



ALS Environmental
ALS Group USA, Corp
1317 South 13th Avenue
Kelso, WA 98626
T : +1 360 577 7222
F : +1 360 636 1068
www.alsglobal.com

July 17, 2018

Analytical Report for Service Request No: K1803616B

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 18, 2018
For your reference, these analyses have been assigned our service request number **K1803616**.

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

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

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

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

Howard Holmes
Project Manager



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ALS Group USA, Corp
1317 South 13th Avenue
Kelso, WA 98626
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Acronyms

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

Inorganic Data Qualifiers

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

Metals Data Qualifiers

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

Organic Data Qualifiers

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

Additional Petroleum Hydrocarbon Specific Qualifiers

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

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

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

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

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



Case Narrative

ALS Environmental—Kelso Laboratory
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Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com



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

Service Request: K1803616
Date Received: 04/18/2018

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:

Nineteen sediment samples and two water samples were received for analysis at ALS Environmental on 04/18/2018. 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, 05/13/2018: Insufficient sample volume was received to perform a Matrix Spike/Matrix Spike Duplicate (MS/MSD) with the sample batch containing samples PDI-RB-VVSS-180416-1735 and PDI-RB-VVSS-180416-1800. A Laboratory Control Sample/Duplicate Laboratory Control Sample (LCS/DLCS) was analyzed and reported in lieu of the MS/MSD for these samples.

Method 8270D, 05/13/2018: Sample PDI-SG-B163-BL1 required dilution due to the presence of elevated levels of Bis(2-ethylhexyl) Phthalate. The reporting limits are adjusted to reflect the dilution.

Method 8270D, 05/13/2018: The upper control criterion was exceeded for Bis(2-ethylhexyl) Phthalate in Continuing Calibration Verification (CCV) MS07\0427F002.D. Only Method Blank (MB) KQ1805171-03 was analyzed in this sequence; the MB did not contain the analyte in question. Since the apparent problem indicated a potential high bias, the data quality was not affected. No further corrective action was required.

Method 8270D: The detection limits were elevated for several sediment samples due to less than optimal sample mass extracted for analysis. The samples contained low percent solids which prevented extraction of the sample mass necessary to achieve target detection limits.

Method 8270D: The reporting limits were slightly elevated for samples PDI-RB-VVSS-180416-1735 and PDI-RB-VVSS-180416-1800 due to less than optimal sample volume extracted for analysis.

Method 8270D, 05/15/2018: The control criteria were exceeded for Fluorene-d10 in sample PDI-SG-B168-BL1 due to matrix interference. The presence of non-target background components prevented adequate resolution of the surrogate. Accurate quantitation was not possible. No further corrective action was appropriate.

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

Method ALS SOP, 06/11/2018: The following analyte was outside the lower control criterion for Continuing Calibration Verification (CCV) MS21\0060118F004.D: cis-Nonachlor. The analyte in question was not detected in the associated field sample. The error associated with reduced recovery indicated a potential low bias. Additional analysis of the associated field samples was not performed because insufficient holding time remained. The data was flagged to indicate the problem.

Method ALS SOP, 06/01/2018: The upper control criterion was exceeded for cis-Nonachlor in the replicate matrix spike analyses

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

Approved by _____

Date 07/17/2018



for sample PDI-SG-B202-BL1. The analyte in question was not detected above the Method Reporting Limit (MRL) in the associated field samples. The error associated with elevated recovery indicated a high bias. The sample data was not significantly affected. No further corrective action was appropriate.

Method ALS SOP, 05/30/2018: The upper control criterion was exceeded for alpha-Chlordane, cis-Nonachlor, gamma-Chlordane and trans-Nonachlor in Laboratory Control Sample (LCS) KQ1805054-03. The analytes in question were not detected above the Method Reporting Limit (MRL) in the associated field samples. The error associated with elevated recovery indicated a high bias. The sample data was not significantly affected. No further corrective action was appropriate.

Method ALS SOP, 05/30/2018: The spike recovery of Dieldrin for Laboratory Control Sample (LCS) KQ1805054-03 was outside the lower control criterion. The analyte in question was not detected in the associated field samples. The error associated with reduced recovery indicated a potential low bias. Additional analysis of the associated field samples was not performed because insufficient hold time remained for re-extraction. The data was flagged to indicate the problem.

Method ALS SOP, 06/01/2018: The control criteria were exceeded for the following surrogates in PDI-SG-B168-BL1: S_Aldrin-13C12, S_Endrin-13C12 and S_Heptachlor-13C10. A re-extraction and reanalysis was not performed because insufficient hold time remained. No further corrective action was possible.

Method ALS SOP, 07/10/2018: The analysis of sample PDI-SG-B112-BL1 was initially performed on 06/01/2018. The sample required re-extraction due to unacceptable surrogate recovery. The re-extraction of the sample was performed 43 days past the recommended holding time. The results from the reanalysis were reported. The data was flagged to indicate the holding time violation.

Semivoa GC:

No significant anomalies were noted with this analysis.

A handwritten signature in black ink, appearing to read "Semivoa GC".

Approved by _____

Date _____ 07/17/2018



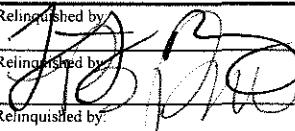
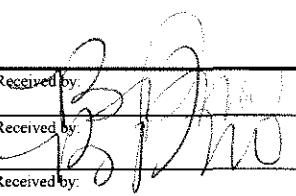
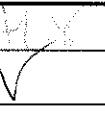
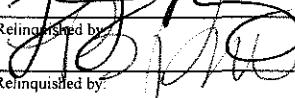
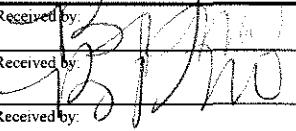
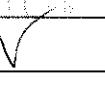
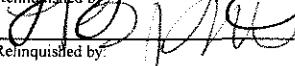
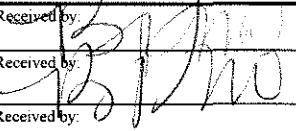
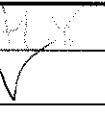
Chain of Custody

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

KHO3616

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1317-S-13th-Ave
Kelso, WA 98626
Ph: 360-577-7222 Fax: 360-636-1068

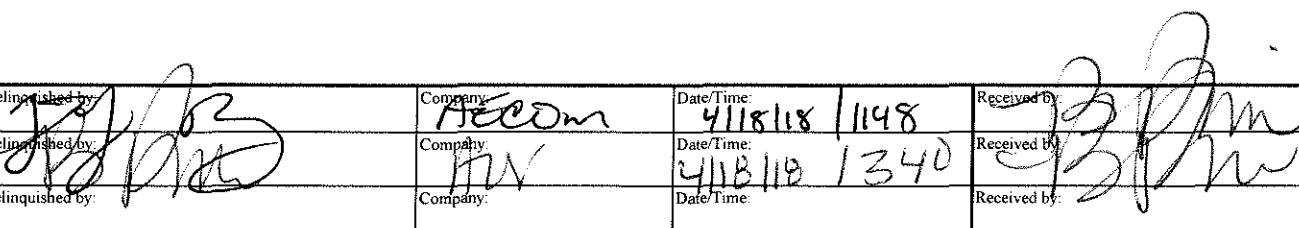
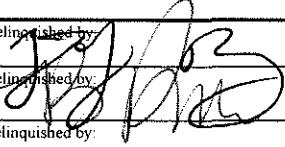
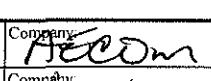
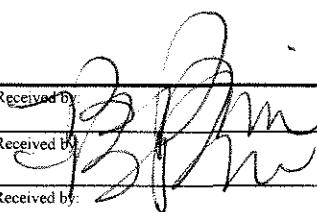
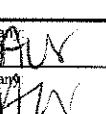
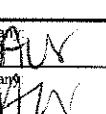
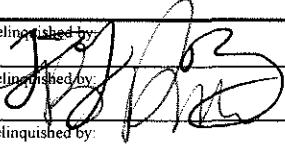
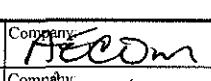
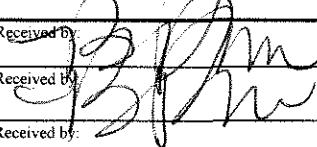
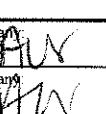
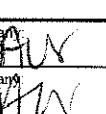
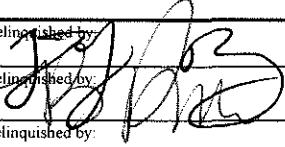
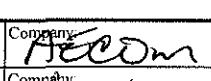
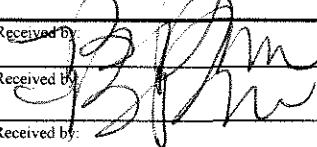
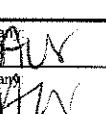
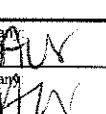
SURFACE SEDIMENT CHAIN OF CUSTODY

Client Contact AECOM 1111 3rd Ave Suite 1600 Seattle, WA 98101 Phone (206) 438-2700 Fax: 1+(866) 495-5288 Project Name: Portland Harbor Pre-Remedial Design Investigation and Baseline Sampling Portland, OR Project #: 60566335 Study: Surface Sediment		Project Contact: Amy Dahl / Chelsey Cook Tel: (206) 438-2261 / (206) 438-2010						Site Contact: Jennifer Ray / Michaela McCoog Laboratory Contact: Howard-Holmes		4/18/2018 COC No: 1 of 2 COCs			
		Analysis Turnaround Time Calendar (C) or Work Days (W)						<input checked="" type="checkbox"/> 21 days <input type="checkbox"/> Other _____		Carrier: Courier			
Sample Identification PDI-SG-B133-BL1 PDI-SG-B135-BL1 PDI-SG-B112-BL1 PDI-SG-B115-BL1 PDI-SG-B156-BL1 PDI-SG-B159-BL1 PDI-SG-B163-BL1 PDI-SG-B164-BL1 PDI-SG-B164-BL1-D PDI-SG-B167-BL1 PDI-SG-B169-BL1 PDI-SG-B114-BL1		Fraction Particulates, PAHs, Total Solids, BBHP, Tributyltin 1669ML, 8270-SIM, 169-3, 8270-L1, Krem/Upper	Sample Date 4/16/2018 4/16/2018 4/16/2018 4/16/2018 4/16/2018 4/16/2018 4/16/2018 4/16/2018 4/16/2018 4/16/2018 4/17/2018 4/17/2018	Sample Time 12:20 15:55 10:25 11:15 12:17 11:05 13:38 14:40 14:40 15:45 9:40 11:40	Matrix SE SE SE SE SE SE SE SE SE SE SE LS	QC Sample AM AM AM AM MT MT MT MT MT MT MT LS	Sampler's Initials AM AM AM AM MT MT MT MT MT MT MT X	Total No. of Cont. 1 1 1 1 1 1 1 1 1 1 1 1	Sample Specific Notes: _____				
Container Type: WMG=Wide Mouth Glass Jar, P=HDPE, PP=Polypropylene, AG=amber glass, G=glass, RC=Resin Column Preservative: HCl = Hydrochloric Acid, H ₃ PO ₄ = Phosphoric Acid, HNO ₃ = Nitric Acid													
Fraction: D = Dissolved, PRT = Particulate, T = Total (unfiltered)							Sample Disposal <input type="checkbox"/> Return To Client <input checked="" type="checkbox"/> Disposal By Lab <input checked="" type="checkbox"/> Archive For 12 Months						
Special Instructions/QC Requirements & Comments: _____													
Relinquished by: 		Company: AECOM		Date/Time: 4/18/18 1148		Received by: 		Company: 		Date/Time: 4/18/18 1148			
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Relinquished by: 		Company: RW		Date/Time: _____		Received by: 		Company: 		Date/Time: _____			

K1803616

ALS Environmental-Kelso
1317-S-13th-Ave
Kelso, WA 98626
Ph: 360-577-7222 Fax: 360-636-1068

SURFACE SEDIMENT CHAIN OF CUSTODY

Client Contact AECOM 1111 3rd Ave Suite 1600 Seattle, WA 98101 Phone: (206) 438-2700 Fax: 1+(866) 495-5288 Project Name: Portland Harbor Pre-Remedial Design Investigation and Baseline Sampling Portland, OR Project #: 60566335 Study: Surface Sediment		Project Contact: Amy Dahl / Chelsey Cook Tel: (206) 438-2261 / (206) 438-2010						Site Contact: Jennifer Ray / Michaela McCoog Laboratory Contact: Howard-Holmes Carrier: Courier			4/18/2018 COC No: 2 of 2 COCs				
		Analysis Turnaround Time Calendar (C) or Work Days (W)						Fraction Pesticides, PAHs, BEHP, Total Solids, BEHP, Tributyltin 169fM, 8270-SIM, 169-3, 8270-L1, Kent/Unger			WQ - Pesticides 169fM WQ - PAHs 8270-SIM WQ - BEHP EPA 8270D-L1 WQ - Tributyltin Kent/Unger				
<input checked="" type="checkbox"/> 21 days <input type="checkbox"/> Other _____															
Sample Identification		Sample Date	Sample Time	Matrix	QC Sample	Sampler's Initials	Total No. of Cont.							Sample Specific Notes:	
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PDI-SG-B108-BL1		4/17/2018	10:00	SE		AM	1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
PDI-SG-B160-BL1		4/17/2018	11:40	SE		AM	1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
PDI-SG-B168-BL1		4/17/2018	13:45	SE		AM	1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
PDI-SG-B202-BL1		4/17/2018	16:15	SE	MS/MSD	AM	3	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
PDI-RB-VVSS-180416-1735		4/16/2018	17:35	W		LS	8	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
PDI-RB-VVSS-180416-1800		4/16/2018	18:00	W		AM	8	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Container Type: WMG=Wide Mouth Glass Jar, P=HDPE, PP=Polypropylene, AG=amber glass, G=glass, RC=Resin Column Preservative: HCl = Hydrochloric Acid, H3PO4 = Phosphoric Acid, HNO3 = Nitric Acid Fraction: D = Dissolved, PRT = Particulate, T = Total (unfiltered)															
Sample Disposal <input type="checkbox"/> Return To Client <input checked="" type="checkbox"/> Disposal By Lab <input checked="" type="checkbox"/> Archive For 12 Months															
Special Instructions/QC Requirements & Comments: 															
 Relinquished by:		Company: AECOM  Date/Time: 4/18/18 1148		Received by:   Date/Time: 4/18/18 1148		Company: ANR  Date/Time: 4/18/18 1148									
 Relinquished by:		Company: ANR  Date/Time: 4/18/18 1340		Received by:   Date/Time: 4/18/18 1340		Company: ANR  Date/Time: 4/18/18 1340									
 Relinquished by:		Company: ANR  Date/Time: 4/18/18 1340		Received by:   Date/Time: 4/18/18 1340		Company: ANR  Date/Time: 4/18/18 1340									

PC H2

Cooler Receipt and Preservation Form

Client ACOM

Service Request K18

03616Received: 4/18/18Opened: 4/18/18By: BRUnloaded: 4/18/18By: BR1. 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? FrontIf 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
27	28	29	30	+0.1	303			
03	20.1	33	31	-0.8	350			

4. Packing material: ***Inserts*** ***Baggies*** ***Bubble Wrap*** ***Gel Packs*** ***Wet Ice*** ***Dry Ice*** ***Sleeves***5. Were custody papers properly filled out (ink, signed, etc.)? ***NA*** ***Y*** N6. Were samples received in good condition (temperature, unbroken)? *Indicate in the table below.* ***NA*** ***Y*** NIf applicable, tissue samples were received: ***Frozen*** ***Partially Thawed*** ***Thawed***7. Were all sample labels complete (i.e analysis, preservation, etc.)? ***NA*** ***Y*** N8. Did all sample labels and tags agree with custody papers? *Indicate major discrepancies in the table on page 2.* ***NA*** ***Y*** N9. Were appropriate bottles/containers and volumes received for the tests indicated? ***NA*** ***Y*** N10. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below.* ***NA*** ***Y*** N11. Were VOA vials received without headspace? *Indicate in the table below.* ***NA*** ***Y*** N12. Was C12/Res negative? ***NA*** ***Y*** N

Sample ID on Bottle	Sample ID on COC	Identified by:

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

Notes, Discrepancies, & Resolutions:



Organochlorine Pesticides

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

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Analytical Report

Client:	AECOM	Service Request:	K1803616
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	Date Collected:	04/16/18 12:20
Sample Matrix:	Sediment	Date Received:	04/18/18 13:40
Sample Name:	PDI-SG-B133-BL1	Units:	ug/Kg
Lab Code:	K1803616-001	Basis:	Dry

Organochlorine Pesticides by GC/MS/MS

Analysis Method: ALS SOP
Prep Method: EPA 3541

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
2,4'-DDD	ND U	1.1	0.68	5	05/26/18 23:28	4/24/18	
2,4'-DDE	ND U	1.1	0.85	5	05/26/18 23:28	4/24/18	
2,4'-DDT	ND U	1.1	1.1	5	05/26/18 23:28	4/24/18	
4,4'-DDD	0.88 J	1.1	0.38	5	05/26/18 23:28	4/24/18	
4,4'-DDE	1.3	1.1	0.75	5	05/26/18 23:28	4/24/18	
4,4'-DDT	ND U	1.1	0.51	5	05/26/18 23:28	4/24/18	
Aldrin	1.7	1.1	0.85	5	05/26/18 23:28	4/24/18	
alpha-Chlordane	ND U	2.1	0.67	5	05/26/18 23:28	4/24/18	*
cis-Nonachlor	ND U	1.1	1.1	5	05/26/18 23:28	4/24/18	*
Dieldrin	ND U	2.1	0.83	5	05/26/18 23:28	4/24/18	*
gamma-BHC (Lindane)	ND U	1.1	0.34	5	05/26/18 23:28	4/24/18	
gamma-Chlordane	ND U	2.1	0.69	5	05/26/18 23:28	4/24/18	*
Heptachlor	ND U	1.1	0.42	5	05/26/18 23:28	4/24/18	
trans-Nonachlor	ND U	2.1	0.62	5	05/26/18 23:28	4/24/18	*

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_4,4'DDD-d4	81	5 - 120	05/26/18 23:28	
S_4,4'-DDT-d4	81	13 - 200	05/26/18 23:28	
S_Aldrin-13C12	28	10 - 143	05/26/18 23:28	
S_Endrin-13C12	59	20 - 157	05/26/18 23:28	
S_GBHCD6	34	5 - 124	05/26/18 23:28	
S_Heptachlor-13C10	40	10 - 177	05/26/18 23:28	
S_Heptachlrepxox13C10	36	8 - 146	05/26/18 23:28	
S_Oxychlordane-13C10	37	5 - 144	05/26/18 23:28	

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Analytical Report

Client:	AECOM	Service Request:	K1803616
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	Date Collected:	04/16/18 15:55
Sample Matrix:	Sediment	Date Received:	04/18/18 13:40
Sample Name:	PDI-SG-B135-BL1	Units:	ug/Kg
Lab Code:	K1803616-002	Basis:	Dry

Organochlorine Pesticides by GC/MS/MS

Analysis Method: ALS SOP
Prep Method: EPA 3541

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
2,4'-DDD	ND U	1.3	0.84	5	05/26/18 23:55	4/24/18	
2,4'-DDE	ND U	1.3	1.1	5	05/26/18 23:55	4/24/18	
2,4'-DDT	ND U	1.3	1.3	5	05/26/18 23:55	4/24/18	
4,4'-DDD	2.3	1.3	0.47	5	05/26/18 23:55	4/24/18	
4,4'-DDE	3.0	1.3	0.93	5	05/26/18 23:55	4/24/18	
4,4'-DDT	0.78 J	1.3	0.63	5	05/26/18 23:55	4/24/18	
Aldrin	ND U	1.3	1.1	5	05/26/18 23:55	4/24/18	
alpha-Chlordane	ND U	2.7	0.83	5	05/26/18 23:55	4/24/18	*
cis-Nonachlor	ND U	1.3	1.3	5	05/26/18 23:55	4/24/18	*
Dieldrin	ND U	2.7	1.1	5	05/26/18 23:55	4/24/18	*
gamma-BHC (Lindane)	ND U	1.3	0.42	5	05/26/18 23:55	4/24/18	
gamma-Chlordane	ND U	2.7	0.85	5	05/26/18 23:55	4/24/18	*
Heptachlor	ND U	1.3	0.52	5	05/26/18 23:55	4/24/18	
trans-Nonachlor	ND U	2.7	0.77	5	05/26/18 23:55	4/24/18	*

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_4,4'DDD-d4	74	5 - 120	05/26/18 23:55	
S_4,4'-DDT-d4	83	13 - 200	05/26/18 23:55	
S_Aldrin-13C12	27	10 - 143	05/26/18 23:55	
S_Endrin-13C12	57	20 - 157	05/26/18 23:55	
S_GBHCD6	30	5 - 124	05/26/18 23:55	
S_Heptachlor-13C10	34	10 - 177	05/26/18 23:55	
S_Heptachlrepxox13C10	32	8 - 146	05/26/18 23:55	
S_Oxychlordane-13C10	30	5 - 144	05/26/18 23:55	

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Analytical Report

Client:	AECOM	Service Request:	K1803616
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	Date Collected:	04/16/18 10:25
Sample Matrix:	Sediment	Date Received:	04/18/18 13:40
Sample Name:	PDI-SG-B112-BL1	Units:	ug/Kg
Lab Code:	K1803616-003	Basis:	Dry

Organochlorine Pesticides by GC/MS/MS

Analysis Method: ALS SOP
Prep Method: EPA 3541

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
2,4'-DDD	ND U	2.4	1.6	10	07/10/18 10:22	6/12/18	*
2,4'-DDE	ND U	2.4	2.0	10	07/10/18 10:22	6/12/18	*
2,4'-DDT	ND U	2.4	2.3	10	07/10/18 10:22	6/12/18	*
4,4'-DDD	3.9	2.4	0.86	10	07/10/18 10:22	6/12/18	*
4,4'-DDE	4.3	2.4	1.8	10	07/10/18 10:22	6/12/18	*
4,4'-DDT	1.5 J	2.4	1.2	10	07/10/18 10:22	6/12/18	*
Aldrin	ND U	2.4	2.0	10	07/10/18 10:22	6/12/18	*
alpha-Chlordane	ND U	4.9	1.6	10	07/10/18 10:22	6/12/18	*
cis-Nonachlor	ND U	2.4	2.4	10	07/10/18 10:22	6/12/18	*
Dieldrin	ND U	4.9	1.9	10	07/10/18 10:22	6/12/18	*
gamma-BHC (Lindane)	ND U	2.4	0.76	10	07/10/18 10:22	6/12/18	*
gamma-Chlordane	ND U	4.9	1.6	10	07/10/18 10:22	6/12/18	*
Heptachlor	ND U	2.4	0.96	10	07/10/18 10:22	6/12/18	*
trans-Nonachlor	ND U	4.9	1.5	10	07/10/18 10:22	6/12/18	*

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_4,4'DDD-d4	66	5 - 120	07/10/18 10:22	
S_4,4'-DDT-d4	50	13 - 200	07/10/18 10:22	
S_Aldrin-13C12	57	10 - 143	07/10/18 10:22	
S_Endrin-13C12	54	20 - 157	07/10/18 10:22	
S_GBHCD6	40	5 - 124	07/10/18 10:22	
S_Heptachlor-13C10	59	10 - 177	07/10/18 10:22	
S_Heptachlrepxox13C10	25	8 - 146	07/10/18 10:22	
S_Oxychlordane-13C10	55	5 - 144	07/10/18 10:22	

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Analytical Report

Client:	AECOM	Service Request:	K1803616
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	Date Collected:	04/16/18 11:15
Sample Matrix:	Sediment	Date Received:	04/18/18 13:40
Sample Name:	PDI-SG-B115-BL1	Units:	ug/Kg
Lab Code:	K1803616-004	Basis:	Dry

Organochlorine Pesticides by GC/MS/MS

Analysis Method: ALS SOP
Prep Method: EPA 3541

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
2,4'-DDD	ND U	1.2	0.78	5	05/27/18 00:50	4/24/18	
2,4'-DDE	ND U	1.2	0.98	5	05/27/18 00:50	4/24/18	
2,4'-DDT	ND U	1.2	1.2	5	05/27/18 00:50	4/24/18	
4,4'-DDD	1.5	1.2	0.44	5	05/27/18 00:50	4/24/18	
4,4'-DDE	1.9	1.2	0.87	5	05/27/18 00:50	4/24/18	
4,4'-DDT	ND U	1.2	0.59	5	05/27/18 00:50	4/24/18	
Aldrin	ND U	1.2	0.98	5	05/27/18 00:50	4/24/18	
alpha-Chlordane	ND U	2.5	0.77	5	05/27/18 00:50	4/24/18	*
cis-Nonachlor	ND U	1.2	1.2	5	05/27/18 00:50	4/24/18	*
Dieldrin	ND U	2.5	0.96	5	05/27/18 00:50	4/24/18	*
gamma-BHC (Lindane)	ND U	1.2	0.39	5	05/27/18 00:50	4/24/18	
gamma-Chlordane	ND U	2.5	0.80	5	05/27/18 00:50	4/24/18	*
Heptachlor	ND U	1.2	0.49	5	05/27/18 00:50	4/24/18	
trans-Nonachlor	ND U	2.5	0.72	5	05/27/18 00:50	4/24/18	*

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_4,4'DDD-d4	88	5 - 120	05/27/18 00:50	
S_4,4'-DDT-d4	84	13 - 200	05/27/18 00:50	
S_Aldrin-13C12	36	10 - 143	05/27/18 00:50	
S_Endrin-13C12	73	20 - 157	05/27/18 00:50	
S_GBHCD6	36	5 - 124	05/27/18 00:50	
S_Heptachlor-13C10	46	10 - 177	05/27/18 00:50	
S_Heptachlrepox13C10	49	8 - 146	05/27/18 00:50	
S_Oxychlordane-13C10	50	5 - 144	05/27/18 00:50	

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Analytical Report

Client:	AECOM	Service Request:	K1803616
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	Date Collected:	04/16/18 12:17
Sample Matrix:	Sediment	Date Received:	04/18/18 13:40
Sample Name:	PDI-SG-B156-BL1	Units:	ug/Kg
Lab Code:	K1803616-005	Basis:	Dry

Organochlorine Pesticides by GC/MS/MS

Analysis Method: ALS SOP
Prep Method: EPA 3541

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
2,4'-DDD	0.63 J	0.63	0.40	5	05/27/18 01:17	4/24/18	
2,4'-DDE	ND U	0.63	0.50	5	05/27/18 01:17	4/24/18	
2,4'-DDT	ND U	0.63	0.60	5	05/27/18 01:17	4/24/18	
4,4'-DDD	2.6	0.63	0.22	5	05/27/18 01:17	4/24/18	
4,4'-DDE	ND U	0.63	0.44	5	05/27/18 01:17	4/24/18	
4,4'-DDT	0.57 J	0.63	0.30	5	05/27/18 01:17	4/24/18	
Aldrin	ND U	0.63	0.50	5	05/27/18 01:17	4/24/18	
alpha-Chlordane	ND U	1.3	0.39	5	05/27/18 01:17	4/24/18	*
cis-Nonachlor	ND U	0.63	0.61	5	05/27/18 01:17	4/24/18	*
Dieldrin	ND U	1.3	0.49	5	05/27/18 01:17	4/24/18	*
gamma-BHC (Lindane)	ND U	0.63	0.20	5	05/27/18 01:17	4/24/18	
gamma-Chlordane	ND U	1.3	0.41	5	05/27/18 01:17	4/24/18	*
Heptachlor	ND U	0.63	0.25	5	05/27/18 01:17	4/24/18	
trans-Nonachlor	ND U	1.3	0.37	5	05/27/18 01:17	4/24/18	*

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_4,4'DDD-d4	70	5 - 120	05/27/18 01:17	
S_4,4'-DDT-d4	67	13 - 200	05/27/18 01:17	
S_Aldrin-13C12	21	10 - 143	05/27/18 01:17	
S_Endrin-13C12	53	20 - 157	05/27/18 01:17	
S_GBHCD6	27	5 - 124	05/27/18 01:17	
S_Heptachlor-13C10	27	10 - 177	05/27/18 01:17	
S_Heptachlrepx13C10	32	8 - 146	05/27/18 01:17	
S_Oxychlordane-13C10	27	5 - 144	05/27/18 01:17	

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Analytical Report

Client:	AECOM	Service Request:	K1803616
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	Date Collected:	04/16/18 11:05
Sample Matrix:	Sediment	Date Received:	04/18/18 13:40
Sample Name:	PDI-SG-B159-BL1	Units:	ug/Kg
Lab Code:	K1803616-006	Basis:	Dry

Organochlorine Pesticides by GC/MS/MS

Analysis Method: ALS SOP
Prep Method: EPA 3541

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
2,4'-DDD	0.92	0.84	0.53	5	05/27/18 01:44	4/24/18	
2,4'-DDE	ND U	0.84	0.66	5	05/27/18 01:44	4/24/18	
2,4'-DDT	ND U	0.84	0.79	5	05/27/18 01:44	4/24/18	
4,4'-DDD	2.3	0.84	0.30	5	05/27/18 01:44	4/24/18	
4,4'-DDE	1.2	0.84	0.59	5	05/27/18 01:44	4/24/18	
4,4'-DDT	ND U	0.84	0.40	5	05/27/18 01:44	4/24/18	
Aldrin	ND U	0.84	0.66	5	05/27/18 01:44	4/24/18	
alpha-Chlordane	ND U	1.7	0.52	5	05/27/18 01:44	4/24/18	*
cis-Nonachlor	ND U	0.84	0.82	5	05/27/18 01:44	4/24/18	*
Dieldrin	ND U	1.7	0.65	5	05/27/18 01:44	4/24/18	*
gamma-BHC (Lindane)	ND U	0.84	0.26	5	05/27/18 01:44	4/24/18	
gamma-Chlordane	ND U	1.7	0.54	5	05/27/18 01:44	4/24/18	*
Heptachlor	ND U	0.84	0.33	5	05/27/18 01:44	4/24/18	
trans-Nonachlor	ND U	1.7	0.49	5	05/27/18 01:44	4/24/18	*

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_4,4'DDD-d4	74	5 - 120	05/27/18 01:44	
S_4,4'-DDT-d4	79	13 - 200	05/27/18 01:44	
S_Aldrin-13C12	20	10 - 143	05/27/18 01:44	
S_Endrin-13C12	55	20 - 157	05/27/18 01:44	
S_GBHCD6	25	5 - 124	05/27/18 01:44	
S_Heptachlor-13C10	29	10 - 177	05/27/18 01:44	
S_Heptachlrepxox13C10	41	8 - 146	05/27/18 01:44	
S_Oxychlordane-13C10	25	5 - 144	05/27/18 01:44	

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Analytical Report

Client:	AECOM	Service Request:	K1803616
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	Date Collected:	04/16/18 13:38
Sample Matrix:	Sediment	Date Received:	04/18/18 13:40
Sample Name:	PDI-SG-B163-BL1	Units:	ug/Kg
Lab Code:	K1803616-007	Basis:	Dry

Organochlorine Pesticides by GC/MS/MS

Analysis Method: ALS SOP
Prep Method: EPA 3541

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
2,4'-DDD	1.3 J	1.7	1.1	10	05/30/18 16:32	4/24/18	
2,4'-DDE	ND U	1.7	1.4	10	05/30/18 16:32	4/24/18	
2,4'-DDT	ND U	1.7	1.6	10	05/30/18 16:32	4/24/18	
4,4'-DDD	4.0	1.7	0.60	10	05/30/18 16:32	4/24/18	
4,4'-DDE	2.9	1.7	1.2	10	05/30/18 16:32	4/24/18	
4,4'-DDT	ND U	1.7	0.80	10	05/30/18 16:32	4/24/18	
Aldrin	ND U	1.7	1.4	10	05/30/18 16:32	4/24/18	
alpha-Chlordane	ND U	3.4	1.1	10	05/30/18 16:32	4/24/18	*
cis-Nonachlor	ND U	1.7	1.7	10	05/30/18 16:32	4/24/18	*
Dieldrin	ND U	3.4	1.4	10	05/30/18 16:32	4/24/18	*
gamma-BHC (Lindane)	ND U	1.7	0.53	10	05/30/18 16:32	4/24/18	
gamma-Chlordane	ND U	3.4	1.1	10	05/30/18 16:32	4/24/18	*
Heptachlor	ND U	1.7	0.66	10	05/30/18 16:32	4/24/18	
trans-Nonachlor	ND U	3.4	0.99	10	05/30/18 16:32	4/24/18	*

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_4,4'DDD-d4	65	5 - 120	05/30/18 16:32	
S_4,4'-DDT-d4	75	13 - 200	05/30/18 16:32	
S_Aldrin-13C12	34	10 - 143	05/30/18 16:32	
S_Endrin-13C12	117	20 - 157	05/30/18 16:32	
S_GBHCD6	28	5 - 124	05/30/18 16:32	
S_Heptachlor-13C10	30	10 - 177	05/30/18 16:32	
S_Heptachlrepxox13C10	48	8 - 146	05/30/18 16:32	
S_Oxychlordane-13C10	42	5 - 144	05/30/18 16:32	

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Analytical Report

Client:	AECOM	Service Request:	K1803616
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	Date Collected:	04/16/18 14:40
Sample Matrix:	Sediment	Date Received:	04/18/18 13:40
Sample Name:	PDI-SG-B164-BL1	Units:	ug/Kg
Lab Code:	K1803616-008	Basis:	Dry

Organochlorine Pesticides by GC/MS/MS

Analysis Method: ALS SOP
Prep Method: EPA 3541

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
2,4'-DDD	ND U	0.74	0.47	5	06/01/18 13:14	4/24/18	
2,4'-DDE	ND U	0.74	0.59	5	06/01/18 13:14	4/24/18	
2,4'-DDT	ND U	0.74	0.70	5	06/01/18 13:14	4/24/18	
4,4'-DDD	0.37 J	0.74	0.26	5	06/01/18 13:14	4/24/18	
4,4'-DDE	ND U	0.74	0.52	5	06/01/18 13:14	4/24/18	
4,4'-DDT	ND U	0.74	0.35	5	06/01/18 13:14	4/24/18	
Aldrin	ND U	0.74	0.59	5	06/01/18 13:14	4/24/18	
alpha-Chlordane	ND U	1.5	0.46	5	06/01/18 13:14	4/24/18	*
cis-Nonachlor	ND U	0.74	0.72	5	06/01/18 13:14	4/24/18	*
Dieldrin	ND U	1.5	0.58	5	06/01/18 13:14	4/24/18	*
gamma-BHC (Lindane)	ND U	0.74	0.23	5	06/01/18 13:14	4/24/18	
gamma-Chlordane	ND U	1.5	0.48	5	06/01/18 13:14	4/24/18	*
Heptachlor	ND U	0.74	0.29	5	06/01/18 13:14	4/24/18	
trans-Nonachlor	ND U	1.5	0.43	5	06/01/18 13:14	4/24/18	*

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_4,4'DDD-d4	40	5 - 120	06/01/18 13:14	
S_4,4'-DDT-d4	30	13 - 200	06/01/18 13:14	
S_Aldrin-13C12	17	10 - 143	06/01/18 13:14	
S_Endrin-13C12	38	20 - 157	06/01/18 13:14	
S_GBHCD6	22	5 - 124	06/01/18 13:14	
S_Heptachlor-13C10	22	10 - 177	06/01/18 13:14	
S_Heptachlrepx13C10	19	8 - 146	06/01/18 13:14	
S_Oxychlordane-13C10	26	5 - 144	06/01/18 13:14	

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Analytical Report

Client:	AECOM	Service Request:	K1803616
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	Date Collected:	04/16/18 14:40
Sample Matrix:	Sediment	Date Received:	04/18/18 13:40
Sample Name:	PDI-SG-B164-BL1-D	Units:	ug/Kg
Lab Code:	K1803616-009	Basis:	Dry

Organochlorine Pesticides by GC/MS/MS

Analysis Method: ALS SOP
Prep Method: EPA 3541

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
2,4'-DDD	ND U	0.73	0.47	5	06/01/18 13:43	4/24/18	
2,4'-DDE	ND U	0.73	0.58	5	06/01/18 13:43	4/24/18	
2,4'-DDT	ND U	0.73	0.69	5	06/01/18 13:43	4/24/18	
4,4'-DDD	0.37 J	0.73	0.26	5	06/01/18 13:43	4/24/18	
4,4'-DDE	ND U	0.73	0.52	5	06/01/18 13:43	4/24/18	
4,4'-DDT	ND U	0.73	0.35	5	06/01/18 13:43	4/24/18	
Aldrin	ND U	0.73	0.58	5	06/01/18 13:43	4/24/18	
alpha-Chlordane	ND U	1.5	0.46	5	06/01/18 13:43	4/24/18	*
cis-Nonachlor	ND U	0.73	0.72	5	06/01/18 13:43	4/24/18	*
Dieldrin	ND U	1.5	0.57	5	06/01/18 13:43	4/24/18	*
gamma-BHC (Lindane)	ND U	0.73	0.23	5	06/01/18 13:43	4/24/18	
gamma-Chlordane	ND U	1.5	0.47	5	06/01/18 13:43	4/24/18	*
Heptachlor	ND U	0.73	0.29	5	06/01/18 13:43	4/24/18	
trans-Nonachlor	ND U	1.5	0.43	5	06/01/18 13:43	4/24/18	*

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_4,4'DDD-d4	33	5 - 120	06/01/18 13:43	
S_4,4'-DDT-d4	25	13 - 200	06/01/18 13:43	
S_Aldrin-13C12	19	10 - 143	06/01/18 13:43	
S_Endrin-13C12	25	20 - 157	06/01/18 13:43	
S_GBHCD6	19	5 - 124	06/01/18 13:43	
S_Heptachlor-13C10	18	10 - 177	06/01/18 13:43	
S_Heptachlrepx13C10	17	8 - 146	06/01/18 13:43	
S_Oxychlordane-13C10	17	5 - 144	06/01/18 13:43	

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Analytical Report

Client:	AECOM	Service Request:	K1803616
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	Date Collected:	04/16/18 15:45
Sample Matrix:	Sediment	Date Received:	04/18/18 13:40
Sample Name:	PDI-SG-B167-BL1	Units:	ug/Kg
Lab Code:	K1803616-010	Basis:	Dry

Organochlorine Pesticides by GC/MS/MS

Analysis Method: ALS SOP
Prep Method: EPA 3541

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
2,4'-DDD	1.3	1.1	0.67	5	06/01/18 14:12	4/24/18	
2,4'-DDE	ND U	1.1	0.83	5	06/01/18 14:12	4/24/18	
2,4'-DDT	ND U	1.1	0.99	5	06/01/18 14:12	4/24/18	
4,4'-DDD	3.6	1.1	0.37	5	06/01/18 14:12	4/24/18	
4,4'-DDE	2.5	1.1	0.74	5	06/01/18 14:12	4/24/18	
4,4'-DDT	ND U	1.1	0.50	5	06/01/18 14:12	4/24/18	
Aldrin	ND U	1.1	0.83	5	06/01/18 14:12	4/24/18	
alpha-Chlordane	ND U	2.1	0.66	5	06/01/18 14:12	4/24/18	*
cis-Nonachlor	ND U	1.1	1.1	5	06/01/18 14:12	4/24/18	*
Dieldrin	ND U	2.1	0.81	5	06/01/18 14:12	4/24/18	*
gamma-BHC (Lindane)	ND U	1.1	0.33	5	06/01/18 14:12	4/24/18	
gamma-Chlordane	ND U	2.1	0.68	5	06/01/18 14:12	4/24/18	*
Heptachlor	ND U	1.1	0.41	5	06/01/18 14:12	4/24/18	
trans-Nonachlor	ND U	2.1	0.61	5	06/01/18 14:12	4/24/18	*

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_4,4'DDD-d4	36	5 - 120	06/01/18 14:12	
S_4,4'-DDT-d4	30	13 - 200	06/01/18 14:12	
S_Aldrin-13C12	14	10 - 143	06/01/18 14:12	
S_Endrin-13C12	41	20 - 157	06/01/18 14:12	
S_GBHCD6	14	5 - 124	06/01/18 14:12	
S_Heptachlor-13C10	15	10 - 177	06/01/18 14:12	
S_Heptachlrepxox13C10	17	8 - 146	06/01/18 14:12	
S_Oxychlordane-13C10	22	5 - 144	06/01/18 14:12	

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Analytical Report

Client: AECOM
Project: Portland Harbor Pre-Remedial Design Investigation/60566335
Sample Matrix: Sediment
Sample Name: PDI-SG-B169-BL1
Lab Code: K1803616-011

Service Request: K1803616
Date Collected: 04/17/18 09:40
Date Received: 04/18/18 13:40

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	0.44	5	06/01/18 14:41	4/24/18	
2,4'-DDE	ND U	0.68	0.54	5	06/01/18 14:41	4/24/18	
2,4'-DDT	ND U	0.68	0.65	5	06/01/18 14:41	4/24/18	
4,4'-DDD	ND U	0.68	0.24	5	06/01/18 14:41	4/24/18	
4,4'-DDE	ND U	0.68	0.48	5	06/01/18 14:41	4/24/18	
4,4'-DDT	ND U	0.68	0.33	5	06/01/18 14:41	4/24/18	
Aldrin	ND U	0.68	0.54	5	06/01/18 14:41	4/24/18	
alpha-Chlordane	ND U	1.4	0.43	5	06/01/18 14:41	4/24/18	*
cis-Nonachlor	ND U	0.68	0.67	5	06/01/18 14:41	4/24/18	*
Dieldrin	ND U	1.4	0.53	5	06/01/18 14:41	4/24/18	*
gamma-BHC (Lindane)	ND U	0.68	0.22	5	06/01/18 14:41	4/24/18	
gamma-Chlordane	ND U	1.4	0.44	5	06/01/18 14:41	4/24/18	*
Heptachlor	ND U	0.68	0.27	5	06/01/18 14:41	4/24/18	
trans-Nonachlor	ND U	1.4	0.40	5	06/01/18 14:41	4/24/18	*

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_4,4'DDD-d4	33	5 - 120	06/01/18 14:41	
S_4,4'-DDT-d4	25	13 - 200	06/01/18 14:41	
S_Aldrin-13C12	12	10 - 143	06/01/18 14:41	
S_Endrin-13C12	23	20 - 157	06/01/18 14:41	
S_GBHCD6	19	5 - 124	06/01/18 14:41	
S_Heptachlor-13C10	16	10 - 177	06/01/18 14:41	
S_Heptachlrepxox13C10	13	8 - 146	06/01/18 14:41	
S_Oxychlordane-13C10	20	5 - 144	06/01/18 14:41	

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Analytical Report

Client:	AECOM	Service Request:	K1803616
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	Date Collected:	04/17/18 11:40
Sample Matrix:	Sediment	Date Received:	04/18/18 13:40
Sample Name:	PDI-SG-B114-BL1	Units:	ug/Kg
Lab Code:	K1803616-012	Basis:	Dry

Organochlorine Pesticides by GC/MS/MS

Analysis Method: ALS SOP
Prep Method: EPA 3541

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
2,4'-DDD	0.72 J	0.88	0.56	5	06/01/18 15:10	4/24/18	
2,4'-DDE	ND U	0.88	0.70	5	06/01/18 15:10	4/24/18	
2,4'-DDT	ND U	0.88	0.83	5	06/01/18 15:10	4/24/18	
4,4'-DDD	2.0	0.88	0.31	5	06/01/18 15:10	4/24/18	
4,4'-DDE	1.7	0.88	0.62	5	06/01/18 15:10	4/24/18	
4,4'-DDT	ND U	0.88	0.42	5	06/01/18 15:10	4/24/18	
Aldrin	ND U	0.88	0.70	5	06/01/18 15:10	4/24/18	
alpha-Chlordane	ND U	1.8	0.55	5	06/01/18 15:10	4/24/18	*
cis-Nonachlor	ND U	0.88	0.86	5	06/01/18 15:10	4/24/18	*
Dieldrin	ND U	1.8	0.68	5	06/01/18 15:10	4/24/18	*
gamma-BHC (Lindane)	ND U	0.88	0.28	5	06/01/18 15:10	4/24/18	
gamma-Chlordane	ND U	1.8	0.57	5	06/01/18 15:10	4/24/18	*
Heptachlor	ND U	0.88	0.35	5	06/01/18 15:10	4/24/18	
trans-Nonachlor	ND U	1.8	0.52	5	06/01/18 15:10	4/24/18	*

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_4,4'DDD-d4	35	5 - 120	06/01/18 15:10	
S_4,4'-DDT-d4	27	13 - 200	06/01/18 15:10	
S_Aldrin-13C12	13	10 - 143	06/01/18 15:10	
S_Endrin-13C12	33	20 - 157	06/01/18 15:10	
S_GBHCD6	17	5 - 124	06/01/18 15:10	
S_Heptachlor-13C10	16	10 - 177	06/01/18 15:10	
S_Heptachlrepxox13C10	14	8 - 146	06/01/18 15:10	
S_Oxychlordane-13C10	20	5 - 144	06/01/18 15:10	

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Analytical Report

Client:	AECOM	Service Request:	K1803616
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	Date Collected:	04/17/18 13:00
Sample Matrix:	Sediment	Date Received:	04/18/18 13:40
Sample Name:	PDI-SG-B171-BL1	Units:	ug/Kg
Lab Code:	K1803616-013	Basis:	Dry

Organochlorine Pesticides by GC/MS/MS

Analysis Method: ALS SOP
Prep Method: EPA 3541

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
2,4'-DDD	ND U	0.64	0.41	5	06/01/18 15:39	4/24/18	
2,4'-DDE	ND U	0.64	0.51	5	06/01/18 15:39	4/24/18	
2,4'-DDT	ND U	0.64	0.61	5	06/01/18 15:39	4/24/18	
4,4'-DDD	ND U	0.64	0.23	5	06/01/18 15:39	4/24/18	
4,4'-DDE	ND U	0.64	0.46	5	06/01/18 15:39	4/24/18	
4,4'-DDT	ND U	0.64	0.31	5	06/01/18 15:39	4/24/18	
Aldrin	ND U	0.64	0.51	5	06/01/18 15:39	4/24/18	
alpha-Chlordane	ND U	1.3	0.40	5	06/01/18 15:39	4/24/18	*
cis-Nonachlor	ND U	0.64	0.63	5	06/01/18 15:39	4/24/18	*
Dieldrin	ND U	1.3	0.50	5	06/01/18 15:39	4/24/18	*
gamma-BHC (Lindane)	ND U	0.64	0.20	5	06/01/18 15:39	4/24/18	
gamma-Chlordane	ND U	1.3	0.42	5	06/01/18 15:39	4/24/18	*
Heptachlor	ND U	0.64	0.26	5	06/01/18 15:39	4/24/18	
trans-Nonachlor	ND U	1.3	0.38	5	06/01/18 15:39	4/24/18	*

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_4,4'DDD-d4	33	5 - 120	06/01/18 15:39	
S_4,4'-DDT-d4	26	13 - 200	06/01/18 15:39	
S_Aldrin-13C12	16	10 - 143	06/01/18 15:39	
S_Endrin-13C12	25	20 - 157	06/01/18 15:39	
S_GBHCD6	20	5 - 124	06/01/18 15:39	
S_Heptachlor-13C10	18	10 - 177	06/01/18 15:39	
S_Heptachlrepox13C10	19	8 - 146	06/01/18 15:39	
S_Oxychlordane-13C10	20	5 - 144	06/01/18 15:39	

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Analytical Report

Client:	AECOM	Service Request:	K1803616
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	Date Collected:	04/17/18 14:36
Sample Matrix:	Sediment	Date Received:	04/18/18 13:40
Sample Name:	PDI-SG-B173-BL1	Units:	ug/Kg
Lab Code:	K1803616-014	Basis:	Dry

Organochlorine Pesticides by GC/MS/MS

Analysis Method: ALS SOP
Prep Method: EPA 3541

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
2,4'-DDD	ND U	0.67	0.43	5	06/01/18 16:09	4/24/18	
2,4'-DDE	ND U	0.67	0.54	5	06/01/18 16:09	4/24/18	
2,4'-DDT	ND U	0.67	0.64	5	06/01/18 16:09	4/24/18	
4,4'-DDD	ND U	0.67	0.24	5	06/01/18 16:09	4/24/18	
4,4'-DDE	ND U	0.67	0.47	5	06/01/18 16:09	4/24/18	
4,4'-DDT	ND U	0.67	0.32	5	06/01/18 16:09	4/24/18	
Aldrin	ND U	0.67	0.54	5	06/01/18 16:09	4/24/18	
alpha-Chlordane	ND U	1.3	0.42	5	06/01/18 16:09	4/24/18	*
cis-Nonachlor	ND U	0.67	0.66	5	06/01/18 16:09	4/24/18	*
Dieldrin	ND U	1.3	0.52	5	06/01/18 16:09	4/24/18	*
gamma-BHC (Lindane)	ND U	0.67	0.21	5	06/01/18 16:09	4/24/18	
gamma-Chlordane	ND U	1.3	0.43	5	06/01/18 16:09	4/24/18	*
Heptachlor	ND U	0.67	0.27	5	06/01/18 16:09	4/24/18	
trans-Nonachlor	ND U	1.3	0.39	5	06/01/18 16:09	4/24/18	*

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_4,4'DDD-d4	32	5 - 120	06/01/18 16:09	
S_4,4'-DDT-d4	25	13 - 200	06/01/18 16:09	
S_Aldrin-13C12	14	10 - 143	06/01/18 16:09	
S_Endrin-13C12	28	20 - 157	06/01/18 16:09	
S_GBHCD6	20	5 - 124	06/01/18 16:09	
S_Heptachlor-13C10	17	10 - 177	06/01/18 16:09	
S_Heptachlrepox13C10	18	8 - 146	06/01/18 16:09	
S_Oxychlordane-13C10	24	5 - 144	06/01/18 16:09	

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Analytical Report

Client:	AECOM	Service Request:	K1803616
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	Date Collected:	04/17/18 16:33
Sample Matrix:	Sediment	Date Received:	04/18/18 13:40
Sample Name:	PDI-SG-B175-BL1	Units:	ug/Kg
Lab Code:	K1803616-015	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	0.73	0.47	5	06/01/18 16:38	4/24/18	
2,4'-DDE	ND U	0.73	0.58	5	06/01/18 16:38	4/24/18	
2,4'-DDT	ND U	0.73	0.69	5	06/01/18 16:38	4/24/18	
4,4'-DDD	ND U	0.73	0.26	5	06/01/18 16:38	4/24/18	
4,4'-DDE	ND U	0.73	0.52	5	06/01/18 16:38	4/24/18	
4,4'-DDT	ND U	0.73	0.35	5	06/01/18 16:38	4/24/18	
Aldrin	ND U	0.73	0.58	5	06/01/18 16:38	4/24/18	
alpha-Chlordane	ND U	1.5	0.46	5	06/01/18 16:38	4/24/18	*
cis-Nonachlor	ND U	0.73	0.71	5	06/01/18 16:38	4/24/18	*
Dieldrin	ND U	1.5	0.57	5	06/01/18 16:38	4/24/18	*
gamma-BHC (Lindane)	ND U	0.73	0.23	5	06/01/18 16:38	4/24/18	
gamma-Chlordane	ND U	1.5	0.47	5	06/01/18 16:38	4/24/18	*
Heptachlor	ND U	0.73	0.29	5	06/01/18 16:38	4/24/18	
trans-Nonachlor	ND U	1.5	0.43	5	06/01/18 16:38	4/24/18	*

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_4,4'DDD-d4	39	5 - 120	06/01/18 16:38	
S_4,4'-DDT-d4	31	13 - 200	06/01/18 16:38	
S_Aldrin-13C12	16	10 - 143	06/01/18 16:38	
S_Endrin-13C12	33	20 - 157	06/01/18 16:38	
S_GBHCD6	21	5 - 124	06/01/18 16:38	
S_Heptachlor-13C10	21	10 - 177	06/01/18 16:38	
S_Heptachlrepox13C10	18	8 - 146	06/01/18 16:38	
S_Oxychlordane-13C10	19	5 - 144	06/01/18 16:38	

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Analytical Report

Client:	AECOM	Service Request:	K1803616
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	Date Collected:	04/17/18 10:00
Sample Matrix:	Sediment	Date Received:	04/18/18 13:40
Sample Name:	PDI-SG-B108-BL1	Units:	ug/Kg
Lab Code:	K1803616-016	Basis:	Dry

Organochlorine Pesticides by GC/MS/MS

Analysis Method: ALS SOP
Prep Method: EPA 3541

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
2,4'-DDD	ND U	1.1	0.71	5	06/01/18 17:07	4/24/18	
2,4'-DDE	ND U	1.1	0.89	5	06/01/18 17:07	4/24/18	
2,4'-DDT	ND U	1.1	1.1	5	06/01/18 17:07	4/24/18	
4,4'-DDD	1.1 J	1.1	0.40	5	06/01/18 17:07	4/24/18	
4,4'-DDE	2.0	1.1	0.79	5	06/01/18 17:07	4/24/18	
4,4'-DDT	ND U	1.1	0.53	5	06/01/18 17:07	4/24/18	
Aldrin	ND U	1.1	0.89	5	06/01/18 17:07	4/24/18	
alpha-Chlordane	ND U	2.2	0.70	5	06/01/18 17:07	4/24/18	*
cis-Nonachlor	ND U	1.1	1.1	5	06/01/18 17:07	4/24/18	*
Dieldrin	ND U	2.2	0.87	5	06/01/18 17:07	4/24/18	*
gamma-BHC (Lindane)	ND U	1.1	0.35	5	06/01/18 17:07	4/24/18	
gamma-Chlordane	ND U	2.2	0.72	5	06/01/18 17:07	4/24/18	*
Heptachlor	ND U	1.1	0.44	5	06/01/18 17:07	4/24/18	
trans-Nonachlor	ND U	2.2	0.65	5	06/01/18 17:07	4/24/18	*

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_4,4'DDD-d4	34	5 - 120	06/01/18 17:07	
S_4,4'-DDT-d4	31	13 - 200	06/01/18 17:07	
S_Aldrin-13C12	13	10 - 143	06/01/18 17:07	
S_Endrin-13C12	30	20 - 157	06/01/18 17:07	
S_GBHCD6	16	5 - 124	06/01/18 17:07	
S_Heptachlor-13C10	16	10 - 177	06/01/18 17:07	
S_Heptachlrepox13C10	18	8 - 146	06/01/18 17:07	
S_Oxychlordane-13C10	18	5 - 144	06/01/18 17:07	

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Analytical Report

Client:	AECOM	Service Request:	K1803616
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	Date Collected:	04/17/18 11:40
Sample Matrix:	Sediment	Date Received:	04/18/18 13:40
Sample Name:	PDI-SG-B160-BL1	Units:	ug/Kg
Lab Code:	K1803616-017	Basis:	Dry

Organochlorine Pesticides by GC/MS/MS

Analysis Method: ALS SOP
Prep Method: EPA 3541

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
2,4'-DDD	1.5	1.0	0.66	5	06/01/18 17:37	4/24/18	
2,4'-DDE	ND U	1.0	0.82	5	06/01/18 17:37	4/24/18	
2,4'-DDT	ND U	1.0	0.98	5	06/01/18 17:37	4/24/18	
4,4'-DDD	3.9	1.0	0.37	5	06/01/18 17:37	4/24/18	
4,4'-DDE	2.8	1.0	0.73	5	06/01/18 17:37	4/24/18	
4,4'-DDT	5.6	1.0	0.49	5	06/01/18 17:37	4/24/18	
Aldrin	ND U	1.0	0.82	5	06/01/18 17:37	4/24/18	
alpha-Chlordane	ND U	2.1	0.65	5	06/01/18 17:37	4/24/18	*
cis-Nonachlor	ND U	1.1	1.1	5	06/01/18 17:37	4/24/18	*
Dieldrin	ND U	2.1	0.80	5	06/01/18 17:37	4/24/18	*
gamma-BHC (Lindane)	ND U	1.0	0.33	5	06/01/18 17:37	4/24/18	
gamma-Chlordane	ND U	2.1	0.67	5	06/01/18 17:37	4/24/18	*
Heptachlor	ND U	1.0	0.41	5	06/01/18 17:37	4/24/18	
trans-Nonachlor	ND U	2.1	0.61	5	06/01/18 17:37	4/24/18	*

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_4,4'DDD-d4	32	5 - 120	06/01/18 17:37	
S_4,4'-DDT-d4	29	13 - 200	06/01/18 17:37	
S_Aldrin-13C12	12	10 - 143	06/01/18 17:37	
S_Endrin-13C12	33	20 - 157	06/01/18 17:37	
S_GBHCD6	17	5 - 124	06/01/18 17:37	
S_Heptachlor-13C10	15	10 - 177	06/01/18 17:37	
S_Heptachlrepx13C10	16	8 - 146	06/01/18 17:37	
S_Oxychlordane-13C10	15	5 - 144	06/01/18 17:37	

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Analytical Report

Client:	AECOM	Service Request:	K1803616
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	Date Collected:	04/17/18 13:45
Sample Matrix:	Sediment	Date Received:	04/18/18 13:40
Sample Name:	PDI-SG-B168-BL1	Units:	ug/Kg
Lab Code:	K1803616-018	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	30	0.66	0.42	5	06/01/18 18:06	4/24/18	
2,4'-DDE	ND U	0.66	0.52	5	06/01/18 18:06	4/24/18	
2,4'-DDT	ND U	0.66	0.62	5	06/01/18 18:06	4/24/18	
4,4'-DDD	40	0.66	0.24	5	06/01/18 18:06	4/24/18	
4,4'-DDE	3.8	0.66	0.47	5	06/01/18 18:06	4/24/18	
4,4'-DDT	1.2	0.66	0.31	5	06/01/18 18:06	4/24/18	
Aldrin	ND U	0.66	0.52	5	06/01/18 18:06	4/24/18	
alpha-Chlordane	ND U	1.3	0.41	5	06/01/18 18:06	4/24/18	*
cis-Nonachlor	ND U	0.66	0.64	5	06/01/18 18:06	4/24/18	*
Dieldrin	0.97 J	1.3	0.51	5	06/01/18 18:06	4/24/18	*
gamma-BHC (Lindane)	ND U	0.66	0.21	5	06/01/18 18:06	4/24/18	
gamma-Chlordane	ND U	1.3	0.43	5	06/01/18 18:06	4/24/18	*
Heptachlor	ND U	0.66	0.26	5	06/01/18 18:06	4/24/18	
trans-Nonachlor	ND U	1.3	0.39	5	06/01/18 18:06	4/24/18	*

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_4,4'DDD-d4	12	5 - 120	06/01/18 18:06	
S_4,4'-DDT-d4	13	13 - 200	06/01/18 18:06	
S_Aldrin-13C12	8	10 - 143	06/01/18 18:06	*
S_Endrin-13C12	17	20 - 157	06/01/18 18:06	*
S_GBHCD6	6	5 - 124	06/01/18 18:06	
S_Heptachlor-13C10	9	10 - 177	06/01/18 18:06	*
S_Heptachlrepxox13C10	16	8 - 146	06/01/18 18:06	
S_Oxychlordane-13C10	21	5 - 144	06/01/18 18:06	

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Analytical Report

Client:	AECOM	Service Request:	K1803616
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	Date Collected:	04/17/18 16:15
Sample Matrix:	Sediment	Date Received:	04/18/18 13:40
Sample Name:	PDI-SG-B202-BL1	Units:	ug/Kg
Lab Code:	K1803616-019	Basis:	Dry

Organochlorine Pesticides by GC/MS/MS

Analysis Method: ALS SOP
Prep Method: EPA 3541

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
2,4'-DDD	ND U	0.67	0.43	5	06/01/18 18:36	4/24/18	
2,4'-DDE	ND U	0.67	0.53	5	06/01/18 18:36	4/24/18	
2,4'-DDT	0.66 J	0.67	0.63	5	06/01/18 18:36	4/24/18	
4,4'-DDD	ND U	0.67	0.24	5	06/01/18 18:36	4/24/18	
4,4'-DDE	ND U	0.67	0.47	5	06/01/18 18:36	4/24/18	
4,4'-DDT	1.1	0.67	0.32	5	06/01/18 18:36	4/24/18	
Aldrin	ND U	0.67	0.53	5	06/01/18 18:36	4/24/18	
alpha-Chlordane	ND U	1.3	0.42	5	06/01/18 18:36	4/24/18	*
cis-Nonachlor	ND U	0.67	0.65	5	06/01/18 18:36	4/24/18	*
Dieldrin	ND U	1.3	0.52	5	06/01/18 18:36	4/24/18	*
gamma-BHC (Lindane)	ND U	0.67	0.21	5	06/01/18 18:36	4/24/18	
gamma-Chlordane	ND U	1.3	0.43	5	06/01/18 18:36	4/24/18	*
Heptachlor	ND U	0.67	0.27	5	06/01/18 18:36	4/24/18	
trans-Nonachlor	ND U	1.3	0.39	5	06/01/18 18:36	4/24/18	*

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_4,4'DDD-d4	35	5 - 120	06/01/18 18:36	
S_4,4'-DDT-d4	28	13 - 200	06/01/18 18:36	
S_Aldrin-13C12	16	10 - 143	06/01/18 18:36	
S_Endrin-13C12	34	20 - 157	06/01/18 18:36	
S_GBHCD6	21	5 - 124	06/01/18 18:36	
S_Heptachlor-13C10	19	10 - 177	06/01/18 18:36	
S_Heptachlrepx13C10	23	8 - 146	06/01/18 18:36	
S_Oxychlordane-13C10	20	5 - 144	06/01/18 18:36	

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Analytical Report

Client:	AECOM	Service Request:	K1803616
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	Date Collected:	04/16/18 17:35
Sample Matrix:	Water	Date Received:	04/18/18 13:40
Sample Name:	PDI-RB-VVSS-180416-1735	Units:	ng/L
Lab Code:	K1803616-020	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	0.51	0.12	1	06/01/18 10:51	4/23/18	
2,4'-DDE	ND U	0.51	0.12	1	06/01/18 10:51	4/23/18	
2,4'-DDT	ND U	0.51	0.089	1	06/01/18 10:51	4/23/18	
4,4'-DDD	ND U	0.51	0.11	1	06/01/18 10:51	4/23/18	
4,4'-DDE	ND U	0.51	0.077	1	06/01/18 10:51	4/23/18	
4,4'-DDT	ND U	0.51	0.090	1	06/01/18 10:51	4/23/18	
Aldrin	ND U	1.0	0.47	1	06/01/18 10:51	4/23/18	
alpha-Chlordane	ND U	0.51	0.14	1	06/01/18 10:51	4/23/18	
cis-Nonachlor	ND U	0.51	0.18	1	06/01/18 10:51	4/23/18	*
Dieldrin	ND U	5.1	0.76	1	06/01/18 10:51	4/23/18	
gamma-BHC (Lindane)	ND U	0.51	0.31	1	06/01/18 10:51	4/23/18	
gamma-Chlordane	ND U	0.51	0.18	1	06/01/18 10:51	4/23/18	
Heptachlor	ND U	1.0	0.13	1	06/01/18 10:51	4/23/18	
trans-Nonachlor	ND U	0.51	0.13	1	06/01/18 10:51	4/23/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_4,4'DDD-d4	75	5 - 120	06/01/18 10:51	
S_4,4'-DDT-d4	70	13 - 200	06/01/18 10:51	
S_Aldrin-13C12	37	5 - 126	06/01/18 10:51	
S_Endrin-13C12	60	20 - 157	06/01/18 10:51	
S_GBHCD6	49	5 - 124	06/01/18 10:51	
S_Heptachlor-13C10	52	5 - 128	06/01/18 10:51	
S_Heptachlrepx13C10	42	8 - 146	06/01/18 10:51	
S_Oxychlordane-13C10	55	5 - 144	06/01/18 10:51	

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Analytical Report

Client:	AECOM	Service Request:	K1803616
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	Date Collected:	04/16/18 18:00
Sample Matrix:	Water	Date Received:	04/18/18 13:40
Sample Name:	PDI-RB-VVSS-180416-1800	Units:	ng/L
Lab Code:	K1803616-021	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	06/01/18 11:19	4/23/18	
2,4'-DDE	ND U	0.52	0.12	1	06/01/18 11:19	4/23/18	
2,4'-DDT	ND U	0.52	0.090	1	06/01/18 11:19	4/23/18	
4,4'-DDD	ND U	0.52	0.11	1	06/01/18 11:19	4/23/18	
4,4'-DDE	ND U	0.52	0.078	1	06/01/18 11:19	4/23/18	
4,4'-DDT	ND U	0.52	0.091	1	06/01/18 11:19	4/23/18	
Aldrin	ND U	1.0	0.48	1	06/01/18 11:19	4/23/18	
alpha-Chlordane	ND U	0.52	0.14	1	06/01/18 11:19	4/23/18	
cis-Nonachlor	ND U	0.52	0.18	1	06/01/18 11:19	4/23/18	*
Dieldrin	ND U	5.2	0.77	1	06/01/18 11:19	4/23/18	
gamma-BHC (Lindane)	ND U	0.52	0.31	1	06/01/18 11:19	4/23/18	
gamma-Chlordane	ND U	0.52	0.18	1	06/01/18 11:19	4/23/18	
Heptachlor	ND U	1.0	0.13	1	06/01/18 11:19	4/23/18	
trans-Nonachlor	0.14 J	0.52	0.13	1	06/01/18 11:19	4/23/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_4,4'DDD-d4	69	5 - 120	06/01/18 11:19	
S_4,4'-DDT-d4	65	13 - 200	06/01/18 11:19	
S_Aldrin-13C12	32	5 - 126	06/01/18 11:19	
S_Endrin-13C12	56	20 - 157	06/01/18 11:19	
S_GBHCD6	43	5 - 124	06/01/18 11:19	
S_Heptachlor-13C10	42	5 - 128	06/01/18 11:19	
S_Heptachlrepxox13C10	38	8 - 146	06/01/18 11:19	
S_Oxychlordane-13C10	43	5 - 144	06/01/18 11:19	

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Analytical Report

Client:	AECOM	Service Request:	K1803616
Project:	Portland Harbor 2018/60566335	Date Collected:	NA
Sample Matrix:	Sediment	Date Received:	NA
Sample Name:	Method Blank	Units:	ug/Kg
Lab Code:	KQ1805054-04	Basis:	Dry

Organochlorine Pesticides by GC/MS/MS

Analysis Method: ALS SOP
Prep Method: EPA 3541

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
2,4'-DDD	ND U	0.096	0.063	1	05/30/18 10:02	4/24/18	
2,4'-DDE	ND U	0.096	0.079	1	05/30/18 10:02	4/24/18	
2,4'-DDT	ND U	0.096	0.094	1	05/30/18 10:02	4/24/18	
4,4'-DDD	ND U	0.096	0.035	1	05/30/18 10:02	4/24/18	
4,4'-DDE	ND U	0.096	0.070	1	05/30/18 10:02	4/24/18	
4,4'-DDT	ND U	0.096	0.047	1	05/30/18 10:02	4/24/18	
Aldrin	ND U	0.096	0.079	1	05/30/18 10:02	4/24/18	
alpha-Chlordane	ND U	0.19	0.062	1	05/30/18 10:02	4/24/18	
cis-Nonachlor	ND U	0.097	0.097	1	05/30/18 10:02	4/24/18	
Dieldrin	ND U	0.20	0.077	1	05/30/18 10:02	4/24/18	
gamma-BHC (Lindane)	ND U	0.096	0.031	1	05/30/18 10:02	4/24/18	
gamma-Chlordane	ND U	0.19	0.064	1	05/30/18 10:02	4/24/18	
Heptachlor	ND U	0.096	0.039	1	05/30/18 10:02	4/24/18	
trans-Nonachlor	ND U	0.19	0.058	1	05/30/18 10:02	4/24/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_4,4'DDD-d4	85	5 - 120	05/30/18 10:02	
S_4,4'-DDT-d4	85	13 - 200	05/30/18 10:02	
S_Aldrin-13C12	24	10 - 143	05/30/18 10:02	
S_Endrin-13C12	85	20 - 157	05/30/18 10:02	
S_GBHCD6	28	5 - 124	05/30/18 10:02	
S_Heptachlor-13C10	35	10 - 177	05/30/18 10:02	
S_Heptachlrepxox13C10	39	8 - 146	05/30/18 10:02	
S_Oxychlordane-13C10	36	5 - 144	05/30/18 10:02	

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Analytical Report

Client:	AECOM	Service Request:	K1803616
Project:	Portland Harbor 2018/60566335	Date Collected:	NA
Sample Matrix:	Water	Date Received:	NA
Sample Name:	Method Blank	Units:	ng/L
Lab Code:	KQ1805169-03	Basis:	NA

Organochlorine Pesticides by GC/MS/MS

Analysis Method: ALS SOP
Prep Method: EPA 3535A

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
2,4'-DDD	ND U	0.50	0.11	1	06/01/18 09:30	4/23/18	
2,4'-DDE	ND U	0.50	0.11	1	06/01/18 09:30	4/23/18	
2,4'-DDT	ND U	0.50	0.087	1	06/01/18 09:30	4/23/18	
4,4'-DDD	ND U	0.50	0.10	1	06/01/18 09:30	4/23/18	
4,4'-DDE	ND U	0.50	0.075	1	06/01/18 09:30	4/23/18	
4,4'-DDT	ND U	0.50	0.088	1	06/01/18 09:30	4/23/18	
Aldrin	ND U	1.0	0.46	1	06/01/18 09:30	4/23/18	
alpha-Chlordane	ND U	0.50	0.13	1	06/01/18 09:30	4/23/18	
cis-Nonachlor	ND U	0.50	0.17	1	06/01/18 09:30	4/23/18	
Dieldrin	ND U	5.0	0.74	1	06/01/18 09:30	4/23/18	
gamma-BHC (Lindane)	ND U	0.50	0.30	1	06/01/18 09:30	4/23/18	
gamma-Chlordane	ND U	0.50	0.17	1	06/01/18 09:30	4/23/18	
Heptachlor	ND U	1.0	0.12	1	06/01/18 09:30	4/23/18	
trans-Nonachlor	0.22 J	0.50	0.12	1	06/01/18 09:30	4/23/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_4,4'DDD-d4	77	5 - 120	06/01/18 09:30	
S_4,4'-DDT-d4	71	13 - 200	06/01/18 09:30	
S_Aldrin-13C12	28	5 - 126	06/01/18 09:30	
S_Endrin-13C12	63	20 - 157	06/01/18 09:30	
S_GBHCD6	46	5 - 124	06/01/18 09:30	
S_Heptachlor-13C10	44	5 - 128	06/01/18 09:30	
S_Heptachlrepx13C10	39	8 - 146	06/01/18 09:30	
S_Oxychlordane-13C10	47	5 - 144	06/01/18 09:30	

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Analytical Report

Client:	AECOM	Service Request:	K1803616
Project:	Portland Harbor 2018/60566335	Date Collected:	NA
Sample Matrix:	Sediment	Date Received:	NA
Sample Name:	Method Blank	Units:	ug/Kg
Lab Code:	KQ1807358-04	Basis:	Dry

Organochlorine Pesticides by GC/MS/MS

Analysis Method: ALS SOP
Prep Method: EPA 3541

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
2,4'-DDD	ND U	0.063	0.063	1	07/10/18 01:38	6/12/18	
2,4'-DDE	ND U	0.079	0.079	1	07/10/18 01:38	6/12/18	
2,4'-DDT	ND U	0.094	0.094	1	07/10/18 01:38	6/12/18	
4,4'-DDD	ND U	0.049	0.035	1	07/10/18 01:38	6/12/18	
4,4'-DDE	ND U	0.070	0.070	1	07/10/18 01:38	6/12/18	
4,4'-DDT	ND U	0.049	0.047	1	07/10/18 01:38	6/12/18	
Aldrin	ND U	0.079	0.079	1	07/10/18 01:38	6/12/18	
alpha-Chlordane	ND U	0.098	0.062	1	07/10/18 01:38	6/12/18	
cis-Nonachlor	ND U	0.097	0.097	1	07/10/18 01:38	6/12/18	
Dieldrin	ND U	0.20	0.077	1	07/10/18 01:38	6/12/18	
gamma-BHC (Lindane)	ND U	0.049	0.031	1	07/10/18 01:38	6/12/18	
gamma-Chlordane	ND U	0.098	0.064	1	07/10/18 01:38	6/12/18	
Heptachlor	ND U	0.049	0.039	1	07/10/18 01:38	6/12/18	
trans-Nonachlor	ND U	0.098	0.058	1	07/10/18 01:38	6/12/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
S_4,4'DDD-d4	73	5 - 120	07/10/18 01:38	
S_4,4'-DDT-d4	66	13 - 200	07/10/18 01:38	
S_Aldrin-13C12	82	10 - 143	07/10/18 01:38	
S_Endrin-13C12	70	20 - 157	07/10/18 01:38	
S_GBHCD6	53	5 - 124	07/10/18 01:38	
S_Heptachlor-13C10	71	10 - 177	07/10/18 01:38	
S_Heptachlrepx13C10	40	8 - 146	07/10/18 01:38	
S_Oxychlordane-13C10	59	5 - 144	07/10/18 01:38	

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QA/QC Report

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

Service Request: K1803616

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-B133-BL1	K1803616-001	81	81	28
PDI-SG-B135-BL1	K1803616-002	74	83	27
PDI-SG-B112-BL1	K1803616-003	66	50	57
PDI-SG-B115-BL1	K1803616-004	88	84	36
PDI-SG-B156-BL1	K1803616-005	70	67	21
PDI-SG-B159-BL1	K1803616-006	74	79	20
PDI-SG-B163-BL1	K1803616-007	65	75	34
PDI-SG-B164-BL1	K1803616-008	40	30	17
PDI-SG-B164-BL1-D	K1803616-009	33	25	19
PDI-SG-B167-BL1	K1803616-010	36	30	14
PDI-SG-B169-BL1	K1803616-011	33	25	12
PDI-SG-B114-BL1	K1803616-012	35	27	13
PDI-SG-B171-BL1	K1803616-013	33	26	16
PDI-SG-B173-BL1	K1803616-014	32	25	14
PDI-SG-B175-BL1	K1803616-015	39	31	16
PDI-SG-B108-BL1	K1803616-016	34	31	13
PDI-SG-B160-BL1	K1803616-017	32	29	12
PDI-SG-B168-BL1	K1803616-018	12	13	8*
PDI-SG-B202-BL1	K1803616-019	35	28	16
Batch QC	K1805148-001	71	56	60
Method Blank	KQ1805054-04	85	85	24
Method Blank	KQ1807358-04	73	66	82
Lab Control Sample	KQ1805054-03	95	98	27
Lab Control Sample	KQ1807358-03	75	71	77
PDI-SG-B202-BL1	KQ1805054-01	66	53	35
PDI-SG-B202-BL1	KQ1805054-02	64	51	27
Batch QC	KQ1807358-01	78	59	86
Batch QC	KQ1807358-02	80	77	89

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QA/QC Report

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

Service Request: K1803616

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-B133-BL1	K1803616-001	59	34	40
PDI-SG-B135-BL1	K1803616-002	57	30	34
PDI-SG-B112-BL1	K1803616-003	54	40	59
PDI-SG-B115-BL1	K1803616-004	73	36	46
PDI-SG-B156-BL1	K1803616-005	53	27	27
PDI-SG-B159-BL1	K1803616-006	55	25	29
PDI-SG-B163-BL1	K1803616-007	117	28	30
PDI-SG-B164-BL1	K1803616-008	38	22	22
PDI-SG-B164-BL1-D	K1803616-009	25	19	18
PDI-SG-B167-BL1	K1803616-010	41	14	15
PDI-SG-B169-BL1	K1803616-011	23	19	16
PDI-SG-B114-BL1	K1803616-012	33	17	16
PDI-SG-B171-BL1	K1803616-013	25	20	18
PDI-SG-B173-BL1	K1803616-014	28	20	17
PDI-SG-B175-BL1	K1803616-015	33	21	21
PDI-SG-B108-BL1	K1803616-016	30	16	16
PDI-SG-B160-BL1	K1803616-017	33	17	15
PDI-SG-B168-BL1	K1803616-018	17*	6	9*
PDI-SG-B202-BL1	K1803616-019	34	21	19
Batch QC	K1805148-001	54	48	59
Method Blank	KQ1805054-04	85	28	35
Method Blank	KQ1807358-04	70	53	71
Lab Control Sample	KQ1805054-03	91	31	36
Lab Control Sample	KQ1807358-03	75	48	67
PDI-SG-B202-BL1	KQ1805054-01	59	44	40
PDI-SG-B202-BL1	KQ1805054-02	64	35	38
Batch QC	KQ1807358-01	74	56	70
Batch QC	KQ1807358-02	73	72	63

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QA/QC Report

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

Service Request: K1803616

SURROGATE RECOVERY SUMMARY
Organochlorine Pesticides by GC/MS/MS

Analysis Method: ALS SOP
Extraction Method: EPA 3541

Sample Name	Lab Code	S_Heptachlrepox13C10	S_Oxychlordane-13C10
		8-146	5-144
PDI-SG-B133-BL1	K1803616-001	36	37
PDI-SG-B135-BL1	K1803616-002	32	30
PDI-SG-B112-BL1	K1803616-003	25	55
PDI-SG-B115-BL1	K1803616-004	49	50
PDI-SG-B156-BL1	K1803616-005	32	27
PDI-SG-B159-BL1	K1803616-006	41	25
PDI-SG-B163-BL1	K1803616-007	48	42
PDI-SG-B164-BL1	K1803616-008	19	26
PDI-SG-B164-BL1-D	K1803616-009	17	17
PDI-SG-B167-BL1	K1803616-010	17	22
PDI-SG-B169-BL1	K1803616-011	13	20
PDI-SG-B114-BL1	K1803616-012	14	20
PDI-SG-B171-BL1	K1803616-013	19	20
PDI-SG-B173-BL1	K1803616-014	18	24
PDI-SG-B175-BL1	K1803616-015	18	19
PDI-SG-B108-BL1	K1803616-016	18	18
PDI-SG-B160-BL1	K1803616-017	16	15
PDI-SG-B168-BL1	K1803616-018	16	21
PDI-SG-B202-BL1	K1803616-019	23	20
Batch QC	K1805148-001	31	37
Method Blank	KQ1805054-04	39	36
Method Blank	KQ1807358-04	40	59
Lab Control Sample	KQ1805054-03	39	36
Lab Control Sample	KQ1807358-03	41	55
PDI-SG-B202-BL1	KQ1805054-01	38	49
PDI-SG-B202-BL1	KQ1805054-02	35	46
Batch QC	KQ1807358-01	41	56
Batch QC	KQ1807358-02	50	70

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QA/QC Report

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

Service Request: K1803616

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
PDI-RB-VVSS-180416-1735	K1803616-020	75	70	37
PDI-RB-VVSS-180416-1800	K1803616-021	69	65	32
Method Blank	KQ1805169-03	77	71	28
Lab Control Sample	KQ1805169-01	72	69	31
Duplicate Lab Control Sample	KQ1805169-02	69	68	27

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QA/QC Report

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

Service Request: K1803616

SURROGATE RECOVERY SUMMARY
Organochlorine Pesticides by GC/MS/MS

Analysis Method: ALS SOP
Extraction Method: EPA 3541

Sample Name	Lab Code	S_Endrin-13C12 20-157	S_GBHCD6 5-124	S_Heptachlor-13C10 10-177
PDI-RB-VVSS-180416-1735	K1803616-020	60	49	52
PDI-RB-VVSS-180416-1800	K1803616-021	56	43	42
Method Blank	KQ1805169-03	63	46	44
Lab Control Sample	KQ1805169-01	62	48	46
Duplicate Lab Control Sample	KQ1805169-02	57	46	47

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QA/QC Report

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

Service Request: K1803616

SURROGATE RECOVERY SUMMARY
Organochlorine Pesticides by GC/MS/MS

Analysis Method: ALS SOP
Extraction Method: EPA 3541

Sample Name	Lab Code	S_Heptachlrepox13C10	S_Oxychlordane-13C10
		8-146	5-144
PDI-RB-VVSS-180416-1735	K1803616-020	42	55
PDI-RB-VVSS-180416-1800	K1803616-021	38	43
Method Blank	KQ1805169-03	39	47
Lab Control Sample	KQ1805169-01	38	50
Duplicate Lab Control Sample	KQ1805169-02	39	46

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QA/QC Report

Client: AECOM
Project: Portland Harbor 2018/60566335

Service Request:K1803616
Date Analyzed:05/26/18 17:33

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

File ID: J:\MS21\Data\052618\052618F017.D\
Instrument ID: K-MSMS-01
Analysis Method: ALS SOP

Lab Code:KQ1806946-01
Analysis Lot:592335
Signal ID:1

	Pyrene-d10	
	Area	RT
ICAL Result ==>	18,689	14.1471
Upper Limit ==>	37,378	14.65
Lower Limit ==>	9,344	13.65

Associated Analyses

Continuing Calibration Verification	KQ1806946-01	22263.7	14.12
PDI-SG-B133-BL1	K1803616-001	32629.8	14.1216
PDI-SG-B135-BL1	K1803616-002	38711.4	14.1216
PDI-SG-B115-BL1	K1803616-004	32214.3	14.1216
PDI-SG-B156-BL1	K1803616-005	28695.7	14.1216
PDI-SG-B159-BL1	K1803616-006	37797.3	14.1217

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QA/QC Report

Client: AECOM
Project: Portland Harbor 2018/60566335

Service Request:K1803616
Date Analyzed:05/30/18 09:14

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

File ID: J:\MS21\Data\053018\053018F003.D\
Instrument ID: K-MSMS-01
Analysis Method: ALS SOP

Lab Code:KQ1807165-01
Analysis Lot:592847
Signal ID:1

	Pyrene-d10	
	Area	RT
ICAL Result ==>	24,390	14.1218
Upper Limit ==>	48,780	14.62
Lower Limit ==>	12,195	13.62

Associated Analyses

Continuing Calibration Verification	KQ1807165-01	31014.7	14.1471
Method Blank	KQ1805054-04	37504.6	14.1471
Lab Control Sample	KQ1805054-03	30052.6	14.1471
PDI-SG-B163-BL1	K1803616-007	44725.3	14.1471

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QA/QC Report

Client: AECOM
Project: Portland Harbor 2018/60566335

Service Request:K1803616
Date Analyzed:06/01/18 08:56

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

File ID: J:\MS21\Data\060118\060118F004.D\
Instrument ID: K-MSMS-01
Analysis Method: ALS SOP

Lab Code:KQ1807315-01
Analysis Lot:593190
Signal ID:1

	Pyrene-d10	
	Area	RT
ICAL Result ==>	33,816	14.1471
Upper Limit ==>	67,632	14.65
Lower Limit ==>	16,908	13.65

Associated Analyses

Continuing Calibration Verification	KQ1807315-01	63808.3	14.1471
Method Blank	KQ1805169-03	49859.9	14.1472
Lab Control Sample	KQ1805169-01	53446.3	14.1471
Duplicate Lab Control Sample	KQ1805169-02	52666.6	14.1471
PDI-RB-VVSS-180416-1735	K1803616-020	53512.3	14.1471
PDI-RB-VVSS-180416-1800	K1803616-021	53207.9	14.1472
PDI-SG-B202-BL1MS	KQ1805054-01	54133.5	14.1473
PDI-SG-B202-BL1DMS	KQ1805054-02	56430.2	14.1471
PDI-SG-B164-BL1	K1803616-008	55875	14.1471
PDI-SG-B164-BL1-D	K1803616-009	56216.9	14.1472
PDI-SG-B167-BL1	K1803616-010	60999	14.1471
PDI-SG-B169-BL1	K1803616-011	54093.6	14.1471
PDI-SG-B114-BL1	K1803616-012	55218.5	14.1471
PDI-SG-B171-BL1	K1803616-013	55548.9	14.1471
PDI-SG-B173-BL1	K1803616-014	55603.3	14.1471
PDI-SG-B175-BL1	K1803616-015	56882	14.1471
PDI-SG-B108-BL1	K1803616-016	59745.4	14.1471
PDI-SG-B160-BL1	K1803616-017	57767.1	14.1471
PDI-SG-B168-BL1	K1803616-018	72650.4	14.1712
PDI-SG-B202-BL1	K1803616-019	57064.2	14.1471

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QA/QC Report

Client: AECOM
Project: Portland Harbor 2018/60566335

Service Request:K1803616
Date Analyzed:07/09/18 23:21

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

File ID: J:\MS21\Data\070918\070918F035.D\
Instrument ID: K-MSMS-01
Analysis Method: ALS SOP

Lab Code:KQ1809220-01
Analysis Lot:597922
Signal ID:1

	Pyrene-d10	
	Area	RT
ICAL Result ==>	20,641	14.0862
Upper Limit ==>	41,282	14.59
Lower Limit ==>	10,320	13.59

Associated Analyses

Continuing Calibration Verification	KQ1809220-01	25329.3	14.0704
Method Blank	KQ1807358-04	35201.7	14.0704
Lab Control Sample	KQ1807358-03	39656.6	14.0704
Batch QCMS	KQ1807358-01	36879.2	14.0703
Batch QCDMS	KQ1807358-02	31190.4	14.0703
Batch QC	K1805148-001	35011.2	14.0704
PDI-SG-B112-BL1	K1803616-003	45005.9	14.0704

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QA/QC Report

Client: AECOM
Project: Portland Harbor 2018/60566335
Sample Matrix: Sediment

Service Request: K1803616
Date Collected: 04/17/18
Date Received: 04/18/18
Date Analyzed: 06/1/18
Date Extracted: 04/24/18

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

Sample Name:	PDI-SG-B202-BL1	Units:	ug/Kg
Lab Code:	K1803616-019	Basis:	Dry
Analysis Method:	ALS SOP		
Prep Method:	EPA 3541		

Analyte Name	Sample Result	Matrix Spike KQ1805054-01			Duplicate Matrix Spike KQ1805054-02					
		Spike Amount	% Rec	Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit	
2,4'-DDD	ND U	2.98	2.72	109	2.82	2.72	104	32-169	5	40
2,4'-DDE	ND U	2.30	2.72	84	2.30	2.72	85	43-155	<1	40
2,4'-DDT	0.66 J	3.37	2.72	100	3.29	2.72	96	55-161	3	40
4,4'-DDD	ND U	2.79	2.72	103	2.53	2.72	93	10-190	10	40
4,4'-DDE	ND U	2.62	2.72	96	2.58	2.72	95	35-162	1	40
4,4'-DDT	1.1	4.59	2.72	127	4.54	2.72	125	24-183	1	40
Aldrin	ND U	2.94	2.72	108	2.52	2.72	93	52-151	15	40
alpha-Chlordane	ND U	2.38	2.72	87	2.29	2.72	84	31-156	4	40
cis-Nonachlor	ND U	4.21	2.72	154 *	4.08	2.72	150 *	27-144	3	40
Dieldrin	ND U	1.86	2.72	68	1.61	2.72	59	28-150	14	40
gamma-BHC (Lindane)	ND U	2.44	2.72	90	3.10	2.72	114	64-135	24	40
gamma-Chlordane	ND U	2.72	2.72	100	2.31	2.72	85	31-158	16	40
Heptachlor	ND U	3.01	2.72	110	2.47	2.72	91	76-117	20	40
trans-Nonachlor	ND U	2.55	2.72	94	2.56	2.72	94	35-153	<1	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 2018/60566335
Sample Matrix: Sediment

Service Request: K1803616
Date Analyzed: 05/30/18
Date Extracted: 04/24/18

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

Analysis Method: ALS SOP **Units:** ug/Kg
Prep Method: EPA 3541 **Basis:** Dry
 Analysis Lot: 592847

Lab Control Sample
KQ1805054-03

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
2,4'-DDD	1.83	2.00	91	73-122
2,4'-DDE	1.30	2.00	65	54-145
2,4'-DDT	2.13	2.00	107	77-118
4,4'-DDD	2.17	2.00	108	74-117
4,4'-DDE	1.44	2.00	72	66-132
4,4'-DDT	2.12	2.00	106	78-116
Aldrin	2.22	2.00	111	74-122
alpha-Chlordane	3.18	2.00	159 *	74-130
cis-Nonachlor	7.28	2.00	364 *	69-134
Dieldrin	1.14	2.00	57 *	62-131
gamma-BHC (Lindane)	2.20	2.00	110	79-116
gamma-Chlordane	2.84	2.00	142 *	76-128
Heptachlor	2.13	2.00	106	81-114
trans-Nonachlor	3.63	2.00	181 *	76-124

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QA/QC Report

Client: AECOM
Project: Portland Harbor 2018/60566335
Sample Matrix: Sediment

Service Request: K1803616
Date Analyzed: 07/10/18
Date Extracted: 06/12/18

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

Analysis Method: ALS SOP **Units:** ug/Kg
Prep Method: EPA 3541 **Basis:** Dry
 Analysis Lot: 597922

Lab Control Sample
KQ1807358-03

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
2,4'-DDD	1.68	2.00	84	73-122
2,4'-DDE	2.19	2.00	109	54-145
2,4'-DDT	1.90	2.00	95	77-118
4,4'-DDD	1.94	2.00	97	74-117
4,4'-DDE	1.86	2.00	93	66-132
4,4'-DDT	2.03	2.00	102	78-116
Aldrin	1.59	2.00	79	74-122
alpha-Chlordane	1.91	2.00	96	74-130
cis-Nonachlor	1.71	2.00	86	69-134
Dieldrin	1.57	2.00	78	62-131
gamma-BHC (Lindane)	1.89	2.00	94	79-116
gamma-Chlordane	2.06	2.00	103	76-128
Heptachlor	1.89	2.00	95	81-114
trans-Nonachlor	1.77	2.00	89	76-124

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QA/QC Report

Client:	AECOM	Service Request:	K1803616
Project:	Portland Harbor 2018/60566335	Date Analyzed:	06/01/18
Sample Matrix:	Water	Date Extracted:	04/23/18

**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:	593190

**Lab Control Sample
KQ1805169-01**

**Duplicate Lab Control Sample
KQ1805169-02**

Analyte Name	Result	Spike Amount	% Rec	Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
2,4'-DDD	18.6	20.0	93	18.2	20.0	91	79-113	2	30
2,4'-DDE	18.2	20.0	91	18.2	20.0	91	75-117	<1	30
2,4'-DDT	21.4	20.0	107	20.4	20.0	102	77-114	5	30
4,4'-DDD	17.9	20.0	90	18.0	20.0	90	78-114	<1	30
4,4'-DDE	17.3	20.0	86	17.1	20.0	85	76-115	1	30
4,4'-DDT	22.2	20.0	111	21.5	20.0	107	85-113	3	30
Aldrin	20.1	20.0	101	20.0	20.0	100	81-113	<1	30
alpha-Chlordane	20.3	20.0	102	19.0	20.0	95	69-130	7	30
cis-Nonachlor	23.9	20.0	120	26.9	20.0	134	59-138	12	30
Dieldrin	13.8	20.0	69	16.3	20.0	81	62-111	17	30
gamma-BHC (Lindane)	21.4	20.0	107	20.4	20.0	102	66-130	5	30
gamma-Chlordane	18.4	20.0	92	19.5	20.0	98	72-127	6	30
Heptachlor	19.5	20.0	98	18.0	20.0	90	81-115	8	30
trans-Nonachlor	17.6	20.0	88	20.2	20.0	101	72-127	14	30

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QA/QC Report

Client: AECOM **Service Request:** K1803616
Project: Portland Harbor Pre-Remedial Design Investigation/60566335 **Date Analyzed:** 05/30/18 10:02
Sample Matrix: Sediment **Date Extracted:** 04/24/18

Method Blank Summary

Organochlorine Pesticides by GC/MS/MS

Sample Name: Method Blank **Instrument ID:**K-MSMS-01
Lab Code: KQ1805054-04 **File ID:**J:\MS21\Data\053018\053018F004.D\
Analysis Method: ALS SOP **Analysis Lot:**592335,592847,593190
Prep Method: EPA 3541 **Extraction Lot:**312242

This Method Blank applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
PDI-SG-B133-BL1	K1803616-001	J:\MS21\Data\052618\052618F030.D\	05/26/18 23:28
PDI-SG-B135-BL1	K1803616-002	J:\MS21\Data\052618\052618F031.D\	05/26/18 23:55
PDI-SG-B115-BL1	K1803616-004	J:\MS21\Data\052618\052618F033.D\	05/27/18 00:50
PDI-SG-B156-BL1	K1803616-005	J:\MS21\Data\052618\052618F034.D\	05/27/18 01:17
PDI-SG-B159-BL1	K1803616-006	J:\MS21\Data\052618\052618F035.D\	05/27/18 01:44
Lab Control Sample	KQ1805054-03	J:\MS21\Data\053018\053018F005.D\	05/30/18 10:27
PDI-SG-B163-BL1	K1803616-007	J:\MS21\Data\053018\053018F018.D\	05/30/18 16:32
PDI-SG-B202-BL1MS	KQ1805054-01	J:\MS21\Data\060118\060118F011.D\	06/01/18 12:17
PDI-SG-B202-BL1DMS	KQ1805054-02	J:\MS21\Data\060118\060118F012.D\	06/01/18 12:45
PDI-SG-B164-BL1	K1803616-008	J:\MS21\Data\060118\060118F013.D\	06/01/18 13:14
PDI-SG-B164-BL1-D	K1803616-009	J:\MS21\Data\060118\060118F014.D\	06/01/18 13:43
PDI-SG-B167-BL1	K1803616-010	J:\MS21\Data\060118\060118F015.D\	06/01/18 14:12
PDI-SG-B169-BL1	K1803616-011	J:\MS21\Data\060118\060118F016.D\	06/01/18 14:41
PDI-SG-B114-BL1	K1803616-012	J:\MS21\Data\060118\060118F017.D\	06/01/18 15:10
PDI-SG-B171-BL1	K1803616-013	J:\MS21\Data\060118\060118F018.D\	06/01/18 15:39
PDI-SG-B173-BL1	K1803616-014	J:\MS21\Data\060118\060118F019.D\	06/01/18 16:09
PDI-SG-B175-BL1	K1803616-015	J:\MS21\Data\060118\060118F020.D\	06/01/18 16:38
PDI-SG-B108-BL1	K1803616-016	J:\MS21\Data\060118\060118F021.D\	06/01/18 17:07
PDI-SG-B160-BL1	K1803616-017	J:\MS21\Data\060118\060118F022.D\	06/01/18 17:37
PDI-SG-B168-BL1	K1803616-018	J:\MS21\Data\060118\060118F023.D\	06/01/18 18:06
PDI-SG-B202-BL1	K1803616-019	J:\MS21\Data\060118\060118F024.D\	06/01/18 18:36

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QA/QC Report

Client: AECOM
Project: Portland Harbor 2018/60566335
Sample Matrix: Water

Service Request: K1803616
Date Analyzed: 06/01/18 09:30
Date Extracted: 04/23/18

Method Blank Summary
Organochlorine Pesticides by GC/MS/MS

Sample Name: Method Blank **Instrument ID:**K-MSMS-01
Lab Code: KQ1805169-03 **File ID:**J:\MS21\Data\060118\060118F005.D\
Analysis Method: ALS SOP **Analysis Lot:**593190
Prep Method: EPA 3535A **Extraction Lot:**312398

This Method Blank applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Lab Control Sample	KQ1805169-01	J:\MS21\Data\060118\060118F006.D\	06/01/18 09:53
Duplicate Lab Control Sample	KQ1805169-02	J:\MS21\Data\060118\060118F007.D\	06/01/18 10:22
PDI-RB-VVSS-180416-1735	K1803616-020	J:\MS21\Data\060118\060118F008.D\	06/01/18 10:51
PDI-RB-VVSS-180416-1800	K1803616-021	J:\MS21\Data\060118\060118F009.D\	06/01/18 11:19

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QA/QC Report

Client: AECOM
Project: Portland Harbor 2018/60566335
Sample Matrix: Sediment

Service Request: K1803616
Date Analyzed: NA
Date Extracted: 04/24/18

Method Blank Summary
Organochlorine Pesticides by GC/MS/MS

Sample Name: **Instrument ID:**

Lab Code: **File ID:**

Analysis Method: ALS SOP **Analysis Lot:** 593190
Prep Method: EPA 3541 **Extraction Lot:** 312242

This Method Blank applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
PDI-SG-B202-BL1MS	KQ1805054-01	J:\MS21\Data\060118\060118F011.D\	06/01/18 12:17
PDI-SG-B202-BL1DMS	KQ1805054-02	J:\MS21\Data\060118\060118F012.D\	06/01/18 12:45
PDI-SG-B164-BL1	K1803616-008	J:\MS21\Data\060118\060118F013.D\	06/01/18 13:14
PDI-SG-B164-BL1-D	K1803616-009	J:\MS21\Data\060118\060118F014.D\	06/01/18 13:43
PDI-SG-B167-BL1	K1803616-010	J:\MS21\Data\060118\060118F015.D\	06/01/18 14:12
PDI-SG-B169-BL1	K1803616-011	J:\MS21\Data\060118\060118F016.D\	06/01/18 14:41
PDI-SG-B114-BL1	K1803616-012	J:\MS21\Data\060118\060118F017.D\	06/01/18 15:10
PDI-SG-B171-BL1	K1803616-013	J:\MS21\Data\060118\060118F018.D\	06/01/18 15:39
PDI-SG-B173-BL1	K1803616-014	J:\MS21\Data\060118\060118F019.D\	06/01/18 16:09
PDI-SG-B175-BL1	K1803616-015	J:\MS21\Data\060118\060118F020.D\	06/01/18 16:38
PDI-SG-B108-BL1	K1803616-016	J:\MS21\Data\060118\060118F021.D\	06/01/18 17:07
PDI-SG-B160-BL1	K1803616-017	J:\MS21\Data\060118\060118F022.D\	06/01/18 17:37
PDI-SG-B168-BL1	K1803616-018	J:\MS21\Data\060118\060118F023.D\	06/01/18 18:06
PDI-SG-B202-BL1	K1803616-019	J:\MS21\Data\060118\060118F024.D\	06/01/18 18:36

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QA/QC Report

Client: AECOM
Project: Portland Harbor 2018/60566335
Sample Matrix: Sediment

Service Request: K1803616
Date Analyzed: 07/10/18 01:38
Date Extracted: 06/12/18

Method Blank Summary
Organochlorine Pesticides by GC/MS/MS

Sample Name: Method Blank **Instrument ID:**K-MSMS-01
Lab Code: KQ1807358-04 **File ID:**J:\MS21\Data\070918\070918F040.D\
Analysis Method: ALS SOP **Analysis Lot:**597922
Prep Method: EPA 3541 **Extraction Lot:**315096

This Method Blank applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Lab Control Sample	KQ1807358-03	J:\MS21\Data\070918\070918F041.D\	07/10/18 02:06
Batch QCMS	KQ1807358-01	J:\MS21\Data\070918\070918F042.D\	07/10/18 02:33
Batch QCDMS	KQ1807358-02	J:\MS21\Data\070918\070918F043.D\	07/10/18 03:00
Batch QC	K1805148-001	J:\MS21\Data\070918\070918F045.D\	07/10/18 03:56
PDI-SG-B112-BL1	K1803616-003	J:\MS21\Data\070918\070918F059.D\	07/10/18 10:22

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: K1803616
Date Analyzed: 05/30/18 10:27
Date Extracted: 04/24/18

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

Sample Name: Lab Control Sample **Instrument ID:**K-MSMS-01
Lab Code: KQ1805054-03 **File ID:**J:\MS21\Data\053018\053018F005.D\
Analysis Method: ALS SOP **Analysis Lot:**592335,592847,593190
Prep Method: EPA 3541 **Extraction Lot:**312242

This Lab Control Sample applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
PDI-SG-B133-BL1	K1803616-001	J:\MS21\Data\052618\052618F030.D\	05/26/18 23:28
PDI-SG-B135-BL1	K1803616-002	J:\MS21\Data\052618\052618F031.D\	05/26/18 23:55
PDI-SG-B115-BL1	K1803616-004	J:\MS21\Data\052618\052618F033.D\	05/27/18 00:50
PDI-SG-B156-BL1	K1803616-005	J:\MS21\Data\052618\052618F034.D\	05/27/18 01:17
PDI-SG-B159-BL1	K1803616-006	J:\MS21\Data\052618\052618F035.D\	05/27/18 01:44
Method Blank	KQ1805054-04	J:\MS21\Data\053018\053018F004.D\	05/30/18 10:02
PDI-SG-B163-BL1	K1803616-007	J:\MS21\Data\053018\053018F018.D\	05/30/18 16:32
PDI-SG-B202-BL1MS	KQ1805054-01	J:\MS21\Data\060118\060118F011.D\	06/01/18 12:17
PDI-SG-B202-BL1DMS	KQ1805054-02	J:\MS21\Data\060118\060118F012.D\	06/01/18 12:45
PDI-SG-B164-BL1	K1803616-008	J:\MS21\Data\060118\060118F013.D\	06/01/18 13:14
PDI-SG-B164-BL1-D	K1803616-009	J:\MS21\Data\060118\060118F014.D\	06/01/18 13:43
PDI-SG-B167-BL1	K1803616-010	J:\MS21\Data\060118\060118F015.D\	06/01/18 14:12
PDI-SG-B169-BL1	K1803616-011	J:\MS21\Data\060118\060118F016.D\	06/01/18 14:41
PDI-SG-B114-BL1	K1803616-012	J:\MS21\Data\060118\060118F017.D\	06/01/18 15:10
PDI-SG-B171-BL1	K1803616-013	J:\MS21\Data\060118\060118F018.D\	06/01/18 15:39
PDI-SG-B173-BL1	K1803616-014	J:\MS21\Data\060118\060118F019.D\	06/01/18 16:09
PDI-SG-B175-BL1	K1803616-015	J:\MS21\Data\060118\060118F020.D\	06/01/18 16:38
PDI-SG-B108-BL1	K1803616-016	J:\MS21\Data\060118\060118F021.D\	06/01/18 17:07
PDI-SG-B160-BL1	K1803616-017	J:\MS21\Data\060118\060118F022.D\	06/01/18 17:37
PDI-SG-B168-BL1	K1803616-018	J:\MS21\Data\060118\060118F023.D\	06/01/18 18:06
PDI-SG-B202-BL1	K1803616-019	J:\MS21\Data\060118\060118F024.D\	06/01/18 18:36

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QA/QC Report

Client: AECOM **Service Request:** K1803616
Project: Portland Harbor 2018/60566335 **Date Analyzed:** 06/01/18 09:53
Sample Matrix: Water **Date Extracted:** 04/23/18

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

Sample Name: Lab Control Sample **Instrument ID:**K-MSMS-01
Lab Code: KQ1805169-01 **File ID:**J:\MS21\Data\060118\060118F006.D\
Analysis Method: ALS SOP **Analysis Lot:**593190
Prep Method: EPA 3535A **Extraction Lot:**312398

This Lab Control Sample applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Method Blank	KQ1805169-03	J:\MS21\Data\060118\060118F005.D\	06/01/18 09:30
Duplicate Lab Control Sample	KQ1805169-02	J:\MS21\Data\060118\060118F007.D\	06/01/18 10:22
PDI-RB-VVSS-180416-1735	K1803616-020	J:\MS21\Data\060118\060118F008.D\	06/01/18 10:51
PDI-RB-VVSS-180416-1800	K1803616-021	J:\MS21\Data\060118\060118F009.D\	06/01/18 11:19

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QA/QC Report

Client:
Project:
Sample

AECOM
Portland Harbor 2018/60566335
Sediment

Service Request: K1803616
Date Analyzed: NA
Date Extracted: 04/24/18

Lab Control Sample Summary

Organochlorine Pesticides by GC/MS/MS

Sample Name: **Instrument ID:**
Lab Code: **File ID:**

This Lab Control Sample applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
PDI-SG-B202-BL1MS	KQ1805054-01	J:\MS21\Data\060118\060118F011.D\	06/01/18 12:17
PDI-SG-B202-BL1DMS	KQ1805054-02	J:\MS21\Data\060118\060118F012.D\	06/01/18 12:45
PDI-SG-B164-BL1	K1803616-008	J:\MS21\Data\060118\060118F013.D\	06/01/18 13:14
PDI-SG-B164-BL1-D	K1803616-009	J:\MS21\Data\060118\060118F014.D\	06/01/18 13:43
PDI-SG-B167-BL1	K1803616-010	J:\MS21\Data\060118\060118F015.D\	06/01/18 14:12
PDI-SG-B169-BL1	K1803616-011	J:\MS21\Data\060118\060118F016.D\	06/01/18 14:41
PDI-SG-B114-BL1	K1803616-012	J:\MS21\Data\060118\060118F017.D\	06/01/18 15:10
PDI-SG-B171-BL1	K1803616-013	J:\MS21\Data\060118\060118F018.D\	06/01/18 15:39
PDI-SG-B173-BL1	K1803616-014	J:\MS21\Data\060118\060118F019.D\	06/01/18 16:09
PDI-SG-B175-BL1	K1803616-015	J:\MS21\Data\060118\060118F020.D\	06/01/18 16:38
PDI-SG-B108-BL1	K1803616-016	J:\MS21\Data\060118\060118F021.D\	06/01/18 17:07
PDI-SG-B160-BL1	K1803616-017	J:\MS21\Data\060118\060118F022.D\	06/01/18 17:37
PDI-SG-B168-BL1	K1803616-018	J:\MS21\Data\060118\060118F023.D\	06/01/18 18:06
PDI-SG-B202-BL1	K1803616-019	J:\MS21\Data\060118\060118F024.D\	06/01/18 18:36

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QA/QC Report

Client: AECOM **Service Request:** K1803616
Project: Portland Harbor 2018/60566335 **Date Analyzed:** 07/10/18 02:06
Sample Matrix: Sediment **Date Extracted:** 06/12/18

Lab Control Sample Summary

Organochlorine Pesticides by GC/MS/MS

Sample Name: Lab Control Sample **Instrument ID:**K-MSMS-01
Lab Code: KQ1807358-03 **File ID:**J:\MS21\Data\070918\070918F041.D\
Analysis Method: ALS SOP **Analysis Lot:**597922
Prep Method: EPA 3541 **Extraction Lot:**315096

This Lab Control Sample applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Method Blank	KQ1807358-04	J:\MS21\Data\070918\070918F040.D\	07/10/18 01:38
Batch QCMS	KQ1807358-01	J:\MS21\Data\070918\070918F042.D\	07/10/18 02:33
Batch QCDMS	KQ1807358-02	J:\MS21\Data\070918\070918F043.D\	07/10/18 03:00
Batch QC	K1805148-001	J:\MS21\Data\070918\070918F045.D\	07/10/18 03:56
PDI-SG-B112-BL1	K1803616-003	J:\MS21\Data\070918\070918F059.D\	07/10/18 10:22

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QC/QC Report

Client: AECOM
Project: Portland Harbor 2018/60566335

Service Request: K1803616
Date Analyzed: 05/26/18 17:33

Tune Summary
Organochlorine Pesticides by GC/MS/MS

File ID: J:\MS21\Data\052618\052618F017.D\
Instrument ID: K-MSMS-01

Analytical Method: ALS SOP
Analysis Lot: 592335

Sample Name	Lab Code	File ID:	Date Analyzed:
Continuing Calibration Verification	KQ1806946-01	J:\MS21\Data\052618\052618F017.D\	05/26/18 17:33
PDI-SG-B133-BL1	K1803616-001	J:\MS21\Data\052618\052618F030.D\	05/26/18 23:28
PDI-SG-B135-BL1	K1803616-002	J:\MS21\Data\052618\052618F031.D\	05/26/18 23:55
PDI-SG-B115-BL1	K1803616-004	J:\MS21\Data\052618\052618F033.D\	05/27/18 00:50
PDI-SG-B156-BL1	K1803616-005	J:\MS21\Data\052618\052618F034.D\	05/27/18 01:17
PDI-SG-B159-BL1	K1803616-006	J:\MS21\Data\052618\052618F035.D\	05/27/18 01:44

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QC/QC Report

Client: AECOM
Project: Portland Harbor 2018/60566335

Service Request: K1803616
Date Analyzed: 05/30/18 09:14

Tune Summary
Organochlorine Pesticides by GC/MS/MS

File ID: J:\MS21\Data\053018\053018F003.D\
Instrument ID: K-MSMS-01

Analytical Method: ALS SOP
Analysis Lot: 592847

Sample Name	Lab Code	File ID:	Date Analyzed:
Continuing Calibration Verification	KQ1807165-01	J:\MS21\Data\053018\053018F003.D\	05/30/18 09:14
Method Blank	KQ1805054-04	J:\MS21\Data\053018\053018F004.D\	05/30/18 10:02
Lab Control Sample	KQ1805054-03	J:\MS21\Data\053018\053018F005.D\	05/30/18 10:27
PDI-SG-B163-BL1	K1803616-007	J:\MS21\Data\053018\053018F018.D\	05/30/18 16:32

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QC/QC Report

Client: AECOM
Project: Portland Harbor 2018/60566335

Service Request:K1803616
Date Analyzed:06/01/18 08:56

Tune Summary
Organochlorine Pesticides by GC/MS/MS

File ID: J:\MS21\Data\060118\060118F004.D\
Instrument ID: K-MSMS-01

Analytical Method: ALS SOP
Analysis Lot: 593190

Sample Name	Lab Code	File ID:	Date Analyzed:	Q
Continuing Calibration Verification	KQ1807315-01	J:\MS21\Data\060118\060118F004.D\	06/01/18 08:56	
Method Blank	KQ1805169-03	J:\MS21\Data\060118\060118F005.D\	06/01/18 09:30	
Lab Control Sample	KQ1805169-01	J:\MS21\Data\060118\060118F006.D\	06/01/18 09:53	
Duplicate Lab Control Sample	KQ1805169-02	J:\MS21\Data\060118\060118F007.D\	06/01/18 10:22	
PDI-RB-VVSS-180416-1735	K1803616-020	J:\MS21\Data\060118\060118F008.D\	06/01/18 10:51	
PDI-RB-VVSS-180416-1800	K1803616-021	J:\MS21\Data\060118\060118F009.D\	06/01/18 11:19	
PDI-SG-B202-BL1	KQ1805054-01	J:\MS21\Data\060118\060118F011.D\	06/01/18 12:17	
PDI-SG-B202-BL1	KQ1805054-02	J:\MS21\Data\060118\060118F012.D\	06/01/18 12:45	
PDI-SG-B164-BL1	K1803616-008	J:\MS21\Data\060118\060118F013.D\	06/01/18 13:14	
PDI-SG-B164-BL1-D	K1803616-009	J:\MS21\Data\060118\060118F014.D\	06/01/18 13:43	
PDI-SG-B167-BL1	K1803616-010	J:\MS21\Data\060118\060118F015.D\	06/01/18 14:12	
PDI-SG-B169-BL1	K1803616-011	J:\MS21\Data\060118\060118F016.D\	06/01/18 14:41	
PDI-SG-B114-BL1	K1803616-012	J:\MS21\Data\060118\060118F017.D\	06/01/18 15:10	
PDI-SG-B171-BL1	K1803616-013	J:\MS21\Data\060118\060118F018.D\	06/01/18 15:39	
PDI-SG-B173-BL1	K1803616-014	J:\MS21\Data\060118\060118F019.D\	06/01/18 16:09	
PDI-SG-B175-BL1	K1803616-015	J:\MS21\Data\060118\060118F020.D\	06/01/18 16:38	
PDI-SG-B108-BL1	K1803616-016	J:\MS21\Data\060118\060118F021.D\	06/01/18 17:07	
PDI-SG-B160-BL1	K1803616-017	J:\MS21\Data\060118\060118F022.D\	06/01/18 17:37	
PDI-SG-B168-BL1	K1803616-018	J:\MS21\Data\060118\060118F023.D\	06/01/18 18:06	
PDI-SG-B202-BL1	K1803616-019	J:\MS21\Data\060118\060118F024.D\	06/01/18 18:36	

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QC/QC Report

Client: AECOM
Project: Portland Harbor 2018/60566335

Service Request: K1803616
Date Analyzed: 07/09/18 23:21

Tune Summary
Organochlorine Pesticides by GC/MS/MS

File ID: J:\MS21\Data\070918\070918F035.D\
Instrument ID: K-MSMS-01

Analytical Method: ALS SOP
Analysis Lot: 597922

Sample Name	Lab Code	File ID:	Date Analyzed:	Q
Continuing Calibration Verification	KQ1809220-01	J:\MS21\Data\070918\070918F035.D\	07/09/18 23:21	
Method Blank	KQ1807358-04	J:\MS21\Data\070918\070918F040.D\	07/10/18 01:38	
Lab Control Sample	KQ1807358-03	J:\MS21\Data\070918\070918F041.D\	07/10/18 02:06	
Batch QC	KQ1807358-01	J:\MS21\Data\070918\070918F042.D\	07/10/18 02:33	
Batch QC	KQ1807358-02	J:\MS21\Data\070918\070918F043.D\	07/10/18 03:00	
Batch QC	K1805148-001	J:\MS21\Data\070918\070918F045.D\	07/10/18 03:56	
PDI-SG-B112-BL1	K1803616-003	J:\MS21\Data\070918\070918F059.D\	07/10/18 10:22	

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QA/QC Report

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

Service Request: K1803616
Calibration Date: 5/19/2018

Initial Calibration Summary
Organochlorine Pesticides by GC/MS/MS

Calibration ID: KC1800193

Signal ID: 1

Instrument ID: K-MSMS-01

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

Analyte

2,4'-DDD

#	Amount	RF									
01	0.5	0.4688	02	1.0	0.5353	03	2.0	0.4574	04	5.0	0.4421
05	10	0.4211	06	20	0.4558	07	40	0.4207	08	60	0.4204
09	80	0.4378	10	100	0.4556						

2,4'-DDE

#	Amount	RF									
01	0.5	0.3957	02	1.0	0.4056	03	2.0	0.3586	04	5.0	0.3471
05	10	0.3223	06	20	0.4034	07	40	0.2894	08	60	0.3123
09	80	0.3117	10	100	0.3644						

2,4'-DDT

#	Amount	RF									
01	0.5	0.4129	02	1.0	0.4641	03	2.0	0.4502	04	5.0	0.461
05	10	0.4838	06	20	0.5036	07	40	0.5038	08	60	0.5026
09	80	0.5147	10	100	0.5						

4,4'-DDD

#	Amount	RF									
01	0.5	0.8166	02	1.0	0.7907	03	2.0	0.8045	04	5.0	0.783
05	10	0.7453	06	20	0.9069	07	40	0.7217	08	60	0.7429
09	80	0.7786	10	100	0.7833						

4,4'-DDE

#	Amount	RF									
01	0.5	0.239	02	1.0	0.3744	03	2.0	0.2641	04	5.0	0.2593
05	10	0.2734	06	20	0.3128	07	40	0.2552	08	60	0.2583
09	80	0.2539	10	100	0.2761						

4,4'-DDT

#	Amount	RF									
01	0.5	0.7191	02	1.0	0.6997	03	2.0	0.6916	04	5.0	0.7238
05	10	0.6905	06	20	0.7845	07	40	0.6832	08	60	0.6714

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QA/QC Report

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

Service Request: K1803616
Calibration Date: 5/19/2018

Initial Calibration Summary
Organochlorine Pesticides by GC/MS/MS

Calibration ID: KC1800193

Signal ID: 1

Instrument ID: K-MSMS-01

Analyte

4,4'-DDT

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
09	80	0.6851	10	100	0.686						

Aldrin

#	Amount	RF									
01	0.5	1.401	02	1.0	0.8225	03	2.0	1.163	04	5.0	1.047
05	10	1.021	06	20	1.006	07	40	0.9027	08	60	0.9127
09	80	0.9185	10	100	0.9492						

Dieldrin

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
03	2.0	1.533	04	5.0	1.043	05	10	1.113	06	20	1.496
07	40	1.009	08	60	0.9996	09	80	1.067	10	100	1.052

Heptachlor

#	Amount	RF									
01	0.5	1.545	02	1.0	1.22	03	2.0	1	04	5.0	1.049
05	10	0.9626	06	20	0.9411	07	40	0.9467	08	60	0.8514
09	80	0.8995	10	100	0.9084						

S_4,4'-DDT-d4

#	Amount	RF									
01	5	5.204	02	5	5.207	03	5	6.589	04	5	6.289
05	5	6.748	06	5	5.57	07	5	7.347	08	5	7.1
09	5	7.449	10	5	6.362						

S_4,4'DDD-d4

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	5	10.48	02	5	10.18	03	5	11.4	04	5	11.13
05	5	11.36	06	5	9.601	07	5	11.7	08	5	11.19
09	5	11.27	10	5	9.671						

S_Aldrin-13C12

#	Amount	RF									
01	20	0.2643	02	20	0.2575	03	20	0.233	04	20	0.2298
05	20	0.2224	06	20	0.2521	07	20	0.2236	08	20	0.2197
09	20	0.2486	10	20	0.2262						

S_Endrin-13C12

#	Amount	RF									
01	20	0.1583	02	20	0.1375	03	20	0.1526	04	20	0.1573
05	20	0.1556	06	20	0.128	07	20	0.1602	08	20	0.1633
09	20	0.1415	10	20	0.1577						

S_GBHCD6

#	Amount	RF									
01	20	0.6763	02	20	0.6691	03	20	0.4994	04	20	0.5735
05	20	0.6139	06	20	0.6412	07	20	0.579	08	20	0.5857

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QA/QC Report

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

Service Request: K1803616
Calibration Date: 5/19/2018

Initial Calibration Summary
Organochlorine Pesticides by GC/MS/MS

Calibration ID: KC1800193

Signal ID: 1

Instrument ID: K-MSMS-01

Analyte

S_GBHCD6

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
09	20	0.6351	10	20	0.6217						

S_Heptachlor-13C10

#	Amount	RF									
01	20	0.1944	02	20	0.3125	03	20	0.1362	04	20	0.1418
05	20	0.1471	06	20	0.1596	07	20	0.1413	08	20	0.1634
09	20	0.1839	10	20	0.176						

S_Heptachlrepox13C10

#	Amount	RF									
01	20	0.2315	02	20	0.2354	03	20	0.2275	04	20	0.2115
05	20	0.1878	06	20	0.2169	07	20	0.2043	08	20	0.2148
09	20	0.2113	10	20	0.2038						

S_Oxychlordane-13C10

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

alpha-Chlordane

#	Amount	RF									
01	0.5	2.996	02	1.0	2.748	03	2.0	4.051	04	5.0	3.548
05	10	2.875	06	20	3.222	07	40	2.871	08	60	3.028
09	80	2.552	10	100	3.349						

cis-Nonachlor

#	Amount	RF									
01	0.5	2.099	02	1.0	2.595	03	2.0	2.488	04	5.0	3.243
05	10	3.316	06	20	2.63	07	40	3.112	08	60	3.198
09	80	2.626	10	100	2.934						

gamma-BHC (Lindane)

#	Amount	RF									
01	0.5	0.6827	02	1.0	0.583	03	2.0	0.4883	04	5.0	0.6375
05	10	0.541	06	20	0.6393	07	40	0.5505	08	60	0.566
09	80	0.5742	10	100	0.5642						

gamma-Chlordane

#	Amount	RF									
01	0.5	2.669	02	1.0	2.383	03	2.0	3.368	04	5.0	3.742
05	10	3.311	06	20	3.726	07	40	3.129	08	60	3.204
09	80	2.861	10	100	3.561						

trans-Nonachlor

#	Amount	RF									
01	0.5	2.912	02	1.0	2.753	03	2.0	1.997	04	5.0	2.322

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QA/QC Report

Client: AECOM **Service Request:** K1803616
Project: Portland Harbor Pre-Remedial Design Investigation **Calibration Date:** 5/19/2018

Initial Calibration Summary
Organochlorine Pesticides by GC/MS/MS

Calibration ID: KC1800193

Signal ID: 1

Instrument ID: K-MSMS-01

Analyte

trans-Nonachlor

#	Amount	RF									
05	10	1.979	06	20	2.146	07	40	2.067	08	60	2.171
09	80	1.759	10	100	2.329						

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QA/QC Report

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

Service Request: K1803616
Calibration Date: 5/19/2018

Initial Calibration Summary
Organochlorine Pesticides by GC/MS/MS

Calibration ID: KC1800193

Signal ID: 1

Instrument ID: K-MSMS-01

Analyte Name	Compound Type	Calibration Evaluation			Calibration Evaluation	
		Fit Type	Eval	Eval Result	Control Criteria	Average RRF
2,4'-DDD	TRG	Average RF	% RSD	7.6	20	0.4515
2,4'-DDE	TRG	Average RF	% RSD	11.9	20	0.3511
2,4'-DDT	TRG	Average RF	% RSD	6.7	20	0.4797
4,4'-DDD	TRG	Average RF	% RSD	6.5	20	0.7873
4,4'-DDE	TRG	Linear	R2	0.9962		0.2766
4,4'-DDT	TRG	Average RF	% RSD	4.6	20	0.7035
Aldrin	TRG	Average RF	% RSD	16.3	20	1.014
Dieldrin	TRG	Average RF	% RSD	18.8	20	1.164
Heptachlor	TRG	Quadratic	COD	0.9983		1.032
S_4,4'-DDT-d4	SURR	Average RF	% RSD	13.0		6.386
S_4,4'-DDD-d4	SURR	Average RF	% RSD	7.0		10.8
S_Aldrin-13C12	SURR	Average RF	% RSD	6.9		0.2377
S_Endrin-13C12	SURR	Average RF	% RSD	7.6		0.1512
S_GBHCD6	SURR	Average RF	% RSD	8.6		0.6095
S_Heptachlor-13C10	SURR	Average RF	% RSD	29.5		0.1756
S_Heptachlrepox13C10	SURR	Average RF	% RSD	6.7		0.2145
S_Oxychlordane-13C10	SURR	Average RF	% RSD	9.8		0.1406
alpha-Chlordane	TRG	Average RF	% RSD	14.0	20	3.124
cis-Nonachlor	TRG	Average RF	% RSD	14.1	20	2.824
gamma-BHC (Lindane)	TRG	Average RF	% RSD	9.7	20	0.5827
gamma-Chlordane	TRG	Average RF	% RSD	14.0	20	3.195
trans-Nonachlor	TRG	Average RF	% RSD	15.8	20	2.244

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QA/QC Report

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

Service Request: K1803616
Calibration Date: 7/6/2018

Initial Calibration Summary
Organochlorine Pesticides by GC/MS/MS

Calibration ID: KC1800333

Signal ID: 1

Instrument ID: K-MSMS-01

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

Analyte

2,4'-DDD

#	Amount	RF									
01	0.5	0.7967	02	1.0	0.6984	03	2.0	0.7144	04	5.0	0.6857
05	10	0.6844	06	20	0.6629	07	40	0.6422	08	60	0.6535
09	80	0.6363									

2,4'-DDE

#	Amount	RF									
01	0.5	0.4749	02	1.0	0.5193	03	2.0	0.4574	04	5.0	0.473
05	10	0.4654	06	20	0.4594	07	40	0.4391	08	60	0.4652
09	80	0.4425									

2,4'-DDT

#	Amount	RF									
01	0.5	0.8919	02	1.0	0.8214	03	2.0	0.821	04	5.0	0.7055
05	10	0.726	06	20	0.756	07	40	0.7159	08	60	0.6633
09	80	0.7054									

4,4'-DDD

#	Amount	RF									
01	0.5	0.7558	02	1.0	0.6863	03	2.0	0.6942	04	5.0	0.654
05	10	0.6733	06	20	0.6517	07	40	0.6502	08	60	0.6795
09	80	0.657									

4,4'-DDE

#	Amount	RF									
01	0.5	0.5393	02	1.0	0.4805	03	2.0	0.4621	04	5.0	0.4606
05	10	0.4924	06	20	0.4582	07	40	0.4594	08	60	0.4511
09	80	0.4453									

4,4'-DDT

#	Amount	RF									
01	0.5	0.8218	02	1.0	0.6889	03	2.0	0.6574	04	5.0	0.5953
05	10	0.6533	06	20	0.6514	07	40	0.643	08	60	0.6562
09	80	0.6721									

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QA/QC Report

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

Service Request: K1803616
Calibration Date: 7/6/2018

Initial Calibration Summary
Organochlorine Pesticides by GC/MS/MS

Calibration ID: KC1800333

Signal ID: 1

Instrument ID: K-MSMS-01

Analyte

Aldrin

#	Amount	RF									
01	0.5	1.003	02	1.0	0.8297	03	2.0	1.11	04	5.0	0.8863
05	10	0.8942	06	20	0.7651	07	40	0.7389	08	60	0.7889
09	80	0.8144									

Dieldrin

#	Amount	RF									
01	0.5	1.439	02	1.0	1.37	03	2.0	1.36	04	5.0	1.291
05	10	1.352	06	20	1.109	07	40	1.108	08	60	1.161
09	80	1.223									

Heptachlor

#	Amount	RF									
01	0.5	1.327	02	1.0	1.254	03	2.0	1.103	04	5.0	0.9748
05	10	0.9709	06	20	0.9394	07	40	0.9129	08	60	0.8961
09	80	0.903									

S_4,4'-DDT-d4

#	Amount	RF									
01	5	3.488	02	5	3.463	03	5	3.576	04	5	3.902
05	5	3.711	06	5	3.648	07	5	3.816	08	5	4.115
09	5	4.082									

S_4,4'DDD-d4

#	Amount	RF									
01	5	5.771	02	5	5.99	03	5	6.102	04	5	5.983
05	5	5.999	06	5	6.153	07	5	6.182	08	5	6.163
09	5	6.489									

S_Aldrin-13C12

#	Amount	RF									
01	20	0.4051	02	20	0.3901	03	20	0.3681	04	20	0.3712
05	20	0.3831	06	20	0.4255	07	20	0.4026	08	20	0.3886
09	20	0.3895									

S_Endrin-13C12

#	Amount	RF									
01	20	0.1726	02	20	0.1635	03	20	0.1709	04	20	0.1826
05	20	0.1682	06	20	0.1877	07	20	0.192	08	20	0.1806
09	20	0.1794									

S_GBHCD6

#	Amount	RF									
01	20	0.9306	02	20	0.8719	03	20	0.8676	04	20	0.9098
05	20	0.9093	06	20	0.8786	07	20	0.8662	08	20	0.8141
09	20	0.8456									

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QA/QC Report

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

Service Request: K1803616
Calibration Date: 7/6/2018

Initial Calibration Summary
Organochlorine Pesticides by GC/MS/MS

Calibration ID: KC1800333

Signal ID: 1

Instrument ID: K-MSMS-01

Analyte

S_Heptachlor-13C10

#	Amount	RF									
01	20	0.6063	02	20	0.606	03	20	0.6149	04	20	0.6238
05	20	0.6273	06	20	0.6342	07	20	0.6635	08	20	0.6743
09	20	0.6875									

S_Heptachlrepox13C10

#	Amount	RF									
01	20	0.3176	02	20	0.2842	03	20	0.308	04	20	0.3294
05	20	0.3266	06	20	0.2891	07	20	0.3157	08	20	0.3141
09	20	0.2993									

S_Oxychlordane-13C10

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

alpha-Chlordane

#	Amount	RF									
01	0.5	4.382	02	1.0	3.009	03	2.0	3.114	04	5.0	3.417
05	10	2.85	06	20	3.343	07	40	3.406	08	60	3.298
09	80	3.449									

cis-Nonachlor

#	Amount	RF									
01	0.5	3.451	02	1.0	3.363	03	2.0	2.761	04	5.0	2.914
05	10	2.457	06	20	2.816	07	40	2.729	08	60	2.813
09	80	2.935									

gamma-BHC (Lindane)

#	Amount	RF									
01	0.5	0.578	02	1.0	0.7009	03	2.0	0.5742	04	5.0	0.5433
05	10	0.5773	06	20	0.5573	07	40	0.5702	08	60	0.5901
09	80	0.5689									

gamma-Chlordane

#	Amount	RF									
01	0.5	3.399	02	1.0	4.62	03	2.0	3.278	04	5.0	3.149
05	10	3.089	06	20	3.193	07	40	3.191	08	60	3.147
09	80	3.469									

trans-Nonachlor

#	Amount	RF									
01	0.5	2.549	02	1.0	2.715	03	2.0	2.816	04	5.0	2.227
05	10	2.277	06	20	2.492	07	40	2.46	08	60	2.395
09	80	2.62									

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QA/QC Report

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

Service Request: K1803616
Calibration Date: 7/6/2018

Initial Calibration Summary
Organochlorine Pesticides by GC/MS/MS

Calibration ID: KC1800333

Signal ID: 1

Instrument ID: K-MSMS-01

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	7.1	20	0.686	0.01
2,4'-DDE	TRG	Average RF	% RSD	5.0	20	0.4662	0.01
2,4'-DDT	TRG	Average RF	% RSD	9.7	20	0.7563	0.01
4,4'-DDD	TRG	Average RF	% RSD	4.9	20	0.678	0.01
4,4'-DDE	TRG	Average RF	% RSD	6.1	20	0.4721	0.01
4,4'-DDT	TRG	Average RF	% RSD	9.2	20	0.671	0.01
Aldrin	TRG	Average RF	% RSD	13.8	20	0.8701	0.01
Dieldrin	TRG	Average RF	% RSD	9.7	20	1.268	0.01
Heptachlor	TRG	Average RF	% RSD	15.6	20	1.031	0.01
S_4,4'-DDT-d4	SURR	Average RF	% RSD	6.4		3.756	0.01
S_4,4'-DDD-d4	SURR	Average RF	% RSD	3.2		6.093	0.01
S_Aldrin-13C12	SURR	Average RF	% RSD	4.5		0.3915	0.01
S_Endrin-13C12	SURR	Average RF	% RSD	5.3		0.1775	0.01
S_GBHCD6	SURR	Average RF	% RSD	4.1		0.8771	0.01
S_Heptachlor-13C10	SURR	Average RF	% RSD	4.7		0.6375	0.01
S_Heptachlrepox13C10	SURR	Average RF	% RSD	5.1		0.3094	0.01
S_Oxychlordane-13C10	SURR	Average RF	% RSD	4.3		0.2144	0.01
alpha-Chlordane	TRG	Average RF	% RSD	12.9	20	3.363	0.01
cis-Nonachlor	TRG	Average RF	% RSD	10.7	20	2.915	0.01
gamma-BHC (Lindane)	TRG	Average RF	% RSD	7.8	20	0.5845	0.01
gamma-Chlordane	TRG	Quadratic	COD	0.9983		3.393	0.01
trans-Nonachlor	TRG	Average RF	% RSD	7.7	20	2.506	0.01

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QA/QC Report

Client: AECOM
Project: Portland Harbor 2018

Service Request: K1803616
Calibration Date: 5/29/2018

Initial Calibration Summary
Organochlorine Pesticides by GC/MS/MS

Calibration ID: KC1800220

Signal ID: 1

Instrument ID: K-MSMS-01

#	Lab Code	Sample Name	File Location	Acquisition Date
01	KC1800220-01		J:\MS21\Data\052918\052918F004.D	05/29/2018 10:26
02	KC1800220-02		J:\MS21\Data\052918\052918F005.D	05/29/2018 10:54
03	KC1800220-03		J:\MS21\Data\052918\052918F006.D	05/29/2018 11:21
04	KC1800220-04		J:\MS21\Data\052918\052918F007.D	05/29/2018 11:48
05	KC1800220-05		J:\MS21\Data\052918\052918F008.D	05/29/2018 12:16
06	KC1800220-06		J:\MS21\Data\052918\052918F009.D	05/29/2018 12:43
07	KC1800220-07		J:\MS21\Data\052918\052918F010.D	05/29/2018 13:10
08	KC1800220-08		J:\MS21\Data\052918\052918F011.D	05/29/2018 13:38
09	KC1800220-09		J:\MS21\Data\052918\052918F012.D	05/29/2018 14:05
10	KC1800220-10		J:\MS21\Data\052918\052918F013.D	05/29/2018 14:32

Analyte

2,4'-DDD

#	Amount	RF									
01	0.5	0.6815	02	1.0	0.571	03	2.0	0.5234	04	5.0	0.4506
05	10	0.4796	06	20	0.4527	07	40	0.4091	08	60	0.4416
09	80	0.4415	10	100	0.4458						

2,4'-DDE

#	Amount	RF									
01	0.5	0.4865	02	1.0	0.3726	03	2.0	0.3475	04	5.0	0.3065
05	10	0.3304	06	20	0.3321	07	40	0.2987	08	60	0.3269
09	80	0.3143	10	100	0.3253						

2,4'-DDT

#	Amount	RF									
01	0.5	0.5805	02	1.0	0.535	03	2.0	0.6461	04	5.0	0.5835
05	10	0.5599	06	20	0.5585	07	40	0.536	08	60	0.5372
09	80	0.5389	10	100	0.5544						

4,4'-DDD

#	Amount	RF									
01	0.5	0.822	02	1.0	0.7176	03	2.0	0.6809	04	5.0	0.6226
05	10	0.6405	06	20	0.6276	07	40	0.5858	08	60	0.6285
09	80	0.625	10	100	0.6543						

4,4'-DDE

#	Amount	RF									
01	0.5	0.4406	02	1.0	0.3524	03	2.0	0.3382	04	5.0	0.2884
05	10	0.311	06	20	0.2963	07	40	0.264	08	60	0.2929
09	80	0.2852	10	100	0.2906						

4,4'-DDT

#	Amount	RF									
01	0.5	0.8111	02	1.0	0.7083	03	2.0	0.7208	04	5.0	0.6807
05	10	0.6671	06	20	0.6678	07	40	0.6443	08	60	0.6683

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QA/QC Report

Client: AECOM
Project: Portland Harbor 2018

Service Request: K1803616
Calibration Date: 5/29/2018

Initial Calibration Summary
Organochlorine Pesticides by GC/MS/MS

Calibration ID: KC1800220

Signal ID: 1

Instrument ID: K-MSMS-01

Analyte

4,4'-DDT

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
09	80	0.677	10	100	0.6859						

Aldrin

#	Amount	RF									
01	0.5	1.672	02	1.0	1.04	03	2.0	1.06	04	5.0	0.9892
05	10	0.8177	06	20	0.9223	07	40	0.7874	08	60	0.8207
09	80	0.9024	10	100	0.8847						

Dieldrin

#	Amount	RF									
03	2.0	1.679	04	5.0	1.354	05	10	1.055	06	20	1.087
07	40	1.025	08	60	1.15	09	80	1.145	10	100	1.012

Heptachlor

#	Amount	RF									
01	0.5	1.515	02	1.0	1.242	03	2.0	1.044	04	5.0	0.9855
05	10	0.933	06	20	0.9076	07	40	0.8089	08	60	0.8631
09	80	0.8531	10	100	0.8472						

S_4,4'-DDT-d4

#	Amount	RF									
01	5	5.82	02	5	6.136	03	5	5.758	04	5	5.829
05	5	5.651	06	5	5.806	07	5	6.254	08	5	6.318
09	5	6.355	10	5	6.462						

S_4,4'DDD-d4

#	Amount	RF									
01	5	10.02	02	5	10.63	03	5	10.08	04	5	10.36
05	5	9.229	06	5	9.454	07	5	10.17	08	5	9.809
09	5	9.752	10	5	9.767						

S_Aldrin-13C12

#	Amount	RF									
01	20	0.2827	02	20	0.2816	03	20	0.2848	04	20	0.3083
05	20	0.3054	06	20	0.2645	07	20	0.3026	08	20	0.3155
09	20	0.2752	10	20	0.2907						

S_Endrin-13C12

#	Amount	RF									
01	20	0.1316	02	20	0.1417	03	20	0.1281	04	20	0.1356
05	20	0.1346	06	20	0.1273	07	20	0.1208	08	20	0.1356
09	20	0.1258	10	20	0.1454						

S_GBHCD6

#	Amount	RF									
01	20	0.7119	02	20	0.7802	03	20	0.7494	04	20	0.7886
05	20	0.7567	06	20	0.7903	07	20	0.7971	08	20	0.8623

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QA/QC Report

Client: AECOM
Project: Portland Harbor 2018

Service Request: K1803616
Calibration Date: 5/29/2018

Initial Calibration Summary
Organochlorine Pesticides by GC/MS/MS

Calibration ID: KC1800220

Signal ID: 1

Instrument ID: K-MSMS-01

Analyte

S_GBHCD6

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
09	20	0.794	10	20	0.8285						

S_Heptachlor-13C10

#	Amount	RF									
01	20	0.4717	02	20	0.4978	03	20	0.5212	04	20	0.5406
05	20	0.5373	06	20	0.5409	07	20	0.6299	08	20	0.6424
09	20	0.643	10	20	0.6747						

S_Heptachlrepox13C10

#	Amount	RF									
01	20	0.2106	02	20	0.2191	03	20	0.2403	04	20	0.2387
05	20	0.2563	06	20	0.21	07	20	0.2241	08	20	0.2677
09	20	0.2276	10	20	0.2346						

S_Oxychlordane-13C10

#	Amount	RF									
01	20	0.1518	02	20	0.1556	03	20	0.1498	04	20	0.1531
05	20	0.1474	06	20	0.1688	07	20	0.1753	08	20	0.1736
09	20	0.167	10	20	0.1658						

alpha-Chlordane

#	Amount	RF									
01	0.5	3.203	02	1.0	2.868	03	2.0	3.271	04	5.0	2.704
05	10	2.596	06	20	2.15	07	40	2.078	08	60	2.339
09	80	2.308	10	100	2.412						

cis-Nonachlor

#	Amount	RF									
01	0.5	2.685	02	1.0	3.074	03	2.0	2.596	04	5.0	2.11
05	10	2.248	06	20	1.771	07	40	1.7	08	60	1.847

gamma-BHC (Lindane)

#	Amount	RF									
01	0.5	0.6834	02	1.0	0.7711	03	2.0	0.6772	04	5.0	0.5918
05	10	0.5202	06	20	0.5092	07	40	0.5016	08	60	0.4966
09	80	0.5204	10	100	0.5336						

gamma-Chlordane

#	Amount	RF									
01	0.5	5.346	02	1.0	3.303	03	2.0	3.585	04	5.0	3.126
05	10	2.909	06	20	2.432	07	40	2.42	08	60	2.749
09	80	2.621	10	100	2.747						

trans-Nonachlor

#	Amount	RF									
01	0.5	1.662	02	1.0	2.825	03	2.0	2.186	04	5.0	2.253
05	10	1.872	06	20	1.688	07	40	1.563	08	60	1.733

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QA/QC Report

Client: AECOM
Project: Portland Harbor 2018

Service Request: K1803616
Calibration Date: 5/29/2018

Initial Calibration Summary
Organochlorine Pesticides by GC/MS/MS

Calibration ID: KC1800220

Signal ID: 1

Instrument ID: K-MSMS-01

Analyte

trans-Nonachlor

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
09	80	1.765	10	100	1.771						

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QA/QC Report

Client: AECOM
Project: Portland Harbor 2018

Service Request: K1803616
Calibration Date: 5/29/2018

Initial Calibration Summary
Organochlorine Pesticides by GC/MS/MS

Calibration ID: KC1800220

Signal ID: 1

Instrument ID: K-MSMS-01

Analyte Name	Compound Type	Calibration Evaluation			Calibration Evaluation		
		Fit Type	Eval	Eval Result	Control Criteria	Average RRF	Minimum RRF
2,4'-DDD	TRG	Average RF	% RSD	16.8	20	0.4897	0.01
2,4'-DDE	TRG	Average RF	% RSD	15.8	20	0.3441	0.01
2,4'-DDT	TRG	Average RF	% RSD	6.1	20	0.563	0.01
4,4'-DDD	TRG	Average RF	% RSD	10.2	20	0.6605	0.01
4,4'-DDE	TRG	Average RF	% RSD	16.1	20	0.316	0.01
4,4'-DDT	TRG	Average RF	% RSD	6.8	20	0.6931	0.01
Aldrin	TRG	Quadratic	COD	0.9977		0.9896	0.01
Dieldrin	TRG	Average RF	% RSD	19.0	20	1.188	0.01
Heptachlor	TRG	Quadratic	COD	0.9993		1	0.01
S_4,4'-DDT-d4	SURR	Average RF	% RSD	4.9		6.039	0.01
S_4,4'-DDD-d4	SURR	Average RF	% RSD	4.2		9.926	0.01
S_Aldrin-13C12	SURR	Average RF	% RSD	5.6		0.2911	0.01
S_Endrin-13C12	SURR	Average RF	% RSD	5.6		0.1326	0.01
S_GBHCD6	SURR	Average RF	% RSD	5.3		0.7859	0.01
S_Heptachlor-13C10	SURR	Average RF	% RSD	12.4		0.5699	0.01
S_Heptachlrepox13C10	SURR	Average RF	% RSD	8.1		0.2329	0.01
S_Oxychlordane-13C10	SURR	Average RF	% RSD	6.4		0.1608	0.01
alpha-Chlordane	TRG	Average RF	% RSD	16.1	20	2.593	0.01
cis-Nonachlor	TRG	Quadratic	COD	0.9938		2.254	0.01
gamma-BHC (Lindane)	TRG	Quadratic	COD	0.9994		0.5805	0.01
gamma-Chlordane	TRG	Quadratic	COD	0.9982		3.124	0.01
trans-Nonachlor	TRG	Average RF	% RSD	19.9	20	1.932	0.01

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QA/QC Report

Client: AECOM
Project: Portland Harbor 2018

Service Request: K1803616
Calibration Date: 5/30/2018

Initial Calibration Summary
Organochlorine Pesticides by GC/MS/MS

Calibration ID: KC1800252

Signal ID: 1

Instrument ID: K-MSMS-01

#	Lab Code	Sample Name	File Location	Acquisition Date
01	KC1800252-01		J:\MS21\Data\053018\053018F023.D	05/30/2018 18:37
02	KC1800252-02		J:\MS21\Data\053018\053018F024.D	05/30/2018 19:05
03	KC1800252-03		J:\MS21\Data\053018\053018F025.D	05/30/2018 19:32
04	KC1800252-04		J:\MS21\Data\053018\053018F026.D	05/30/2018 19:59
05	KC1800252-05		J:\MS21\Data\053018\053018F027.D	05/30/2018 20:26
06	KC1800252-06		J:\MS21\Data\053018\053018F028.D	05/30/2018 20:54
07	KC1800252-07		J:\MS21\Data\053018\053018F029.D	05/30/2018 21:21
08	KC1800252-08		J:\MS21\Data\053018\053018F030.D	05/30/2018 21:48
09	KC1800252-09		J:\MS21\Data\053018\053018F031.D	05/30/2018 22:16
10	KC1800252-10		J:\MS21\Data\053018\053018F032.D	05/30/2018 22:43

Analyte

2,4'-DDD

#	Amount	RF									
01	0.5	0.6106	02	1.0	0.5699	03	2.0	0.5303	04	5.0	0.4775
05	10	0.4761	06	20	0.4464	07	40	0.4339	08	60	0.4494
09	80	0.4587	10	100	0.4613						

2,4'-DDE

#	Amount	RF									
01	0.5	0.3918	02	1.0	0.4198	03	2.0	0.4108	04	5.0	0.3525
05	10	0.3457	06	20	0.3267	07	40	0.3096	08	60	0.3263
09	80	0.3334	10	100	0.3378						

2,4'-DDT

#	Amount	RF									
01	0.5	0.6388	02	1.0	0.6242	03	2.0	0.6204	04	5.0	0.5751
05	10	0.5586	06	20	0.5684	07	40	0.5227	08	60	0.5864
09	80	0.5642	10	100	0.5569						

4,4'-DDD

#	Amount	RF									
01	0.5	0.9566	02	1.0	0.9563	03	2.0	0.88	04	5.0	0.7722
05	10	0.7585	06	20	0.7306	07	40	0.7335	08	60	0.7504
09	80	0.7654	10	100	0.8065						

4,4'-DDE

#	Amount	RF									
01	0.5	0.4	02	1.0	0.3826	03	2.0	0.3455	04	5.0	0.3186
05	10	0.3021	06	20	0.2998	07	40	0.2839	08	60	0.2918
09	80	0.2932	10	100	0.3082						

4,4'-DDT

#	Amount	RF									
01	0.5	0.7444	02	1.0	0.7782	03	2.0	0.7322	04	5.0	0.6749
05	10	0.6562	06	20	0.6512	07	40	0.6278	08	60	0.689

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QA/QC Report

Client: AECOM
Project: Portland Harbor 2018

Service Request: K1803616
Calibration Date: 5/30/2018

Initial Calibration Summary
Organochlorine Pesticides by GC/MS/MS

Calibration ID: KC1800252

Signal ID: 1

Instrument ID: K-MSMS-01

Analyte

4,4'-DDT

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
09	80	0.6741	10	100	0.6821						

Aldrin

#	Amount	RF									
01	0.5	1.32	02	1.0	1.435	03	2.0	0.9955	04	5.0	0.8834
05	10	0.9619	06	20	0.9171	07	40	0.8866	08	60	0.8827
09	80	0.9071	10	100	0.8567						

Dieldrin

#	Amount	RF									
02	1.0	1.594	03	2.0	1.076	04	5.0	1.257	05	10	1.068
06	20	1.085	07	40	0.979	08	60	1.099	09	80	1.076
10	100	1.059									

Heptachlor

#	Amount	RF									
01	0.5	1.022	02	1.0	1.194	03	2.0	1.053	04	5.0	0.9796
05	10	0.9124	06	20	0.9467	07	40	0.8621	08	60	0.9095
09	80	0.8879	10	100	0.8801						

S_4,4'-DDT-d4

#	Amount	RF									
01	5	5.463	02	5	5.662	03	5	5.812	04	5	5.547
05	5	5.536	06	5	5.967	07	5	6.112	08	5	5.844
09	5	5.975	10	5	6.153						

S_4,4'DDD-d4

#	Amount	RF									
01	5	8.764	02	5	9.4	03	5	9.368	04	5	9.159
05	5	8.989	06	5	9.432	07	5	9.091	08	5	9.246
09	5	8.986	10	5	9.007						

S_Aldrin-13C12

#	Amount	RF									
01	20	0.2829	02	20	0.3176	03	20	0.2957	04	20	0.2965
05	20	0.2801	06	20	0.2986	07	20	0.2761	08	20	0.2721
09	20	0.2791	10	20	0.2955						

S_Endrin-13C12

#	Amount	RF									
01	20	0.1214	02	20	0.1414	03	20	0.151	04	20	0.1257
05	20	0.1234	06	20	0.1255	07	20	0.1302	08	20	0.1182
09	20	0.1247	10	20	0.1319						

S_GBHCD6

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	20	0.7324	02	20	0.757	03	20	0.7845	04	20	0.7194

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QA/QC Report

Client: AECOM
Project: Portland Harbor 2018

Service Request: K1803616
Calibration Date: 5/30/2018

Initial Calibration Summary
Organochlorine Pesticides by GC/MS/MS

Calibration ID: KC1800252

Signal ID: 1

Instrument ID: K-MSMS-01

Analyte

S_GBHCD6

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
05	20	0.7101	06	20	0.7507	07	20	0.751	08	20	0.7386
09	20	0.8009	10	20	0.8102						

S_Heptachlor-13C10

#	Amount	RF									
01	20	0.5558	02	20	0.6326	03	20	0.6376	04	20	0.5926
05	20	0.5965	06	20	0.6153	07	20	0.6318	08	20	0.6328
09	20	0.6767	10	20	0.6981						

S_Heptachlrepox13C10

#	Amount	RF									
01	20	0.2668	02	20	0.2612	03	20	0.2879	04	20	0.2518
05	20	0.2429	06	20	0.2627	07	20	0.2473	08	20	0.2254
09	20	0.2378	10	20	0.2484						

S_Oxychlordane-13C10

#	Amount	RF									
01	20	0.1582	02	20	0.1546	03	20	0.1625	04	20	0.1504
05	20	0.1586	06	20	0.1377	07	20	0.1493	08	20	0.1392
09	20	0.1465	10	20	0.1364						

alpha-Chlordane

#	Amount	RF									
01	0.5	3.541	02	1.0	2.859	03	2.0	2.458	04	5.0	2.577
05	10	2.411	06	20	2.772	07	40	2.398	08	60	2.565
09	80	2.518	10	100	2.801						

cis-Nonachlor

#	Amount	RF									
01	0.5	2.717	02	1.0	2.659	03	2.0	2.583	04	5.0	1.94
05	10	1.961	06	20	2.28	07	40	1.845	08	60	2.082
09	80	2.028	10	100	2.214						

gamma-BHC (Lindane)

#	Amount	RF									
01	0.5	0.7295	02	1.0	0.7072	03	2.0	0.5518	04	5.0	0.5816
05	10	0.5561	06	20	0.5213	07	40	0.5163	08	60	0.5422
09	80	0.5022	10	100	0.5271						

gamma-Chlordane

#	Amount	RF									
01	0.5	3.719	02	1.0	3.306	03	2.0	3.314	04	5.0	2.835
05	10	2.574	06	20	2.805	07	40	2.596	08	60	2.978
09	80	2.773	10	100	2.91						

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QA/QC Report

Client: AECOM
Project: Portland Harbor 2018

Service Request: K1803616
Calibration Date: 5/30/2018

Initial Calibration Summary
Organochlorine Pesticides by GC/MS/MS

Calibration ID: KC1800252
Instrument ID: K-MSMS-01

Signal ID: 1

Analyte

trans-Nonachlor

#	Amount	RF									
01	0.5	2.628	02	1.0	2.704	03	2.0	2.322	04	5.0	1.908
05	10	1.971	06	20	2.04	07	40	1.786	08	60	1.902
09	80	1.834	10	100	2.038						

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: AECOM
Project: Portland Harbor 2018

Service Request: K1803616
Calibration Date: 5/30/2018

Initial Calibration Summary
Organochlorine Pesticides by GC/MS/MS

Calibration ID: KC1800252

Signal ID: 1

Instrument ID: K-MSMS-01

Analyte Name	Compound Type	Calibration Evaluation			Calibration Evaluation		
		Fit Type	Eval	Eval Result	Control Criteria	Average RRF	Minimum RRF
2,4'-DDD	TRG	Average RF	% RSD	12.0	20	0.4914	0.01
2,4'-DDE	TRG	Average RF	% RSD	10.8	20	0.3554	0.01
2,4'-DDT	TRG	Average RF	% RSD	6.2	20	0.5816	0.01
4,4'-DDD	TRG	Average RF	% RSD	10.8	20	0.811	0.01
4,4'-DDE	TRG	Average RF	% RSD	12.5	20	0.3226	0.01
4,4'-DDT	TRG	Average RF	% RSD	6.7	20	0.691	0.01
Aldrin	TRG	Quadratic	COD	0.9991		1.005	0.01
Dieldrin	TRG	Average RF	% RSD	16.1	20	1.144	0.01
Heptachlor	TRG	Average RF	% RSD	10.6	20	0.9647	0.01
S_4,4'-DDT-d4	SURR	Average RF	% RSD	4.3		5.807	0.01
S_4,4'-DDD-d4	SURR	Average RF	% RSD	2.4		9.144	0.01
S_Aldrin-13C12	SURR	Average RF	% RSD	4.8		0.2894	0.01
S_Endrin-13C12	SURR	Average RF	% RSD	7.7		0.1293	0.01
S_GBHCD6	SURR	Average RF	% RSD	4.4		0.7555	0.01
S_Heptachlor-13C10	SURR	Average RF	% RSD	6.5		0.627	0.01
S_Heptachlrepox13C10	SURR	Average RF	% RSD	6.9		0.2532	0.01
S_Oxychlordane-13C10	SURR	Average RF	% RSD	6.2		0.1493	0.01
alpha-Chlordane	TRG	Average RF	% RSD	12.7	20	2.69	0.01
cis-Nonachlor	TRG	Average RF	% RSD	14.3	20	2.231	0.01
gamma-BHC (Lindane)	TRG	Average RF	% RSD	13.9	20	0.5735	0.01
gamma-Chlordane	TRG	Average RF	% RSD	12.1	20	2.981	0.01
trans-Nonachlor	TRG	Average RF	% RSD	15.5	20	2.113	0.01

ALS Group USA, Corp.
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QA/QC Report

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

Service Request: K1803616
Calibration Date: 5/19/2018

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

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

Signal ID: 1

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

Analyte Name	Expected	Result	Average RF	SSV RF	% D	Criteria	Curve Fit
2,4'-DDD	20.0	20.2	4.515E-1	4.569E-1	1.20	±25	Average RF
2,4'-DDE	20.0	24.1	3.511E-1	4.227E-1	20.41	±25	Average RF
2,4'-DDT	20.0	20.8	4.797E-1	4.998E-1	4.20	±25	Average RF
4,4'-DDD	20.0	19.2	7.873E-1	7.573E-1	-3.813	±25	Average RF
4,4'-DDE	20.0	23.5	2.766E-1	3.139E-1	17.47	±25	Linear
4,4'-DDT	20.0	20.2	7.035E-1	7.109E-1	1.06	±25	Average RF
Aldrin	20.0	20.0	1.014E0	1.012E0	-0.222	±25	Average RF
alpha-Chlordane	20.0	18.9	3.124E0	2.958E0	-5.314	±25	Average RF
cis-Nonachlor	20.0	16.4	2.824E0	2.321E0	-17.822	±25	Average RF
Dieldrin	20.0	19.1	1.164E0	1.113E0	-4.366	±25	Average RF
gamma-BHC (Lindane)	20.0	21.0	5.827E-1	6.125E-1	5.13	±25	Average RF
gamma-Chlordane	20.0	22.9	3.195E0	3.66E0	14.54	±25	Average RF
Heptachlor	20.0	21.3	1.032E0	9.854E-1	6.43	±25	Quadratic
trans-Nonachlor	20.0	19.8	2.244E0	2.225E0	-0.845	±25	Average RF

Analyte Name	Expected	Result	Average RF	SSV RF	Rec.	Criteria	Curve Fit
S_4,4'DDD-d4	5.00	4.24	1.08E1	9.155E0	84.8	50-200	Average RF
S_4,4'-DDT-d4	5.00	3.86	6.386E0	4.934E0	77.2	50-200	Average RF
S_Aldrin-13C12	20.0	22.8	2.377E-1	2.712E-1	114	50-200	Average RF
S_Endrin-13C12	20.0	20.5	1.512E-1	1.55E-1	103	50-200	Average RF
S_GBHCD6	20.0	22.0	6.095E-1	6.693E-1	110	50-200	Average RF
S_Heptachlor-13C10	20.0	19.1	1.756E-1	1.674E-1	95.5	50-200	Average RF
S_Heptachlrepox13C10	20.0	20.3	2.145E-1	2.176E-1	102	50-200	Average RF
S_Oxychlordane-13C10	20.0	21.3	1.406E-1	1.498E-1	107	50-200	Average RF

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

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

Service Request: K1803616
Calibration Date: 7/6/2018

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

Calibration ID: KC1800333
Instrument ID: K-MSMS-01

Signal ID: 1

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

Analyte Name	Expected	Result	Average RF	SSV RF	% D	Criteria	Curve Fit
2,4'-DDD	20.0	17.9	6.86E-1	6.127E-1	-10.695	±25	Average RF
2,4'-DDE	20.0	19.6	4.662E-1	4.577E-1	-1.832	±25	Average RF
2,4'-DDT	20.0	16.8	7.563E-1	6.34E-1	-16.161	±25	Average RF
4,4'-DDD	20.0	19.4	6.78E-1	6.567E-1	-3.144	±25	Average RF
4,4'-DDE	20.0	18.9	4.721E-1	4.468E-1	-5.367	±25	Average RF
4,4'-DDT	20.0	18.1	6.71E-1	6.057E-1	-9.735	±25	Average RF
Aldrin	20.0	18.8	8.701E-1	8.194E-1	-5.827	±25	Average RF
alpha-Chlordane	20.0	21.0	3.363E0	3.534E0	5.09	±25	Average RF
cis-Nonachlor	20.0	19.0	2.915E0	2.767E0	-5.097	±25	Average RF
Dieldrin	20.0	18.2	1.268E0	1.156E0	-8.844	±25	Average RF
gamma-BHC (Lindane)	20.0	19.0	5.845E-1	5.56E-1	-4.865	±25	Average RF
gamma-Chlordane	20.0	21.7	3.393E0	3.368E0	8.56	±25	Quadratic
Heptachlor	20.0	18.7	1.031E0	9.619E-1	-6.722	±25	Average RF
trans-Nonachlor	20.0	20.6	2.506E0	2.577E0	2.83	±25	Average RF

Analyte Name	Expected	Result	Average RF	SSV RF	Rec.	Criteria	Curve Fit
S_4,4'DDD-d4	5.00	5.03	6.093E0	6.126E0	101	50-200	Average RF
S_4,4'-DDT-d4	5.00	5.16	3.756E0	3.874E0	103	50-200	Average RF
S_Aldrin-13C12	20.0	20.7	3.915E-1	4.054E-1	104	50-200	Average RF
S_Endrin-13C12	20.0	21.3	1.775E-1	1.887E-1	107	50-200	Average RF
S_GBHCD6	20.0	20.0	8.771E-1	8.772E-1	100	50-200	Average RF
S_Heptachlor-13C10	20.0	22.1	6.375E-1	7.058E-1	111	50-200	Average RF
S_Heptachlrepox13C10	20.0	21.8	3.094E-1	3.366E-1	109	50-200	Average RF
S_Oxychlordane-13C10	20.0	19.1	2.144E-1	2.045E-1	95.5	50-200	Average RF

ALS Group USA, Corp.
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QA/QC Report

Client: AECOM
Project: Portland Harbor 2018

Service Request: K1803616
Calibration Date: 5/29/2018

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

Calibration ID: KC1800220
Instrument ID: K-MSMS-01

Signal ID: 1

#	Lab Code	Sample Name	File Location	Acquisition Date		
11	KC1800220-11		J:\MS21\Data\052918\052918F019.D	05/29/2018 16:41		

Analyte Name	Expected	Result	Average RF	SSV RF	% D	Criteria	Curve Fit
2,4'-DDD	20.0	17.5	4.897E-1	4.282E-1	-12.552	±25	Average RF
2,4'-DDE	20.0	20.9	3.441E-1	3.596E-1	4.50	±25	Average RF
2,4'-DDT	20.0	18.1	5.63E-1	5.095E-1	-9.496	±25	Average RF
4,4'-DDD	20.0	20.6	6.605E-1	6.787E-1	2.76	±25	Average RF
4,4'-DDE	20.0	18.7	3.16E-1	2.953E-1	-6.538	±25	Average RF
4,4'-DDT	20.0	19.2	6.931E-1	6.644E-1	-4.152	±25	Average RF
Aldrin	20.0	20.6	9.896E-1	8.602E-1	3.21	±25	Quadratic
alpha-Chlordane	20.0	21.0	2.593E0	2.726E0	5.12	±25	Average RF
cis-Nonachlor	20.0	21.9	2.254E0	2.064E0	9.65	±25	Quadratic
Dieldrin	20.0	17.3	1.188E0	1.029E0	-13.382	±25	Average RF
gamma-BHC (Lindane)	20.0	21.4	5.805E-1	5.414E-1	7.12	±25	Quadratic
gamma-Chlordane	20.0	23.2	3.124E0	2.989E0	16.25	±25	Quadratic
Heptachlor	20.0	21.6	1.0E0	9.448E-1	8.12	±25	Quadratic
trans-Nonachlor	20.0	20.3	1.932E0	1.961E0	1.54	±25	Average RF

Analyte Name	Expected	Result	Average RF	SSV RF	Rec.	Criteria	Curve Fit
S_4,4'DDD-d4	5.00	5.10	9.926E0	1.013E1	102	50-200	Average RF
S_4,4'-DDT-d4	5.00	5.47	6.039E0	6.606E0	109	50-200	Average RF
S_Aldrin-13C12	20.0	20.1	2.911E-1	2.926E-1	101	50-200	Average RF
S_Endrin-13C12	20.0	20.2	1.326E-1	1.342E-1	101	50-200	Average RF
S_GBHCD6	20.0	18.6	7.859E-1	7.294E-1	93.0	50-200	Average RF
S_Heptachlor-13C10	20.0	21.2	5.699E-1	6.053E-1	106	50-200	Average RF
S_Heptachlrepox13C10	20.0	18.7	2.329E-1	2.179E-1	93.5	50-200	Average RF
S_Oxychlordane-13C10	20.0	18.0	1.608E-1	1.445E-1	90.0	50-200	Average RF

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QA/QC Report

Client: AECOM
Project: Portland Harbor 2018

Service Request: K1803616
Calibration Date: 5/30/2018

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

Calibration ID: KC1800252
Instrument ID: K-MSMS-01

Signal ID: 1

#	Lab Code	Sample Name	File Location	Acquisition Date		
11	KC1800252-11		J:\MS21\Data\053018\053018F033.D	05/30/2018 23:10		

Analyte Name	Expected	Result	Average RF	SSV RF	% D	Criteria	Curve Fit
2,4'-DDD	20.0	18.3	4.914E-1	4.489E-1	-8.655	±25	Average RF
2,4'-DDE	20.0	19.5	3.554E-1	3.463E-1	-2.573	±25	Average RF
2,4'-DDT	20.0	17.9	5.816E-1	5.191E-1	-10.736	±25	Average RF
4,4'-DDD	20.0	19.0	8.11E-1	7.723E-1	-4.773	±25	Average RF
4,4'-DDE	20.0	18.7	3.226E-1	3.02E-1	-6.377	±25	Average RF
4,4'-DDT	20.0	20.1	6.91E-1	6.939E-1	0.423	±25	Average RF
Aldrin	20.0	20.4	1.005E0	9.307E-1	1.82	±25	Quadratic
alpha-Chlordane	20.0	20.0	2.69E0	2.689E0	-0.026	±25	Average RF
cis-Nonachlor	20.0	18.4	2.231E0	2.056E0	-7.861	±25	Average RF
Dieldrin	20.0	16.7	1.144E0	9.532E-1	-16.657	±25	Average RF
gamma-BHC (Lindane)	20.0	19.3	5.735E-1	5.532E-1	-3.543	±25	Average RF
gamma-Chlordane	20.0	20.9	2.981E0	3.116E0	4.53	±25	Average RF
Heptachlor	20.0	19.6	9.647E-1	9.44E-1	-2.148	±25	Average RF
trans-Nonachlor	20.0	18.8	2.113E0	1.987E0	-5.957	±25	Average RF

Analyte Name	Expected	Result	Average RF	SSV RF	Rec.	Criteria	Curve Fit
S_4,4'DDD-d4	5.00	5.00	9.144E0	9.14E0	100	50-200	Average RF
S_4,4'-DDT-d4	5.00	4.73	5.807E0	5.497E0	94.6	50-200	Average RF
S_Aldrin-13C12	20.0	18.9	2.894E-1	2.73E-1	94.5	50-200	Average RF
S_Endrin-13C12	20.0	18.5	1.293E-1	1.196E-1	92.5	50-200	Average RF
S_GBHCD6	20.0	18.5	7.555E-1	6.994E-1	92.5	50-200	Average RF
S_Heptachlor-13C10	20.0	18.9	6.27E-1	5.915E-1	94.5	50-200	Average RF
S_Heptachlrepox13C10	20.0	19.2	2.532E-1	2.428E-1	96.0	50-200	Average RF
S_Oxychlordane-13C10	20.0	17.5	1.493E-1	1.304E-1	87.5	50-200	Average RF

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QA/QC Report

Client: AECOM
Project: Portland Harbor 2018/60566335

Service Request: K1803616
Date Analyzed: 05/26/18 17:33

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

Analysis Method:	ALS SOP	Calibration Date:	5/19/2018
File ID:	J:\MS21\Data\052618\052618F017.D\	Calibration ID:	KC1800193
Signal ID:	1	Analysis Lot:	592335
		Units:	ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
2,4'-DDD	20.0	18.9	0.4515	0.4397	-2.6	NA	±25	Average RF
2,4'-DDE	20.0	21.7	0.3511	0.3046	-13.2	NA	±25	Average RF
2,4'-DDT	20.0	19.9	0.4797	0.5513	14.9	NA	±25	Average RF
4,4'-DDD	20.0	19.4	0.7873	0.6226	-20.9	NA	±25	Average RF
4,4'-DDE	20.0	19.6	0.2766	0.3032	NA	-1.8	±25	Linear
4,4'-DDT	20.0	19.8	0.7035	0.688	-2.2	NA	±25	Average RF
Aldrin	20.0	16.6	1.0145	0.8187	-19.3	NA	±25	Average RF
alpha-Chlordane	20.0	20.6	3.1241	2.9292	-6.2	NA	±25	Average RF
cis-Nonachlor	20.0	21.4	2.8241	2.4203	-14.3	NA	±25	Average RF
Dieldrin	20.0	22.8	1.1641	1.2902	10.8	NA	±25	Average RF
gamma-BHC (Lindane)	20.0	18.0	0.5827	0.5268	-9.6	NA	±25	Average RF
gamma-Chlordane	20.0	22.6	3.1953	3.26	2.0	NA	±25	Average RF
Heptachlor	20.0	18.6	1.0323	0.9091	NA	-7.1	±25	Quadratic
trans-Nonachlor	20.0	21.5	2.2436	2.1082	-6.0	NA	±25	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	Rec.	% Drift	Criteria	Curve Fit
S_4,4'DDD-d4	5.00	4.85	10.7993	10.1387	97.1	NA	50-200	Average RF
S_4,4'-DDT-d4	5.00	4.77	6.3864	5.911	95.3	NA	50-200	Average RF
S_Aldrin-13C12	20.0	20.5	0.2377	0.3413	103	NA	50-200	Average RF
S_Endrin-13C12	20.0	16.2	0.1512	0.1301	80.9	NA	50-200	Average RF
S_GBHCD6	20.0	19.0	0.6095	0.8393	95.1	NA	50-200	Average RF
S_Heptachlor-13C10	20.0	17.9	0.1756	0.5425	89.3	NA	50-200	Average RF
S_Heptachlrepox13C10	20.0	19.9	0.2145	0.2877	99.3	NA	50-200	Average RF
S_Oxychlordane-13C10	20.0	17.1	0.1406	0.1452	85.6	NA	50-200	Average RF

ALS Group USA, Corp.
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QA/QC Report

Client: AECOM
Project: Portland Harbor 2018/60566335

Service Request: K1803616
Date Analyzed: 05/30/18 09:14

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

Analysis Method:	ALS SOP	Calibration Date:	5/29/2018
File ID:	J:\MS21\Data\053018\053018F003.D\	Calibration ID:	KC1800220
Signal ID:	1	Analysis Lot:	592847
		Units:	ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
2,4'-DDD	20.0	18.7	0.4897	0.4571	-6.7	NA	±25	Average RF
2,4'-DDE	20.0	21.0	0.3441	0.3608	4.9	NA	±25	Average RF
2,4'-DDT	20.0	20.9	0.563	0.5874	4.3	NA	±25	Average RF
4,4'-DDD	20.0	21.6	0.6605	0.7133	8.0	NA	±25	Average RF
4,4'-DDE	20.0	18.4	0.316	0.2901	-8.2	NA	±25	Average RF
4,4'-DDT	20.0	20.0	0.6931	0.6945	0.2	NA	±25	Average RF
Aldrin	20.0	23.9	0.9896	0.9953	NA	19.4	±25	Quadratic
alpha-Chlordane	20.0	19.5	2.5929	2.5228	-2.7	NA	±25	Average RF
cis-Nonachlor	20.0	22.5	2.2538	2.1147	NA	12.5	±25	Quadratic
Dieldrin	20.0	15.8	1.1884	0.938	-21.1	NA	±25	Average RF
gamma-BHC (Lindane)	20.0	21.8	0.5805	0.5513	NA	9.1	±25	Quadratic
gamma-Chlordane	20.0	20.5	3.1237	2.6335	NA	2.4	±25	Quadratic
Heptachlor	20.0	20.7	1	0.9065	NA	3.6	±25	Quadratic
trans-Nonachlor	20.0	18.6	1.9317	1.7921	-7.2	NA	±25	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	Rec.	% Drift	Criteria	Curve Fit
S_4,4'DDD-d4	5.00	4.75	9.9262	9.4386	95.1	NA	50-200	Average RF
S_4,4'-DDT-d4	5.00	5.00	6.039	6.0424	100	NA	50-200	Average RF
S_Aldrin-13C12	20.0	15.1	0.2911	0.22	75.6	NA	50-200	Average RF
S_Endrin-13C12	20.0	19.2	0.1326	0.1275	96.1	NA	50-200	Average RF
S_GBHCD6	20.0	16.8	0.7859	0.6616	84.2	NA	50-200	Average RF
S_Heptachlor-13C10	20.0	19.3	0.5699	0.5487	96.3	NA	50-200	Average RF
S_Heptachlrepox13C10	20.0	16.8	0.2329	0.1957	84.0	NA	50-200	Average RF
S_Oxychlordane-13C10	20.0	18.4	0.1608	0.1477	91.8	NA	50-200	Average RF

ALS Group USA, Corp.
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QA/QC Report

Client: AECOM
Project: Portland Harbor 2018/60566335

Service Request: K1803616
Date Analyzed: 06/01/18 08:56

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

Analysis Method:	ALS SOP	Calibration Date:	5/30/2018
File ID:	J:\MS21\Data\060118\060118F004.D\	Calibration ID:	KC1800252
Signal ID:	1	Analysis Lot:	593190
		Units:	ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
2,4'-DDD	20.0	20.0	0.4914	0.4914	0.0	NA	±25	Average RF
2,4'-DDE	20.0	23.9	0.3554	0.4253	19.7	NA	±25	Average RF
2,4'-DDT	20.0	22.9	0.5816	0.6665	14.6	NA	±25	Average RF
4,4'-DDD	20.0	17.3	0.811	0.6996	-13.7	NA	±25	Average RF
4,4'-DDE	20.0	20.2	0.3226	0.326	1.1	NA	±25	Average RF
4,4'-DDT	20.0	19.3	0.691	0.6665	-3.5	NA	±25	Average RF
Aldrin	20.0	20.5	1.0045	0.9383	NA	2.7	±25	Quadratic
alpha-Chlordane	20.0	18.0	2.69	2.4174	-10.1	NA	±25	Average RF
cis-Nonachlor	20.0	14.7	2.2309	1.6399	-26.5*	NA	±25	Average RF
Dieldrin	20.0	16.7	1.1437	0.953	-16.7	NA	±25	Average RF
gamma-BHC (Lindane)	20.0	19.9	0.5735	0.5713	-0.4	NA	±25	Average RF
gamma-Chlordane	20.0	17.7	2.9809	2.6337	-11.6	NA	±25	Average RF
Heptachlor	20.0	19.3	0.9647	0.9286	-3.7	NA	±25	Average RF
trans-Nonachlor	20.0	18.1	2.1134	1.9163	-9.3	NA	±25	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	Rec.	% Drift	Criteria	Curve Fit
S_4,4'DDD-d4	5.00	4.35	9.1441	7.9566	87.0	NA	50-200	Average RF
S_4,4'-DDT-d4	5.00	3.93	5.8071	4.5672	78.6	NA	50-200	Average RF
S_Aldrin-13C12	20.0	14.8	0.2894	0.2145	74.1	NA	50-200	Average RF
S_Endrin-13C12	20.0	16.6	0.1293	0.1072	82.9	NA	50-200	Average RF
S_GBHCD6	20.0	18.8	0.7555	0.7106	94.1	NA	50-200	Average RF
S_Heptachlor-13C10	20.0	17.3	0.627	0.5408	86.3	NA	50-200	Average RF
S_Heptachlrepox13C10	20.0	13.7	0.2532	0.1734	68.5	NA	50-200	Average RF
S_Oxychlordane-13C10	20.0	18.1	0.1493	0.1354	90.7	NA	50-200	Average RF

ALS Group USA, Corp.
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QA/QC Report

Client: AECOM
Project: Portland Harbor 2018/60566335

Service Request: K1803616
Date Analyzed: 07/09/18 23:21

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

Analysis Method:	ALS SOP	Calibration Date:	7/6/2018
File ID:	J:\MS21\Data\070918\070918F035.D\	Calibration ID:	KC1800333
Signal ID:	1	Analysis Lot:	597922
		Units:	ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
2,4'-DDD	20.0	16.8	0.686	0.5772	-15.9	NA	±25	Average RF
2,4'-DDE	20.0	23.5	0.4662	0.547	17.3	NA	±25	Average RF
2,4'-DDT	20.0	19.4	0.7563	0.7349	-2.8	NA	±25	Average RF
4,4'-DDD	20.0	16.8	0.678	0.5695	-16.0	NA	±25	Average RF
4,4'-DDE	20.0	18.0	0.4721	0.4256	-9.8	NA	±25	Average RF
4,4'-DDT	20.0	17.7	0.671	0.5927	-11.7	NA	±25	Average RF
Aldrin	20.0	15.1	0.8701	0.6573	-24.5	NA	±25	Average RF
alpha-Chlordane	20.0	18.0	3.3631	3.0196	-10.2	NA	±25	Average RF
cis-Nonachlor	20.0	15.6	2.9153	2.2792	-21.8	NA	±25	Average RF
Dieldrin	20.0	18.5	1.2683	1.174	-7.4	NA	±25	Average RF
gamma-BHC (Lindane)	20.0	16.6	0.5845	0.4858	-16.9	NA	±25	Average RF
gamma-Chlordane	20.0	20.2	3.3928	3.1233	NA	0.9	±25	Quadratic
Heptachlor	20.0	17.3	1.0312	0.8931	-13.4	NA	±25	Average RF
trans-Nonachlor	20.0	16.8	2.5059	2.106	-16.0	NA	±25	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	Rec.	% Drift	Criteria	Curve Fit
S_4,4'DDD-d4	5.00	6.15	6.0926	7.4951	123	NA	50-200	Average RF
S_4,4'-DDT-d4	5.00	5.29	3.7557	3.9747	106	NA	50-200	Average RF
S_Aldrin-13C12	20.0	35.1	0.3915	0.6878	176	NA	50-200	Average RF
S_Endrin-13C12	20.0	28.6	0.1775	0.2535	143	NA	50-200	Average RF
S_GBHCD6	20.0	28.6	0.8771	1.2529	143	NA	50-200	Average RF
S_Heptachlor-13C10	20.0	29.4	0.6375	0.9368	147	NA	50-200	Average RF
S_Heptachlrepox13C10	20.0	18.1	0.3094	0.2806	90.7	NA	50-200	Average RF
S_Oxychlordane-13C10	20.0	22.9	0.2144	0.2453	114	NA	50-200	Average RF

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QA/QC Report

Client: AECOM
Project: Portland Harbor 2018/60566335

Service Request:K1803616

Analysis Run Log
Organochlorine Pesticides by GC/MS/MS

Analysis Method: ALS SOP

Analysis Lot:592335

Instrument ID:K-MSMS-01

Raw Data File	Sample Name	Lab Code	Date Analyzed	Time Analyzed	Q
J:\MS21\Data\052618\052618F017.D\	Continuing Calibration Verification	KQ1806946-01	5/26/2018	17:33:31	
J:\MS21\Data\052618\052618F018.D\	ZZZZZZZ	ZZZZZZZ	5/26/2018	18:01:01	
J:\MS21\Data\052618\052618F019.D\	ZZZZZZZ	ZZZZZZZ	5/26/2018	18:28:15	
J:\MS21\Data\052618\052618F020.D\	ZZZZZZZ	ZZZZZZZ	5/26/2018	18:55:31	
J:\MS21\Data\052618\052618F021.D\	ZZZZZZZ	ZZZZZZZ	5/26/2018	19:23:06	
J:\MS21\Data\052618\052618F022.D\	ZZZZZZZ	ZZZZZZZ	5/26/2018	19:50:37	
J:\MS21\Data\052618\052618F025.D\	ZZZZZZZ	ZZZZZZZ	5/26/2018	21:12:19	
J:\MS21\Data\052618\052618F026.D\	ZZZZZZZ	ZZZZZZZ	5/26/2018	21:39:32	
J:\MS21\Data\052618\052618F027.D\	ZZZZZZZ	ZZZZZZZ	5/26/2018	22:06:45	
J:\MS21\Data\052618\052618F028.D\	ZZZZZZZ	ZZZZZZZ	5/26/2018	22:33:58	
J:\MS21\Data\052618\052618F029.D\	ZZZZZZZ	ZZZZZZZ	5/26/2018	23:01:11	
J:\MS21\Data\052618\052618F030.D\	PDI-SG-B133-BL1	K1803616-001	5/26/2018	23:28:42	
J:\MS21\Data\052618\052618F031.D\	PDI-SG-B135-BL1	K1803616-002	5/26/2018	23:55:54	
J:\MS21\Data\052618\052618F032.D\	ZZZZZZZ	ZZZZZZZ	5/27/2018	00:23:10	
J:\MS21\Data\052618\052618F033.D\	PDI-SG-B115-BL1	K1803616-004	5/27/2018	00:50:24	
J:\MS21\Data\052618\052618F034.D\	PDI-SG-B156-BL1	K1803616-005	5/27/2018	01:17:40	
J:\MS21\Data\052618\052618F035.D\	PDI-SG-B159-BL1	K1803616-006	5/27/2018	01:44:56	
J:\MS21\Data\052618\052618F036.D\	ZZZZZZZ	ZZZZZZZ	5/27/2018	02:12:10	

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QA/QC Report

Client: AECOM
Project: Portland Harbor 2018/60566335

Service Request:K1803616

Analysis Run Log
Organochlorine Pesticides by GC/MS/MS

Analysis Method: ALS SOP

Analysis Lot:592847

Instrument ID:K-MSMS-01

Raw Data File	Sample Name	Lab Code	Date Analyzed	Time Analyzed	Q
J:\MS21\Data\053018\053018F003.D\	Continuing Calibration Verification	KQ1807165-01	5/30/2018	09:14:40	
J:\MS21\Data\053018\053018F004.D\	Method Blank	KQ1805054-04	5/30/2018	10:02:29	
J:\MS21\Data\053018\053018F005.D\	Lab Control Sample	KQ1805054-03	5/30/2018	10:27:09	
J:\MS21\Data\053018\053018F006.D\	ZZZZZZZ	ZZZZZZZ	5/30/2018	11:13:52	
J:\MS21\Data\053018\053018F007.D\	ZZZZZZZ	ZZZZZZZ	5/30/2018	11:38:41	
J:\MS21\Data\053018\053018F008.D\	ZZZZZZZ	ZZZZZZZ	5/30/2018	12:05:57	
J:\MS21\Data\053018\053018F009.D\	ZZZZZZZ	ZZZZZZZ	5/30/2018	12:33:13	
J:\MS21\Data\053018\053018F010.D\	ZZZZZZZ	ZZZZZZZ	5/30/2018	13:00:32	
J:\MS21\Data\053018\053018F011.D\	ZZZZZZZ	ZZZZZZZ	5/30/2018	13:27:51	
J:\MS21\Data\053018\053018F012.D\	ZZZZZZZ	ZZZZZZZ	5/30/2018	13:55:10	
J:\MS21\Data\053018\053018F013.D\	ZZZZZZZ	ZZZZZZZ	5/30/2018	14:22:30	
J:\MS21\Data\053018\053018F014.D\	ZZZZZZZ	ZZZZZZZ	5/30/2018	14:49:44	
J:\MS21\Data\053018\053018F018.D\	PDI-SG-B163-BL1	K1803616-007	5/30/2018	16:32:50	
J:\MS21\Data\053018\053018F019.D\	ZZZZZZZ	ZZZZZZZ	5/30/2018	16:57:45	

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QA/QC Report

Client: AECOM
Project: Portland Harbor 2018/60566335

Service Request:K1803616

Analysis Run Log
Organochlorine Pesticides by GC/MS/MS

Analysis Method: ALS SOP

Analysis Lot:593190

Instrument ID:K-MSMS-01

Raw Data File	Sample Name	Lab Code	Date Analyzed	Time Analyzed	Q
J:\MS21\Data\060118\060118F004.D\	Continuing Calibration Verification	KQ1807315-01	6/1/2018	08:56:56	
J:\MS21\Data\060118\060118F005.D\	Method Blank	KQ1805169-03	6/1/2018	09:30:11	
J:\MS21\Data\060118\060118F006.D\	Lab Control Sample	KQ1805169-01	6/1/2018	09:53:59	
J:\MS21\Data\060118\060118F007.D\	Duplicate Lab Control Sample	KQ1805169-02	6/1/2018	10:22:28	
J:\MS21\Data\060118\060118F008.D\	PDI-RB-VVSS-180416-1735	K1803616-020	6/1/2018	10:51:00	
J:\MS21\Data\060118\060118F009.D\	PDI-RB-VVSS-180416-1800	K1803616-021	6/1/2018	11:19:38	
J:\MS21\Data\060118\060118F010.D\	ZZZZZZZ	ZZZZZZZ	6/1/2018	11:48:20	
J:\MS21\Data\060118\060118F011.D\	PDI-SG-B202-BL1 MS	KQ1805054-01	6/1/2018	12:17:03	
J:\MS21\Data\060118\060118F012.D\	PDI-SG-B202-BL1 DMS	KQ1805054-02	6/1/2018	12:45:46	
J:\MS21\Data\060118\060118F013.D\	PDI-SG-B164-BL1	K1803616-008	6/1/2018	13:14:35	
J:\MS21\Data\060118\060118F014.D\	PDI-SG-B164-BL1-D	K1803616-009	6/1/2018	13:43:23	
J:\MS21\Data\060118\060118F015.D\	PDI-SG-B167-BL1	K1803616-010	6/1/2018	14:12:17	
J:\MS21\Data\060118\060118F016.D\	PDI-SG-B169-BL1	K1803616-011	6/1/2018	14:41:26	
J:\MS21\Data\060118\060118F017.D\	PDI-SG-B114-BL1	K1803616-012	6/1/2018	15:10:39	
J:\MS21\Data\060118\060118F018.D\	PDI-SG-B171-BL1	K1803616-013	6/1/2018	15:39:55	
J:\MS21\Data\060118\060118F019.D\	PDI-SG-B173-BL1	K1803616-014	6/1/2018	16:09:17	
J:\MS21\Data\060118\060118F020.D\	PDI-SG-B175-BL1	K1803616-015	6/1/2018	16:38:46	
J:\MS21\Data\060118\060118F021.D\	PDI-SG-B108-BL1	K1803616-016	6/1/2018	17:07:57	
J:\MS21\Data\060118\060118F022.D\	PDI-SG-B160-BL1	K1803616-017	6/1/2018	17:37:14	
J:\MS21\Data\060118\060118F023.D\	PDI-SG-B168-BL1	K1803616-018	6/1/2018	18:06:38	
J:\MS21\Data\060118\060118F024.D\	PDI-SG-B202-BL1	K1803616-019	6/1/2018	18:36:05	

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QA/QC Report

Client: AECOM
Project: Portland Harbor 2018/60566335

Service Request:K1803616

Analysis Run Log
Organochlorine Pesticides by GC/MS/MS

Analysis Method: ALS SOP

Analysis Lot:597922

Instrument ID:K-MSMS-01

Raw Data File	Sample Name	Lab Code	Date Analyzed	Time Analyzed	Q
J:\MS21\Data\070918\070918F035.D\	Continuing Calibration Verification	KQ1809220-01	7/9/2018	23:21:32	
J:\MS21\Data\070918\070918F036.D\	ZZZZZZZ	ZZZZZZZ	7/9/2018	23:49:01	
J:\MS21\Data\070918\070918F037.D\	ZZZZZZZ	ZZZZZZZ	7/10/2018	00:16:22	
J:\MS21\Data\070918\070918F038.D\	ZZZZZZZ	ZZZZZZZ	7/10/2018	00:43:48	
J:\MS21\Data\070918\070918F039.D\	ZZZZZZZ	ZZZZZZZ	7/10/2018	01:11:11	
J:\MS21\Data\070918\070918F040.D\	Method Blank	KQ1807358-04	7/10/2018	01:38:30	
J:\MS21\Data\070918\070918F041.D\	Lab Control Sample	KQ1807358-03	7/10/2018	02:06:13	
J:\MS21\Data\070918\070918F042.D\	Batch QC MS	KQ1807358-01	7/10/2018	02:33:35	
J:\MS21\Data\070918\070918F043.D\	Batch QC DMS	KQ1807358-02	7/10/2018	03:00:52	
J:\MS21\Data\070918\070918F045.D\	Batch QC	K1805148-001	7/10/2018	03:56:25	
J:\MS21\Data\070918\070918F046.D\	ZZZZZZZ	ZZZZZZZ	7/10/2018	04:23:43	
J:\MS21\Data\070918\070918F047.D\	ZZZZZZZ	ZZZZZZZ	7/10/2018	04:51:06	
J:\MS21\Data\070918\070918F048.D\	ZZZZZZZ	ZZZZZZZ	7/10/2018	05:18:45	
J:\MS21\Data\070918\070918F049.D\	ZZZZZZZ	ZZZZZZZ	7/10/2018	05:46:07	
J:\MS21\Data\070918\070918F050.D\	ZZZZZZZ	ZZZZZZZ	7/10/2018	06:13:28	
J:\MS21\Data\070918\070918F051.D\	ZZZZZZZ	ZZZZZZZ	7/10/2018	06:40:49	
J:\MS21\Data\070918\070918F052.D\	ZZZZZZZ	ZZZZZZZ	7/10/2018	07:08:16	
J:\MS21\Data\070918\070918F053.D\	ZZZZZZZ	ZZZZZZZ	7/10/2018	07:35:50	
J:\MS21\Data\070918\070918F054.D\	ZZZZZZZ	ZZZZZZZ	7/10/2018	08:03:17	
J:\MS21\Data\070918\070918F055.D\	ZZZZZZZ	ZZZZZZZ	7/10/2018	08:31:01	
J:\MS21\Data\070918\070918F056.D\	ZZZZZZZ	ZZZZZZZ	7/10/2018	08:59:29	
J:\MS21\Data\070918\070918F057.D\	ZZZZZZZ	ZZZZZZZ	7/10/2018	09:26:54	
J:\MS21\Data\070918\070918F058.D\	ZZZZZZZ	ZZZZZZZ	7/10/2018	09:54:42	
J:\MS21\Data\070918\070918F059.D\	PDI-SG-B112-BL1	K1803616-003	7/10/2018	10:22:35	

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Prep Summary Report

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

Service Request: K1803616

Organochlorine Pesticides by GC/MS/MS

Prep Method: EPA 3541
Analytical Method: ALS SOP

Extraction Lot: 312242
Extraction Date: 04/24/18 22:45

Sample Name	Lab Code	Date Collected	Date Received	Sample Amount	Final Amount	Percent Solids
PDI-SG-B133-BL1	K1803616-001	4/16/18	4/18/18	10.139 g	1 mL	46.3
PDI-SG-B135-BL1	K1803616-002	4/16/18	4/18/18	10.186 g	1 mL	37.0
PDI-SG-B115-BL1	K1803616-004	4/16/18	4/18/18	10.064 g	1 mL	40.2
PDI-SG-B156-BL1	K1803616-005	4/16/18	4/18/18	10.184 g	1 mL	78.2
PDI-SG-B159-BL1	K1803616-006	4/16/18	4/18/18	10.430 g	1 mL	57.4
PDI-SG-B163-BL1	K1803616-007	4/16/18	4/18/18	10.035 g	1 mL	58.9
PDI-SG-B164-BL1	K1803616-008	4/16/18	4/18/18	10.110 g	1 mL	66.8
PDI-SG-B164-BL1-D	K1803616-009	4/16/18	4/18/18	10.205 g	1 mL	66.8
PDI-SG-B167-BL1	K1803616-010	4/16/18	4/18/18	10.415 g	1 mL	45.7
PDI-SG-B169-BL1	K1803616-011	4/17/18	4/18/18	10.166 g	1 mL	72.0
PDI-SG-B114-BL1	K1803616-012	4/17/18	4/18/18	10.295 g	1 mL	55.2
PDI-SG-B171-BL1	K1803616-013	4/17/18	4/18/18	10.211 g	1 mL	76.0
PDI-SG-B173-BL1	K1803616-014	4/17/18	4/18/18	10.305 g	1 mL	72.3
PDI-SG-B175-BL1	K1803616-015	4/17/18	4/18/18	10.072 g	1 mL	67.9
PDI-SG-B108-BL1	K1803616-016	4/17/18	4/18/18	10.022 g	1 mL	44.6
PDI-SG-B160-BL1	K1803616-017	4/17/18	4/18/18	10.310 g	1 mL	46.8
PDI-SG-B168-BL1	K1803616-018	4/17/18	4/18/18	10.450 g	1 mL	72.7
PDI-SG-B202-BL1	K1803616-019	4/17/18	4/18/18	10.237 g	1 mL	73.1
Matrix Spike	KQ1805054-01MS	4/17/18	4/18/18	10.048 g	1 mL	73.1
Duplicate Matrix Spike	KQ1805054-02DMS	4/17/18	4/18/18	10.057 g	1 mL	73.1
Lab Control Sample	KQ1805054-03LCS	NA	NA	10 g	1 mL	
Method Blank	KQ1805054-04MB	NA	NA	10.4500 g	1 mL	

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Prep Summary Report

Client: AECOM **Service Request:** K1803616
Project: Portland Harbor Pre-Remedial Design Investigation/60566335
Sample Matrix: Sediment

Organochlorine Pesticides by GC/MS/MS

Prep Method: EPA 3541
Analytical Method: ALS SOP

Extraction Lot: 315096
Extraction Date: 06/12/18 11:05

Sample Name	Lab Code	Date Collected	Date Received	Sample Amount	Final Amount	Percent Solids
PDI-SG-B112-BL1	K1803616-003	4/16/18	4/18/18	10.409 g	1 mL	39.3
Batch QC	K1805148-001	NA	NA	20.451 g	1 mL	65.4
Matrix Spike	KQ1807358-01MS	NA	NA	20.442 g	1 mL	65.4
Duplicate Matrix Spike	KQ1807358-02DMS	NA	NA	20.163 g	1 mL	65.4
Lab Control Sample	KQ1807358-03LCS	NA	NA	10 g	1 mL	
Method Blank	KQ1807358-04MB	NA	NA	20.4510 g	1 mL	

ALS Group USA, Corp.
dba ALS Environmental

Prep Summary Report

Client: AECOM **Service Request:** K1803616
Project: Portland Harbor Pre-Remedial Design Investigation/60566335
Sample Matrix: Water

Organochlorine Pesticides by GC/MS/MS

Prep Method: EPA 3535A
Analytical Method: ALS SOP

Extraction Lot: 312398
Extraction Date: 04/23/18 09:04

Sample Name	Lab Code	Date Collected	Date Received	Sample Amount	Final Amount	Percent Solids
PDI-RB-VVSS-180416-1735	K1803616-020	4/16/18	4/18/18	980.0000 mL	1 mL	
PDI-RB-VVSS-180416-1800	K1803616-021	4/16/18	4/18/18	970.0000 mL	1 mL	
Lab Control Sample	KQ1805169-01LCS	NA	NA	1000 mL	1 mL	
Duplicate Lab Control Sample	KQ1805169-02DLCS	NA	NA	1000 mL	1 mL	
Method Blank	KQ1805169-03MB	NA	NA	1000 mL	1 mL	