D\	Continuing Calibration Verification	KQ1808145-01	6/17/2018	23:17:46	
J:\MS21\Data\061718\06172018F034.D\	Method Blank	KQ1805507-04	6/17/2018	23:45:01	*
J:\MS21\Data\061718\06172018F035.D\	Lab Control Sample	KQ1805507-03	6/18/2018	00:12:15	*
J:\MS21\Data\061718\06172018F036.D\	PDI-SG-B325-BL1 MS	KQ1805507-01	6/18/2018	00:39:40	*
J:\MS21\Data\061718\06172018F037.D\	PDI-SG-B325-BL1 DMS	KQ1805507-02	6/18/2018	01:06:56	*
J:\MS21\Data\061718\06172018F038.D\	PDI-SG-B321-BL1	K1803942-001	6/18/2018	01:34:10	*
J:\MS21\Data\061718\06172018F039.D\	PDI-SG-B322-BL1	K1803942-002	6/18/2018	02:01:25	*
J:\MS21\Data\061718\06172018F040.D\	PDI-SG-B325-BL1	K1803942-003	6/18/2018	02:28:39	*
J:\MS21\Data\061718\06172018F041.D\	PDI-SG-B327-BL1	K1803942-004	6/18/2018	02:55:53	*
J:\MS21\Data\061718\06172018F042.D\	PDI-SG-B394-BL1	K1803942-005	6/18/2018	03:23:06	*
J:\MS21\Data\061718\06172018F043.D\	PDI-SG-B401-BL1	K1803942-006	6/18/2018	03:50:20	*
J:\MS21\Data\061718\06172018F044.D\	PDI-SG-B308-BL1	K1803942-007	6/18/2018	04:17:34	*
J:\MS21\Data\061718\06172018F045.D\	PDI-SG-B313-BL1	K1803942-008	6/18/2018	04:44:50	*
J:\MS21\Data\061718\06172018F046.D\	PDI-SG-B313-BL1-D	K1803942-009	6/18/2018	05:12:09	*
J:\MS21\Data\061718\06172018F047.D\	PDI-SG-B270-BL1	K1803942-010	6/18/2018	05:39:23	*
J:\MS21\Data\061718\06172018F048.D\	PDI-SG-B276-BL1	K1803942-011	6/18/2018	06:07:38	*
J:\MS21\Data\061718\06172018F049.D\	PDI-SG-B287-BL1	K1803942-012	6/18/2018	06:34:54	*
J:\MS21\Data\061718\06172018F050.D\	PDI-SG-B295-BL1	K1803942-013	6/18/2018	07:02:10	*
J:\MS21\Data\061718\06172018F051.D\	PDI-SG-B311-BL1	K1803942-014	6/18/2018	07:29:24	*
J:\MS21\Data\061718\06172018F052.D\	ZZZZZZZ	ZZZZZZZ	6/18/2018	07:57:00	
J:\MS21\Data\061718\06172018F053.D\	ZZZZZZZ	ZZZZZZZ	6/18/2018	08:24:20	

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Prep Summary Report

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

Service Request: K1803942

Organochlorine Pesticides by GC/MS/MS

Prep Method: EPA 3541
Analytical Method: ALS SOP

Extraction Lot: 312837
Extraction Date: 05/03/18 04:15

Sample Name	Lab Code	Date Collected	Date Received	Sample Amount	Final Amount	Percent Solids
PDI-SG-B321-BL1	K1803942-001	4/26/18	4/27/18	20.245 g	1 mL	40.6
PDI-SG-B322-BL1	K1803942-002	4/26/18	4/27/18	20.115 g	1 mL	36.8
PDI-SG-B325-BL1	K1803942-003	4/26/18	4/27/18	20.388 g	1 mL	34.9
PDI-SG-B327-BL1	K1803942-004	4/26/18	4/27/18	20.027 g	1 mL	32.6
PDI-SG-B394-BL1	K1803942-005	4/26/18	4/27/18	20.092 g	1 mL	50.0
PDI-SG-B401-BL1	K1803942-006	4/26/18	4/27/18	20.321 g	1 mL	53.6
PDI-SG-B308-BL1	K1803942-007	4/26/18	4/27/18	20.247 g	1 mL	28.1
PDI-SG-B313-BL1	K1803942-008	4/26/18	4/27/18	20.253 g	1 mL	32.8
PDI-SG-B313-BL1-D	K1803942-009	4/26/18	4/27/18	20.202 g	1 mL	33.0
PDI-SG-B270-BL1	K1803942-010	4/26/18	4/27/18	20.176 g	1 mL	48.4
PDI-SG-B276-BL1	K1803942-011	4/26/18	4/27/18	20.343 g	1 mL	48.7
PDI-SG-B287-BL1	K1803942-012	4/26/18	4/27/18	20.286 g	1 mL	44.5
PDI-SG-B295-BL1	K1803942-013	4/26/18	4/27/18	20.433 g	1 mL	44.2
PDI-SG-B311-BL1	K1803942-014	4/26/18	4/27/18	20.416 g	1 mL	70.4
Matrix Spike	KQ1805507-01MS	4/26/18	4/27/18	20.406 g	1 mL	34.9
Duplicate Matrix Spike	KQ1805507-02DMS	4/26/18	4/27/18	20.251 g	1 mL	34.9
Lab Control Sample	KQ1805507-03LCS	NA	NA	10 g	1 mL	
Method Blank	KQ1805507-04MB	NA	NA	20.4330 g	1 mL	

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Prep Summary Report

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

Service Request:K1803942

Organochlorine Pesticides by GC/MS/MS

Prep Method: EPA 3535A
Analytical Method: ALS SOP

Extraction Lot: 313114
Extraction Date: 05/03/18 08:48

Sample Name	Lab Code	Date Collected	Date Received	Sample Amount	Final Amount	Percent Solids
PDI-SG-RB-180426-1755	K1803942-015	4/26/18	4/27/18	960.0000 mL	1 mL	
PDI-SG-RB-VVSS-042618-1750	K1803942-016	4/26/18	4/27/18	930.0000 mL	1 mL	
Lab Control Sample	KQ1805734-01LCS	NA	NA	1000 mL	1 mL	
Duplicate Lab Control Sample	KQ1805734-02DLCS	NA	NA	1000 mL	1 mL	
Method Blank	KQ1805734-03MB	NA	NA	1000 mL	1 mL	