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 25, 2018

Analytical Report for Service Request No: K1804978A

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

RE: Portland Harbor Pre-Remedial Design Investigation / 60566335

Dear Amy,

Enclosed are the results of the sample(s) submitted to our laboratory May 25, 2018
For your reference, these analyses have been assigned our service request number **K1804978.**

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

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

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Howard Holmes
Project Manager

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

Table of Contents

Acronyms

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

Inorganic Data Qualifiers

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

Metals Data Qualifiers

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

Organic Data Qualifiers

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

Additional Petroleum Hydrocarbon Specific Qualifiers

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

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

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

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. A complete listing of specific NELAP-certified analytes, can be found in the certification section at www.ALSGlobal.com or at the accreditation bodies web site.
Please refer to the certification and/or accreditation body's web site if samples are submitted for compliance purposes. The states highlighted above, require the analysis be listed on the state certification if used for compliance purposes and if the method/anlayte is offered by that state.

Case Narrative

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

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

Service Request: K1804978
Date Received: 05/25/2018

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples designated for Tier IV validation deliverables including summary forms and all of the associated raw data for each of the analyses. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt:

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

Semivolatiles by GC/MS:

Method 8270D, 06/30/2018:The matrix spike recovery of Bis(2-ethylhexyl) Phthalate for sample PDI-SG-B333-BL1 was outside control criteria. Recovery in the Laboratory Control Sample (LCS) was acceptable, which indicated the analytical batch was in control. The matrix spike outlier suggested a potential high bias in this matrix. No further corrective action was appropriate.

Method 8270D, 06/30/2018:The Relative Percent Difference (RPD) for the replicate analysis of Bis(2-ethylhexyl) Phthalate in sample PDI-SG-B333-BL1 was outside the normal ALS control limits. The variability in the results was attributed to the heterogeneous character of the sample. Standard mixing techniques were used, but were not sufficient for complete homogenization of this sample.

Method 8270D, 06/26/2018:The duplicate matrix spike recovery of several analytes for sample PDI-SG-B333-BL1 was outside control criteria. Recovery in the Laboratory Control Sample (LCS) was acceptable, which indicated the analytical batch was in control. The duplicate matrix spike outlier suggested a potential low bias in this matrix. No further corrective action was taken.

Method 8270D, 06/26/2018:The Relative Percent Difference (RPD) for several analytes in the replicate matrix spike analyses of PDI-SG-B333-BL1 was outside control criteria. In general, the RPD was relatively high for all spiked compounds, which indicateds a low bias in the Matrix Spike Duplicate (MSD). All spike recoveries in the MS and associated Laboratory Control Sample (LCS) were within acceptance limits. The error associated with an elevated RPD equated to a higher degree of variability. No further corrective action was taken.

Method 8270D, 06/27/2018:The matrix spike recovery of Phenanthrene, Fluorene and Pyrene for sample PDI-SG_B424-BL1 was outside the ALS control criteria as a result of the heterogeneous character of the sample. The Relative Percent Difference (RPD) for the replicate analysis supported this. The variability between replicates was sufficient to bias the percent recoveries outside normal ALS control criteria. The associated QA/QC results (e.g. control sample, calibration standards, etc.) indicated the analysis was in control. No further corrective action was appropriate.

Method 8270D, 06/27/2018:The Relative Percent Difference (RPD) for the replicate analysis of several analytes in sample PDI-SG-B424-BL1 was outside the normal ALS control limits. The variability in the results was attributed to the heterogeneous character of the sample. Standard mixing techniques were used, but were not sufficient for complete homogenization of this sample.

Semivoa GC:

No significant anomalies were noted with this analysis.

Approved by _____ Date 07/25/2018

Chain of Custody

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

K1804978

SURFACE SEDIMENT
CHAIN OF CUSTODY

ALS-Environmental-Kelso 1317-S-13th-Ave Kelso, WA 98626 **Ph: 360-577-7222 Fax: 360-636-1068**	**Project Contact: Amy Dahl / Chelsey Cook** **Tel: (206) 438-2261 / (206) 438-2010**	**Site Contact: Jennifer Ray / Michaela McCoog** **Laboratory Contact: Howard-Holmes**	**5/23/2018** **Carrier: Courier**
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	**Analysis Turnaround Time** Calendar (C) or Work Days (W) _____ [x] 21 days [ ] Other _____		COC No: 1 1 of 2 page(s)

Sample Identification	Sample Date	Sample Time	Matrix	QC Sample	Sampler's Initials	Total No. of Cont.	Fraction	Pesticides, PAHs, Total Solids, BEHP, Tributyltin 1669M, 8270-SIM, 160.3, 8270-LL, Krone/Unger	WQ - Pesticides 1669M	WQ - PAHs 8270-SIM	WQ - BEHP EPA 8270D-LL	WQ - Tributyltin Krone/Unger	Sample Specific Notes:
PDI-SG-B330-BL1	5/24/2018	10:32	SS		MM	1		x					
PDI-SG-B332-BL1	5/24/2018	11:45	SS		MM	1		x					
PDI-SG-B337-BL1	5/24/2018	14:18	SS		MM	1		x					
PDI-SG-B333-BL1	5/24/2018	15:10	SS	MS/MSD	MM	3		x					
PDI-SG-B338-BL1	5/24/2018	16:08	SS		MM	1		x					
PDI-SG-B399-BL1	5/24/2018	10:45	SS		ED	1		x					
PDI-SG-B424-BL1	5/24/2018	16:03	SS	MS/MSD	ED	3		x					
PDI-SG-B410-BL1	5/23/2018	12:10	SS		JH	1		x					
PDI-SG-B335-BL1	5/23/2018	17:12	SS		MM	1		x					
PDI-SG-B326-BL1	5/23/2018	16:12	SS		MM	1		x					
PDI-SG-B324-BL1	5/23/2018	15:11	SS		MM	1		x					
PDI-SG-B319-BL1	5/23/2018	14:14	SS		MM	1		x					

Container Type: WMG=Wide Mouth Glass Jar, P=HDPE, PP=Polypropylene, AG=amber glass, G=glass, RC=Resin Column

Preservative: HCl = Hydrochloric Acid, H3PO4 = Phosphoric Acid, HNO3 = Nitric Acid

Fraction: D = Dissolved, PRT = Particulate, T = Total (unfiltered)

Sample Disposal
[ ] *Return To Client* [X] *Disposal By Lab* [X] *Archive For 12 Months*

Special Instructions/QC Requirements & Comments:

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
[signature]	AECOM	5-25-18	[signature]	AW	5/25/18 1035
[signature]	AW	5/25/18 1405	[signature]	AW	5/25/18 1405
[signature]	Company:	Date/Time:	Received by:	Company:	Date/Time:

K1804978

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

SURFACE SEDIMENT
CHAIN OF CUSTODY

Client Contact	Project Contact: Amy Dahl / Chelsey Cook	Site Contact: Jennifer Ray / Michaela McCoog	5/23/2018	COC No: 1
AECOM	Tel: (206) 438-2261 / (206) 438-2010	Laboratory Contact: Howard-Holmes	Carrier: Courier	2 of 2 page(s)
1111 3rd Ave Suite 1600	Analysis Turnaround Time			
Seattle, WA 98101	Calendar (C) or Work Days (W) ________			
Phone: (206) 438-2700 Fax: 1+(866) 495-5288				
Project Name: Portland Harbor Pre-Remedial Design Investigation and Baseline Sampling	[x] 21 days			
Portland, OR	[ ] Other ________			
Project #: 60566335 Study: Surface Sediment				

Sample Identification	Sample Date	Sample Time	Matrix	QC Sample	Sampler's Initials	Total No. of Cont.	Fraction	Pesticides, PAHs, Total Solids, BEHP, Tributyltin 1669M, 8270-SIM, 160.3, 8270-LL, Kron/Unger	WQ - Pesticides 1669M	WQ - PAHs 8270-SIM	WQ - BEHP EPA 8270D-LL	WQ - Tributyltin Krone/Unger	Sample Specific Notes:
PDI-SG-B318-BL1	5/23/2018	11:14	SS		MM	1		x					
PDI-SG-B253-BL1	5/23/2018	10:05	SS		MM	1		x					
PDI-RB-VV-180524	5-24-18	1705	SS		MM	8		~~x~~	X	X	X	X	
			~~SS~~					~~x~~					
			~~SS~~					~~x~~					
			~~SS~~					~~x~~					
			~~SS~~					~~x~~					
			~~SS~~					~~x~~					
			~~SS~~					~~x~~					
			~~SS~~					~~x~~					
			~~SS~~					~~x~~					
			~~SS~~					~~x~~					

Container Type: WMG=Wide Mouth Glass Jar, P=HDPE, PP=Polypropylene, AG=amber glass, G=glass, RC=Resin Column

Preservative: HCl = Hydrochloric Acid, H3PO4 = Phosphoric Acid, HNO3 = Nitric Acid

Fraction: D = Dissolved, PRT = Particulate, T = Total (unfiltered)

Sample Disposal
[ ] Return To Client [X] Disposal By Lab [X] Archive For 12 Months

Special Instructions/QC Requirements & Comments:

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Michaela McCoog	AECOM	5-25-18	[signature]	5/25/18 ALW	1235
[signature]	ALW	5-25-18 1405	[signature]	5/25/18	1405 ALW

PC HH

Cooler Receipt and Preservation Form

Client AECOM Service Request K1804978

Received: 5/25/16 Opened: 5/25/16 By: BR Unloaded: 5/25/16 By: BR

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

Raw Cooler Temp	Corrected Cooler Temp	Raw Temp Blank	Corrected Temp Blank	Corr. Factor	Thermometer ID	Cooler/COC ID	Tracking Number	NA	Filed
3.3	3.1	4.9	4.8	-0.2	351				
3.8	3.8	3.4	3.9	0.0	374				
3.8	3.8	2.1	2.1	0.0	325				

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

Sample ID on Bottle	Sample ID on COC	Identified by:

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

Notes, Discrepancies, & Resolutions: Only received 7 containers for PD1-RB-W180524 (coc lists 8).

Total Solids

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

Analytical Report

Client:	AECOM	**Service Request:**	K1804978
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Collected:**	05/23/18 - 05/24/18
Sample Matrix:	Sediment	**Date Received:**	05/25/18
Analysis Method:	160.3 Modified	**Units:**	Percent
Prep Method:	None	**Basis:**	As Received

Solids, Total

Sample Name	Lab Code	Result	MRL	MDL	Dil.	Date Analyzed	Q
PDI-SG-B330-BL1	K1804978-001	**45.3**	-	-	1	05/29/18 14:08	
PDI-SG-B332-BL1	K1804978-002	**55.6**	-	-	1	05/29/18 14:08	
PDI-SG-B337-BL1	K1804978-003	**58.9**	-	-	1	05/29/18 14:08	
PDI-SG-B333-BL1	K1804978-004	**44.6**	-	-	1	05/29/18 14:08	
PDI-SG-B338-BL1	K1804978-005	**51.9**	-	-	1	05/29/18 14:08	
PDI-SG-B399-BL1	K1804978-006	**73.3**	-	-	1	05/29/18 14:08	
PDI-SG-B424-BL1	K1804978-007	**76.3**	-	-	1	05/29/18 14:08	
PDI-SG-B410-BL1	K1804978-008	**59.1**	-	-	1	05/29/18 14:08	
PDI-SG-B335-BL1	K1804978-009	**65.3**	-	-	1	05/29/18 14:08	
PDI-SG-B326-BL1	K1804978-010	**64.4**	-	-	1	05/29/18 14:08	
PDI-SG-B324-BL1	K1804978-011	**56.9**	-	-	1	05/29/18 14:08	
PDI-SG-B319-BL1	K1804978-012	**71.3**	-	-	1	05/29/18 14:08	
PDI-SG-B318-BL1	K1804978-013	**53.2**	-	-	1	05/29/18 14:08	
PDI-SG-B253-BL1	K1804978-014	**70.3**	-	-	1	05/29/18 14:08	

ALS Group USA, Corp.

dba ALS Environmental

QA/QC Report

Client:	AECOM	**Service Request:**	K1804978
Project	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Collected:**	05/24/18
Sample Matrix:	Soil	**Date Received:**	05/25/18
Analysis Method:	160.3 Modified	**Units:**	Percent
Prep Method:	None	**Basis:**	As Received

Replicate Sample Summary

Inorganic Parameters

Sample Name:	Lab Code:	MRL	Sample Result	Duplicate Result	Average	RPD	RPD Limit	Date Analyzed
Batch QC	K1804904-001DUP	-	79.0	78.2	78.6	1	20	05/29/18
Batch QC	K1804944-013DUP	-	66.5	66.9	66.7	<1	20	05/29/18
PDI-SG-B333-BL1	K1804978-004DUP	-	44.6	44.3	44.5	<1	20	05/29/18
PDI-SG-B424-BL1	K1804978-007DUP	-	76.3	77.6	77.0	2	20	05/29/18

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Butyltins

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

Analytical Report

Client:	AECOM	**Service Request:**	K1804978
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Collected:**	05/24/18 10:32
Sample Matrix:	Sediment	**Date Received:**	05/25/18 14:05
Sample Name:	PDI-SG-B330-BL1	**Units:**	ug/Kg
Lab Code:	K1804978-001	**Basis:**	Dry

Butyltins

Analysis Method: ALS SOP
Prep Method: Method

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Tri-n-butyltin Cation	ND U	2.2	0.95	1	06/29/18 12:00	6/5/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Tri-n-propyltin	49	10 - 120	06/29/18 12:00	

Client:	AECOM	**Service Request:**	K1804978
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Collected:**	05/24/18 11:45
Sample Matrix:	Sediment	**Date Received:**	05/25/18 14:05
Sample Name:	PDI-SG-B332-BL1	**Units:**	ug/Kg
Lab Code:	K1804978-002	**Basis:**	Dry

Butyltins

Analysis Method: ALS SOP
Prep Method: Method

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Tri-n-butyltin Cation	ND U	1.8	0.78	1	06/29/18 12:18	6/5/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Tri-n-propyltin	60	10 - 120	06/29/18 12:18	

Client:	AECOM	**Service Request:**	K1804978
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Collected:**	05/24/18 14:18
Sample Matrix:	Sediment	**Date Received:**	05/25/18 14:05
Sample Name:	PDI-SG-B337-BL1	**Units:**	ug/Kg
Lab Code:	K1804978-003	**Basis:**	Dry

Butyltins

Analysis Method: ALS SOP
Prep Method: Method

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Tri-n-butyltin Cation	ND U	1.7	0.72	1	06/29/18 12:37	6/5/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Tri-n-propyltin	59	10 - 120	06/29/18 12:37	

Analytical Report

Client:	AECOM	**Service Request:**	K1804978
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Collected:**	05/24/18 15:10
Sample Matrix:	Sediment	**Date Received:**	05/25/18 14:05
Sample Name:	PDI-SG-B333-BL1	**Units:**	ug/Kg
Lab Code:	K1804978-004	**Basis:**	Dry

Butyltins

Analysis Method: ALS SOP
Prep Method: Method

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Tri-n-butyltin Cation	ND U	2.2	0.95	1	06/29/18 12:55	6/5/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Tri-n-propyltin	61	10 - 120	06/29/18 12:55	

Analytical Report

Client:	AECOM	**Service Request:**	K1804978
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Collected:**	05/24/18 16:08
Sample Matrix:	Sediment	**Date Received:**	05/25/18 14:05
Sample Name:	PDI-SG-B338-BL1	**Units:**	ug/Kg
Lab Code:	K1804978-005	**Basis:**	Dry

Butyltins

Analysis Method: ALS SOP
Prep Method: Method

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Tri-n-butyltin Cation	ND U	1.9	0.83	1	06/29/18 13:50	6/5/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Tri-n-propyltin	56	10 - 120	06/29/18 13:50	

Client:	AECOM	**Service Request:**	K1804978
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Collected:**	05/24/18 10:45
Sample Matrix:	Sediment	**Date Received:**	05/25/18 14:05
Sample Name:	PDI-SG-B399-BL1	**Units:**	ug/Kg
Lab Code:	K1804978-006	**Basis:**	Dry

Butyltins

Analysis Method: ALS SOP
Prep Method: Method

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Tri-n-butyltin Cation	ND U	1.3	0.58	1	06/29/18 14:09	6/5/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Tri-n-propyltin	54	10 - 120	06/29/18 14:09	

Client:	AECOM	**Service Request:**	K1804978
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Collected:**	05/24/18 16:03
Sample Matrix:	Sediment	**Date Received:**	05/25/18 14:05
Sample Name:	PDI-SG-B424-BL1	**Units:**	ug/Kg
Lab Code:	K1804978-007	**Basis:**	Dry

Butyltins

Analysis Method: ALS SOP
Prep Method: Method

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Tri-n-butyltin Cation	ND U	1.3	0.56	1	06/29/18 14:28	6/5/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Tri-n-propyltin	56	10 - 120	06/29/18 14:28	

Analytical Report

Client:	AECOM	**Service Request:**	K1804978
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Collected:**	05/23/18 12:10
Sample Matrix:	Sediment	**Date Received:**	05/25/18 14:05
Sample Name:	PDI-SG-B410-BL1	**Units:**	ug/Kg
Lab Code:	K1804978-008	**Basis:**	Dry

Butyltins

Analysis Method: ALS SOP
Prep Method: Method

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Tri-n-butyltin Cation	**5.3**	1.7	0.73	1	06/29/18 16:00	6/5/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Tri-n-propyltin	57	10 - 120	06/29/18 16:00	

Client:	AECOM	**Service Request:**	K1804978
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Collected:**	05/23/18 17:12
Sample Matrix:	Sediment	**Date Received:**	05/25/18 14:05
Sample Name:	PDI-SG-B335-BL1	**Units:**	ug/Kg
Lab Code:	K1804978-009	**Basis:**	Dry

Butyltins

Analysis Method: ALS SOP
Prep Method: Method

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Tri-n-butyltin Cation	**0.99 J**	1.5	0.65	1	06/29/18 16:18	6/5/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Tri-n-propyltin	53	10 - 120	06/29/18 16:18	

Client:	AECOM	**Service Request:**	K1804978
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Collected:**	05/23/18 16:12
Sample Matrix:	Sediment	**Date Received:**	05/25/18 14:05
Sample Name:	PDI-SG-B326-BL1	**Units:**	ug/Kg
Lab Code:	K1804978-010	**Basis:**	Dry

Butyltins

Analysis Method: ALS SOP
Prep Method: Method

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Tri-n-butyltin Cation	**1.2 J**	1.5	0.66	1	06/29/18 16:37	6/5/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Tri-n-propyltin	49	10 - 120	06/29/18 16:37	

Analytical Report

Client:	AECOM	**Service Request:**	K1804978
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Collected:**	05/23/18 15:11
Sample Matrix:	Sediment	**Date Received:**	05/25/18 14:05
Sample Name:	PDI-SG-B324-BL1	**Units:**	ug/Kg
Lab Code:	K1804978-011	**Basis:**	Dry

Butyltins

Analysis Method: ALS SOP
Prep Method: Method

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Tri-n-butyltin Cation	**29**	1.7	0.75	1	06/29/18 16:55	6/5/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Tri-n-propyltin	54	10 - 120	06/29/18 16:55	

Client:	AECOM	**Service Request:**	K1804978
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Collected:**	05/23/18 14:14
Sample Matrix:	Sediment	**Date Received:**	05/25/18 14:05
Sample Name:	PDI-SG-B319-BL1	**Units:**	ug/Kg
Lab Code:	K1804978-012	**Basis:**	Dry

Butyltins

Analysis Method: ALS SOP
Prep Method: Method

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Tri-n-butyltin Cation	ND U	1.4	0.60	1	06/29/18 17:14	6/5/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Tri-n-propyltin	53	10 - 120	06/29/18 17:14	

Client:	AECOM	**Service Request:**	K1804978
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Collected:**	05/23/18 11:14
Sample Matrix:	Sediment	**Date Received:**	05/25/18 14:05
Sample Name:	PDI-SG-B318-BL1	**Units:**	ug/Kg
Lab Code:	K1804978-013	**Basis:**	Dry

Butyltins

Analysis Method: ALS SOP
Prep Method: Method

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Tri-n-butyltin Cation	ND U	1.9	0.81	1	06/29/18 17:32	6/5/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Tri-n-propyltin	61	10 - 120	06/29/18 17:32	

Analytical Report

Client:	AECOM	**Service Request:**	K1804978
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Collected:**	05/23/18 10:05
Sample Matrix:	Sediment	**Date Received:**	05/25/18 14:05
Sample Name:	PDI-SG-B253-BL1	**Units:**	ug/Kg
Lab Code:	K1804978-014	**Basis:**	Dry

Butyltins

Analysis Method: ALS SOP
Prep Method: Method

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Tri-n-butyltin Cation	**16**	1.4	0.62	1	06/29/18 17:51	6/5/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Tri-n-propyltin	50	10 - 120	06/29/18 17:51	

Analytical Report

Client:	AECOM	**Service Request:**	K1804978
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Collected:**	05/24/18 17:05
Sample Matrix:	Water	**Date Received:**	05/25/18 14:05
Sample Name:	PDI-RB-VV-180524	**Units:**	ug/L
Lab Code:	K1804978-015	**Basis:**	NA

Butyltins

Analysis Method: ALS SOP
Prep Method: EPA 3520C

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Tri-n-butyltin Cation	ND U	0.050	0.012	1	06/18/18 16:03	5/30/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Tri-n-propyltin	60	31 - 137	06/18/18 16:03	

Analytical Report

Client:	AECOM	**Service Request:**	K1804978
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ug/Kg
Lab Code:	KQ1807106-06	**Basis:**	Dry

Butyltins

Analysis Method: ALS SOP
Prep Method: Method

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Tri-n-butyltin Cation	ND U	0.98	0.43	1	06/29/18 11:42	6/5/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Tri-n-propyltin	59	10 - 120	06/29/18 11:42	

Analytical Report

Client:	AECOM	**Service Request:**	K1804978
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KQ1807199-03	**Basis:**	NA

Butyltins

Analysis Method: ALS SOP
Prep Method: EPA 3520C

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Tri-n-butyltin Cation	ND U	0.050	0.012	1	06/18/18 16:58	5/30/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Tri-n-propyltin	56	31 - 137	06/18/18 16:58	

Client: AECOM **Service Request:** K1804978
Project: Portland Harbor Pre-Remedial Design Investigation/60566335
Sample Matrix: Sediment

SURROGATE RECOVERY SUMMARY
Butyltins

Analysis Method: ALS SOP
Extraction Method: Method

Sample Name	Lab Code	Tri-n-propyltin 10-120
PDI-SG-B330-BL1	K1804978-001	49
PDI-SG-B332-BL1	K1804978-002	60
PDI-SG-B337-BL1	K1804978-003	59
PDI-SG-B333-BL1	K1804978-004	61
PDI-SG-B338-BL1	K1804978-005	56
PDI-SG-B399-BL1	K1804978-006	54
PDI-SG-B424-BL1	K1804978-007	56
PDI-SG-B410-BL1	K1804978-008	57
PDI-SG-B335-BL1	K1804978-009	53
PDI-SG-B326-BL1	K1804978-010	49
PDI-SG-B324-BL1	K1804978-011	54
PDI-SG-B319-BL1	K1804978-012	53
PDI-SG-B318-BL1	K1804978-013	61
PDI-SG-B253-BL1	K1804978-014	50
Method Blank	KQ1807106-06	59
Lab Control Sample	KQ1807106-05	55
PDI-SG-B333-BL1	KQ1807106-01	54
PDI-SG-B333-BL1	KQ1807106-02	62
PDI-SG-B424-BL1	KQ1807106-03	50
PDI-SG-B424-BL1	KQ1807106-04	52

Client:	AECOM	**Service Request:**	K1804978
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Collected:**	05/24/18
Sample Matrix:	Sediment	**Date Received:**	05/25/18
		Date Analyzed:	06/29/18
		Date Extracted:	06/5/18

Duplicate Matrix Spike Summary
Butyltins

Sample Name:	PDI-SG-B333-BL1	**Units:**	ug/Kg
Lab Code:	K1804978-004	**Basis:**	Dry
Analysis Method:	ALS SOP		
Prep Method:	Method		

		Matrix Spike KQ1807106-01			Duplicate Matrix Spike KQ1807106-02					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Tri-n-butyltin Cation	ND U	48.8	49.8	98	53.1	49.3	108	10-115	8	40

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client:	AECOM	**Service Request:**	K1804978
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Collected:**	05/24/18
Sample Matrix:	Sediment	**Date Received:**	05/25/18
		Date Analyzed:	06/29/18
		Date Extracted:	06/5/18

Duplicate Matrix Spike Summary
Butyltins

Sample Name:	PDI-SG-B424-BL1	**Units:**	ug/Kg
Lab Code:	K1804978-007	**Basis:**	Dry
Analysis Method:	ALS SOP		
Prep Method:	Method		

		Matrix Spike KQ1807106-03			Duplicate Matrix Spike KQ1807106-04					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Tri-n-butyltin Cation	ND U	26.1	28.7	91	30.0	28.9	104	10-115	14	40

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client:	AECOM	**Service Request:**	K1804978
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Analyzed:**	06/29/18
Sample Matrix:	Sediment	**Date Extracted:**	06/05/18

Lab Control Sample Summary
Butyltins

Analysis Method:	ALS SOP	**Units:**	ug/Kg
Prep Method:	Method	**Basis:**	Dry
		Analysis Lot:	596871

Lab Control Sample
KQ1807106-05

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Tri-n-butyltin Cation	22.6	22.3	102	10-122

Client:	AECOM	**Service Request:**	K1804978
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Analyzed:**	06/18/18
Sample Matrix:	Water	**Date Extracted:**	05/30/18

Duplicate Lab Control Sample Summary
Butyltins

Analysis Method:	ALS SOP	**Units:**	ug/L
Prep Method:	EPA 3520C	**Basis:**	NA
		Analysis Lot:	595056

	Lab Control Sample KQ1807199-01			Duplicate Lab Control Sample KQ1807199-02					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Tri-n-butyltin Cation	0.451	0.446	101	0.432	0.446	97	32-122	4	30

Client:	AECOM	**Service Request:**	K1804978
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Analyzed:**	06/29/18 11:42
Sample Matrix:	Sediment	**Date Extracted:**	06/05/18

Method Blank Summary
Butyltins

Sample Name:	Method Blank	**Instrument ID:**	K-GC-26
Lab Code:	KQ1807106-06	**File ID:**	J:\GC26\DATA\062918\0629F006.D\
Analysis Method:	ALS SOP	**Analysis Lot:**	596871
Prep Method:	Method	**Extraction Lot:**	314808

This Method Blank applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Lab Control Sample	KQ1807106-05	J:\GC26\DATA\062918\0629F005.D\	06/29/18 11:23
PDI-SG-B330-BL1	K1804978-001	J:\GC26\DATA\062918\0629F007.D\	06/29/18 12:00
PDI-SG-B332-BL1	K1804978-002	J:\GC26\DATA\062918\0629F008.D\	06/29/18 12:18
PDI-SG-B337-BL1	K1804978-003	J:\GC26\DATA\062918\0629F009.D\	06/29/18 12:37
PDI-SG-B333-BL1	K1804978-004	J:\GC26\DATA\062918\0629F010.D\	06/29/18 12:55
PDI-SG-B333-BL1MS	KQ1807106-01	J:\GC26\DATA\062918\0629F011.D\	06/29/18 13:13
PDI-SG-B333-BL1DMS	KQ1807106-02	J:\GC26\DATA\062918\0629F012.D\	06/29/18 13:32
PDI-SG-B338-BL1	K1804978-005	J:\GC26\DATA\062918\0629F013.D\	06/29/18 13:50
PDI-SG-B399-BL1	K1804978-006	J:\GC26\DATA\062918\0629F014.D\	06/29/18 14:09
PDI-SG-B424-BL1	K1804978-007	J:\GC26\DATA\062918\0629F015.D\	06/29/18 14:28
PDI-SG-B424-BL1MS	KQ1807106-03	J:\GC26\DATA\062918\0629F016.D\	06/29/18 14:46
PDI-SG-B424-BL1DMS	KQ1807106-04	J:\GC26\DATA\062918\0629F019.D\	06/29/18 15:41
PDI-SG-B410-BL1	K1804978-008	J:\GC26\DATA\062918\0629F020.D\	06/29/18 16:00
PDI-SG-B335-BL1	K1804978-009	J:\GC26\DATA\062918\0629F021.D\	06/29/18 16:18
PDI-SG-B326-BL1	K1804978-010	J:\GC26\DATA\062918\0629F022.D\	06/29/18 16:37
PDI-SG-B324-BL1	K1804978-011	J:\GC26\DATA\062918\0629F023.D\	06/29/18 16:55
PDI-SG-B319-BL1	K1804978-012	J:\GC26\DATA\062918\0629F024.D\	06/29/18 17:14
PDI-SG-B318-BL1	K1804978-013	J:\GC26\DATA\062918\0629F025.D\	06/29/18 17:32
PDI-SG-B253-BL1	K1804978-014	J:\GC26\DATA\062918\0629F026.D\	06/29/18 17:51

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	AECOM	**Service Request:**	K1804978
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Analyzed:**	06/18/18 16:58
Sample Matrix:	Water	**Date Extracted:**	05/30/18

Method Blank Summary
Butyltins

Sample Name:	Method Blank	**Instrument ID:**	K-GC-26
Lab Code:	KQ1807199-03	**File ID:**	J:\GC26\DATA\061818\0618F027.D\
Analysis Method:	ALS SOP	**Analysis Lot:**	595056
Prep Method:	EPA 3520C	**Extraction Lot:**	314934

This Method Blank applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
PDI-RB-VV-180524	K1804978-015	J:\GC26\DATA\061818\0618F024.D\	06/18/18 16:03
Lab Control Sample	KQ1807199-01	J:\GC26\DATA\061818\0618F025.D\	06/18/18 16:22
Duplicate Lab Control Sample	KQ1807199-02	J:\GC26\DATA\061818\0618F026.D\	06/18/18 16:40

Client:	AECOM	**Service Request:**	K1804978
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Analyzed:**	06/29/18 11:23
Sample Matrix:	Sediment	**Date Extracted:**	06/05/18

Lab Control Sample Summary
Butyltins

Sample Name:	Lab Control Sample	**Instrument ID:**	K-GC-26
Lab Code:	KQ1807106-05	**File ID:**	J:\GC26\DATA\062918\0629F005.D\
Analysis Method:	ALS SOP	**Analysis Lot:**	596871
Prep Method:	Method	**Extraction Lot:**	314808

This Lab Control Sample applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Method Blank	KQ1807106-06	J:\GC26\DATA\062918\0629F006.D\	06/29/18 11:42
PDI-SG-B330-BL1	K1804978-001	J:\GC26\DATA\062918\0629F007.D\	06/29/18 12:00
PDI-SG-B332-BL1	K1804978-002	J:\GC26\DATA\062918\0629F008.D\	06/29/18 12:18
PDI-SG-B337-BL1	K1804978-003	J:\GC26\DATA\062918\0629F009.D\	06/29/18 12:37
PDI-SG-B333-BL1	K1804978-004	J:\GC26\DATA\062918\0629F010.D\	06/29/18 12:55
PDI-SG-B333-BL1MS	KQ1807106-01	J:\GC26\DATA\062918\0629F011.D\	06/29/18 13:13
PDI-SG-B333-BL1DMS	KQ1807106-02	J:\GC26\DATA\062918\0629F012.D\	06/29/18 13:32
PDI-SG-B338-BL1	K1804978-005	J:\GC26\DATA\062918\0629F013.D\	06/29/18 13:50
PDI-SG-B399-BL1	K1804978-006	J:\GC26\DATA\062918\0629F014.D\	06/29/18 14:09
PDI-SG-B424-BL1	K1804978-007	J:\GC26\DATA\062918\0629F015.D\	06/29/18 14:28
PDI-SG-B424-BL1MS	KQ1807106-03	J:\GC26\DATA\062918\0629F016.D\	06/29/18 14:46
PDI-SG-B424-BL1DMS	KQ1807106-04	J:\GC26\DATA\062918\0629F019.D\	06/29/18 15:41
PDI-SG-B410-BL1	K1804978-008	J:\GC26\DATA\062918\0629F020.D\	06/29/18 16:00
PDI-SG-B335-BL1	K1804978-009	J:\GC26\DATA\062918\0629F021.D\	06/29/18 16:18
PDI-SG-B326-BL1	K1804978-010	J:\GC26\DATA\062918\0629F022.D\	06/29/18 16:37
PDI-SG-B324-BL1	K1804978-011	J:\GC26\DATA\062918\0629F023.D\	06/29/18 16:55
PDI-SG-B319-BL1	K1804978-012	J:\GC26\DATA\062918\0629F024.D\	06/29/18 17:14
PDI-SG-B318-BL1	K1804978-013	J:\GC26\DATA\062918\0629F025.D\	06/29/18 17:32
PDI-SG-B253-BL1	K1804978-014	J:\GC26\DATA\062918\0629F026.D\	06/29/18 17:51

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	AECOM	**Service Request:**	K1804978
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Analyzed:**	06/18/18 16:22
Sample Matrix:	Water	**Date Extracted:**	05/30/18

Lab Control Sample Summary
Butyltins

Sample Name:	Lab Control Sample	**Instrument ID:**	K-GC-26
Lab Code:	KQ1807199-01	**File ID:**	J:\GC26\DATA\061818\0618F025.D\
Analysis Method:	ALS SOP	**Analysis Lot:**	595056
Prep Method:	EPA 3520C	**Extraction Lot:**	314934

This Lab Control Sample applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
PDI-RB-VV-180524	K1804978-015	J:\GC26\DATA\061818\0618F024.D\	06/18/18 16:03
Duplicate Lab Control Sample	KQ1807199-02	J:\GC26\DATA\061818\0618F026.D\	06/18/18 16:40
Method Blank	KQ1807199-03	J:\GC26\DATA\061818\0618F027.D\	06/18/18 16:58

Client: AECOM **Service Request:** K1804978
Project: Portland Harbor Pre-Remedial Design Investigation **Calibration Date:** 6/13/2018

Initial Calibration Summary
Butyltins

Calibration ID: KC1800264 **Signal ID:** RTX-1
Instrument ID: K-GC-26

#	Lab Code	Sample Name	File Location	Acquisition Date
01	KC1800264-01	OT5-10A 2 PPB	J:\GC26\DATA\061318\0613F004.D	06/13/2018 10:58
02	KC1800264-02	OT5-10B 5 PPB	J:\GC26\DATA\061318\0613F005.D	06/13/2018 11:18
03	KC1800264-03	OT5-10C 10 PPB	J:\GC26\DATA\061318\0613F006.D	06/13/2018 11:38
04	KC1800264-04	OT5-10D 20 PPB	J:\GC26\DATA\061318\0613F007.D	06/13/2018 11:58
05	KC1800264-05	OT5-090 50 PPB	J:\GC26\DATA\061318\0613F008.D	06/13/2018 12:19
06	KC1800264-06	OT5-10E 200 PPB	J:\GC26\DATA\061318\0613F009.D	06/13/2018 12:39
07	KC1800264-07	OT5-10F 500 PPB	J:\GC26\DATA\061318\0613F010.D	06/13/2018 13:00

Analyte

Tri-n-butyltin Cation

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.782	4.968E4	02	4.455	5.356E4	03	8.910	5.013E4	04	17.820	5.364E4
05	44.550	5.46E4	06	178.200	6.055E4	07	445.500	5.969E4			

Tri-n-propyltin

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	2.000	4.929E4	02	5.000	3.918E4	03	10.000	3.885E4	04	20.000	3.986E4
05	50.000	4.17E4	06	200.000	4.731E4	07	500.000	4.862E4			

Client: AECOM **Service Request:** K1804978
Project: Portland Harbor Pre-Remedial Design Investigation **Calibration Date:** 6/13/2018

Initial Calibration Summary
Butyltins

Calibration ID: KC1800264 **Signal ID:** RTX-1
Instrument ID: K-GC-26

		Calibration Evaluation				Calibration Evaluation	
Analyte Name	Compound Type	Fit Type	Eval	Eval Result	Control Criteria	Average RRF	Minimum RRF
Tri-n-butyltin Cation	TRG	Average RF	% RSD	7.8	≤20	5.455E4	
Tri-n-propyltin	SURR	Average RF	% RSD	10.7	≤20	4.354E4	

Client: AECOM **Service Request:** K1804978
Project: Portland Harbor Pre-Remedial Design Investigation **Calibration Date:** 6/13/2018

Initial Calibration Summary
Butyltins

Calibration ID: KC1800264 **Signal ID:** RTX-35
Instrument ID: K-GC-26

#	Lab Code	Sample Name	File Location	Acquisition Date
01	KC1800264-01	OT5-10A 2 PPB	J:\GC26\DATA\061318\0613F004.D	06/13/2018 10:58
02	KC1800264-02	OT5-10B 5 PPB	J:\GC26\DATA\061318\0613F005.D	06/13/2018 11:18
03	KC1800264-03	OT5-10C 10 PPB	J:\GC26\DATA\061318\0613F006.D	06/13/2018 11:38
04	KC1800264-04	OT5-10D 20 PPB	J:\GC26\DATA\061318\0613F007.D	06/13/2018 11:58
05	KC1800264-05	OT5-090 50 PPB	J:\GC26\DATA\061318\0613F008.D	06/13/2018 12:19
06	KC1800264-06	OT5-10E 200 PPB	J:\GC26\DATA\061318\0613F009.D	06/13/2018 12:39
07	KC1800264-07	OT5-10F 500 PPB	J:\GC26\DATA\061318\0613F010.D	06/13/2018 13:00

Analyte

Tri-n-butyltin Cation

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.782	1.236E5	02	4.455	1.131E5	03	8.910	1.183E5	04	17.820	1.161E5
05	44.550	1.152E5	06	178.200	1.161E5	07	445.500	1.117E5			

Tri-n-propyltin

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	2.000	1.237E5	02	5.000	1.107E5	03	10.000	9.725E4	04	20.000	9.086E4
05	50.000	8.957E4	06	200.000	9.349E4	07	500.000	9.01E4			

Client: AECOM **Service Request:** K1804978
Project: Portland Harbor Pre-Remedial Design Investigation **Calibration Date:** 6/13/2018

Initial Calibration Summary
Butyltins

Calibration ID: KC1800264 **Signal ID:** RTX-35
Instrument ID: K-GC-26

		Calibration Evaluation				Calibration Evaluation	
Analyte Name	Compound Type	Fit Type	Eval	Eval Result	Control Criteria	Average RRF	Minimum RRF
Tri-n-butyltin Cation	TRG	Average RF	% RSD	3.3	≤20	1.163E5	
Tri-n-propyltin	SURR	Average RF	% RSD	13.1	≤20	9.938E4	

Client: AECOM **Service Request:** K1804978
Project: Portland Harbor Pre-Remedial Design Investigation **Calibration Date:** 6/13/2018

Initial Calibration Verification Summary
Butyltins

Calibration ID: KC1800264 **Signal ID:** RTX-1
Instrument ID: K-GC-26

#	Lab Code	Sample Name	File Location	Acquisition Date
08	KC1800264-08	OT5-09P 50 PPB ICV	J:\GC26\DATA\061318\0613F012.D	06/13/2018 13:43

Analyte Name	Expected	Result	Average RF	SSV RF	% D	Criteria	Curve Fit
Tri-n-butyltin Cation	44.6	49.7	5.455E4	6.091E4	11.66	±25	Average RF

Client: AECOM **Service Request:** K1804978
Project: Portland Harbor Pre-Remedial Design Investigation **Calibration Date:** 6/13/2018

Initial Calibration Verification Summary
Butyltins

Calibration ID: KC1800264 **Signal ID:** RTX-35
Instrument ID: K-GC-26

#	Lab Code	Sample Name	File Location	Acquisition Date
08	KC1800264-08	OT5-09P 50 PPB ICV	J:\GC26\DATA\061318\0613F012.D	06/13/2018 13:43

Analyte Name	Expected	Result	Average RF	SSV RF	% D	Criteria	Curve Fit
Tri-n-butyltin Cation	44.6	51.5	1.163E5	1.343E5	15.51	±25	Average RF

Client:	AECOM	**Service Request:**	K1804978
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Analyzed:**	06/18/18 15:08

Continuing Calibration Verification (CCV) Summary
Butyltins

Analysis Method:	ALS SOP	**Calibration Date:**	6/13/2018
File ID:	J:\GC26\DATA\061818\0618F021.D\	**Calibration ID:**	KC1800264
Signal ID:	RTX-1	**Analysis Lot:**	595056
		Units:	ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Tri-n-butyltin Cation	44.6	44.8	5.455E4	5.483E4	0.5	NA	±25	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Tri-n-propyltin	50.0	49.6	4.354E4	4.321E4	-0.8	NA	±25	Average RF

Client:	AECOM	**Service Request:**	K1804978
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Analyzed:**	06/18/18 15:08

Continuing Calibration Verification (CCV) Summary
Butyltins

Analysis Method:	ALS SOP	**Calibration Date:**	6/13/2018
File ID:	J:\GC26\DATA\061818\0618F021.D\	**Calibration ID:**	KC1800264
Signal ID:	RTX-35	**Analysis Lot:**	595056
		Units:	ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Tri-n-butyltin Cation	44.6	47.1	1.163E5	1.23E5	5.8	NA	±25	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Tri-n-propyltin	50.0	47.6	9.938E4	9.468E4	-4.7	NA	±25	Average RF

Client:	AECOM	**Service Request:**	K1804978
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Analyzed:**	06/18/18 18:49

Continuing Calibration Verification (CCV) Summary
Butyltins

Analysis Method:	ALS SOP	**Calibration Date:**	6/13/2018
File ID:	J:\GC26\DATA\061818\0618F033.D\	**Calibration ID:**	KC1800264
Signal ID:	RTX-1	**Analysis Lot:**	595056
		Units:	ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Tri-n-butyltin Cation	44.6	42.9	5.455E4	5.25E4	-3.8	NA	±25	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Tri-n-propyltin	50.0	47.7	4.354E4	4.156E4	-4.6	NA	±25	Average RF

Client:	AECOM	**Service Request:**	K1804978
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Analyzed:**	06/18/18 18:49

Continuing Calibration Verification (CCV) Summary
Butyltins

Analysis Method:	ALS SOP	**Calibration Date:**	6/13/2018
File ID:	J:\GC26\DATA\061818\0618F033.D\	**Calibration ID:**	KC1800264
Signal ID:	RTX-35	**Analysis Lot:**	595056
		Units:	ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Tri-n-butyltin Cation	44.6	45.5	1.163E5	1.188E5	2.2	NA	±25	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Tri-n-propyltin	50.0	45.7	9.938E4	9.092E4	-8.5	NA	±25	Average RF

Client:	AECOM	**Service Request:**	K1804978
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Analyzed:**	06/29/18 10:46

Continuing Calibration Verification (CCV) Summary
Butyltins

Analysis Method:	ALS SOP	**Calibration Date:**	6/13/2018
File ID:	J:\GC26\DATA\062918\0629F003.D\	**Calibration ID:**	KC1800264
Signal ID:	RTX-35	**Analysis Lot:**	596871
		Units:	ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Tri-n-butyltin Cation	44.6	42.3	1.163E5	1.104E5	-5.1	NA	±25	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Tri-n-propyltin	50.0	44.8	9.938E4	8.906E4	-10.4	NA	±25	Average RF

Client:	AECOM	**Service Request:**	K1804978
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Analyzed:**	06/29/18 10:46

Continuing Calibration Verification (CCV) Summary
Butyltins

Analysis Method:	ALS SOP	**Calibration Date:**	6/13/2018
File ID:	J:\GC26\DATA\062918\0629F003.D\	**Calibration ID:**	KC1800264
Signal ID:	RTX-1	**Analysis Lot:**	596871
		Units:	ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Tri-n-butyltin Cation	44.6	47.7	5.455E4	5.836E4	7.0	NA	±25	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Tri-n-propyltin	50.0	52.7	4.354E4	4.587E4	5.3	NA	±25	Average RF

Client:	AECOM	**Service Request:**	K1804978
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Analyzed:**	06/29/18 15:05

Continuing Calibration Verification (CCV) Summary
Butyltins

Analysis Method:	ALS SOP	**Calibration Date:**	6/13/2018
File ID:	J:\GC26\DATA\062918\0629F017.D\	**Calibration ID:**	KC1800264
Signal ID:	RTX-35	**Analysis Lot:**	596871
		Units:	ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Tri-n-butyltin Cation	44.6	43.9	1.163E5	1.146E5	-1.4	NA	±25	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Tri-n-propyltin	50.0	47.5	9.938E4	9.443E4	-5.0	NA	±25	Average RF

Client:	AECOM	**Service Request:**	K1804978
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Analyzed:**	06/29/18 15:05

Continuing Calibration Verification (CCV) Summary
Butyltins

Analysis Method:	ALS SOP	**Calibration Date:**	6/13/2018
File ID:	J:\GC26\DATA\062918\0629F017.D\	**Calibration ID:**	KC1800264
Signal ID:	RTX-1	**Analysis Lot:**	596871
		Units:	ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Tri-n-butyltin Cation	44.6	52.1	5.455E4	6.383E4	17.0	NA	±25	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Tri-n-propyltin	50.0	57.0	4.354E4	4.962E4	14.0	NA	±25	Average RF

Client:	AECOM	**Service Request:**	K1804978
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Analyzed:**	06/29/18 18:09

Continuing Calibration Verification (CCV) Summary
Butyltins

Analysis Method:	ALS SOP	**Calibration Date:**	6/13/2018
File ID:	J:\GC26\DATA\062918\0629F027.D\	**Calibration ID:**	KC1800264
Signal ID:	RTX-35	**Analysis Lot:**	596871
		Units:	ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Tri-n-butyltin Cation	44.6	44.0	1.163E5	1.148E5	-1.3	NA	±25	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Tri-n-propyltin	50.0	50.6	9.938E4	1.007E5	1.3	NA	±25	Average RF

Client:	AECOM	**Service Request:**	K1804978
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Analyzed:**	06/29/18 18:09

Continuing Calibration Verification (CCV) Summary
Butyltins

Analysis Method:	ALS SOP	**Calibration Date:**	6/13/2018
File ID:	J:\GC26\DATA\062918\0629F027.D\	**Calibration ID:**	KC1800264
Signal ID:	RTX-1	**Analysis Lot:**	596871
		Units:	ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Tri-n-butyltin Cation	44.6	52.9	5.455E4	6.479E4	18.8	NA	±25	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Tri-n-propyltin	50.0	60.7	4.354E4	5.289E4	21.5	NA	±25	Average RF

Client: AECOM **Service Request:**K1804978

Project: Portland Harbor Pre-Remedial Design Investigation/60566335

Analysis Run Log
Butyltins

Analysis Method:

Analysis Lot:595056

Instrument ID:K-GC-26

Raw Data File	Sample Name	Lab Code	Date Analyzed	Time Analyzed	Q
J:\GC26\DATA\061818\0618F003.D\	ZZZZZZZ	ZZZZZZZ	6/18/2018	09:34:00	
J:\GC26\DATA\061818\0618F003.D\	ZZZZZZZ	ZZZZZZZ	6/18/2018	09:34:00	
J:\GC26\DATA\061818\0618F004.D\	ZZZZZZZ	ZZZZZZZ	6/18/2018	09:53:00	
J:\GC26\DATA\061818\0618F004.D\	ZZZZZZZ	ZZZZZZZ	6/18/2018	09:53:00	
J:\GC26\DATA\061818\0618F005.D\	ZZZZZZZ	ZZZZZZZ	6/18/2018	10:12:00	
J:\GC26\DATA\061818\0618F006.D\	ZZZZZZZ	ZZZZZZZ	6/18/2018	10:31:00	
J:\GC26\DATA\061818\0618F007.D\	ZZZZZZZ	ZZZZZZZ	6/18/2018	10:49:00	
J:\GC26\DATA\061818\0618F008.D\	ZZZZZZZ	ZZZZZZZ	6/18/2018	11:08:00	
J:\GC26\DATA\061818\0618F009.D\	ZZZZZZZ	ZZZZZZZ	6/18/2018	11:26:00	
J:\GC26\DATA\061818\0618F010.D\	ZZZZZZZ	ZZZZZZZ	6/18/2018	11:45:00	
J:\GC26\DATA\061818\0618F011.D\	ZZZZZZZ	ZZZZZZZ	6/18/2018	12:03:00	
J:\GC26\DATA\061818\0618F012.D\	ZZZZZZZ	ZZZZZZZ	6/18/2018	12:22:00	
J:\GC26\DATA\061818\0618F013.D\	ZZZZZZZ	ZZZZZZZ	6/18/2018	12:40:00	
J:\GC26\DATA\061818\0618F014.D\	ZZZZZZZ	ZZZZZZZ	6/18/2018	12:59:00	
J:\GC26\DATA\061818\0618F015.D\	ZZZZZZZ	ZZZZZZZ	6/18/2018	13:17:00	
J:\GC26\DATA\061818\0618F016.D\	ZZZZZZZ	ZZZZZZZ	6/18/2018	13:36:00	
J:\GC26\DATA\061818\0618F017.D\	ZZZZZZZ	ZZZZZZZ	6/18/2018	13:55:00	
J:\GC26\DATA\061818\0618F018.D\	ZZZZZZZ	ZZZZZZZ	6/18/2018	14:13:00	
J:\GC26\DATA\061818\0618F020.D\	ZZZZZZZ	ZZZZZZZ	6/18/2018	14:50:00	
J:\GC26\DATA\061818\0618F021.D\	ZZZZZZZ	ZZZZZZZ	6/18/2018	15:08:00	
J:\GC26\DATA\061818\0618F021.D\	Continuing Calibration Verification	KQ1808417-02	6/18/2018	15:08:00	
J:\GC26\DATA\061818\0618F022.D\	ZZZZZZZ	ZZZZZZZ	6/18/2018	15:26:00	
J:\GC26\DATA\061818\0618F022.D\	ZZZZZZZ	ZZZZZZZ	6/18/2018	15:26:00	
J:\GC26\DATA\061818\0618F023.D\	ZZZZZZZ	ZZZZZZZ	6/18/2018	15:45:00	
J:\GC26\DATA\061818\0618F024.D\	PDI-RB-VV-180524	K1804978-015	6/18/2018	16:03:00	
J:\GC26\DATA\061818\0618F025.D\	Lab Control Sample	KQ1807199-01	6/18/2018	16:22:00	
J:\GC26\DATA\061818\0618F026.D\	Duplicate Lab Control Sample	KQ1807199-02	6/18/2018	16:40:00	
J:\GC26\DATA\061818\0618F027.D\	Method Blank	KQ1807199-03	6/18/2018	16:58:00	
J:\GC26\DATA\061818\0618F029.D\	ZZZZZZZ	ZZZZZZZ	6/18/2018	17:35:00	
J:\GC26\DATA\061818\0618F030.D\	ZZZZZZZ	ZZZZZZZ	6/18/2018	17:54:00	
J:\GC26\DATA\061818\0618F031.D\	ZZZZZZZ	ZZZZZZZ	6/18/2018	18:12:00	
J:\GC26\DATA\061818\0618F032.D\	ZZZZZZZ	ZZZZZZZ	6/18/2018	18:31:00	
J:\GC26\DATA\061818\0618F033.D\	ZZZZZZZ	ZZZZZZZ	6/18/2018	18:49:00	
J:\GC26\DATA\061818\0618F033.D\	Continuing Calibration Verification	KQ1808417-03	6/18/2018	18:49:00	
J:\GC26\DATA\061818\0618F034.D\	ZZZZZZZ	ZZZZZZZ	6/18/2018	19:08:00	
J:\GC26\DATA\061818\0618F034.D\	ZZZZZZZ	ZZZZZZZ	6/18/2018	19:08:00	

Client: AECOM **Service Request:**K1804978
Project: Portland Harbor Pre-Remedial Design Investigation/60566335

Analysis Run Log
Butyltins

Analysis Method: ALS SOP **Analysis Lot:**596871
Instrument ID:K-GC-26

Raw Data File	Sample Name	Lab Code	Date Analyzed	Time Analyzed	Q
J:\GC26\DATA\062918\0629F003.D\	Continuing Calibration Verification	KQ1808875-01	6/29/2018	10:46:00	
J:\GC26\DATA\062918\0629F004.D\	ZZZZZZZ	ZZZZZZZ	6/29/2018	11:05:00	
J:\GC26\DATA\062918\0629F005.D\	Lab Control Sample	KQ1807106-05	6/29/2018	11:23:00	
J:\GC26\DATA\062918\0629F006.D\	Method Blank	KQ1807106-06	6/29/2018	11:42:00	
J:\GC26\DATA\062918\0629F007.D\	PDI-SG-B330-BL1	K1804978-001	6/29/2018	12:00:00	
J:\GC26\DATA\062918\0629F008.D\	PDI-SG-B332-BL1	K1804978-002	6/29/2018	12:18:00	
J:\GC26\DATA\062918\0629F009.D\	PDI-SG-B337-BL1	K1804978-003	6/29/2018	12:37:00	
J:\GC26\DATA\062918\0629F010.D\	PDI-SG-B333-BL1	K1804978-004	6/29/2018	12:55:00	
J:\GC26\DATA\062918\0629F011.D\	PDI-SG-B333-BL1 MS	KQ1807106-01	6/29/2018	13:13:00	
J:\GC26\DATA\062918\0629F012.D\	PDI-SG-B333-BL1 DMS	KQ1807106-02	6/29/2018	13:32:00	
J:\GC26\DATA\062918\0629F013.D\	PDI-SG-B338-BL1	K1804978-005	6/29/2018	13:50:00	
J:\GC26\DATA\062918\0629F014.D\	PDI-SG-B399-BL1	K1804978-006	6/29/2018	14:09:00	
J:\GC26\DATA\062918\0629F015.D\	PDI-SG-B424-BL1	K1804978-007	6/29/2018	14:28:00	
J:\GC26\DATA\062918\0629F016.D\	PDI-SG-B424-BL1 MS	KQ1807106-03	6/29/2018	14:46:00	
J:\GC26\DATA\062918\0629F017.D\	Continuing Calibration Verification	KQ1808875-02	6/29/2018	15:05:00	
J:\GC26\DATA\062918\0629F018.D\	ZZZZZZZ	ZZZZZZZ	6/29/2018	15:23:00	
J:\GC26\DATA\062918\0629F019.D\	PDI-SG-B424-BL1 DMS	KQ1807106-04	6/29/2018	15:41:00	
J:\GC26\DATA\062918\0629F020.D\	PDI-SG-B410-BL1	K1804978-008	6/29/2018	16:00:00	
J:\GC26\DATA\062918\0629F021.D\	PDI-SG-B335-BL1	K1804978-009	6/29/2018	16:18:00	
J:\GC26\DATA\062918\0629F022.D\	PDI-SG-B326-BL1	K1804978-010	6/29/2018	16:37:00	
J:\GC26\DATA\062918\0629F023.D\	PDI-SG-B324-BL1	K1804978-011	6/29/2018	16:55:00	
J:\GC26\DATA\062918\0629F024.D\	PDI-SG-B319-BL1	K1804978-012	6/29/2018	17:14:00	
J:\GC26\DATA\062918\0629F025.D\	PDI-SG-B318-BL1	K1804978-013	6/29/2018	17:32:00	
J:\GC26\DATA\062918\0629F026.D\	PDI-SG-B253-BL1	K1804978-014	6/29/2018	17:51:00	
J:\GC26\DATA\062918\0629F027.D\	Continuing Calibration Verification	KQ1808875-03	6/29/2018	18:09:00	
J:\GC26\DATA\062918\0629F028.D\	ZZZZZZZ	ZZZZZZZ	6/29/2018	18:28:00	

Prep Summary Report

Client: AECOM **Service Request:** K1804978
Project: Portland Harbor Pre-Remedial Design Investigation/60566335
Sample Matrix: Sediment

Butyltins

Prep Method: Method **Extraction Lot:** 314808
Analytical Method: ALS SOP **Extraction Date:** 06/05/18 16:18

Sample Name	Lab Code	Date Collected	Date Received	Sample Amount	Final Amount	Percent Solids
PDI-SG-B330-BL1	K1804978-001	5/24/18	5/25/18	20.003 g	4 mL	45.3
PDI-SG-B332-BL1	K1804978-002	5/24/18	5/25/18	20.065 g	4 mL	55.6
PDI-SG-B337-BL1	K1804978-003	5/24/18	5/25/18	20.300 g	4 mL	58.9
PDI-SG-B333-BL1	K1804978-004	5/24/18	5/25/18	20.456 g	4 mL	44.6
PDI-SG-B338-BL1	K1804978-005	5/24/18	5/25/18	20.035 g	4 mL	51.9
PDI-SG-B399-BL1	K1804978-006	5/24/18	5/25/18	20.326 g	4 mL	73.3
PDI-SG-B424-BL1	K1804978-007	5/24/18	5/25/18	20.302 g	4 mL	76.3
PDI-SG-B410-BL1	K1804978-008	5/23/18	5/25/18	20.182 g	4 mL	59.1
PDI-SG-B335-BL1	K1804978-009	5/23/18	5/25/18	20.305 g	4 mL	65.3
PDI-SG-B326-BL1	K1804978-010	5/23/18	5/25/18	20.261 g	4 mL	64.4
PDI-SG-B324-BL1	K1804978-011	5/23/18	5/25/18	20.184 g	4 mL	56.9
PDI-SG-B319-BL1	K1804978-012	5/23/18	5/25/18	20.162 g	4 mL	71.3
PDI-SG-B318-BL1	K1804978-013	5/23/18	5/25/18	20.103 g	4 mL	53.2
PDI-SG-B253-BL1	K1804978-014	5/23/18	5/25/18	20.042 g	4 mL	70.3
Matrix Spike	KQ1807106-01MS	5/24/18	5/25/18	20.045 g	4 mL	44.6
Duplicate Matrix Spike	KQ1807106-02DMS	5/24/18	5/25/18	20.257 g	4 mL	44.6
Matrix Spike	KQ1807106-03MS	5/24/18	5/25/18	20.345 g	4 mL	76.3
Duplicate Matrix Spike	KQ1807106-04DMS	5/24/18	5/25/18	20.184 g	4 mL	76.3
Lab Control Sample	KQ1807106-05LCS	NA	NA	20.00 g	4 mL	
Method Blank	KQ1807106-06MB	NA	NA	20.4560 g	4 mL	

Prep Summary Report

Client: AECOM **Service Request:** K1804978
Project: Portland Harbor Pre-Remedial Design Investigation/60566335
Sample Matrix: Water

Butyltins

Prep Method: EPA 3520C **Extraction Lot:** 314934
Analytical Method: ALS SOP **Extraction Date:** 05/30/18 17:22

Sample Name	Lab Code	Date Collected	Date Received	Sample Amount	Final Amount	Percent Solids
PDI-RB-VV-180524	K1804978-015	5/24/18	5/25/18	500 mL	1 mL	
Lab Control Sample	KQ1807199-01LCS	NA	NA	500 mL	1 mL	
Duplicate Lab Control Sample	KQ1807199-02DLCS	NA	NA	500 mL	1 mL	
Method Blank	KQ1807199-03MB	NA	NA	500 mL	1 mL	

Polynuclear Aromatic Hydrocarbons

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

Client: AECOM **Service Request:** K1804978
Project: Portland Harbor Pre-Remedial Design Investigation/60566335

Cover Page - Organic Analysis Data Package
Polynuclear Aromatic Hydrocarbons

Sample Name	Lab Code	Date Collected	Date Received
PDI-SG-B330-BL1	K1804978-001	05/24/2018	05/25/2018
PDI-SG-B332-BL1	K1804978-002	05/24/2018	05/25/2018
PDI-SG-B337-BL1	K1804978-003	05/24/2018	05/25/2018
PDI-SG-B333-BL1	K1804978-004	05/24/2018	05/25/2018
PDI-SG-B338-BL1	K1804978-005	05/24/2018	05/25/2018
PDI-SG-B399-BL1	K1804978-006	05/24/2018	05/25/2018
PDI-SG-B424-BL1	K1804978-007	05/24/2018	05/25/2018
PDI-SG-B410-BL1	K1804978-008	05/23/2018	05/25/2018
PDI-SG-B335-BL1	K1804978-009	05/23/2018	05/25/2018
PDI-SG-B326-BL1	K1804978-010	05/23/2018	05/25/2018
PDI-SG-B324-BL1	K1804978-011	05/23/2018	05/25/2018
PDI-SG-B319-BL1	K1804978-012	05/23/2018	05/25/2018
PDI-SG-B318-BL1	K1804978-013	05/23/2018	05/25/2018
PDI-SG-B253-BL1	K1804978-014	05/23/2018	05/25/2018
PDI-SG-B333-BL1MS	KWG1802756-1	05/24/2018	05/25/2018
PDI-SG-B333-BL1DMS	KWG1802756-2	05/24/2018	05/25/2018
PDI-SG-B424-BL1MS	KWG1802756-3	05/24/2018	05/25/2018
PDI-SG-B424-BL1DMS	KWG1802756-4	05/24/2018	05/25/2018

Analytical Results

Client:	AECOM	**Service Request:**	K1804978
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Collected:**	05/24/2018
Sample Matrix:	Sediment	**Date Received:**	05/25/2018

Polynuclear Aromatic Hydrocarbons

Sample Name:	PDI-SG-B330-BL1	**Units:**	ug/Kg
Lab Code:	K1804978-001	**Basis:**	Dry
Extraction Method:	EPA 3541	**Level:**	Low
Analysis Method:	8270D SIM		

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Naphthalene	**3.5**		1.1	0.17	1	05/31/18	06/26/18	KWG1802756	
2-Methylnaphthalene	**1.5**		1.1	0.14	1	05/31/18	06/26/18	KWG1802756	
Acenaphthylene	**3.5**		0.55	0.051	1	05/31/18	06/26/18	KWG1802756	
Acenaphthene	**2.2**		0.55	0.052	1	05/31/18	06/26/18	KWG1802756	
Fluorene	**2.9**		0.55	0.057	1	05/31/18	06/26/18	KWG1802756	
Phenanthrene	**23**		0.55	0.073	1	05/31/18	06/26/18	KWG1802756	
Anthracene	**8.2**		0.55	0.042	1	05/31/18	06/26/18	KWG1802756	
Fluoranthene	**49**		0.55	0.054	1	05/31/18	06/26/18	KWG1802756	
Pyrene	**52**		0.55	0.055	1	05/31/18	06/26/18	KWG1802756	
Benz(a)anthracene	**25**		0.55	0.042	1	05/31/18	06/26/18	KWG1802756	
Chrysene	**27**		0.55	0.061	1	05/31/18	06/26/18	KWG1802756	
Benzo(b)fluoranthene†	**26**		0.55	0.073	1	05/31/18	06/26/18	KWG1802756	
Benzo(k)fluoranthene	**11**		0.55	0.063	1	05/31/18	06/26/18	KWG1802756	
Benzo(a)pyrene	**25**		0.55	0.080	1	05/31/18	06/26/18	KWG1802756	
Indeno(1,2,3-cd)pyrene	**16**		0.55	0.11	1	05/31/18	06/26/18	KWG1802756	
Dibenz(a,h)anthracene	**3.5**		0.55	0.094	1	05/31/18	06/26/18	KWG1802756	
Benzo(g,h,i)perylene	**16**		0.55	0.11	1	05/31/18	06/26/18	KWG1802756	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Fluorene-d10	66	42-106	06/26/18	Acceptable
Fluoranthene-d10	80	45-109	06/26/18	Acceptable
Terphenyl-d14	91	41-102	06/26/18	Acceptable

† Analyte Comments

Benzo(b)fluoranthene	This analyte cannot be separated from Benzo(j)fluoranthene.

Comments:

Analytical Results

Client:	AECOM	**Service Request:**	K1804978
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Collected:**	05/24/2018
Sample Matrix:	Sediment	**Date Received:**	05/25/2018

Polynuclear Aromatic Hydrocarbons

Sample Name:	PDI-SG-B332-BL1	**Units:**	ug/Kg
Lab Code:	K1804978-002	**Basis:**	Dry
Extraction Method:	EPA 3541	**Level:**	Low
Analysis Method:	8270D SIM		

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Naphthalene	**8.7**		0.90	0.15	1	05/31/18	06/26/18	KWG1802756	
2-Methylnaphthalene	**5.2**		0.90	0.12	1	05/31/18	06/26/18	KWG1802756	
Acenaphthylene	**3.1**		0.45	0.046	1	05/31/18	06/26/18	KWG1802756	
Acenaphthene	**7.6**		0.45	0.047	1	05/31/18	06/26/18	KWG1802756	
Fluorene	**8.8**		0.45	0.052	1	05/31/18	06/26/18	KWG1802756	
Phenanthrene	**150**		0.45	0.066	1	05/31/18	06/26/18	KWG1802756	
Anthracene	**8.6**		0.45	0.038	1	05/31/18	06/26/18	KWG1802756	
Fluoranthene	**200**	D	0.90	0.098	2	05/31/18	06/27/18	KWG1802756	
Pyrene	**150**		0.45	0.050	1	05/31/18	06/26/18	KWG1802756	
Benz(a)anthracene	**28**		0.45	0.038	1	05/31/18	06/26/18	KWG1802756	
Chrysene	**78**		0.45	0.055	1	05/31/18	06/26/18	KWG1802756	
Benzo(b)fluoranthene†	**76**		0.45	0.066	1	05/31/18	06/26/18	KWG1802756	
Benzo(k)fluoranthene	**29**		0.45	0.057	1	05/31/18	06/26/18	KWG1802756	
Benzo(a)pyrene	**43**		0.45	0.073	1	05/31/18	06/26/18	KWG1802756	
Indeno(1,2,3-cd)pyrene	**37**		0.45	0.096	1	05/31/18	06/26/18	KWG1802756	
Dibenz(a,h)anthracene	**6.9**		0.45	0.086	1	05/31/18	06/26/18	KWG1802756	
Benzo(g,h,i)perylene	**32**		0.45	0.095	1	05/31/18	06/26/18	KWG1802756	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Fluorene-d10	65	42-106	06/26/18	Acceptable
Fluoranthene-d10	87	45-109	06/26/18	Acceptable
Terphenyl-d14	91	41-102	06/26/18	Acceptable

† Analyte Comments

Benzo(b)fluoranthene	This analyte cannot be separated from Benzo(j)fluoranthene.

Comments:

Analytical Results

Client:	AECOM	**Service Request:**	K1804978
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Collected:**	05/24/2018
Sample Matrix:	Sediment	**Date Received:**	05/25/2018

Polynuclear Aromatic Hydrocarbons

Sample Name:	PDI-SG-B337-BL1	**Units:**	ug/Kg
Lab Code:	K1804978-003	**Basis:**	Dry
Extraction Method:	EPA 3541	**Level:**	Low
Analysis Method:	8270D SIM		

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Naphthalene	**2.7**		0.85	0.15	1	05/31/18	06/26/18	KWG1802756	
2-Methylnaphthalene	**1.2**		0.85	0.12	1	05/31/18	06/26/18	KWG1802756	
Acenaphthylene	**6.1**		0.43	0.046	1	05/31/18	06/26/18	KWG1802756	
Acenaphthene	**1.8**		0.43	0.047	1	05/31/18	06/26/18	KWG1802756	
Fluorene	**2.6**		0.43	0.052	1	05/31/18	06/26/18	KWG1802756	
Phenanthrene	**32**		0.43	0.066	1	05/31/18	06/26/18	KWG1802756	
Anthracene	**5.6**		0.43	0.038	1	05/31/18	06/26/18	KWG1802756	
Fluoranthene	**83**		0.43	0.049	1	05/31/18	06/26/18	KWG1802756	
Pyrene	**120**		0.43	0.050	1	05/31/18	06/26/18	KWG1802756	
Benz(a)anthracene	**34**		0.43	0.038	1	05/31/18	06/26/18	KWG1802756	
Chrysene	**53**		0.43	0.055	1	05/31/18	06/26/18	KWG1802756	
Benzo(b)fluoranthene†	**54**		0.43	0.066	1	05/31/18	06/26/18	KWG1802756	
Benzo(k)fluoranthene	**19**		0.43	0.057	1	05/31/18	06/26/18	KWG1802756	
Benzo(a)pyrene	**54**		0.43	0.073	1	05/31/18	06/26/18	KWG1802756	
Indeno(1,2,3-cd)pyrene	**44**		0.43	0.096	1	05/31/18	06/26/18	KWG1802756	
Dibenz(a,h)anthracene	**6.1**		0.43	0.086	1	05/31/18	06/26/18	KWG1802756	
Benzo(g,h,i)perylene	**48**		0.43	0.095	1	05/31/18	06/26/18	KWG1802756	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Fluorene-d10	63	42-106	06/26/18	Acceptable
Fluoranthene-d10	74	45-109	06/26/18	Acceptable
Terphenyl-d14	86	41-102	06/26/18	Acceptable

† Analyte Comments

Benzo(b)fluoranthene	This analyte cannot be separated from Benzo(j)fluoranthene.

Comments:

Analytical Results

Client:	AECOM	**Service Request:**	K1804978
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Collected:**	05/24/2018
Sample Matrix:	Sediment	**Date Received:**	05/25/2018

Polynuclear Aromatic Hydrocarbons

Sample Name:	PDI-SG-B333-BL1	**Units:**	ug/Kg
Lab Code:	K1804978-004	**Basis:**	Dry
Extraction Method:	EPA 3541	**Level:**	Low
Analysis Method:	8270D SIM		

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Naphthalene	**8.9**		1.2	0.17	1	05/31/18	06/26/18	KWG1802756	
2-Methylnaphthalene	**6.2**		1.2	0.14	1	05/31/18	06/26/18	KWG1802756	
Acenaphthylene	**3.3**		0.56	0.052	1	05/31/18	06/26/18	KWG1802756	
Acenaphthene	**6.8**		0.56	0.053	1	05/31/18	06/26/18	KWG1802756	
Fluorene	**13**		0.56	0.059	1	05/31/18	06/26/18	KWG1802756	
Phenanthrene	**55**		0.56	0.074	1	05/31/18	06/26/18	KWG1802756	
Anthracene	**11**		0.56	0.043	1	05/31/18	06/26/18	KWG1802756	
Fluoranthene	**83**		0.56	0.055	1	05/31/18	06/26/18	KWG1802756	
Pyrene	**80**		0.56	0.056	1	05/31/18	06/26/18	KWG1802756	
Benz(a)anthracene	**25**		0.56	0.043	1	05/31/18	06/26/18	KWG1802756	
Chrysene	**37**		0.56	0.062	1	05/31/18	06/26/18	KWG1802756	
Benzo(b)fluoranthene†	**35**		0.56	0.074	1	05/31/18	06/26/18	KWG1802756	
Benzo(k)fluoranthene	**12**		0.56	0.064	1	05/31/18	06/26/18	KWG1802756	
Benzo(a)pyrene	**26**		0.56	0.082	1	05/31/18	06/26/18	KWG1802756	
Indeno(1,2,3-cd)pyrene	**18**		0.56	0.11	1	05/31/18	06/26/18	KWG1802756	
Dibenz(a,h)anthracene	**4.0**		0.56	0.097	1	05/31/18	06/26/18	KWG1802756	
Benzo(g,h,i)perylene	**20**		0.56	0.11	1	05/31/18	06/26/18	KWG1802756	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Fluorene-d10	68	42-106	06/26/18	Acceptable
Fluoranthene-d10	81	45-109	06/26/18	Acceptable
Terphenyl-d14	89	41-102	06/26/18	Acceptable

† Analyte Comments

Benzo(b)fluoranthene	This analyte cannot be separated from Benzo(j)fluoranthene.

Comments:

Analytical Results

Client:	AECOM	**Service Request:**	K1804978
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Collected:**	05/24/2018
Sample Matrix:	Sediment	**Date Received:**	05/25/2018

Polynuclear Aromatic Hydrocarbons

Sample Name:	PDI-SG-B338-BL1	**Units:**	ug/Kg
Lab Code:	K1804978-005	**Basis:**	Dry
Extraction Method:	EPA 3541	**Level:**	Low
Analysis Method:	8270D SIM		

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Naphthalene	**2.8**		0.96	0.15	1	05/31/18	06/26/18	KWG1802756	
2-Methylnaphthalene	**1.5**		0.96	0.12	1	05/31/18	06/26/18	KWG1802756	
Acenaphthylene	**5.0**		0.48	0.046	1	05/31/18	06/26/18	KWG1802756	
Acenaphthene	**1.8**		0.48	0.047	1	05/31/18	06/26/18	KWG1802756	
Fluorene	**2.6**		0.48	0.052	1	05/31/18	06/26/18	KWG1802756	
Phenanthrene	**29**		0.48	0.066	1	05/31/18	06/26/18	KWG1802756	
Anthracene	**5.5**		0.48	0.038	1	05/31/18	06/26/18	KWG1802756	
Fluoranthene	**76**		0.48	0.049	1	05/31/18	06/26/18	KWG1802756	
Pyrene	**100**		0.48	0.050	1	05/31/18	06/26/18	KWG1802756	
Benz(a)anthracene	**31**		0.48	0.038	1	05/31/18	06/26/18	KWG1802756	
Chrysene	**51**		0.48	0.055	1	05/31/18	06/26/18	KWG1802756	
Benzo(b)fluoranthene†	**50**		0.48	0.066	1	05/31/18	06/26/18	KWG1802756	
Benzo(k)fluoranthene	**17**		0.48	0.057	1	05/31/18	06/26/18	KWG1802756	
Benzo(a)pyrene	**46**		0.48	0.073	1	05/31/18	06/26/18	KWG1802756	
Indeno(1,2,3-cd)pyrene	**39**		0.48	0.096	1	05/31/18	06/26/18	KWG1802756	
Dibenz(a,h)anthracene	**5.7**		0.48	0.086	1	05/31/18	06/26/18	KWG1802756	
Benzo(g,h,i)perylene	**42**		0.48	0.095	1	05/31/18	06/26/18	KWG1802756	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Fluorene-d10	61	42-106	06/26/18	Acceptable
Fluoranthene-d10	74	45-109	06/26/18	Acceptable
Terphenyl-d14	82	41-102	06/26/18	Acceptable

† Analyte Comments

Benzo(b)fluoranthene	This analyte cannot be separated from Benzo(j)fluoranthene.

Comments:

Analytical Results

Client:	AECOM	**Service Request:**	K1804978
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Collected:**	05/24/2018
Sample Matrix:	Sediment	**Date Received:**	05/25/2018

Polynuclear Aromatic Hydrocarbons

Sample Name:	PDI-SG-B399-BL1	**Units:**	ug/Kg
Lab Code:	K1804978-006	**Basis:**	Dry
Extraction Method:	EPA 3541	**Level:**	Low
Analysis Method:	8270D SIM		

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Naphthalene	**0.70**		0.68	0.15	1	05/31/18	06/29/18	KWG1802756	
2-Methylnaphthalene	**0.44**	J	0.68	0.12	1	05/31/18	06/29/18	KWG1802756	
Acenaphthylene	**0.38**		0.34	0.046	1	05/31/18	06/29/18	KWG1802756	
Acenaphthene	**0.21**	J	0.34	0.047	1	05/31/18	06/29/18	KWG1802756	
Fluorene	**0.37**		0.34	0.052	1	05/31/18	06/29/18	KWG1802756	
Phenanthrene	**4.6**		0.34	0.066	1	05/31/18	06/29/18	KWG1802756	
Anthracene	**0.86**		0.34	0.038	1	05/31/18	06/29/18	KWG1802756	
Fluoranthene	**11**		0.34	0.049	1	05/31/18	06/29/18	KWG1802756	
Pyrene	**8.3**		0.34	0.050	1	05/31/18	06/29/18	KWG1802756	
Benz(a)anthracene	**2.8**		0.34	0.038	1	05/31/18	06/29/18	KWG1802756	
Chrysene	**5.4**		0.34	0.055	1	05/31/18	06/29/18	KWG1802756	
Benzo(b)fluoranthene†	**4.6**		0.34	0.066	1	05/31/18	06/29/18	KWG1802756	
Benzo(k)fluoranthene	**1.8**		0.34	0.057	1	05/31/18	06/29/18	KWG1802756	
Benzo(a)pyrene	**2.8**		0.34	0.073	1	05/31/18	06/29/18	KWG1802756	
Indeno(1,2,3-cd)pyrene	**2.8**		0.34	0.096	1	05/31/18	06/29/18	KWG1802756	
Dibenz(a,h)anthracene	**0.77**		0.34	0.086	1	05/31/18	06/29/18	KWG1802756	
Benzo(g,h,i)perylene	**3.9**		0.34	0.095	1	05/31/18	06/29/18	KWG1802756	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Fluorene-d10	57	42-106	06/29/18	Acceptable
Fluoranthene-d10	75	45-109	06/29/18	Acceptable
Terphenyl-d14	84	41-102	06/29/18	Acceptable

† Analyte Comments

Benzo(b)fluoranthene	This analyte cannot be separated from Benzo(j)fluoranthene.

Comments:

Analytical Results

Client:	AECOM	**Service Request:**	K1804978
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Collected:**	05/24/2018
Sample Matrix:	Sediment	**Date Received:**	05/25/2018

Polynuclear Aromatic Hydrocarbons

Sample Name:	PDI-SG-B424-BL1	**Units:**	ug/Kg
Lab Code:	K1804978-007	**Basis:**	Dry
Extraction Method:	EPA 3541	**Level:**	Low
Analysis Method:	8270D SIM		

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Naphthalene	**8.8**		0.65	0.15	1	05/31/18	06/27/18	KWG1802756	
2-Methylnaphthalene	**2.0**		0.65	0.12	1	05/31/18	06/27/18	KWG1802756	
Acenaphthylene	**3.8**		0.33	0.046	1	05/31/18	06/27/18	KWG1802756	
Acenaphthene	**17**		0.33	0.047	1	05/31/18	06/27/18	KWG1802756	
Fluorene	**4.4**		0.33	0.052	1	05/31/18	06/27/18	KWG1802756	
Phenanthrene	**46**		0.33	0.066	1	05/31/18	06/27/18	KWG1802756	
Anthracene	**11**		0.33	0.038	1	05/31/18	06/27/18	KWG1802756	
Fluoranthene	**53**		0.33	0.049	1	05/31/18	06/27/18	KWG1802756	
Pyrene	**79**		0.33	0.050	1	05/31/18	06/27/18	KWG1802756	
Benz(a)anthracene	**30**		0.33	0.038	1	05/31/18	06/27/18	KWG1802756	
Chrysene	**34**		0.33	0.055	1	05/31/18	06/27/18	KWG1802756	
Benzo(b)fluoranthene†	**28**		0.33	0.066	1	05/31/18	06/27/18	KWG1802756	
Benzo(k)fluoranthene	**10**		0.33	0.057	1	05/31/18	06/27/18	KWG1802756	
Benzo(a)pyrene	**35**		0.33	0.073	1	05/31/18	06/27/18	KWG1802756	
Indeno(1,2,3-cd)pyrene	**21**		0.33	0.096	1	05/31/18	06/27/18	KWG1802756	
Dibenz(a,h)anthracene	**3.7**		0.33	0.086	1	05/31/18	06/27/18	KWG1802756	
Benzo(g,h,i)perylene	**20**		0.33	0.095	1	05/31/18	06/27/18	KWG1802756	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Fluorene-d10	60	42-106	06/27/18	Acceptable
Fluoranthene-d10	78	45-109	06/27/18	Acceptable
Terphenyl-d14	91	41-102	06/27/18	Acceptable

† Analyte Comments

Benzo(b)fluoranthene	This analyte cannot be separated from Benzo(j)fluoranthene.

Comments:

Analytical Results

Client:	AECOM	**Service Request:**	K1804978
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Collected:**	05/23/2018
Sample Matrix:	Sediment	**Date Received:**	05/25/2018

Polynuclear Aromatic Hydrocarbons

Sample Name:	PDI-SG-B410-BL1	**Units:**	ug/Kg
Lab Code:	K1804978-008	**Basis:**	Dry
Extraction Method:	EPA 3541	**Level:**	Low
Analysis Method:	8270D SIM		

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Naphthalene	**3.7**	D	1.7	0.30	2	05/31/18	06/27/18	KWG1802756	
2-Methylnaphthalene	**1.8**	D	1.7	0.24	2	05/31/18	06/27/18	KWG1802756	
Acenaphthylene	**2.0**	D	0.85	0.092	2	05/31/18	06/27/18	KWG1802756	
Acenaphthene	**1.5**	D	0.85	0.094	2	05/31/18	06/27/18	KWG1802756	
Fluorene	**3.0**	D	0.85	0.11	2	05/31/18	06/27/18	KWG1802756	
Phenanthrene	**35**	D	0.85	0.14	2	05/31/18	06/27/18	KWG1802756	
Anthracene	**4.2**	D	0.85	0.076	2	05/31/18	06/27/18	KWG1802756	
Fluoranthene	**59**	D	0.85	0.098	2	05/31/18	06/27/18	KWG1802756	
Pyrene	**64**	D	0.85	0.10	2	05/31/18	06/27/18	KWG1802756	
Benz(a)anthracene	**17**	D	0.85	0.076	2	05/31/18	06/27/18	KWG1802756	
Chrysene	**33**	D	0.85	0.11	2	05/31/18	06/27/18	KWG1802756	
Benzo(b)fluoranthene†	**30**	D	0.85	0.14	2	05/31/18	06/27/18	KWG1802756	
Benzo(k)fluoranthene	**11**	D	0.85	0.12	2	05/31/18	06/27/18	KWG1802756	
Benzo(a)pyrene	**21**	D	0.85	0.15	2	05/31/18	06/27/18	KWG1802756	
Indeno(1,2,3-cd)pyrene	**17**	D	0.85	0.20	2	05/31/18	06/27/18	KWG1802756	
Dibenz(a,h)anthracene	**3.5**	D	0.85	0.18	2	05/31/18	06/27/18	KWG1802756	
Benzo(g,h,i)perylene	**17**	D	0.85	0.19	2	05/31/18	06/27/18	KWG1802756	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Fluorene-d10	65	42-106	06/27/18	Acceptable
Fluoranthene-d10	82	45-109	06/27/18	Acceptable
Terphenyl-d14	86	41-102	06/27/18	Acceptable

† Analyte Comments

Benzo(b)fluoranthene	This analyte cannot be separated from Benzo(j)fluoranthene.

Comments:

Analytical Results

Client:	AECOM	**Service Request:**	K1804978
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Collected:**	05/23/2018
Sample Matrix:	Sediment	**Date Received:**	05/25/2018

Polynuclear Aromatic Hydrocarbons

Sample Name:	PDI-SG-B335-BL1	**Units:**	ug/Kg
Lab Code:	K1804978-009	**Basis:**	Dry
Extraction Method:	EPA 3541	**Level:**	Low
Analysis Method:	8270D SIM		

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Naphthalene	**1.3**	JD	1.6	0.30	2	05/31/18	06/27/18	KWG1802756	
2-Methylnaphthalene	**1.0**	JD	1.6	0.24	2	05/31/18	06/27/18	KWG1802756	
Acenaphthylene	**10**	D	0.77	0.092	2	05/31/18	06/27/18	KWG1802756	
Acenaphthene	**9.5**	D	0.77	0.094	2	05/31/18	06/27/18	KWG1802756	
Fluorene	**5.2**	D	0.77	0.11	2	05/31/18	06/27/18	KWG1802756	
Phenanthrene	**11**	D	0.77	0.14	2	05/31/18	06/27/18	KWG1802756	
Anthracene	**25**	D	0.77	0.076	2	05/31/18	06/27/18	KWG1802756	
Fluoranthene	**45**	D	0.77	0.098	2	05/31/18	06/27/18	KWG1802756	
Pyrene	**89**	D	0.77	0.10	2	05/31/18	06/27/18	KWG1802756	
Benz(a)anthracene	**50**	D	0.77	0.076	2	05/31/18	06/27/18	KWG1802756	
Chrysene	**140**	D	0.77	0.11	2	05/31/18	06/27/18	KWG1802756	
Benzo(b)fluoranthene†	**450**	D	2.0	0.33	5	05/31/18	06/29/18	KWG1802756	
Benzo(k)fluoranthene	**100**	D	0.77	0.12	2	05/31/18	06/27/18	KWG1802756	
Benzo(a)pyrene	**290**	D	0.77	0.15	2	05/31/18	06/27/18	KWG1802756	
Indeno(1,2,3-cd)pyrene	**180**	D	0.77	0.20	2	05/31/18	06/27/18	KWG1802756	
Dibenz(a,h)anthracene	**54**	D	0.77	0.18	2	05/31/18	06/27/18	KWG1802756	
Benzo(g,h,i)perylene	**140**	D	0.77	0.19	2	05/31/18	06/27/18	KWG1802756	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Fluorene-d10	71	42-106	06/27/18	Acceptable
Fluoranthene-d10	85	45-109	06/27/18	Acceptable
Terphenyl-d14	94	41-102	06/27/18	Acceptable

† Analyte Comments

Benzo(b)fluoranthene	This analyte cannot be separated from Benzo(j)fluoranthene.

Comments:

Analytical Results

Client:	AECOM	**Service Request:**	K1804978
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Collected:**	05/23/2018
Sample Matrix:	Sediment	**Date Received:**	05/25/2018

Polynuclear Aromatic Hydrocarbons

Sample Name:	PDI-SG-B326-BL1	**Units:**	ug/Kg
Lab Code:	K1804978-010	**Basis:**	Dry
Extraction Method:	EPA 3541	**Level:**	Low
Analysis Method:	8270D SIM		

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Naphthalene	**6.3**		0.78	0.15	1	05/31/18	06/26/18	KWG1802756	
2-Methylnaphthalene	**2.4**		0.78	0.12	1	05/31/18	06/26/18	KWG1802756	
Acenaphthylene	**1.4**		0.39	0.046	1	05/31/18	06/26/18	KWG1802756	
Acenaphthene	**2.9**		0.39	0.047	1	05/31/18	06/26/18	KWG1802756	
Fluorene	**2.0**		0.39	0.052	1	05/31/18	06/26/18	KWG1802756	
Phenanthrene	**10**		0.39	0.066	1	05/31/18	06/26/18	KWG1802756	
Anthracene	**6.6**		0.39	0.038	1	05/31/18	06/26/18	KWG1802756	
Fluoranthene	**17**		0.39	0.049	1	05/31/18	06/26/18	KWG1802756	
Pyrene	**20**		0.39	0.050	1	05/31/18	06/26/18	KWG1802756	
Benz(a)anthracene	**16**		0.39	0.038	1	05/31/18	06/26/18	KWG1802756	
Chrysene	**34**		0.39	0.055	1	05/31/18	06/26/18	KWG1802756	
Benzo(b)fluoranthene†	**29**		0.39	0.066	1	05/31/18	06/26/18	KWG1802756	
Benzo(k)fluoranthene	**11**		0.39	0.057	1	05/31/18	06/26/18	KWG1802756	
Benzo(a)pyrene	**16**		0.39	0.073	1	05/31/18	06/26/18	KWG1802756	
Indeno(1,2,3-cd)pyrene	**11**		0.39	0.096	1	05/31/18	06/26/18	KWG1802756	
Dibenz(a,h)anthracene	**2.5**		0.39	0.086	1	05/31/18	06/26/18	KWG1802756	
Benzo(g,h,i)perylene	**10**		0.39	0.095	1	05/31/18	06/26/18	KWG1802756	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Fluorene-d10	62	42-106	06/26/18	Acceptable
Fluoranthene-d10	79	45-109	06/26/18	Acceptable
Terphenyl-d14	88	41-102	06/26/18	Acceptable

† Analyte Comments

Benzo(b)fluoranthene	This analyte cannot be separated from Benzo(j)fluoranthene.

Comments:

Analytical Results

Client:	AECOM	**Service Request:**	K1804978
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Collected:**	05/23/2018
Sample Matrix:	Sediment	**Date Received:**	05/25/2018

Polynuclear Aromatic Hydrocarbons

Sample Name:	PDI-SG-B324-BL1	**Units:**	ug/Kg
Lab Code:	K1804978-011	**Basis:**	Dry
Extraction Method:	EPA 3541	**Level:**	Low
Analysis Method:	8270D SIM		

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Naphthalene	**12**	D	1.8	0.30	2	05/31/18	06/27/18	KWG1802756	
2-Methylnaphthalene	**4.4**	D	1.8	0.24	2	05/31/18	06/27/18	KWG1802756	
Acenaphthylene	**7.2**	D	0.88	0.092	2	05/31/18	06/27/18	KWG1802756	
Acenaphthene	**12**	D	0.88	0.094	2	05/31/18	06/27/18	KWG1802756	
Fluorene	**7.2**	D	0.88	0.11	2	05/31/18	06/27/18	KWG1802756	
Phenanthrene	**56**	D	0.88	0.14	2	05/31/18	06/27/18	KWG1802756	
Anthracene	**14**	D	0.88	0.076	2	05/31/18	06/27/18	KWG1802756	
Fluoranthene	**330**	D	0.88	0.098	2	05/31/18	06/27/18	KWG1802756	
Pyrene	**290**	D	0.88	0.10	2	05/31/18	06/27/18	KWG1802756	
Benz(a)anthracene	**100**	D	0.88	0.076	2	05/31/18	06/27/18	KWG1802756	
Chrysene	**220**	D	0.88	0.11	2	05/31/18	06/27/18	KWG1802756	
Benzo(b)fluoranthene†	**210**	D	0.88	0.14	2	05/31/18	06/27/18	KWG1802756	
Benzo(k)fluoranthene	**71**	D	0.88	0.12	2	05/31/18	06/27/18	KWG1802756	
Benzo(a)pyrene	**110**	D	0.88	0.15	2	05/31/18	06/27/18	KWG1802756	
Indeno(1,2,3-cd)pyrene	**71**	D	0.88	0.20	2	05/31/18	06/27/18	KWG1802756	
Dibenz(a,h)anthracene	**18**	D	0.88	0.18	2	05/31/18	06/27/18	KWG1802756	
Benzo(g,h,i)perylene	**64**	D	0.88	0.19	2	05/31/18	06/27/18	KWG1802756	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Fluorene-d10	61	42-106	06/27/18	Acceptable
Fluoranthene-d10	78	45-109	06/27/18	Acceptable
Terphenyl-d14	84	41-102	06/27/18	Acceptable

† Analyte Comments

Benzo(b)fluoranthene	This analyte cannot be separated from Benzo(j)fluoranthene.

Comments:

Analytical Results

Client:	AECOM	**Service Request:**	K1804978
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Collected:**	05/23/2018
Sample Matrix:	Sediment	**Date Received:**	05/25/2018

Polynuclear Aromatic Hydrocarbons

Sample Name:	PDI-SG-B319-BL1	**Units:**	ug/Kg
Lab Code:	K1804978-012	**Basis:**	Dry
Extraction Method:	EPA 3541	**Level:**	Low
Analysis Method:	8270D SIM		

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Naphthalene	**1.8**	D	1.4	0.30	2	05/31/18	06/29/18	KWG1802756	
2-Methylnaphthalene	**1.1**	JD	1.4	0.24	2	05/31/18	06/29/18	KWG1802756	
Acenaphthylene	**1.9**	D	0.70	0.092	2	05/31/18	06/29/18	KWG1802756	
Acenaphthene	**0.88**	D	0.70	0.094	2	05/31/18	06/29/18	KWG1802756	
Fluorene	**0.79**	D	0.70	0.11	2	05/31/18	06/29/18	KWG1802756	
Phenanthrene	**6.6**	D	0.70	0.14	2	05/31/18	06/29/18	KWG1802756	
Anthracene	**2.9**	D	0.70	0.076	2	05/31/18	06/29/18	KWG1802756	
Fluoranthene	**12**	D	0.70	0.098	2	05/31/18	06/29/18	KWG1802756	
Pyrene	**23**	D	0.70	0.10	2	05/31/18	06/29/18	KWG1802756	
Benz(a)anthracene	**21**	D	0.70	0.076	2	05/31/18	06/29/18	KWG1802756	
Chrysene	**14**	D	0.70	0.11	2	05/31/18	06/29/18	KWG1802756	
Benzo(b)fluoranthene†	**34**	D	0.70	0.14	2	05/31/18	06/29/18	KWG1802756	
Benzo(k)fluoranthene	**9.7**	D	0.70	0.12	2	05/31/18	06/29/18	KWG1802756	
Benzo(a)pyrene	**22**	D	0.70	0.15	2	05/31/18	06/29/18	KWG1802756	
Indeno(1,2,3-cd)pyrene	**13**	D	0.70	0.20	2	05/31/18	06/29/18	KWG1802756	
Dibenz(a,h)anthracene	**4.6**	D	0.70	0.18	2	05/31/18	06/29/18	KWG1802756	
Benzo(g,h,i)perylene	**16**	D	0.70	0.19	2	05/31/18	06/29/18	KWG1802756	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Fluorene-d10	75	42-106	06/29/18	Acceptable
Fluoranthene-d10	93	45-109	06/29/18	Acceptable
Terphenyl-d14	101	41-102	06/29/18	Acceptable

† Analyte Comments

Benzo(b)fluoranthene	This analyte cannot be separated from Benzo(j)fluoranthene.

Comments:

Analytical Results

Client:	AECOM	**Service Request:**	K1804978
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Collected:**	05/23/2018
Sample Matrix:	Sediment	**Date Received:**	05/25/2018

Polynuclear Aromatic Hydrocarbons

Sample Name:	PDI-SG-B318-BL1	**Units:**	ug/Kg
Lab Code:	K1804978-013	**Basis:**	Dry
Extraction Method:	EPA 3541	**Level:**	Low
Analysis Method:	8270D SIM		

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Naphthalene	**130**	D	1.9	0.30	2	05/31/18	06/27/18	KWG1802756	
2-Methylnaphthalene	**44**	D	1.9	0.24	2	05/31/18	06/27/18	KWG1802756	
Acenaphthylene	**57**	D	0.93	0.092	2	05/31/18	06/27/18	KWG1802756	
Acenaphthene	**61**	D	0.93	0.094	2	05/31/18	06/27/18	KWG1802756	
Fluorene	**62**	D	0.93	0.11	2	05/31/18	06/27/18	KWG1802756	
Phenanthrene	**350**	D	0.93	0.14	2	05/31/18	06/27/18	KWG1802756	
Anthracene	**85**	D	0.93	0.076	2	05/31/18	06/27/18	KWG1802756	
Fluoranthene	**440**	D	2.4	0.25	5	05/31/18	06/29/18	KWG1802756	
Pyrene	**550**	D	2.4	0.25	5	05/31/18	06/29/18	KWG1802756	
Benz(a)anthracene	**150**	D	0.93	0.076	2	05/31/18	06/27/18	KWG1802756	
Chrysene	**180**	D	0.93	0.11	2	05/31/18	06/27/18	KWG1802756	
Benzo(b)fluoranthene†	**180**	D	0.93	0.14	2	05/31/18	06/27/18	KWG1802756	
Benzo(k)fluoranthene	**59**	D	0.93	0.12	2	05/31/18	06/27/18	KWG1802756	
Benzo(a)pyrene	**170**	D	0.93	0.15	2	05/31/18	06/27/18	KWG1802756	
Indeno(1,2,3-cd)pyrene	**120**	D	0.93	0.20	2	05/31/18	06/27/18	KWG1802756	
Dibenz(a,h)anthracene	**17**	D	0.93	0.18	2	05/31/18	06/27/18	KWG1802756	
Benzo(g,h,i)perylene	**140**	D	0.93	0.19	2	05/31/18	06/27/18	KWG1802756	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Fluorene-d10	75	42-106	06/27/18	Acceptable
Fluoranthene-d10	85	45-109	06/27/18	Acceptable
Terphenyl-d14	92	41-102	06/27/18	Acceptable

† Analyte Comments

Benzo(b)fluoranthene	This analyte cannot be separated from Benzo(j)fluoranthene.

Comments:

Analytical Results

Client:	AECOM	**Service Request:**	K1804978
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Collected:**	05/23/2018
Sample Matrix:	Sediment	**Date Received:**	05/25/2018

Polynuclear Aromatic Hydrocarbons

Sample Name:	PDI-SG-B253-BL1	**Units:**	ug/Kg
Lab Code:	K1804978-014	**Basis:**	Dry
Extraction Method:	EPA 3541	**Level:**	Low
Analysis Method:	8270D SIM		

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Naphthalene	**1.7**		0.72	0.15	1	05/31/18	06/26/18	KWG1802756	
2-Methylnaphthalene	**1.1**		0.72	0.12	1	05/31/18	06/26/18	KWG1802756	
Acenaphthylene	**2.2**		0.36	0.046	1	05/31/18	06/26/18	KWG1802756	
Acenaphthene	**2.8**		0.36	0.047	1	05/31/18	06/26/18	KWG1802756	
Fluorene	**3.7**		0.36	0.052	1	05/31/18	06/26/18	KWG1802756	
Phenanthrene	**11**		0.36	0.066	1	05/31/18	06/26/18	KWG1802756	
Anthracene	**10**		0.36	0.038	1	05/31/18	06/26/18	KWG1802756	
Fluoranthene	**53**		0.36	0.049	1	05/31/18	06/26/18	KWG1802756	
Pyrene	**55**		0.36	0.050	1	05/31/18	06/26/18	KWG1802756	
Benz(a)anthracene	**34**		0.36	0.038	1	05/31/18	06/26/18	KWG1802756	
Chrysene	**64**		0.36	0.055	1	05/31/18	06/26/18	KWG1802756	
Benzo(b)fluoranthene†	**62**		0.36	0.066	1	05/31/18	06/26/18	KWG1802756	
Benzo(k)fluoranthene	**23**		0.36	0.057	1	05/31/18	06/26/18	KWG1802756	
Benzo(a)pyrene	**40**		0.36	0.073	1	05/31/18	06/26/18	KWG1802756	
Indeno(1,2,3-cd)pyrene	**32**		0.36	0.096	1	05/31/18	06/26/18	KWG1802756	
Dibenz(a,h)anthracene	**9.0**		0.36	0.086	1	05/31/18	06/26/18	KWG1802756	
Benzo(g,h,i)perylene	**31**		0.36	0.095	1	05/31/18	06/26/18	KWG1802756	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Fluorene-d10	66	42-106	06/26/18	Acceptable
Fluoranthene-d10	84	45-109	06/26/18	Acceptable
Terphenyl-d14	89	41-102	06/26/18	Acceptable

† Analyte Comments

Benzo(b)fluoranthene	This analyte cannot be separated from Benzo(j)fluoranthene.

Comments:

Analytical Results

Client:	AECOM	**Service Request:**	K1804978
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA

Polynuclear Aromatic Hydrocarbons

Sample Name:	Method Blank	**Units:**	ug/Kg
Lab Code:	KWG1802756-6	**Basis:**	Dry
Extraction Method:	EPA 3541	**Level:**	Low
Analysis Method:	8270D SIM		

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Naphthalene	ND	U	0.50	0.15	1	05/31/18	06/27/18	KWG1802756	
2-Methylnaphthalene	ND	U	0.50	0.12	1	05/31/18	06/27/18	KWG1802756	
Acenaphthylene	ND	U	0.25	0.046	1	05/31/18	06/27/18	KWG1802756	
Acenaphthene	ND	U	0.25	0.047	1	05/31/18	06/27/18	KWG1802756	
Fluorene	ND	U	0.25	0.052	1	05/31/18	06/27/18	KWG1802756	
Phenanthrene	ND	U	0.25	0.066	1	05/31/18	06/27/18	KWG1802756	
Anthracene	ND	U	0.25	0.038	1	05/31/18	06/27/18	KWG1802756	
Fluoranthene	ND	U	0.25	0.049	1	05/31/18	06/27/18	KWG1802756	
Pyrene	ND	U	0.25	0.050	1	05/31/18	06/27/18	KWG1802756	
Benz(a)anthracene	ND	U	0.25	0.038	1	05/31/18	06/27/18	KWG1802756	
Chrysene	ND	U	0.25	0.055	1	05/31/18	06/27/18	KWG1802756	
Benzo(b)fluoranthene†	ND	U	0.25	0.066	1	05/31/18	06/27/18	KWG1802756	
Benzo(k)fluoranthene	ND	U	0.25	0.057	1	05/31/18	06/27/18	KWG1802756	
Benzo(a)pyrene	ND	U	0.25	0.073	1	05/31/18	06/27/18	KWG1802756	
Indeno(1,2,3-cd)pyrene	ND	U	0.25	0.096	1	05/31/18	06/27/18	KWG1802756	
Dibenz(a,h)anthracene	ND	U	0.25	0.086	1	05/31/18	06/27/18	KWG1802756	
Benzo(g,h,i)perylene	ND	U	0.25	0.095	1	05/31/18	06/27/18	KWG1802756	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Fluorene-d10	64	42-106	06/27/18	Acceptable
Fluoranthene-d10	74	45-109	06/27/18	Acceptable
Terphenyl-d14	81	41-102	06/27/18	Acceptable

† Analyte Comments

Benzo(b)fluoranthene	This analyte cannot be separated from Benzo(j)fluoranthene.

Comments:

Client: AECOM **Service Request:** K1804978
Project: Portland Harbor Pre-Remedial Design Investigation/60566335
Sample Matrix: Sediment

Surrogate Recovery Summary
Polynuclear Aromatic Hydrocarbons

Extraction Method: EPA 3541 **Units:** Percent
Analysis Method: 8270D SIM **Level:** Low

Sample Name	Lab Code	Sur1	Sur2	Sur3
PDI-SG-B330-BL1	K1804978-001	66	80	91
PDI-SG-B332-BL1	K1804978-002	65	87	91
PDI-SG-B337-BL1	K1804978-003	63	74	86
PDI-SG-B333-BL1	K1804978-004	68	81	89
PDI-SG-B338-BL1	K1804978-005	61	74	82
PDI-SG-B399-BL1	K1804978-006	57	75	84
PDI-SG-B424-BL1	K1804978-007	60	78	91
PDI-SG-B410-BL1	K1804978-008	65 D	82 D	86 D
PDI-SG-B335-BL1	K1804978-009	71 D	85 D	94 D
PDI-SG-B326-BL1	K1804978-010	62	79	88
PDI-SG-B324-BL1	K1804978-011	61 D	78 D	84 D
PDI-SG-B319-BL1	K1804978-012	75 D	93 D	101 D
PDI-SG-B318-BL1	K1804978-013	75 D	85 D	92 D
PDI-SG-B253-BL1	K1804978-014	66	84	89
Method Blank	KWG1802756-6	64	74	81
PDI-SG-B333-BL1MS	KWG1802756-1	70	93	100
PDI-SG-B333-BL1DMS	KWG1802756-2	47	62	62
PDI-SG-B424-BL1MS	KWG1802756-3	66	82	93
PDI-SG-B424-BL1DMS	KWG1802756-4	65	77	91
Lab Control Sample	KWG1802756-5	62	72	84

Surrogate Recovery Control Limits (%)

Sur1	=	Fluorene-d10	42-106
Sur2	=	Fluoranthene-d10	45-109
Sur3	=	Terphenyl-d14	41-102

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

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

Service Request: K1804978
Date Analyzed: 06/26/2018
Time Analyzed: 08:45

Internal Standard Area and RT Summary
Polynuclear Aromatic Hydrocarbons

File ID: J:\MS20\DATA\062618\0626F003.D
Instrument ID: MS20
Analysis Method: 8270D SIM

Lab Code: KWG1803161-2
Analysis Lot: KWG1803161

		Naphthalene-d8		Acenaphthene-d10		Phenanthrene-d10	
		Area	**RT**	**Area**	**RT**	**Area**	**RT**
	Results ==>	98,901	5.94	54,185	8.25	115,341	11.43
	Upper Limit ==>	197,802	6.44	108,370	8.75	230,682	11.93
	Lower Limit ==>	49,451	5.44	27,093	7.75	57,671	10.93
	ICAL Result ==>	90,101	6.06	44,197	8.42	87,517	11.64
Associated Analyses							
PDI-SG-B330-BL1	K1804978-001	90,494	5.94	48,938	8.26	95,717	11.44
PDI-SG-B332-BL1	K1804978-002	93,390	5.94	51,185	8.26	97,663	11.44
PDI-SG-B337-BL1	K1804978-003	88,319	5.94	50,267	8.26	99,502	11.44
PDI-SG-B333-BL1	K1804978-004	92,749	5.94	50,246	8.26	99,506	11.44
PDI-SG-B338-BL1	K1804978-005	92,638	5.94	51,212	8.26	100,527	11.44
PDI-SG-B253-BL1	K1804978-014	91,607	5.94	49,231	8.26	94,378	11.44
PDI-SG-B333-BL1MS	KWG1802756-1	90,447	5.94	48,583	8.26	93,548	11.44
PDI-SG-B333-BL1DMS	KWG1802756-2	90,372	5.94	48,591	8.26	93,307	11.44
PDI-SG-B326-BL1	K1804978-010	86,028	5.94	49,234	8.26	96,293	11.44

Results flagged with an asterisk (*) indicate values outside control criteria.

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

Service Request: K1804978
Date Analyzed: 06/26/2018
Time Analyzed: 08:45

Internal Standard Area and RT Summary
Polynuclear Aromatic Hydrocarbons

File ID: J:\MS20\DATA\062618\0626F003.D
Instrument ID: MS20
Analysis Method: 8270D SIM

Lab Code: KWG1803161-2
Analysis Lot: KWG1803161

		Chrysene-d12		Perylene-d12	
		Area	**RT**	**Area**	**RT**
	Results ==>	125,625	18.80	144,498	23.09
	Upper Limit ==>	251,250	19.30	288,996	23.59
	Lower Limit ==>	62,813	18.30	72,249	22.59
	ICAL Result ==>	105,110	19.00	102,151	23.35
Associated Analyses					
PDI-SG-B330-BL1	K1804978-001	103,200	18.81	120,750	23.13
PDI-SG-B332-BL1	K1804978-002	111,374	18.82	129,134	23.13
PDI-SG-B337-BL1	K1804978-003	105,302	18.81	123,742	23.13
PDI-SG-B333-BL1	K1804978-004	109,211	18.82	127,351	23.13
PDI-SG-B338-BL1	K1804978-005	109,034	18.81	126,717	23.13
PDI-SG-B253-BL1	K1804978-014	107,242	18.82	124,931	23.13
PDI-SG-B333-BL1MS	KWG1802756-1	104,048	18.83	123,280	23.14
PDI-SG-B333-BL1DMS	KWG1802756-2	103,607	18.83	124,256	23.16
PDI-SG-B326-BL1	K1804978-010	104,852	18.81	123,080	23.13

Results flagged with an asterisk (*) indicate values outside control criteria.

QA/QC Report

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

Service Request: K1804978
Date Analyzed: 06/27/2018
Time Analyzed: 09:59

Internal Standard Area and RT Summary
Polynuclear Aromatic Hydrocarbons

File ID: J:\MS20\DATA\062718\0627F002.D
Instrument ID: MS20
Analysis Method: 8270D SIM

Lab Code: KWG1803234-2
Analysis Lot: KWG1803234

		Naphthalene-d8		Acenaphthene-d10		Phenanthrene-d10	
		Area	**RT**	**Area**	**RT**	**Area**	**RT**
	Results ==>	100,632	5.94	54,906	8.26	117,312	11.44
	Upper Limit ==>	201,264	6.44	109,812	8.76	234,624	11.94
	Lower Limit ==>	50,316	5.44	27,453	7.76	58,656	10.94
	ICAL Result ==>	90,101	6.06	44,197	8.42	87,517	11.64
Associated Analyses							
Method Blank	KWG1802756-6	88,619	5.94	50,255	8.26	102,379	11.45
Lab Control Sample	KWG1802756-5	92,088	5.94	50,204	8.26	105,255	11.44
PDI-SG-B424-BL1MS	KWG1802756-3	92,045	5.94	50,408	8.25	100,363	11.44
PDI-SG-B424-BL1DMS	KWG1802756-4	90,077	5.94	49,628	8.26	103,052	11.43
PDI-SG-B424-BL1	K1804978-007	86,467	5.94	49,771	8.26	99,070	11.44
PDI-SG-B410-BL1	K1804978-008	92,672	5.94	52,643	8.26	101,727	11.44
PDI-SG-B335-BL1	K1804978-009	94,981	5.94	52,776	8.26	104,434	11.44
PDI-SG-B324-BL1	K1804978-011	94,137	5.94	51,953	8.26	101,228	11.44
PDI-SG-B318-BL1	K1804978-013	90,160	5.94	49,338	8.26	97,030	11.44
PDI-SG-B332-BL1DL	K1804978-002	96,540	5.94	53,679	8.26	104,754	11.44

Results flagged with an asterisk (*) indicate values outside control criteria.

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

Service Request: K1804978
Date Analyzed: 06/27/2018
Time Analyzed: 09:59

Internal Standard Area and RT Summary
Polynuclear Aromatic Hydrocarbons

File ID: J:\MS20\DATA\062718\0627F002.D
Instrument ID: MS20
Analysis Method: 8270D SIM

Lab Code: KWG1803234-2
Analysis Lot: KWG1803234

		Chrysene-d12		Perylene-d12	
		Area	**RT**	**Area**	**RT**
	Results ==>	123,617	18.81	140,610	23.12
	Upper Limit ==>	247,234	19.31	281,220	23.62
	Lower Limit ==>	61,809	18.31	70,305	22.62
	ICAL Result ==>	105,110	19.00	102,151	23.35
Associated Analyses					
Method Blank	KWG1802756-6	115,255	18.81	128,261	23.12
Lab Control Sample	KWG1802756-5	111,701	18.80	131,426	23.11
PDI-SG-B424-BL1MS	KWG1802756-3	108,049	18.80	128,277	23.11
PDI-SG-B424-BL1DMS	KWG1802756-4	105,750	18.80	128,852	23.11
PDI-SG-B424-BL1	K1804978-007	102,378	18.81	120,431	23.12
PDI-SG-B410-BL1	K1804978-008	114,900	18.81	129,936	23.12
PDI-SG-B335-BL1	K1804978-009	111,022	18.81	129,555	23.13
PDI-SG-B324-BL1	K1804978-011	108,484	18.82	125,734	23.13
PDI-SG-B318-BL1	K1804978-013	105,462	18.84	126,145	23.17
PDI-SG-B332-BL1DL	K1804978-002	115,800	18.81	131,545	23.13

Results flagged with an asterisk (*) indicate values outside control criteria.

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

Service Request: K1804978
Date Analyzed: 06/28/2018
Time Analyzed: 20:43

Internal Standard Area and RT Summary
Polynuclear Aromatic Hydrocarbons

File ID: J:\MS20\DATA\062818\0628F021.D
Instrument ID: MS20
Analysis Method: 8270D SIM

Lab Code: KWG1803206-2
Analysis Lot: KWG1803206

		Naphthalene-d8		Acenaphthene-d10		Phenanthrene-d10	
		Area	**RT**	**Area**	**RT**	**Area**	**RT**
	Results ==>	101,646	5.94	55,058	8.26	118,519	11.44
	Upper Limit ==>	203,292	6.44	110,116	8.76	237,038	11.94
	Lower Limit ==>	50,823	5.44	27,529	7.76	59,260	10.94
	ICAL Result ==>	90,101	6.06	44,197	8.42	87,517	11.64
Associated Analyses							
PDI-SG-B335-BL1DL	K1804978-009	92,003	5.94	51,885	8.26	104,618	11.44
PDI-SG-B319-BL1	K1804978-012	90,021	5.94	49,967	8.26	99,271	11.44
PDI-SG-B318-BL1DL	K1804978-013	92,474	5.94	48,189	8.26	98,377	11.44
PDI-SG-B399-BL1	K1804978-006	86,266	5.94	48,046	8.26	95,899	11.44

Results flagged with an asterisk (*) indicate values outside control criteria.

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

Service Request: K1804978
Date Analyzed: 06/28/2018
Time Analyzed: 20:43

Internal Standard Area and RT Summary
Polynuclear Aromatic Hydrocarbons

File ID: J:\MS20\DATA\062818\0628F021.D
Instrument ID: MS20
Analysis Method: 8270D SIM

Lab Code: KWG1803206-2
Analysis Lot: KWG1803206

		Chrysene-d12		Perylene-d12	
		Area	**RT**	**Area**	**RT**
	Results ==>	126,673	18.80	143,510	23.10
	Upper Limit ==>	253,346	19.30	287,020	23.60
	Lower Limit ==>	63,337	18.30	71,755	22.60
	ICAL Result ==>	105,110	19.00	102,151	23.35
Associated Analyses					
PDI-SG-B335-BL1DL	K1804978-009	112,871	18.81	128,223	23.11
PDI-SG-B319-BL1	K1804978-012	108,590	18.81	121,001	23.13
PDI-SG-B318-BL1DL	K1804978-013	106,788	18.82	125,583	23.14
PDI-SG-B399-BL1	K1804978-006	104,168	18.81	117,767	23.13

Results flagged with an asterisk (*) indicate values outside control criteria.

QA/QC Report

Client:	AECOM	**Service Request:**	K1804978
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Extracted:**	05/31/2018
Sample Matrix:	Sediment	**Date Analyzed:**	06/26/2018

Matrix Spike/Duplicate Matrix Spike Summary
Polynuclear Aromatic Hydrocarbons

Sample Name:	PDI-SG-B333-BL1	**Units:**	ug/Kg
Lab Code:	K1804978-004	**Basis:**	Dry
Extraction Method:	EPA 3541	**Level:**	Low
Analysis Method:	8270D SIM	**Extraction Lot:**	KWG1802756

		PDI-SG-B333-BL1MS KWG1802756-1 Matrix Spike			PDI-SG-B333-BL1DMS KWG1802756-2 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
Naphthalene	8.9	60.4	139	37	36.8	140	20 *	37-104	49 *	40
2-Methylnaphthalene	6.2	73.1	139	48	46.9	140	29 *	39-115	44 *	40
Acenaphthylene	3.3	87.0	139	60	53.5	140	36 *	39-115	48 *	40
Acenaphthene	6.8	87.4	139	58	57.5	140	36 *	41-116	41 *	40
Fluorene	13	100	139	63	67.3	140	39 *	43-117	39	40
Phenanthrene	55	133	139	56	97.6	140	30 *	42-119	30	40
Anthracene	11	109	139	71	75.9	140	46	42-124	36	40
Fluoranthene	83	196	139	81	159	140	54	42-130	21	40
Pyrene	80	202	139	88	165	140	61	33-125	20	40
Benz(a)anthracene	25	150	139	90	102	140	55	42-123	38	40
Chrysene	37	157	139	86	112	140	53	40-134	34	40
Benzo(b)fluoranthene	35	141	139	76	95.2	140	43	27-139	39	40
Benzo(k)fluoranthene	12	117	139	75	76.7	140	46	40-125	42 *	40
Benzo(a)pyrene	26	140	139	82	90.5	140	46	39-130	43 *	40
Indeno(1,2,3-cd)pyrene	18	129	139	79	80.7	140	45	37-143	46 *	40
Dibenz(a,h)anthracene	4.0	116	139	81	68.9	140	46	39-141	51 *	40
Benzo(g,h,i)perylene	20	113	139	67	73.6	140	39	35-140	43 *	40

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client:	AECOM	**Service Request:**	K1804978
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Extracted:**	05/31/2018
Sample Matrix:	Sediment	**Date Analyzed:**	06/27/2018

Matrix Spike/Duplicate Matrix Spike Summary
Polynuclear Aromatic Hydrocarbons

Sample Name:	PDI-SG-B424-BL1	**Units:**	ug/Kg
Lab Code:	K1804978-007	**Basis:**	Dry
Extraction Method:	EPA 3541	**Level:**	Low
Analysis Method:	8270D SIM	**Extraction Lot:**	KWG1802756

		PDI-SG-B424-BL1MS KWG1802756-3 Matrix Spike			PDI-SG-B424-BL1DMS KWG1802756-4 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
Naphthalene	8.8	39.7	64.8	48	71.7	65.5	96	37-104	57 *	40
2-Methylnaphthalene	2.0	42.0	64.8	62	46.6	65.5	68	39-115	10	40
Acenaphthylene	3.8	45.9	64.8	65	52.6	65.5	74	39-115	14	40
Acenaphthene	17	47.3	64.8	47	74.7	65.5	89	41-116	45 *	40
Fluorene	4.4	49.2	64.8	69	54.7	65.5	77	43-117	11	40
Phenanthrene	46	63.1	64.8	27 *	130	65.5	129 *	42-119	69 *	40
Anthracene	11	55.2	64.8	69	61.5	65.5	78	42-124	11	40
Fluoranthene	53	79.5	64.8	41 *	149E	65.5	147 *	42-130	61 *	40
Pyrene	79	90.8	64.8	17 *	195E	65.5	176 *	33-125	73 *	40
Benz(a)anthracene	30	72.3	64.8	65	93.1	65.5	96	42-123	25	40
Chrysene	34	70.2	64.8	56	88.8	65.5	84	40-134	23	40
Benzo(b)fluoranthene	28	65.6	64.8	58	92.9	65.5	99	27-139	35	40
Benzo(k)fluoranthene	10	59.3	64.8	76	65.5	65.5	84	40-125	10	40
Benzo(a)pyrene	35	67.4	64.8	51	102	65.5	103	39-130	41 *	40
Indeno(1,2,3-cd)pyrene	21	65.7	64.8	69	92.5	65.5	110	37-143	34	40
Dibenz(a,h)anthracene	3.7	61.8	64.8	90	59.7	65.5	86	39-141	4	40
Benzo(g,h,i)perylene	20	57.6	64.8	57	88.2	65.5	104	35-140	42 *	40

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client:	AECOM	**Service Request:**	K1804978
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Extracted:**	05/31/2018
Sample Matrix:	Sediment	**Date Analyzed:**	06/27/2018

Lab Control Spike Summary
Polynuclear Aromatic Hydrocarbons

Extraction Method:	EPA 3541	**Units:**	ug/Kg
Analysis Method:	8270D SIM	**Basis:**	Dry
		Level:	Low
		Extraction Lot:	KWG1802756

Lab Control Sample
KWG1802756-5
Lab Control Spike

Analyte Name	Result	Spike Amount	%Rec	%Rec Limits
Naphthalene	71.7	100	72	42-107
2-Methylnaphthalene	76.3	100	76	40-116
Acenaphthylene	80.5	100	81	41-112
Acenaphthene	75.1	100	75	43-113
Fluorene	77.7	100	78	44-114
Phenanthrene	76.1	100	76	44-115
Anthracene	81.2	100	81	45-121
Fluoranthene	87.5	100	87	47-123
Pyrene	100	100	100	41-121
Benz(a)anthracene	110	100	110	42-123
Chrysene	101	100	101	46-130
Benzo(b)fluoranthene	94.6	100	95	46-125
Benzo(k)fluoranthene	93.0	100	93	47-125
Benzo(a)pyrene	98.9	100	99	45-128
Indeno(1,2,3-cd)pyrene	97.7	100	98	45-128
Dibenz(a,h)anthracene	98.9	100	99	44-128
Benzo(g,h,i)perylene	85.8	100	86	43-125

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

QA/QC Report

Client:	AECOM	**Service Request:**	K1804978
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Extracted:**	05/31/2018
Sample Matrix:	Sediment	**Date Analyzed:**	06/27/2018
		Time Analyzed:	10:37

Method Blank Summary
Polynuclear Aromatic Hydrocarbons

Sample Name:	Method Blank	**Instrument ID:**	MS20
Lab Code:	KWG1802756-6	**File ID:**	J:\MS20\DATA\062718\0627F003.D
Extraction Method:	EPA 3541	**Level:**	Low
Analysis Method:	8270D SIM	**Extraction Lot:**	KWG1802756

This Method Blank applies to the following analyses:

Sample Name	Lab Code	File ID	Date Analyzed	Time Analyzed
PDI-SG-B330-BL1	K1804978-001	J:\MS20\DATA\062618\0626F012.D	06/26/18	14:38
PDI-SG-B332-BL1	K1804978-002	J:\MS20\DATA\062618\0626F013.D	06/26/18	15:17
PDI-SG-B337-BL1	K1804978-003	J:\MS20\DATA\062618\0626F014.D	06/26/18	15:56
PDI-SG-B333-BL1	K1804978-004	J:\MS20\DATA\062618\0626F015.D	06/26/18	16:36
PDI-SG-B338-BL1	K1804978-005	J:\MS20\DATA\062618\0626F016.D	06/26/18	17:15
PDI-SG-B253-BL1	K1804978-014	J:\MS20\DATA\062618\0626F017.D	06/26/18	17:54
PDI-SG-B333-BL1MS	KWG1802756-1	J:\MS20\DATA\062618\0626F018.D	06/26/18	18:33
PDI-SG-B333-BL1DMS	KWG1802756-2	J:\MS20\DATA\062618\0626F019.D	06/26/18	19:12
PDI-SG-B326-BL1	K1804978-010	J:\MS20\DATA\062618\0626F020.D	06/26/18	19:52
Lab Control Sample	KWG1802756-5	J:\MS20\DATA\062718\0627F004.D	06/27/18	11:16
PDI-SG-B424-BL1MS	KWG1802756-3	J:\MS20\DATA\062718\0627F005.D	06/27/18	11:55
PDI-SG-B424-BL1DMS	KWG1802756-4	J:\MS20\DATA\062718\0627F006.D	06/27/18	12:35
PDI-SG-B424-BL1	K1804978-007	J:\MS20\DATA\062718\0627F007.D	06/27/18	13:14
PDI-SG-B410-BL1	K1804978-008	J:\MS20\DATA\062718\0627F008.D	06/27/18	13:54
PDI-SG-B335-BL1	K1804978-009	J:\MS20\DATA\062718\0627F009.D	06/27/18	14:33
PDI-SG-B324-BL1	K1804978-011	J:\MS20\DATA\062718\0627F010.D	06/27/18	15:13
PDI-SG-B318-BL1	K1804978-013	J:\MS20\DATA\062718\0627F012.D	06/27/18	16:32
PDI-SG-B332-BL1	K1804978-002	J:\MS20\DATA\062718\0627F013.D	06/27/18	17:11
PDI-SG-B335-BL1	K1804978-009	J:\MS20\DATA\062818\0628F031.D	06/29/18	03:16
PDI-SG-B319-BL1	K1804978-012	J:\MS20\DATA\062818\0628F032.D	06/29/18	03:56
PDI-SG-B318-BL1	K1804978-013	J:\MS20\DATA\062818\0628F033.D	06/29/18	04:35
PDI-SG-B399-BL1	K1804978-006	J:\MS20\DATA\062818\0628F034.D	06/29/18	05:14

QA/QC Report

Client:	AECOM	**Service Request:**	K1804978
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Extracted:**	05/31/2018
Sample Matrix:	Sediment	**Date Analyzed:**	06/27/2018
		Time Analyzed:	11:16

Lab Control Sample Summary
Polynuclear Aromatic Hydrocarbons

Sample Name:	Lab Control Sample	**Instrument ID:**	MS20
Lab Code:	KWG1802756-5	**File ID:**	J:\MS20\DATA\062718\0627F004.D
Extraction Method:	EPA 3541	**Level:**	Low
Analysis Method:	8270D SIM	**Extraction Lot:**	KWG1802756

This Lab Control Sample applies to the following analyses:

Sample Name	Lab Code	File ID	Date Analyzed	Time Analyzed
PDI-SG-B330-BL1	K1804978-001	J:\MS20\DATA\062618\0626F012.D	06/26/18	14:38
PDI-SG-B332-BL1	K1804978-002	J:\MS20\DATA\062618\0626F013.D	06/26/18	15:17
PDI-SG-B337-BL1	K1804978-003	J:\MS20\DATA\062618\0626F014.D	06/26/18	15:56
PDI-SG-B333-BL1	K1804978-004	J:\MS20\DATA\062618\0626F015.D	06/26/18	16:36
PDI-SG-B338-BL1	K1804978-005	J:\MS20\DATA\062618\0626F016.D	06/26/18	17:15
PDI-SG-B253-BL1	K1804978-014	J:\MS20\DATA\062618\0626F017.D	06/26/18	17:54
PDI-SG-B333-BL1MS	KWG1802756-1	J:\MS20\DATA\062618\0626F018.D	06/26/18	18:33
PDI-SG-B333-BL1DMS	KWG1802756-2	J:\MS20\DATA\062618\0626F019.D	06/26/18	19:12
PDI-SG-B326-BL1	K1804978-010	J:\MS20\DATA\062618\0626F020.D	06/26/18	19:52
Method Blank	KWG1802756-6	J:\MS20\DATA\062718\0627F003.D	06/27/18	10:37
PDI-SG-B424-BL1MS	KWG1802756-3	J:\MS20\DATA\062718\0627F005.D	06/27/18	11:55
PDI-SG-B424-BL1DMS	KWG1802756-4	J:\MS20\DATA\062718\0627F006.D	06/27/18	12:35
PDI-SG-B424-BL1	K1804978-007	J:\MS20\DATA\062718\0627F007.D	06/27/18	13:14
PDI-SG-B410-BL1	K1804978-008	J:\MS20\DATA\062718\0627F008.D	06/27/18	13:54
PDI-SG-B335-BL1	K1804978-009	J:\MS20\DATA\062718\0627F009.D	06/27/18	14:33
PDI-SG-B324-BL1	K1804978-011	J:\MS20\DATA\062718\0627F010.D	06/27/18	15:13
PDI-SG-B318-BL1	K1804978-013	J:\MS20\DATA\062718\0627F012.D	06/27/18	16:32
PDI-SG-B332-BL1	K1804978-002	J:\MS20\DATA\062718\0627F013.D	06/27/18	17:11
PDI-SG-B335-BL1	K1804978-009	J:\MS20\DATA\062818\0628F031.D	06/29/18	03:16
PDI-SG-B319-BL1	K1804978-012	J:\MS20\DATA\062818\0628F032.D	06/29/18	03:56
PDI-SG-B318-BL1	K1804978-013	J:\MS20\DATA\062818\0628F033.D	06/29/18	04:35
PDI-SG-B399-BL1	K1804978-006	J:\MS20\DATA\062818\0628F034.D	06/29/18	05:14

QA/QC Results

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

Service Request: K1804978
Date Analyzed: 06/26/2018
Time Analyzed: 08:06

Tune Summary
Polynuclear Aromatic Hydrocarbons

File ID: J:\MS20\DATA\062618\0626F002.D
Instrument ID: MS20
Column:

Analysis Method: 8270D SIM
Analysis Lot: KWG1803161

Target Mass	Relative to Mass	Lower Limit%	Upper Limit%	Relative Abundance %	Raw Abundance	Result Pass/Fail
51	198	10	80	24.6	141072	PASS
68	69	0	2	0.0	0	PASS
69	198	0	100	26.0	149226	PASS
70	69	0	2	0.2	264	PASS
127	198	10	80	38.4	220288	PASS
197	198	0	2	0.0	0	PASS
198	442	30	100	41.8	574165	PASS
199	198	5	9	6.9	39522	PASS
275	198	10	60	38.0	218176	PASS
365	442	1	50	2.6	35034	PASS
441	443	0	100	83.3	235605	PASS
442	442	100	100	100.0	1373013	PASS
443	442	15	24	20.6	282965	PASS

Sample Name	Lab Code	File ID	Date Analyzed	Time Analyzed	Q
Continuing Calibration Verification	KWG1803161-2	J:\MS20\DATA\062618\0626F003.D	06/26/2018	08:45	
PDI-SG-B330-BL1	K1804978-001	J:\MS20\DATA\062618\0626F012.D	06/26/2018	14:38	
PDI-SG-B332-BL1	K1804978-002	J:\MS20\DATA\062618\0626F013.D	06/26/2018	15:17	
PDI-SG-B337-BL1	K1804978-003	J:\MS20\DATA\062618\0626F014.D	06/26/2018	15:56	
PDI-SG-B333-BL1	K1804978-004	J:\MS20\DATA\062618\0626F015.D	06/26/2018	16:36	
PDI-SG-B338-BL1	K1804978-005	J:\MS20\DATA\062618\0626F016.D	06/26/2018	17:15	
PDI-SG-B253-BL1	K1804978-014	J:\MS20\DATA\062618\0626F017.D	06/26/2018	17:54	
PDI-SG-B333-BL1MS	KWG1802756-1	J:\MS20\DATA\062618\0626F018.D	06/26/2018	18:33	
PDI-SG-B333-BL1DMS	KWG1802756-2	J:\MS20\DATA\062618\0626F019.D	06/26/2018	19:12	
PDI-SG-B326-BL1	K1804978-010	J:\MS20\DATA\062618\0626F020.D	06/26/2018	19:52	

Results flagged with an asterisk (*) indicate the analysis performed outside specified tune window

QA/QC Results

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

Service Request: K1804978
Date Analyzed: 06/27/2018
Time Analyzed: 09:19

Tune Summary
Polynuclear Aromatic Hydrocarbons

File ID: J:\MS20\DATA\062718\0627F001.D
Instrument ID: MS20
Column:

Analysis Method: 8270D SIM
Analysis Lot: KWG1803234

Target Mass	Relative to Mass	Lower Limit%	Upper Limit%	Relative Abundance %	Raw Abundance	Result Pass/Fail
51	198	10	80	24.7	133421	PASS
68	69	0	2	0.0	0	PASS
69	198	0	100	26.6	143996	PASS
70	69	0	2	0.1	105	PASS
127	198	10	80	38.3	206826	PASS
197	198	0	2	0.0	0	PASS
198	442	30	100	41.0	540672	PASS
199	198	5	9	6.9	37490	PASS
275	198	10	60	37.4	202197	PASS
365	442	1	50	2.5	33413	PASS
441	443	0	100	83.2	222784	PASS
442	442	100	100	100.0	1317546	PASS
443	442	15	24	20.3	267882	PASS

Sample Name	Lab Code	File ID	Date Analyzed	Time Analyzed	Q
Continuing Calibration Verification	KWG1803234-2	J:\MS20\DATA\062718\0627F002.D	06/27/2018	09:59	
Method Blank	KWG1802756-6	J:\MS20\DATA\062718\0627F003.D	06/27/2018	10:37	
Lab Control Sample	KWG1802756-5	J:\MS20\DATA\062718\0627F004.D	06/27/2018	11:16	
PDI-SG-B424-BL1MS	KWG1802756-3	J:\MS20\DATA\062718\0627F005.D	06/27/2018	11:55	
PDI-SG-B424-BL1DMS	KWG1802756-4	J:\MS20\DATA\062718\0627F006.D	06/27/2018	12:35	
PDI-SG-B424-BL1	K1804978-007	J:\MS20\DATA\062718\0627F007.D	06/27/2018	13:14	
PDI-SG-B410-BL1	K1804978-008	J:\MS20\DATA\062718\0627F008.D	06/27/2018	13:54	
PDI-SG-B335-BL1	K1804978-009	J:\MS20\DATA\062718\0627F009.D	06/27/2018	14:33	
PDI-SG-B324-BL1	K1804978-011	J:\MS20\DATA\062718\0627F010.D	06/27/2018	15:13	
PDI-SG-B318-BL1	K1804978-013	J:\MS20\DATA\062718\0627F012.D	06/27/2018	16:32	
PDI-SG-B332-BL1	K1804978-002	J:\MS20\DATA\062718\0627F013.D	06/27/2018	17:11	

Results flagged with an asterisk (*) indicate the analysis performed outside specified tune window

QA/QC Results

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

Service Request: K1804978
Date Analyzed: 06/28/2018
Time Analyzed: 20:03

Tune Summary
Polynuclear Aromatic Hydrocarbons

File ID: J:\MS20\DATA\062818\0628F020.D
Instrument ID: MS20
Column:

Analysis Method: 8270D SIM
Analysis Lot: KWG1803206

Target Mass	Relative to Mass	Lower Limit%	Upper Limit%	Relative Abundance %	Raw Abundance	Result Pass/Fail
51	198	10	80	24.9	140650	PASS
68	69	0	2	0.0	0	PASS
69	198	0	100	26.5	149775	PASS
70	69	0	2	0.6	879	PASS
127	198	10	80	38.1	214805	PASS
197	198	0	2	0.0	0	PASS
198	442	30	100	42.1	564480	PASS
199	198	5	9	6.7	38080	PASS
275	198	10	60	37.1	209344	PASS
365	442	1	50	2.5	33984	PASS
441	443	0	100	85.1	230464	PASS
442	442	100	100	100.0	1339733	PASS
443	442	15	24	20.2	270805	PASS

Sample Name	Lab Code	File ID	Date Analyzed	Time Analyzed	Q
Continuing Calibration Verification	KWG1803206-2	J:\MS20\DATA\062818\0628F021.D	06/28/2018	20:43	
PDI-SG-B335-BL1	K1804978-009	J:\MS20\DATA\062818\0628F031.D	06/29/2018	03:16	
PDI-SG-B319-BL1	K1804978-012	J:\MS20\DATA\062818\0628F032.D	06/29/2018	03:56	
PDI-SG-B318-BL1	K1804978-013	J:\MS20\DATA\062818\0628F033.D	06/29/2018	04:35	
PDI-SG-B399-BL1	K1804978-006	J:\MS20\DATA\062818\0628F034.D	06/29/2018	05:14	

Results flagged with an asterisk (*) indicate the analysis performed outside specified tune window

Client: AECOM **Service Request:** K1804978
Project: Portland Harbor Pre-Remedial Design Investigation/60566335 **Calibration Date:** 11/02/2017

Initial Calibration Summary
Polynuclear Aromatic Hydrocarbons

Calibration ID: CAL15594 **Column:** MS
Instrument ID: MS20

Level ID	File ID	Level ID	File ID
A	J:\MS20\DATA\110217\1102F003.D	G	J:\MS20\DATA\110217\1102F009.D
B	J:\MS20\DATA\110217\1102F004.D	H	J:\MS20\DATA\110217\1102F010.D
C	J:\MS20\DATA\110217\1102F005.D	I	J:\MS20\DATA\110217\1102F011.D
D	J:\MS20\DATA\110217\1102F006.D	J	J:\MS20\DATA\110217\1102F012.D
E	J:\MS20\DATA\110217\1102F007.D		
F	J:\MS20\DATA\110217\1102F008.D		

Analyte Name	Level ID	Amt	RRF	Level ID	Amt	RRF	Level ID	Amt	RRF	Level ID	Amt	RRF	Level ID	Amt	RRF
Naphthalene	A	2.0	1.21	B	4.0	1.04	C	8.0	1.03	D	20	0.996	E	100	0.990
	F	200	0.989	G	400	1.02	H	1000	1.01	I	1600	0.972	J	2000	0.967
2-Methylnaphthalene	A	2.0	0.781	B	4.0	0.671	C	8.0	0.661	D	20	0.679	E	100	0.678
	F	200	0.694	G	400	0.692	H	1000	0.678	I	1600	0.645	J	2000	0.644
Acenaphthylene	A	2.0	2.23	B	4.0	1.95	C	8.0	1.92	D	20	1.97	E	100	1.97
	F	200	2.00	G	400	2.07	H	1000	2.08	I	1600	2.05	J	2000	2.02
Acenaphthene	A	2.0	1.45	B	4.0	1.25	C	8.0	1.25	D	20	1.24	E	100	1.21
	F	200	1.22	G	400	1.25	H	1000	1.23	I	1600	1.21	J	2000	1.19
Fluorene	A	2.0	1.81	B	4.0	1.46	C	8.0	1.44	D	20	1.44	E	100	1.46
	F	200	1.47	G	400	1.51	H	1000	1.48	I	1600	1.45	J	2000	1.44
Phenanthrene	A	2.0	1.50	B	4.0	1.16	C	8.0	1.16	D	20	1.16	E	100	1.12
	F	200	1.13	G	400	1.15	H	1000	1.14	I	1600	1.10	J	2000	1.09
Anthracene	A	2.0	1.32	B	4.0	1.05	C	8.0	1.04	D	20	1.03	E	100	1.03
	F	200	1.06	G	400	1.10	H	1000	1.11	I	1600	1.08	J	2000	1.06
Fluoranthene	A	2.0	1.51	B	4.0	1.20	C	8.0	1.19	D	20	1.24	E	100	1.23
	F	200	1.27	G	400	1.32	H	1000	1.30	I	1600	1.25	J	2000	1.24
Pyrene	A	2.0	1.34	B	4.0	1.10	C	8.0	1.09	D	20	1.10	E	100	1.08
	F	200	1.09	G	400	1.12	H	1000	1.13	I	1600	1.12	J	2000	1.11
Benz(a)anthracene	A	2.0	1.36	B	4.0	1.13	C	8.0	1.03	D	20	1.02	E	100	0.986
	F	200	1.01	G	400	1.05	H	1000	1.09	I	1600	1.09	J	2000	1.10
Chrysene	A	2.0	1.26	B	4.0	1.06	C	8.0	1.08	D	20	1.07	E	100	1.06
	F	200	1.06	G	400	1.07	H	1000	1.06	I	1600	1.06	J	2000	1.04
Benzo(b)fluoranthene	A	2.0	1.22	B	4.0	1.06	C	8.0	1.06	D	20	1.10	E	100	1.10
	F	200	1.12	G	400	1.17	H	1000	1.19	I	1600	1.20	J	2000	1.18
Benzo(k)fluoranthene	A	2.0	1.19	B	4.0	1.07	C	8.0	1.09	D	20	1.09	E	100	1.15
	F	200	1.18	G	400	1.20	H	1000	1.19	I	1600	1.19	J	2000	1.18
Benzo(a)pyrene	A	2.0	0.956	B	4.0	0.883	C	8.0	0.866	D	20	0.903	E	100	0.955
	F	200	1.00	G	400	1.06	H	1000	1.06	I	1600	1.08	J	2000	1.08

Results flagged with an asterisk (*) indicate values outside control criteria.

† SPCC Compound **‡ CCC Compound**

Client: AECOM **Service Request:** K1804978
Project: Portland Harbor Pre-Remedial Design Investigation/60566335 **Calibration Date:** 11/02/2017

Initial Calibration Summary
Polynuclear Aromatic Hydrocarbons

Calibration ID: CAL15594 **Column:** MS
Instrument ID: MS20

Analyte Name	Level ID	Amt	RRF	Level ID	Amt	RRF	Level ID	Amt	RRF	Level ID	Amt	RRF	Level ID	Amt	RRF
Indeno(1,2,3-cd)pyrene	A	2.0	1.05	B	4.0	0.927	C	8.0	0.901	D	20	0.943	E	100	0.987
	F	200	1.03	G	400	1.10	H	1000	1.08	I	1600	1.07	J	2000	1.07
Dibenz(a,h)anthracene	A	2.0	1.02	B	4.0	0.967	C	8.0	0.953	D	20	1.01	E	100	1.05
	F	200	1.08	G	400	1.13	H	1000	1.11	I	1600	1.10	J	2000	1.10
Benzo(g,h,i)perylene	A	2.0	1.36	B	4.0	1.19	C	8.0	1.17	D	20	1.25	E	100	1.21
	F	200	1.23	G	400	1.27	H	1000	1.18	I	1600	1.17	J	2000	1.16
Fluorene-d10				B	4.0	1.51	C	8.0	1.31	D	20	1.26	E	100	1.23
	F	200	1.23	G	400	1.27	H	1000	1.25	I	1600	1.23	J	2000	1.21
Fluoranthene-d10	A	2.0	1.49	B	4.0	1.12	C	8.0	1.07	D	20	1.08	E	100	1.06
	F	200	1.10	G	400	1.15	H	1000	1.17	I	1600	1.16	J	2000	1.15
Terphenyl-d14	A	2.0	1.04	B	4.0	0.848	C	8.0	0.825	D	20	0.837	E	100	0.817
	F	200	0.826	G	400	0.831	H	1000	0.840	I	1600	0.837	J	2000	0.829

Results flagged with an asterisk (*) indicate values outside control criteria.

† SPCC Compound **‡ CCC Compound**

Client: AECOM **Service Request:** K1804978
Project: Portland Harbor Pre-Remedial Design Investigation/60566335 **Calibration Date:** 11/02/2017

Initial Calibration Summary
Polynuclear Aromatic Hydrocarbons

Calibration ID: CAL15594 **Column:** MS
Instrument ID: MS20

		Calibration Evaluation					RRF Evaluation		
Analyte Name	**Compound Type**	**Fit Type**	**Eval.**	**Eval. Result**	**Q**	**Control Criteria**	**Average RRF**	**Q**	**Minimum RRF**
Naphthalene	MS	AverageRF	% RSD	6.8		≤ 20	1.02		0.70
2-Methylnaphthalene	MS	AverageRF	% RSD	5.7		≤ 20	0.682		0.40
Acenaphthylene	MS	AverageRF	% RSD	4.4		≤ 20	2.03		0.90
Acenaphthene	MS	AverageRF	% RSD	5.8		≤ 20	1.25		0.90
Fluorene	MS	AverageRF	% RSD	7.5		≤ 20	1.50		0.90
Phenanthrene	MS	AverageRF	% RSD	10.0		≤ 20	1.17		0.70
Anthracene	MS	AverageRF	% RSD	7.9		≤ 20	1.09		0.70
Fluoranthene	MS	AverageRF	% RSD	7.2		≤ 20	1.27		0.60
Pyrene	MS	AverageRF	% RSD	6.7		≤ 20	1.13		0.60
Benz(a)anthracene	MS	AverageRF	% RSD	9.8		≤ 20	1.09		0.80
Chrysene	MS	AverageRF	% RSD	5.7		≤ 20	1.08		0.70
Benzo(b)fluoranthene	MS	AverageRF	% RSD	5.0		≤ 20	1.14		0.70
Benzo(k)fluoranthene	MS	AverageRF	% RSD	4.4		≤ 20	1.15		0.70
Benzo(a)pyrene	MS	AverageRF	% RSD	8.4		≤ 20	0.984		0.70
Indeno(1,2,3-cd)pyrene	MS	AverageRF	% RSD	7.1		≤ 20	1.02		0.50
Dibenz(a,h)anthracene	MS	AverageRF	% RSD	5.9		≤ 20	1.05		0.40
Benzo(g,h,i)perylene	MS	AverageRF	% RSD	5.1		≤ 20	1.22		0.50
Fluorene-d10	SURR	AverageRF	% RSD	7.1		≤ 20	1.28		0.01
Fluoranthene-d10	SURR	AverageRF	% RSD	10.7		≤ 20	1.15		0.01
Terphenyl-d14	SURR	AverageRF	% RSD	7.7		≤ 20	0.853		0.01

Results flagged with an asterisk (*) indicate values outside control criteria.

† SPCC Compound **‡ CCC Compound**

QA/QC Results

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

Service Request: K1804978
Calibration Date: 11/02/2017
Date Analyzed: 11/02/2017

Second Source Calibration Verification
Polynuclear Aromatic Hydrocarbons

Calibration Type: Internal Standard
Analysis Method: 8270D SIM

Calibration ID: CAL15594
Units: ng/ml

File ID: J:\MS20\DATA\110217\1102F013.D

Analyte Name	Expected	Result	Average RF	SSV RF	%D	%Drift	Criteria	Curve Fit
Naphthalene	400	360	1.02	0.924	-10	NA	± 30 %	AverageRF
2-Methylnaphthalene	400	380	0.682	0.644	-6	NA	± 30 %	AverageRF
Acenaphthylene	400	380	2.03	1.93	-5	NA	± 30 %	AverageRF
Acenaphthene	400	380	1.25	1.17	-6	NA	± 30 %	AverageRF
Fluorene	400	370	1.50	1.39	-7	NA	± 30 %	AverageRF
Phenanthrene	400	370	1.17	1.08	-8	NA	± 30 %	AverageRF
Anthracene	400	380	1.09	1.03	-6	NA	± 30 %	AverageRF
Fluoranthene	400	400	1.27	1.28	0	NA	± 30 %	AverageRF
Pyrene	400	380	1.13	1.08	-5	NA	± 30 %	AverageRF
Benz(a)anthracene	400	370	1.09	0.996	-8	NA	± 30 %	AverageRF
Chrysene	400	380	1.08	1.03	-5	NA	± 30 %	AverageRF
Benzo(b)fluoranthene	400	380	1.14	1.10	-4	NA	± 30 %	AverageRF
Benzo(k)fluoranthene	400	390	1.15	1.13	-2	NA	± 30 %	AverageRF
Benzo(a)pyrene	400	400	0.984	0.973	-1	NA	± 30 %	AverageRF
Indeno(1,2,3-cd)pyrene	400	370	1.02	0.946	-7	NA	± 30 %	AverageRF
Dibenz(a,h)anthracene	400	380	1.05	1.00	-5	NA	± 30 %	AverageRF
Benzo(g,h,i)perylene	400	360	1.22	1.11	-9	NA	± 30 %	AverageRF

Results flagged with an asterisk (*) indicate values outside control criteria.

† SPCC Compound **‡ CCC Compound**

Client: AECOM **Service Request:** K1804978
Project: Portland Harbor Pre-Remedial Design Investigation/60566335 **Date Analyzed:** 06/26/2018

Continuing Calibration Verification Summary
Polynuclear Aromatic Hydrocarbons

Calibration Type: Internal Standard **Calibration Date:** 11/02/2017
Analysis Method: 8270D SIM **Calibration ID:** CAL15594
Analysis Lot: KWG1803161
Units: ng/ml

File ID: J:\MS20\DATA\062618\0626F003.D

Analyte Name	Expected	Result	Min RF	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Naphthalene	400	360	0.70	1.02	0.920	-10	NA	± 20	AverageRF
2-Methylnaphthalene	400	390	0.40	0.682	0.665	-3	NA	± 20	AverageRF
Acenaphthylene	400	380	0.90	2.03	1.93	-5	NA	± 20	AverageRF
Acenaphthene	400	360	0.90	1.25	1.13	-9	NA	± 20	AverageRF
Fluorene	400	370	0.90	1.50	1.38	-7	NA	± 20	AverageRF
Phenanthrene	400	350	0.70	1.17	1.03	-12	NA	± 20	AverageRF
Anthracene	400	350	0.70	1.09	0.948	-13	NA	± 20	AverageRF
Fluoranthene	400	380	0.60	1.27	1.22	-4	NA	± 20	AverageRF
Pyrene	400	430	0.60	1.13	1.21	7	NA	± 20	AverageRF
Benz(a)anthracene	400	430	0.80	1.09	1.16	7	NA	± 20	AverageRF
Chrysene	400	390	0.70	1.08	1.05	-3	NA	± 20	AverageRF
Benzo(b)fluoranthene	400	390	0.70	1.14	1.12	-2	NA	± 20	AverageRF
Benzo(k)fluoranthene	400	390	0.70	1.15	1.12	-3	NA	± 20	AverageRF
Benzo(a)pyrene	400	410	0.70	0.984	1.01	3	NA	± 20	AverageRF
Indeno(1,2,3-cd)pyrene	400	400	0.50	1.02	1.01	0	NA	± 20	AverageRF
Dibenz(a,h)anthracene	400	410	0.40	1.05	1.07	1	NA	± 20	AverageRF
Benzo(g,h,i)perylene	400	350	0.50	1.22	1.07	-12	NA	± 20	AverageRF
Fluorene-d10	400	380	0.01	1.28	1.21	-6	NA	± 20	AverageRF
Fluoranthene-d10	400	390	0.01	1.15	1.14	-1	NA	± 20	AverageRF
Terphenyl-d14	400	420	0.01	0.853	0.896	5	NA	± 20	AverageRF

Results flagged with an asterisk (*) indicate values outside control criteria.

† SPCC Compound **‡ CCC Compound**

Client: AECOM **Service Request:** K1804978
Project: Portland Harbor Pre-Remedial Design Investigation/60566335 **Date Analyzed:** 06/27/2018

Continuing Calibration Verification Summary
Polynuclear Aromatic Hydrocarbons

Calibration Type: Internal Standard **Calibration Date:** 11/02/2017
Analysis Method: 8270D SIM **Calibration ID:** CAL15594
Analysis Lot: KWG1803234
Units: ng/ml

File ID: J:\MS20\DATA\062718\0627F002.D

Analyte Name	Expected	Result	Min RF	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Naphthalene	400	360	0.70	1.02	0.920	-10	NA	± 20	AverageRF
2-Methylnaphthalene	400	390	0.40	0.682	0.660	-3	NA	± 20	AverageRF
Acenaphthylene	400	380	0.90	2.03	1.93	-5	NA	± 20	AverageRF
Acenaphthene	400	360	0.90	1.25	1.13	-9	NA	± 20	AverageRF
Fluorene	400	370	0.90	1.50	1.40	-7	NA	± 20	AverageRF
Phenanthrene	400	360	0.70	1.17	1.04	-11	NA	± 20	AverageRF
Anthracene	400	350	0.70	1.09	0.953	-13	NA	± 20	AverageRF
Fluoranthene	400	380	0.60	1.27	1.20	-6	NA	± 20	AverageRF
Pyrene	400	440	0.60	1.13	1.24	10	NA	± 20	AverageRF
Benz(a)anthracene	400	430	0.80	1.09	1.18	9	NA	± 20	AverageRF
Chrysene	400	390	0.70	1.08	1.06	-2	NA	± 20	AverageRF
Benzo(b)fluoranthene	400	400	0.70	1.14	1.13	-1	NA	± 20	AverageRF
Benzo(k)fluoranthene	400	390	0.70	1.15	1.13	-2	NA	± 20	AverageRF
Benzo(a)pyrene	400	420	0.70	0.984	1.03	5	NA	± 20	AverageRF
Indeno(1,2,3-cd)pyrene	400	400	0.50	1.02	1.02	0	NA	± 20	AverageRF
Dibenz(a,h)anthracene	400	410	0.40	1.05	1.09	3	NA	± 20	AverageRF
Benzo(g,h,i)perylene	400	360	0.50	1.22	1.08	-11	NA	± 20	AverageRF
Fluorene-d10	400	380	0.01	1.28	1.21	-6	NA	± 20	AverageRF
Fluoranthene-d10	400	390	0.01	1.15	1.14	-1	NA	± 20	AverageRF
Terphenyl-d14	400	430	0.01	0.853	0.924	8	NA	± 20	AverageRF

Results flagged with an asterisk (*) indicate values outside control criteria.

† SPCC Compound **‡ CCC Compound**

Client: AECOM **Service Request:** K1804978
Project: Portland Harbor Pre-Remedial Design Investigation/60566335 **Date Analyzed:** 06/28/2018

Continuing Calibration Verification Summary
Polynuclear Aromatic Hydrocarbons

Calibration Type: Internal Standard **Calibration Date:** 11/02/2017
Analysis Method: 8270D SIM **Calibration ID:** CAL15594
Analysis Lot: KWG1803206
Units: ng/ml

File ID: J:\MS20\DATA\062818\0628F021.D

Analyte Name	Expected	Result	Min RF	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Naphthalene	400	350	0.70	1.02	0.904	-12	NA	± 20	AverageRF
2-Methylnaphthalene	400	390	0.40	0.682	0.658	-4	NA	± 20	AverageRF
Acenaphthylene	400	380	0.90	2.03	1.92	-5	NA	± 20	AverageRF
Acenaphthene	400	360	0.90	1.25	1.14	-9	NA	± 20	AverageRF
Fluorene	400	370	0.90	1.50	1.39	-7	NA	± 20	AverageRF
Phenanthrene	400	350	0.70	1.17	1.04	-12	NA	± 20	AverageRF
Anthracene	400	340	0.70	1.09	0.929	-15	NA	± 20	AverageRF
Fluoranthene	400	380	0.60	1.27	1.20	-6	NA	± 20	AverageRF
Pyrene	400	430	0.60	1.13	1.21	7	NA	± 20	AverageRF
Benz(a)anthracene	400	430	0.80	1.09	1.17	8	NA	± 20	AverageRF
Chrysene	400	390	0.70	1.08	1.04	-4	NA	± 20	AverageRF
Benzo(b)fluoranthene	400	400	0.70	1.14	1.14	0	NA	± 20	AverageRF
Benzo(k)fluoranthene	400	390	0.70	1.15	1.14	-1	NA	± 20	AverageRF
Benzo(a)pyrene	400	410	0.70	0.984	1.01	3	NA	± 20	AverageRF
Indeno(1,2,3-cd)pyrene	400	400	0.50	1.02	1.00	-1	NA	± 20	AverageRF
Dibenz(a,h)anthracene	400	410	0.40	1.05	1.07	1	NA	± 20	AverageRF
Benzo(g,h,i)perylene	400	350	0.50	1.22	1.07	-12	NA	± 20	AverageRF
Fluorene-d10	400	380	0.01	1.28	1.21	-6	NA	± 20	AverageRF
Fluoranthene-d10	400	390	0.01	1.15	1.14	-2	NA	± 20	AverageRF
Terphenyl-d14	400	420	0.01	0.853	0.904	6	NA	± 20	AverageRF

Results flagged with an asterisk (*) indicate values outside control criteria.

† SPCC Compound **‡ CCC Compound**

QA/QC Results

Client: AECOM **Service Request:** K1804978
Project: Portland Harbor Pre-Remedial Design Investigation/60566335

Analysis Run Log
Polynuclear Aromatic Hydrocarbons

Analysis Method: 8270D SIM **Analysis Lot:** KWG1803161
Instrument ID: MS20

File ID	Sample Name	Lab Code	Date Analysis Started	Start Time	Q	Date Analysis Finished	Finish Time
0626F002.D	GC/MS Tuning - Decafluorotriphenylphosph	KWG1803161-1	6/26/2018	08:06		6/26/2018	08:36
0626F003.D	Continuing Calibration Verification	KWG1803161-2	6/26/2018	08:45		6/26/2018	09:14
0626F004.D	ZZZZZZ	ZZZZZZ	6/26/2018	09:24		6/26/2018	09:53
0626F005.D	ZZZZZZ	ZZZZZZ	6/26/2018	10:03		6/26/2018	10:32
0626F006.D	ZZZZZZ	ZZZZZZ	6/26/2018	10:42		6/26/2018	11:11
0626F007.D	ZZZZZZ	ZZZZZZ	6/26/2018	11:21		6/26/2018	11:50
0626F008.D	ZZZZZZ	ZZZZZZ	6/26/2018	12:00		6/26/2018	12:29
0626F009.D	ZZZZZZ	ZZZZZZ	6/26/2018	12:39		6/26/2018	13:08
0626F010.D	ZZZZZZ	ZZZZZZ	6/26/2018	13:19		6/26/2018	13:48
0626F011.D	ZZZZZZ	ZZZZZZ	6/26/2018	13:58		6/26/2018	14:27
0626F012.D	PDI-SG-B330-BL1	K1804978-001	6/26/2018	14:38		6/26/2018	15:07
0626F013.D	PDI-SG-B332-BL1	K1804978-002	6/26/2018	15:17		6/26/2018	15:46
0626F014.D	PDI-SG-B337-BL1	K1804978-003	6/26/2018	15:56		6/26/2018	16:25
0626F015.D	PDI-SG-B333-BL1	K1804978-004	6/26/2018	16:36		6/26/2018	17:05
0626F016.D	PDI-SG-B338-BL1	K1804978-005	6/26/2018	17:15		6/26/2018	17:44
0626F017.D	PDI-SG-B253-BL1	K1804978-014	6/26/2018	17:54		6/26/2018	18:23
0626F018.D	PDI-SG-B333-BL1MS	KWG1802756-1	6/26/2018	18:33		6/26/2018	19:02
0626F019.D	PDI-SG-B333-BL1DMS	KWG1802756-2	6/26/2018	19:12		6/26/2018	19:41
0626F020.D	PDI-SG-B326-BL1	K1804978-010	6/26/2018	19:52		6/26/2018	20:21

Results flagged with an asterisk (*) indicate the holding time was exceeded for the analysis

QA/QC Results

Client: AECOM **Service Request:** K1804978
Project: Portland Harbor Pre-Remedial Design Investigation/60566335

Analysis Run Log
Polynuclear Aromatic Hydrocarbons

Analysis Method: 8270D SIM **Analysis Lot:** KWG1803206
Instrument ID: MS20

File ID	Sample Name	Lab Code	Date Analysis Started	Start Time	Q	Date Analysis Finished	Finish Time
0628F020.D	GC/MS Tuning - Decafluorotriphenylphosph	KWG1803206-1	6/28/2018	20:03		6/28/2018	20:33
0628F021.D	Continuing Calibration Verification	KWG1803206-2	6/28/2018	20:43		6/28/2018	21:12
0628F022.D	ZZZZZZ	ZZZZZZ	6/28/2018	21:22		6/28/2018	21:51
0628F023.D	ZZZZZZ	ZZZZZZ	6/28/2018	22:01		6/28/2018	22:30
0628F024.D	ZZZZZZ	ZZZZZZ	6/28/2018	22:41		6/28/2018	23:10
0628F025.D	ZZZZZZ	ZZZZZZ	6/28/2018	23:20		6/28/2018	23:49
0628F026.D	ZZZZZZ	ZZZZZZ	6/28/2018	23:59		6/29/2018	00:28
0628F027.D	ZZZZZZ	ZZZZZZ	6/29/2018	00:39		6/29/2018	01:08
0628F028.D	ZZZZZZ	ZZZZZZ	6/29/2018	01:18		6/29/2018	01:47
0628F029.D	ZZZZZZ	ZZZZZZ	6/29/2018	01:58		6/29/2018	02:27
0628F030.D	ZZZZZZ	ZZZZZZ	6/29/2018	02:37		6/29/2018	03:06
0628F031.D	PDI-SG-B335-BL1	K1804978-009	6/29/2018	03:16		6/29/2018	03:45
0628F032.D	PDI-SG-B319-BL1	K1804978-012	6/29/2018	03:56		6/29/2018	04:25
0628F033.D	PDI-SG-B318-BL1	K1804978-013	6/29/2018	04:35		6/29/2018	05:04
0628F034.D	PDI-SG-B399-BL1	K1804978-006	6/29/2018	05:14		6/29/2018	05:43
0628F035.D	ZZZZZZ	ZZZZZZ	6/29/2018	05:54		6/29/2018	06:23
0628F036.D	ZZZZZZ	ZZZZZZ	6/29/2018	06:33		6/29/2018	07:02
0628F037.D	ZZZZZZ	ZZZZZZ	6/29/2018	07:12		6/29/2018	07:41
0628F038.D	ZZZZZZ	ZZZZZZ	6/29/2018	07:52		6/29/2018	08:21

Results flagged with an asterisk (*) indicate the holding time was exceeded for the analysis

QA/QC Results

Client: AECOM **Service Request:** K1804978
Project: Portland Harbor Pre-Remedial Design Investigation/60566335

Analysis Run Log
Polynuclear Aromatic Hydrocarbons

Analysis Method: 8270D SIM **Analysis Lot:** KWG1803234
Instrument ID: MS20

File ID	Sample Name	Lab Code	Date Analysis Started	Start Time	Q	Date Analysis Finished	Finish Time
0627F001.D	GC/MS Tuning - Decafluorotriphenylphosph	KWG1803234-1	6/27/2018	09:19		6/27/2018	09:49
0627F002.D	Continuing Calibration Verification	KWG1803234-2	6/27/2018	09:59		6/27/2018	10:28
0627F003.D	Method Blank	KWG1802756-6	6/27/2018	10:37		6/27/2018	11:06
0627F004.D	Lab Control Sample	KWG1802756-5	6/27/2018	11:16		6/27/2018	11:45
0627F005.D	PDI-SG-B424-BL1MS	KWG1802756-3	6/27/2018	11:55		6/27/2018	12:24
0627F006.D	PDI-SG-B424-BL1DMS	KWG1802756-4	6/27/2018	12:35		6/27/2018	13:04
0627F007.D	PDI-SG-B424-BL1	K1804978-007	6/27/2018	13:14		6/27/2018	13:43
0627F008.D	PDI-SG-B410-BL1	K1804978-008	6/27/2018	13:54		6/27/2018	14:23
0627F009.D	PDI-SG-B335-BL1	K1804978-009	6/27/2018	14:33		6/27/2018	15:02
0627F010.D	PDI-SG-B324-BL1	K1804978-011	6/27/2018	15:13		6/27/2018	15:42
0627F011.D	ZZZZZZ	ZZZZZZ	6/27/2018	15:52		6/27/2018	16:21
0627F012.D	PDI-SG-B318-BL1	K1804978-013	6/27/2018	16:32		6/27/2018	17:01
0627F013.D	PDI-SG-B332-BL1	K1804978-002	6/27/2018	17:11		6/27/2018	17:40
0627F014.D	ZZZZZZ	ZZZZZZ	6/27/2018	17:51		6/27/2018	18:20
0627F015.D	ZZZZZZ	ZZZZZZ	6/27/2018	18:30		6/27/2018	18:59
0627F016.D	ZZZZZZ	ZZZZZZ	6/27/2018	19:09		6/27/2018	19:38
0627F017.D	ZZZZZZ	ZZZZZZ	6/27/2018	19:49		6/27/2018	20:18
0627F018.D	ZZZZZZ	ZZZZZZ	6/27/2018	20:28		6/27/2018	20:57
0627F019.D	ZZZZZZ	ZZZZZZ	6/27/2018	21:07		6/27/2018	21:36

Results flagged with an asterisk (*) indicate the holding time was exceeded for the analysis

QA/QC Results

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

Service Request: K1804978
Date Extracted: 05/31/2018

Extraction Prep Log
Polynuclear Aromatic Hydrocarbons

Extraction Method: EPA 3541
Analysis Method: 8270D SIM

Extraction Lot: KWG1802756
Level: Low

Sample Name	Lab Code	Date Collected	Date Received	Sample Amount	Final Volume	% Solids	Note
PDI-SG-B330-BL1	K1804978-001	05/24/18	05/25/18	40.403g	2mL	45.3	
PDI-SG-B332-BL1DL	K1804978-002	05/24/18	05/25/18	40.208g	2mL	55.6	
PDI-SG-B332-BL1	K1804978-002	05/24/18	05/25/18	40.208g	2mL	55.6	
PDI-SG-B337-BL1	K1804978-003	05/24/18	05/25/18	40.262g	2mL	58.9	
PDI-SG-B333-BL1	K1804978-004	05/24/18	05/25/18	40.165g	2mL	44.6	
PDI-SG-B338-BL1	K1804978-005	05/24/18	05/25/18	40.391g	2mL	51.9	
PDI-SG-B399-BL1	K1804978-006	05/24/18	05/25/18	40.428g	2mL	73.3	
PDI-SG-B424-BL1	K1804978-007	05/24/18	05/25/18	40.372g	2mL	76.3	
PDI-SG-B410-BL1	K1804978-008	05/23/18	05/25/18	40.181g	2mL	59.1	
PDI-SG-B335-BL1	K1804978-009	05/23/18	05/25/18	40.070g	2mL	65.3	
PDI-SG-B335-BL1DL	K1804978-009	05/23/18	05/25/18	40.070g	2mL	65.3	
PDI-SG-B326-BL1	K1804978-010	05/23/18	05/25/18	40.136g	2mL	64.4	
PDI-SG-B324-BL1	K1804978-011	05/23/18	05/25/18	40.246g	2mL	56.9	
PDI-SG-B319-BL1	K1804978-012	05/23/18	05/25/18	40.229g	2mL	71.3	
PDI-SG-B318-BL1DL	K1804978-013	05/23/18	05/25/18	40.430g	2mL	53.2	
PDI-SG-B318-BL1	K1804978-013	05/23/18	05/25/18	40.430g	2mL	53.2	
PDI-SG-B253-BL1	K1804978-014	05/23/18	05/25/18	40.059g	2mL	70.3	
Method Blank	KWG1802756-6	NA	NA	40.430g	2mL	NA	
PDI-SG-B333-BL1MS	KWG1802756-1	05/24/18	05/25/18	40.218g	2mL	44.6	
PDI-SG-B333-BL1DMS	KWG1802756-2	05/24/18	05/25/18	40.108g	2mL	44.6	
PDI-SG-B424-BL1MS	KWG1802756-3	05/24/18	05/25/18	40.429g	2mL	76.3	
PDI-SG-B424-BL1DMS	KWG1802756-4	05/24/18	05/25/18	40.048g	2mL	76.3	
Lab Control Sample	KWG1802756-5	NA	NA	20.000g	2mL	NA	

Results flagged with an asterisk (*) indicate the holding time was exceeded for the analysis

Polynuclear Aromatic Hydrocarbons

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

Client: AECOM **Service Request:** K1804978
Project: Portland Harbor Pre-Remedial Design Investigation/60566335

Cover Page - Organic Analysis Data Package
Polynuclear Aromatic Hydrocarbons

Sample Name	Lab Code	Date Collected	Date Received
PDI-RB-VV-180524	K1804978-015	05/24/2018	05/25/2018

Analytical Results

Client:	AECOM	**Service Request:**	K1804978
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Collected:**	05/24/2018
Sample Matrix:	Water	**Date Received:**	05/25/2018

Polynuclear Aromatic Hydrocarbons

Sample Name:	PDI-RB-VV-180524	**Units:**	ug/L
Lab Code:	K1804978-015	**Basis:**	NA
Extraction Method:	EPA 3511	**Level:**	Low
Analysis Method:	8270D SIM		

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Naphthalene	**0.0025**	J	0.021	0.0015	1	05/31/18	06/01/18	KWG1802746	
2-Methylnaphthalene	**0.0018**	J	0.021	0.0014	1	05/31/18	06/01/18	KWG1802746	
Acenaphthylene	ND	U	0.021	0.0012	1	05/31/18	06/01/18	KWG1802746	
Acenaphthene	ND	U	0.021	0.0013	1	05/31/18	06/01/18	KWG1802746	
Fluorene	ND	U	0.021	0.0012	1	05/31/18	06/01/18	KWG1802746	
Phenanthrene	**0.0027**	J	0.021	0.0012	1	05/31/18	06/01/18	KWG1802746	
Anthracene	ND	U	0.021	0.00084	1	05/31/18	06/01/18	KWG1802746	
Fluoranthene	**0.0016**	J	0.021	0.00084	1	05/31/18	06/01/18	KWG1802746	
Pyrene	ND	U	0.021	0.0011	1	05/31/18	06/01/18	KWG1802746	
Benz(a)anthracene	**0.0032**	J	0.021	0.0010	1	05/31/18	06/01/18	KWG1802746	
Chrysene	ND	U	0.021	0.00078	1	05/31/18	06/01/18	KWG1802746	
Benzo(b)fluoranthene†	ND	U	0.021	0.00085	1	05/31/18	06/01/18	KWG1802746	
Benzo(k)fluoranthene	ND	U	0.021	0.00097	1	05/31/18	06/01/18	KWG1802746	
Benzo(a)pyrene	ND	U	0.021	0.0012	1	05/31/18	06/01/18	KWG1802746	
Indeno(1,2,3-cd)pyrene	ND	U	0.021	0.00092	1	05/31/18	06/01/18	KWG1802746	
Dibenz(a,h)anthracene	ND	U	0.021	0.0014	1	05/31/18	06/01/18	KWG1802746	
Benzo(g,h,i)perylene	ND	U	0.021	0.00088	1	05/31/18	06/01/18	KWG1802746	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Fluorene-d10	101	42-131	06/01/18	Acceptable
Fluoranthene-d10	108	42-133	06/01/18	Acceptable
Terphenyl-d14	99	32-129	06/01/18	Acceptable

† Analyte Comments

Benzo(b)fluoranthene	This analyte cannot be separated from Benzo(j)fluoranthene.

Comments:

Analytical Results

Client:	AECOM	**Service Request:**	K1804978
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA

Polynuclear Aromatic Hydrocarbons

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG1802746-3	**Basis:**	NA
Extraction Method:	EPA 3511	**Level:**	Low
Analysis Method:	8270D SIM		

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Naphthalene	ND	U	0.020	0.0014	1	05/31/18	06/01/18	KWG1802746	
2-Methylnaphthalene	ND	U	0.020	0.0013	1	05/31/18	06/01/18	KWG1802746	
Acenaphthylene	ND	U	0.020	0.0011	1	05/31/18	06/01/18	KWG1802746	
Acenaphthene	ND	U	0.020	0.0012	1	05/31/18	06/01/18	KWG1802746	
Fluorene	ND	U	0.020	0.0011	1	05/31/18	06/01/18	KWG1802746	
Phenanthrene	ND	U	0.020	0.0011	1	05/31/18	06/01/18	KWG1802746	
Anthracene	ND	U	0.020	0.00082	1	05/31/18	06/01/18	KWG1802746	
Fluoranthene	ND	U	0.020	0.00082	1	05/31/18	06/01/18	KWG1802746	
Pyrene	ND	U	0.020	0.0010	1	05/31/18	06/01/18	KWG1802746	
Benz(a)anthracene	**0.0031**	J	0.020	0.00097	1	05/31/18	06/01/18	KWG1802746	
Chrysene	ND	U	0.020	0.00076	1	05/31/18	06/01/18	KWG1802746	
Benzo(b)fluoranthene†	ND	U	0.020	0.00083	1	05/31/18	06/01/18	KWG1802746	
Benzo(k)fluoranthene	ND	U	0.020	0.00094	1	05/31/18	06/01/18	KWG1802746	
Benzo(a)pyrene	ND	U	0.020	0.0011	1	05/31/18	06/01/18	KWG1802746	
Indeno(1,2,3-cd)pyrene	ND	U	0.020	0.00089	1	05/31/18	06/01/18	KWG1802746	
Dibenz(a,h)anthracene	ND	U	0.020	0.0013	1	05/31/18	06/01/18	KWG1802746	
Benzo(g,h,i)perylene	ND	U	0.020	0.00086	1	05/31/18	06/01/18	KWG1802746	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Fluorene-d10	93	42-131	06/01/18	Acceptable
Fluoranthene-d10	106	42-133	06/01/18	Acceptable
Terphenyl-d14	84	32-129	06/01/18	Acceptable

† Analyte Comments

Benzo(b)fluoranthene	This analyte cannot be separated from Benzo(j)fluoranthene.

Comments:

QA/QC Report

Client: AECOM **Service Request:** K1804978
Project: Portland Harbor Pre-Remedial Design Investigation/60566335
Sample Matrix: Water

Surrogate Recovery Summary
Polynuclear Aromatic Hydrocarbons

Extraction Method: EPA 3511 **Units:** Percent
Analysis Method: 8270D SIM **Level:** Low

Sample Name	Lab Code	Sur1	Sur2	Sur3
PDI-RB-VV-180524	K1804978-015	101	108	99
Method Blank	KWG1802746-3	93	106	84
Lab Control Sample	KWG1802746-1	98	106	92
Duplicate Lab Control Sample	KWG1802746-2	93	104	81

Surrogate Recovery Control Limits (%)

Sur1	=	Fluorene-d10	42-131
Sur2	=	Fluoranthene-d10	42-133
Sur3	=	Terphenyl-d14	32-129

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

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

Service Request: K1804978
Date Analyzed: 06/01/2018
Time Analyzed: 20:09

Internal Standard Area and RT Summary
Polynuclear Aromatic Hydrocarbons

File ID: J:\MS20\DATA\060118\0601F021.D
Instrument ID: MS20
Analysis Method: 8270D SIM

Lab Code: KWG1802867-2
Analysis Lot: KWG1802867

		Naphthalene-d8		Acenaphthene-d10		Phenanthrene-d10	
		Area	**RT**	**Area**	**RT**	**Area**	**RT**
	Results ==>	60,395	5.95	34,091	8.26	71,794	11.44
	Upper Limit ==>	120,790	6.45	68,182	8.76	143,588	11.94
	Lower Limit ==>	30,198	5.45	17,046	7.76	35,897	10.94
	ICAL Result ==>	90,101	6.06	44,197	8.42	87,517	11.64
Associated Analyses							
Method Blank	KWG1802746-3	65,674	5.95	37,146	8.26	75,161	11.45
Lab Control Sample	KWG1802746-1	64,154	5.95	35,236	8.26	74,928	11.44
Duplicate Lab Control Sample	KWG1802746-2	65,244	5.95	36,169	8.26	75,997	11.44
PDI-RB-VV-180524	K1804978-015	65,762	5.95	37,224	8.26	77,054	11.44

Results flagged with an asterisk (*) indicate values outside control criteria.

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

Service Request: K1804978
Date Analyzed: 06/01/2018
Time Analyzed: 20:09

Internal Standard Area and RT Summary
Polynuclear Aromatic Hydrocarbons

File ID: J:\MS20\DATA\060118\0601F021.D
Instrument ID: MS20
Analysis Method: 8270D SIM

Lab Code: KWG1802867-2
Analysis Lot: KWG1802867

		Chrysene-d12		Perylene-d12	
		Area	**RT**	**Area**	**RT**
	Results ==>	80,428	18.80	90,892	23.09
	Upper Limit ==>	160,856	19.30	181,784	23.59
	Lower Limit ==>	40,214	18.30	45,446	22.59
	ICAL Result ==>	105,110	19.00	102,151	23.35
Associated Analyses					
Method Blank	KWG1802746-3	86,398	18.80	97,099	23.09
Lab Control Sample	KWG1802746-1	84,098	18.80	96,233	23.08
Duplicate Lab Control Sample	KWG1802746-2	85,136	18.79	97,699	23.07
PDI-RB-VV-180524	K1804978-015	87,162	18.80	99,749	23.08

Results flagged with an asterisk (*) indicate values outside control criteria.

Client:	AECOM	**Service Request:**	K1804978
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Extracted:**	05/31/2018
Sample Matrix:	Water	**Date Analyzed:**	06/01/2018

Lab Control Spike/Duplicate Lab Control Spike Summary
Polynuclear Aromatic Hydrocarbons

Extraction Method:	EPA 3511	**Units:**	ug/L
Analysis Method:	8270D SIM	**Basis:**	NA
		Level:	Low
		Extraction Lot:	KWG1802746

	Lab Control Sample KWG1802746-1 Lab Control Spike			Duplicate Lab Control Sample KWG1802746-2 Duplicate Lab Control Spike					
Analyte Name	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
Naphthalene	2.73	2.78	98	2.65	2.78	95	52-115	3	30
2-Methylnaphthalene	2.75	2.78	99	2.67	2.78	96	48-120	3	30
Acenaphthylene	2.79	2.78	101	2.70	2.78	97	58-124	3	30
Acenaphthene	2.62	2.78	94	2.55	2.78	92	63-121	3	30
Fluorene	2.69	2.78	97	2.60	2.78	94	68-121	3	30
Phenanthrene	2.61	2.78	94	2.56	2.78	92	64-126	2	30
Anthracene	2.76	2.78	99	2.69	2.78	97	68-127	3	30
Fluoranthene	2.78	2.78	100	2.73	2.78	98	70-127	2	30
Pyrene	3.03	2.78	109	2.99	2.78	108	72-127	1	30
Benz(a)anthracene	3.21	2.78	116	3.09	2.78	111	74-124	4	30
Chrysene	2.91	2.78	105	2.89	2.78	104	74-132	1	30
Benzo(b)fluoranthene	2.89	2.78	104	2.83	2.78	102	73-136	2	30
Benzo(k)fluoranthene	2.78	2.78	100	2.70	2.78	97	74-134	3	30
Benzo(a)pyrene	3.02	2.78	109	2.94	2.78	106	75-131	3	30
Indeno(1,2,3-cd)pyrene	3.06	2.78	110	2.97	2.78	107	63-136	3	30
Dibenz(a,h)anthracene	3.00	2.78	108	2.89	2.78	104	59-135	4	30
Benzo(g,h,i)perylene	2.65	2.78	95	2.56	2.78	92	63-127	3	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

QA/QC Report

Client:	AECOM	**Service Request:**	K1804978
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Extracted:**	05/31/2018
Sample Matrix:	Water	**Date Analyzed:**	06/01/2018
		Time Analyzed:	20:49

Method Blank Summary
Polynuclear Aromatic Hydrocarbons

Sample Name:	Method Blank	**Instrument ID:**	MS20
Lab Code:	KWG1802746-3	**File ID:**	J:\MS20\DATA\060118\0601F022.D
Extraction Method:	EPA 3511	**Level:**	Low
Analysis Method:	8270D SIM	**Extraction Lot:**	KWG1802746

This Method Blank applies to the following analyses:

Sample Name	Lab Code	File ID	Date Analyzed	Time Analyzed
Lab Control Sample	KWG1802746-1	J:\MS20\DATA\060118\0601F023.D	06/01/18	21:28
Duplicate Lab Control Sample	KWG1802746-2	J:\MS20\DATA\060118\0601F024.D	06/01/18	22:07
PDI-RB-VV-180524	K1804978-015	J:\MS20\DATA\060118\0601F025.D	06/01/18	22:47

QA/QC Report

Client:	AECOM	**Service Request:**	K1804978
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Extracted:**	05/31/2018
Sample Matrix:	Water	**Date Analyzed:**	06/01/2018
		Time Analyzed:	21:28

Lab Control Sample Summary
Polynuclear Aromatic Hydrocarbons

Sample Name:	Lab Control Sample	**Instrument ID:**	MS20
Lab Code:	KWG1802746-1	**File ID:**	J:\MS20\DATA\060118\0601F023.D
Extraction Method:	EPA 3511	**Level:**	Low
Analysis Method:	8270D SIM	**Extraction Lot:**	KWG1802746

This Lab Control Sample applies to the following analyses:

Sample Name	Lab Code	File ID	Date Analyzed	Time Analyzed
Method Blank	KWG1802746-3	J:\MS20\DATA\060118\0601F022.D	06/01/18	20:49
PDI-RB-VV-180524	K1804978-015	J:\MS20\DATA\060118\0601F025.D	06/01/18	22:47

QA/QC Results

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

Service Request: K1804978
Date Analyzed: 06/01/2018
Time Analyzed: 19:30

Tune Summary
Polynuclear Aromatic Hydrocarbons

File ID: J:\MS20\DATA\060118\0601F020.D
Instrument ID: MS20
Column:

Analysis Method: 8270D SIM
Analysis Lot: KWG1802867

Target Mass	Relative to Mass	Lower Limit%	Upper Limit%	Relative Abundance %	Raw Abundance	Result Pass/Fail
51	198	10	80	22.2	53394	PASS
68	69	0	2	0.0	0	PASS
69	198	0	100	24.0	57527	PASS
70	69	0	2	0.7	402	PASS
127	198	10	80	36.1	86738	PASS
197	198	0	2	0.0	0	PASS
198	442	30	100	37.3	240149	PASS
199	198	5	9	6.7	16007	PASS
275	198	10	60	37.7	90616	PASS
365	442	1	50	2.2	14355	PASS
441	443	0	100	84.4	105282	PASS
442	442	100	100	100.0	644309	PASS
443	442	15	24	19.4	124738	PASS

Sample Name	Lab Code	File ID	Date Analyzed	Time Analyzed	Q
Continuing Calibration Verification	KWG1802867-2	J:\MS20\DATA\060118\0601F021.D	06/01/2018	20:09	
Method Blank	KWG1802746-3	J:\MS20\DATA\060118\0601F022.D	06/01/2018	20:49	
Lab Control Sample	KWG1802746-1	J:\MS20\DATA\060118\0601F023.D	06/01/2018	21:28	
Duplicate Lab Control Sample	KWG1802746-2	J:\MS20\DATA\060118\0601F024.D	06/01/2018	22:07	
PDI-RB-VV-180524	K1804978-015	J:\MS20\DATA\060118\0601F025.D	06/01/2018	22:47	

Results flagged with an asterisk (*) indicate the analysis performed outside specified tune window

Client: AECOM **Service Request:** K1804978
Project: Portland Harbor Pre-Remedial Design Investigation/60566335 **Calibration Date:** 11/02/2017

Initial Calibration Summary
Polynuclear Aromatic Hydrocarbons

Calibration ID: CAL15594 **Column:** MS
Instrument ID: MS20

Level ID	File ID	Level ID	File ID
A	J:\MS20\DATA\110217\1102F003.D	G	J:\MS20\DATA\110217\1102F009.D
B	J:\MS20\DATA\110217\1102F004.D	H	J:\MS20\DATA\110217\1102F010.D
C	J:\MS20\DATA\110217\1102F005.D	I	J:\MS20\DATA\110217\1102F011.D
D	J:\MS20\DATA\110217\1102F006.D	J	J:\MS20\DATA\110217\1102F012.D
E	J:\MS20\DATA\110217\1102F007.D		
F	J:\MS20\DATA\110217\1102F008.D		

Analyte Name	Level ID	Amt	RRF	Level ID	Amt	RRF	Level ID	Amt	RRF	Level ID	Amt	RRF	Level ID	Amt	RRF
Naphthalene	A	2.0	1.21	B	4.0	1.04	C	8.0	1.03	D	20	0.996	E	100	0.990
	F	200	0.989	G	400	1.02	H	1000	1.01	I	1600	0.972	J	2000	0.967
2-Methylnaphthalene	A	2.0	0.781	B	4.0	0.671	C	8.0	0.661	D	20	0.679	E	100	0.678
	F	200	0.694	G	400	0.692	H	1000	0.678	I	1600	0.645	J	2000	0.644
Acenaphthylene	A	2.0	2.23	B	4.0	1.95	C	8.0	1.92	D	20	1.97	E	100	1.97
	F	200	2.00	G	400	2.07	H	1000	2.08	I	1600	2.05	J	2000	2.02
Acenaphthene	A	2.0	1.45	B	4.0	1.25	C	8.0	1.25	D	20	1.24	E	100	1.21
	F	200	1.22	G	400	1.25	H	1000	1.23	I	1600	1.21	J	2000	1.19
Fluorene	A	2.0	1.81	B	4.0	1.46	C	8.0	1.44	D	20	1.44	E	100	1.46
	F	200	1.47	G	400	1.51	H	1000	1.48	I	1600	1.45	J	2000	1.44
Phenanthrene	A	2.0	1.50	B	4.0	1.16	C	8.0	1.16	D	20	1.16	E	100	1.12
	F	200	1.13	G	400	1.15	H	1000	1.14	I	1600	1.10	J	2000	1.09
Anthracene	A	2.0	1.32	B	4.0	1.05	C	8.0	1.04	D	20	1.03	E	100	1.03
	F	200	1.06	G	400	1.10	H	1000	1.11	I	1600	1.08	J	2000	1.06
Fluoranthene	A	2.0	1.51	B	4.0	1.20	C	8.0	1.19	D	20	1.24	E	100	1.23
	F	200	1.27	G	400	1.32	H	1000	1.30	I	1600	1.25	J	2000	1.24
Pyrene	A	2.0	1.34	B	4.0	1.10	C	8.0	1.09	D	20	1.10	E	100	1.08
	F	200	1.09	G	400	1.12	H	1000	1.13	I	1600	1.12	J	2000	1.11
Benz(a)anthracene	A	2.0	1.36	B	4.0	1.13	C	8.0	1.03	D	20	1.02	E	100	0.986
	F	200	1.01	G	400	1.05	H	1000	1.09	I	1600	1.09	J	2000	1.10
Chrysene	A	2.0	1.26	B	4.0	1.06	C	8.0	1.08	D	20	1.07	E	100	1.06
	F	200	1.06	G	400	1.07	H	1000	1.06	I	1600	1.06	J	2000	1.04
Benzo(b)fluoranthene	A	2.0	1.22	B	4.0	1.06	C	8.0	1.06	D	20	1.10	E	100	1.10
	F	200	1.12	G	400	1.17	H	1000	1.19	I	1600	1.20	J	2000	1.18
Benzo(k)fluoranthene	A	2.0	1.19	B	4.0	1.07	C	8.0	1.09	D	20	1.09	E	100	1.15
	F	200	1.18	G	400	1.20	H	1000	1.19	I	1600	1.19	J	2000	1.18
Benzo(a)pyrene	A	2.0	0.956	B	4.0	0.883	C	8.0	0.866	D	20	0.903	E	100	0.955
	F	200	1.00	G	400	1.06	H	1000	1.06	I	1600	1.08	J	2000	1.08

Results flagged with an asterisk (*) indicate values outside control criteria.

† SPCC Compound **‡ CCC Compound**

Client: AECOM **Service Request:** K1804978
Project: Portland Harbor Pre-Remedial Design Investigation/60566335 **Calibration Date:** 11/02/2017

Initial Calibration Summary
Polynuclear Aromatic Hydrocarbons

Calibration ID: CAL15594 **Column:** MS
Instrument ID: MS20

Analyte Name	Level ID	Amt	RRF	Level ID	Amt	RRF	Level ID	Amt	RRF	Level ID	Amt	RRF	Level ID	Amt	RRF
Indeno(1,2,3-cd)pyrene	A	2.0	1.05	B	4.0	0.927	C	8.0	0.901	D	20	0.943	E	100	0.987
	F	200	1.03	G	400	1.10	H	1000	1.08	I	1600	1.07	J	2000	1.07
Dibenz(a,h)anthracene	A	2.0	1.02	B	4.0	0.967	C	8.0	0.953	D	20	1.01	E	100	1.05
	F	200	1.08	G	400	1.13	H	1000	1.11	I	1600	1.10	J	2000	1.10
Benzo(g,h,i)perylene	A	2.0	1.36	B	4.0	1.19	C	8.0	1.17	D	20	1.25	E	100	1.21
	F	200	1.23	G	400	1.27	H	1000	1.18	I	1600	1.17	J	2000	1.16
Fluorene-d10				B	4.0	1.51	C	8.0	1.31	D	20	1.26	E	100	1.23
	F	200	1.23	G	400	1.27	H	1000	1.25	I	1600	1.23	J	2000	1.21
Fluoranthene-d10	A	2.0	1.49	B	4.0	1.12	C	8.0	1.07	D	20	1.08	E	100	1.06
	F	200	1.10	G	400	1.15	H	1000	1.17	I	1600	1.16	J	2000	1.15
Terphenyl-d14	A	2.0	1.04	B	4.0	0.848	C	8.0	0.825	D	20	0.837	E	100	0.817
	F	200	0.826	G	400	0.831	H	1000	0.840	I	1600	0.837	J	2000	0.829

Results flagged with an asterisk (*) indicate values outside control criteria.

† SPCC Compound **‡ CCC Compound**

Client: AECOM **Service Request:** K1804978
Project: Portland Harbor Pre-Remedial Design Investigation/60566335 **Calibration Date:** 11/02/2017

Initial Calibration Summary
Polynuclear Aromatic Hydrocarbons

Calibration ID: CAL15594 **Column:** MS
Instrument ID: MS20

		Calibration Evaluation					RRF Evaluation		
Analyte Name	**Compound Type**	**Fit Type**	**Eval.**	**Eval. Result**	**Q**	**Control Criteria**	**Average RRF**	**Q**	**Minimum RRF**
Naphthalene	MS	AverageRF	% RSD	6.8		≤ 20	1.02		0.70
2-Methylnaphthalene	MS	AverageRF	% RSD	5.7		≤ 20	0.682		0.40
Acenaphthylene	MS	AverageRF	% RSD	4.4		≤ 20	2.03		0.90
Acenaphthene	MS	AverageRF	% RSD	5.8		≤ 20	1.25		0.90
Fluorene	MS	AverageRF	% RSD	7.5		≤ 20	1.50		0.90
Phenanthrene	MS	AverageRF	% RSD	10.0		≤ 20	1.17		0.70
Anthracene	MS	AverageRF	% RSD	7.9		≤ 20	1.09		0.70
Fluoranthene	MS	AverageRF	% RSD	7.2		≤ 20	1.27		0.60
Pyrene	MS	AverageRF	% RSD	6.7		≤ 20	1.13		0.60
Benz(a)anthracene	MS	AverageRF	% RSD	9.8		≤ 20	1.09		0.80
Chrysene	MS	AverageRF	% RSD	5.7		≤ 20	1.08		0.70
Benzo(b)fluoranthene	MS	AverageRF	% RSD	5.0		≤ 20	1.14		0.70
Benzo(k)fluoranthene	MS	AverageRF	% RSD	4.4		≤ 20	1.15		0.70
Benzo(a)pyrene	MS	AverageRF	% RSD	8.4		≤ 20	0.984		0.70
Indeno(1,2,3-cd)pyrene	MS	AverageRF	% RSD	7.1		≤ 20	1.02		0.50
Dibenz(a,h)anthracene	MS	AverageRF	% RSD	5.9		≤ 20	1.05		0.40
Benzo(g,h,i)perylene	MS	AverageRF	% RSD	5.1		≤ 20	1.22		0.50
Fluorene-d10	SURR	AverageRF	% RSD	7.1		≤ 20	1.28		0.01
Fluoranthene-d10	SURR	AverageRF	% RSD	10.7		≤ 20	1.15		0.01
Terphenyl-d14	SURR	AverageRF	% RSD	7.7		≤ 20	0.853		0.01

Results flagged with an asterisk (*) indicate values outside control criteria.

† SPCC Compound **‡ CCC Compound**

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

Service Request: K1804978
Calibration Date: 11/02/2017
Date Analyzed: 11/02/2017

Second Source Calibration Verification
Polynuclear Aromatic Hydrocarbons

Calibration Type: Internal Standard
Analysis Method: 8270D SIM

Calibration ID: CAL15594
Units: ng/ml

File ID: J:\MS20\DATA\110217\1102F013.D

Analyte Name	Expected	Result	Average RF	SSV RF	%D	%Drift	Criteria	Curve Fit
Naphthalene	400	360	1.02	0.924	-10	NA	± 30 %	AverageRF
2-Methylnaphthalene	400	380	0.682	0.644	-6	NA	± 30 %	AverageRF
Acenaphthylene	400	380	2.03	1.93	-5	NA	± 30 %	AverageRF
Acenaphthene	400	380	1.25	1.17	-6	NA	± 30 %	AverageRF
Fluorene	400	370	1.50	1.39	-7	NA	± 30 %	AverageRF
Phenanthrene	400	370	1.17	1.08	-8	NA	± 30 %	AverageRF
Anthracene	400	380	1.09	1.03	-6	NA	± 30 %	AverageRF
Fluoranthene	400	400	1.27	1.28	0	NA	± 30 %	AverageRF
Pyrene	400	380	1.13	1.08	-5	NA	± 30 %	AverageRF
Benz(a)anthracene	400	370	1.09	0.996	-8	NA	± 30 %	AverageRF
Chrysene	400	380	1.08	1.03	-5	NA	± 30 %	AverageRF
Benzo(b)fluoranthene	400	380	1.14	1.10	-4	NA	± 30 %	AverageRF
Benzo(k)fluoranthene	400	390	1.15	1.13	-2	NA	± 30 %	AverageRF
Benzo(a)pyrene	400	400	0.984	0.973	-1	NA	± 30 %	AverageRF
Indeno(1,2,3-cd)pyrene	400	370	1.02	0.946	-7	NA	± 30 %	AverageRF
Dibenz(a,h)anthracene	400	380	1.05	1.00	-5	NA	± 30 %	AverageRF
Benzo(g,h,i)perylene	400	360	1.22	1.11	-9	NA	± 30 %	AverageRF

Results flagged with an asterisk (*) indicate values outside control criteria.

† SPCC Compound **‡ CCC Compound**

Client: AECOM **Service Request:** K1804978
Project: Portland Harbor Pre-Remedial Design Investigation/60566335 **Date Analyzed:** 06/01/2018

Continuing Calibration Verification Summary
Polynuclear Aromatic Hydrocarbons

Calibration Type: Internal Standard **Calibration Date:** 11/02/2017
Analysis Method: 8270D SIM **Calibration ID:** CAL15594
Analysis Lot: KWG1802867
Units: ng/ml

File ID: J:\MS20\DATA\060118\0601F021.D

Analyte Name	Expected	Result	Min RF	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Naphthalene	400	420	0.70	1.02	1.08	6	NA	± 20	AverageRF
2-Methylnaphthalene	400	420	0.40	0.682	0.722	6	NA	± 20	AverageRF
Acenaphthylene	400	410	0.90	2.03	2.07	2	NA	± 20	AverageRF
Acenaphthene	400	390	0.90	1.25	1.22	-2	NA	± 20	AverageRF
Fluorene	400	400	0.90	1.50	1.50	0	NA	± 20	AverageRF
Phenanthrene	400	390	0.70	1.17	1.13	-4	NA	± 20	AverageRF
Anthracene	400	370	0.70	1.09	1.01	-8	NA	± 20	AverageRF
Fluoranthene	400	420	0.60	1.27	1.34	5	NA	± 20	AverageRF
Pyrene	400	450	0.60	1.13	1.27	12	NA	± 20	AverageRF
Benz(a)anthracene	400	460	0.80	1.09	1.25	15	NA	± 20	AverageRF
Chrysene	400	430	0.70	1.08	1.17	8	NA	± 20	AverageRF
Benzo(b)fluoranthene	400	420	0.70	1.14	1.19	4	NA	± 20	AverageRF
Benzo(k)fluoranthene	400	410	0.70	1.15	1.17	2	NA	± 20	AverageRF
Benzo(a)pyrene	400	440	0.70	0.984	1.08	9	NA	± 20	AverageRF
Indeno(1,2,3-cd)pyrene	400	440	0.50	1.02	1.12	11	NA	± 20	AverageRF
Dibenz(a,h)anthracene	400	440	0.40	1.05	1.15	9	NA	± 20	AverageRF
Benzo(g,h,i)perylene	400	390	0.50	1.22	1.18	-3	NA	± 20	AverageRF
Fluorene-d10	400	410	0.01	1.28	1.31	3	NA	± 20	AverageRF
Fluoranthene-d10	400	440	0.01	1.15	1.27	10	NA	± 20	AverageRF
Terphenyl-d14	400	440	0.01	0.853	0.945	11	NA	± 20	AverageRF

Results flagged with an asterisk (*) indicate values outside control criteria.

† SPCC Compound **‡ CCC Compound**

QA/QC Results

Client: AECOM **Service Request:** K1804978
Project: Portland Harbor Pre-Remedial Design Investigation/60566335

Analysis Run Log
Polynuclear Aromatic Hydrocarbons

Analysis Method: 8270D SIM **Analysis Lot:** KWG1802867
Instrument ID: MS20

File ID	Sample Name	Lab Code	Date Analysis Started	Start Time	Q	Date Analysis Finished	Finish Time
0601F020.D	GC/MS Tuning - Decafluorotriphenylphosph	KWG1802867-1	6/1/2018	19:30		6/1/2018	20:00
0601F021.D	Continuing Calibration Verification	KWG1802867-2	6/1/2018	20:09		6/1/2018	20:38
0601F022.D	Method Blank	KWG1802746-3	6/1/2018	20:49		6/1/2018	21:18
0601F023.D	Lab Control Sample	KWG1802746-1	6/1/2018	21:28		6/1/2018	21:57
0601F024.D	Duplicate Lab Control Sample	KWG1802746-2	6/1/2018	22:07		6/1/2018	22:36
0601F025.D	PDI-RB-VV-180524	K1804978-015	6/1/2018	22:47		6/1/2018	23:16
0601F026.D	ZZZZZZ	ZZZZZZ	6/1/2018	23:26		6/1/2018	23:55
0601F027.D	ZZZZZZ	ZZZZZZ	6/2/2018	00:06		6/2/2018	00:35
0601F028.D	ZZZZZZ	ZZZZZZ	6/2/2018	00:45		6/2/2018	01:14
0601F029.D	ZZZZZZ	ZZZZZZ	6/2/2018	01:24		6/2/2018	01:53
0601F030.D	ZZZZZZ	ZZZZZZ	6/2/2018	02:04		6/2/2018	02:33
0601F031.D	ZZZZZZ	ZZZZZZ	6/2/2018	02:43		6/2/2018	03:12
0601F032.D	ZZZZZZ	ZZZZZZ	6/2/2018	03:22		6/2/2018	03:51
0601F033.D	ZZZZZZ	ZZZZZZ	6/2/2018	04:02		6/2/2018	04:31
0601F034.D	ZZZZZZ	ZZZZZZ	6/2/2018	04:41		6/2/2018	05:10
0601F035.D	ZZZZZZ	ZZZZZZ	6/2/2018	05:20		6/2/2018	05:49
0601F036.D	ZZZZZZ	ZZZZZZ	6/2/2018	06:00		6/2/2018	06:29
0601F037.D	ZZZZZZ	ZZZZZZ	6/2/2018	06:39		6/2/2018	07:08
0601F038.D	ZZZZZZ	ZZZZZZ	6/2/2018	07:19		6/2/2018	07:48

Results flagged with an asterisk (*) indicate the holding time was exceeded for the analysis

QA/QC Results

Client:	AECOM	**Service Request:**	K1804978
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Extracted:**	05/31/2018
Sample Matrix:	Water		

Extraction Prep Log
Polynuclear Aromatic Hydrocarbons

Extraction Method:	EPA 3511	**Extraction Lot:**	KWG1802746
Analysis Method:	8270D SIM	**Level:**	Low

Sample Name	Lab Code	Date Collected	Date Received	Sample Amount	Final Volume	% Solids	Note
PDI-RB-VV-180524	K1804978-015	05/24/18	05/25/18	440ml	2ml	NA	
Method Blank	KWG1802746-3	NA	NA	450ml	2ml	NA	
Lab Control Sample	KWG1802746-1	NA	NA	450ml	2ml	NA	
Duplicate Lab Control Sample	KWG1802746-2	NA	NA	450ml	2ml	NA	

Results flagged with an asterisk (*) indicate the holding time was exceeded for the analysis

Low Level Semivolatile Organic Compounds by GC/MS

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

Analytical Report

Client:	AECOM	**Service Request:**	K1804978
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Collected:**	05/24/18 10:32
Sample Matrix:	Sediment	**Date Received:**	05/25/18 14:05
Sample Name:	PDI-SG-B330-BL1	**Units:**	ug/Kg
Lab Code:	K1804978-001	**Basis:**	Dry

Low Level Semivolatile Organic Compounds by GC/MS

Analysis Method: 8270D
Prep Method: EPA 3541

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Bis(2-ethylhexyl) Phthalate	**61 J**	110	9.8	1	06/22/18 22:30	6/7/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
p-Terphenyl-d14	88	30 - 102	06/22/18 22:30	

Analytical Report

Client:	AECOM	**Service Request:**	K1804978
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Collected:**	05/24/18 11:45
Sample Matrix:	Sediment	**Date Received:**	05/25/18 14:05
Sample Name:	PDI-SG-B332-BL1	**Units:**	ug/Kg
Lab Code:	K1804978-002	**Basis:**	Dry

Low Level Semivolatile Organic Compounds by GC/MS

Analysis Method: 8270D
Prep Method: EPA 3541

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Bis(2-ethylhexyl) Phthalate	**59 J**	90	8.9	1	06/30/18 16:37	6/1/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
p-Terphenyl-d14	86	30 - 102	06/30/18 16:37	

Analytical Report

Client:	AECOM	**Service Request:**	K1804978
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Collected:**	05/24/18 14:18
Sample Matrix:	Sediment	**Date Received:**	05/25/18 14:05
Sample Name:	PDI-SG-B337-BL1	**Units:**	ug/Kg
Lab Code:	K1804978-003	**Basis:**	Dry

Low Level Semivolatile Organic Compounds by GC/MS

Analysis Method: 8270D
Prep Method: EPA 3541

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Bis(2-ethylhexyl) Phthalate	**94**	85	8.9	1	06/30/18 17:05	6/1/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
p-Terphenyl-d14	94	30 - 102	06/30/18 17:05	

Analytical Report

Client:	AECOM	**Service Request:**	K1804978
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Collected:**	05/24/18 15:10
Sample Matrix:	Sediment	**Date Received:**	05/25/18 14:05
Sample Name:	PDI-SG-B333-BL1	**Units:**	ug/Kg
Lab Code:	K1804978-004	**Basis:**	Dry

Low Level Semivolatile Organic Compounds by GC/MS

Analysis Method: 8270D
Prep Method: EPA 3541

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Bis(2-ethylhexyl) Phthalate	**97 J**	110	10	1	06/30/18 17:34	6/1/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
p-Terphenyl-d14	96	30 - 102	06/30/18 17:34	

Analytical Report

Client:	AECOM	**Service Request:**	K1804978
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Collected:**	05/24/18 16:08
Sample Matrix:	Sediment	**Date Received:**	05/25/18 14:05
Sample Name:	PDI-SG-B338-BL1	**Units:**	ug/Kg
Lab Code:	K1804978-005	**Basis:**	Dry

Low Level Semivolatile Organic Compounds by GC/MS

Analysis Method: 8270D
Prep Method: EPA 3541

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Bis(2-ethylhexyl) Phthalate	**130**	96	8.9	1	06/30/18 18:02	6/1/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
p-Terphenyl-d14	98	30 - 102	06/30/18 18:02	

Analytical Report

Client:	AECOM	**Service Request:**	K1804978
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Collected:**	05/24/18 10:45
Sample Matrix:	Sediment	**Date Received:**	05/25/18 14:05
Sample Name:	PDI-SG-B399-BL1	**Units:**	ug/Kg
Lab Code:	K1804978-006	**Basis:**	Dry

Low Level Semivolatile Organic Compounds by GC/MS

Analysis Method: 8270D
Prep Method: EPA 3541

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Bis(2-ethylhexyl) Phthalate	**36 J**	68	8.9	1	06/30/18 18:31	6/1/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
p-Terphenyl-d14	89	30 - 102	06/30/18 18:31	

Analytical Report

Client:	AECOM	**Service Request:**	K1804978
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Collected:**	05/24/18 16:03
Sample Matrix:	Sediment	**Date Received:**	05/25/18 14:05
Sample Name:	PDI-SG-B424-BL1	**Units:**	ug/Kg
Lab Code:	K1804978-007	**Basis:**	Dry

Low Level Semivolatile Organic Compounds by GC/MS

Analysis Method: 8270D
Prep Method: EPA 3541

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Bis(2-ethylhexyl) Phthalate	**13 J**	65	8.9	1	06/30/18 19:00	6/1/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
p-Terphenyl-d14	91	30 - 102	06/30/18 19:00	

Analytical Report

Client:	AECOM	**Service Request:**	K1804978
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Collected:**	05/23/18 12:10
Sample Matrix:	Sediment	**Date Received:**	05/25/18 14:05
Sample Name:	PDI-SG-B410-BL1	**Units:**	ug/Kg
Lab Code:	K1804978-008	**Basis:**	Dry

Low Level Semivolatile Organic Compounds by GC/MS

Analysis Method: 8270D
Prep Method: EPA 3541

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Bis(2-ethylhexyl) Phthalate	**67 J**	84	8.9	1	06/30/18 19:28	6/1/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
p-Terphenyl-d14	84	30 - 102	06/30/18 19:28	

Analytical Report

Client:	AECOM	**Service Request:**	K1804978
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Collected:**	05/23/18 17:12
Sample Matrix:	Sediment	**Date Received:**	05/25/18 14:05
Sample Name:	PDI-SG-B335-BL1	**Units:**	ug/Kg
Lab Code:	K1804978-009	**Basis:**	Dry

Low Level Semivolatile Organic Compounds by GC/MS

Analysis Method: 8270D
Prep Method: EPA 3541

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Bis(2-ethylhexyl) Phthalate	**28 J**	76	8.9	1	06/30/18 19:56	6/1/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
p-Terphenyl-d14	82	30 - 102	06/30/18 19:56	

Analytical Report

Client:	AECOM	**Service Request:**	K1804978
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Collected:**	05/23/18 16:12
Sample Matrix:	Sediment	**Date Received:**	05/25/18 14:05
Sample Name:	PDI-SG-B326-BL1	**Units:**	ug/Kg
Lab Code:	K1804978-010	**Basis:**	Dry

Low Level Semivolatile Organic Compounds by GC/MS

Analysis Method: 8270D
Prep Method: EPA 3541

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Bis(2-ethylhexyl) Phthalate	**52 J**	77	8.9	1	06/30/18 20:25	6/1/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
p-Terphenyl-d14	79	30 - 102	06/30/18 20:25	

Analytical Report

Client:	AECOM	**Service Request:**	K1804978
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Collected:**	05/23/18 15:11
Sample Matrix:	Sediment	**Date Received:**	05/25/18 14:05
Sample Name:	PDI-SG-B324-BL1	**Units:**	ug/Kg
Lab Code:	K1804978-011	**Basis:**	Dry

Low Level Semivolatile Organic Compounds by GC/MS

Analysis Method: 8270D
Prep Method: EPA 3541

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Bis(2-ethylhexyl) Phthalate	**340**	87	8.9	1	06/30/18 20:53	6/1/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
p-Terphenyl-d14	80	30 - 102	06/30/18 20:53	

Analytical Report

Client:	AECOM	**Service Request:**	K1804978
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Collected:**	05/23/18 14:14
Sample Matrix:	Sediment	**Date Received:**	05/25/18 14:05
Sample Name:	PDI-SG-B319-BL1	**Units:**	ug/Kg
Lab Code:	K1804978-012	**Basis:**	Dry

Low Level Semivolatile Organic Compounds by GC/MS

Analysis Method: 8270D
Prep Method: EPA 3541

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Bis(2-ethylhexyl) Phthalate	**21 J**	70	8.9	1	06/30/18 21:22	6/1/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
p-Terphenyl-d14	87	30 - 102	06/30/18 21:22	

Analytical Report

Client:	AECOM	**Service Request:**	K1804978
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Collected:**	05/23/18 11:14
Sample Matrix:	Sediment	**Date Received:**	05/25/18 14:05
Sample Name:	PDI-SG-B318-BL1	**Units:**	ug/Kg
Lab Code:	K1804978-013	**Basis:**	Dry

Low Level Semivolatile Organic Compounds by GC/MS

Analysis Method: 8270D
Prep Method: EPA 3541

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Bis(2-ethylhexyl) Phthalate	**46 J**	93	8.9	1	06/30/18 21:51	6/1/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
p-Terphenyl-d14	92	30 - 102	06/30/18 21:51	

Analytical Report

Client:	AECOM	**Service Request:**	K1804978
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Collected:**	05/23/18 10:05
Sample Matrix:	Sediment	**Date Received:**	05/25/18 14:05
Sample Name:	PDI-SG-B253-BL1	**Units:**	ug/Kg
Lab Code:	K1804978-014	**Basis:**	Dry

Low Level Semivolatile Organic Compounds by GC/MS

Analysis Method: 8270D
Prep Method: EPA 3541

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Bis(2-ethylhexyl) Phthalate	**75**	71	8.9	1	06/30/18 22:19	6/1/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
p-Terphenyl-d14	82	30 - 102	06/30/18 22:19	

Analytical Report

Client:	AECOM	**Service Request:**	K1804978
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Collected:**	05/24/18 17:05
Sample Matrix:	Water	**Date Received:**	05/25/18 14:05
Sample Name:	PDI-RB-VV-180524	**Units:**	ug/L
Lab Code:	K1804978-015	**Basis:**	NA

Low Level Semivolatile Organic Compounds by GC/MS

Analysis Method: 8270D
Prep Method: EPA 3520C

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Bis(2-ethylhexyl) Phthalate	**0.33** J	0.95	0.13	1	05/31/18 13:24	5/29/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
p-Terphenyl-d14	101	48 - 109	05/31/18 13:24	

Analytical Report

Client:	AECOM	**Service Request:**	K1804978
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KQ1807052-03	**Basis:**	NA

Low Level Semivolatile Organic Compounds by GC/MS

Analysis Method: 8270D
Prep Method: EPA 3520C

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Bis(2-ethylhexyl) Phthalate	ND U	0.95	0.13	1	05/31/18 11:30	5/29/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
p-Terphenyl-d14	103	48 - 109	05/31/18 11:30	

Analytical Report

Client:	AECOM	**Service Request:**	K1804978
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ug/Kg
Lab Code:	KQ1807109-06	**Basis:**	Dry

Low Level Semivolatile Organic Compounds by GC/MS

Analysis Method: 8270D
Prep Method: EPA 3541

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Bis(2-ethylhexyl) Phthalate	ND U	50	8.9	1	06/30/18 13:45	6/1/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
p-Terphenyl-d14	102	30 - 102	06/30/18 13:45	

Analytical Report

Client:	AECOM	**Service Request:**	K1804978
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ug/Kg
Lab Code:	KQ1807254-04	**Basis:**	Dry

Low Level Semivolatile Organic Compounds by GC/MS

Analysis Method: 8270D
Prep Method: EPA 3541

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Bis(2-ethylhexyl) Phthalate	ND U	49	8.9	1	06/22/18 18:42	6/7/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
p-Terphenyl-d14	84	30 - 102	06/22/18 18:42	

Client: AECOM **Service Request:** K1804978

Project: Portland Harbor Pre-Remedial Design Investigation/60566335

Sample Matrix: Sediment

SURROGATE RECOVERY SUMMARY
Low Level Semivolatile Organic Compounds by GC/MS

Analysis Method: 8270D

Extraction Method: EPA 3541

Sample Name	Lab Code	p-Terphenyl-d14 30-102
PDI-SG-B330-BL1	K1804978-001	88
PDI-SG-B332-BL1	K1804978-002	86
PDI-SG-B337-BL1	K1804978-003	94
PDI-SG-B333-BL1	K1804978-004	96
PDI-SG-B338-BL1	K1804978-005	98
PDI-SG-B399-BL1	K1804978-006	89
PDI-SG-B424-BL1	K1804978-007	91
PDI-SG-B410-BL1	K1804978-008	84
PDI-SG-B335-BL1	K1804978-009	82
PDI-SG-B326-BL1	K1804978-010	79
PDI-SG-B324-BL1	K1804978-011	80
PDI-SG-B319-BL1	K1804978-012	87
PDI-SG-B318-BL1	K1804978-013	92
PDI-SG-B253-BL1	K1804978-014	82
Batch QC	K1805070-002	80
Method Blank	KQ1807109-06	102
Method Blank	KQ1807254-04	84
Lab Control Sample	KQ1807109-05	90
Lab Control Sample	KQ1807254-03	80
PDI-SG-B333-BL1	KQ1807109-01	76
PDI-SG-B333-BL1	KQ1807109-02	85
PDI-SG-B424-BL1	KQ1807109-03	88
PDI-SG-B424-BL1	KQ1807109-04	86
Batch QC	KQ1807254-01	71
Batch QC	KQ1807254-02	85

Client: AECOM **Service Request:** K1804978
Project: Portland Harbor Pre-Remedial Design Investigation/60566335 **Date Analyzed:** 05/31/18 08:50

Internal Standard Area and RT SUMMARY
Low Level Semivolatile Organic Compounds by GC/MS

File ID: J:\MS29\DATA\053118\0531F002.D\ **Lab Code:** KQ1807431-02
Instrument ID: K-MS-29 **Analysis Lot:** 593429
Analysis Method: 8270D **Signal ID:** 1

		Chrysene-d12	
		Area	**RT**
	ICAL Result ==>	261,572	15.40
	Upper Limit ==>	523,144	15.90
	Lower Limit ==>	130,786	14.90
Associated Analyses			
Continuing Calibration Verification	KQ1807431-02	255439	15.41
Method Blank	KQ1807052-03	228572	15.41
Lab Control Sample	KQ1807052-01	241110	15.41
Duplicate Lab Control Sample	KQ1807052-02	243750	15.41
PDI-RB-VV-180524	K1804978-015	214311	15.41

Client: AECOM **Service Request:** K1804978
Project: Portland Harbor Pre-Remedial Design Investigation/60566335 **Date Analyzed:** 06/22/18 15:50

Internal Standard Area and RT SUMMARY
Low Level Semivolatile Organic Compounds by GC/MS

File ID: J:\MS29\DATA\062218\0622F002.D\ **Lab Code:** KQ1808498-02
Instrument ID: K-MS-29 **Analysis Lot:** 595977
Analysis Method: 8270D **Signal ID:** 1

		Chrysene-d12	
		Area	**RT**
	ICAL Result ==>	269,198	15.37
	Upper Limit ==>	538,396	15.87
	Lower Limit ==>	134,599	14.87
Associated Analyses			
Continuing Calibration Verification	KQ1808498-02	305468	15.37
Method Blank	KQ1807254-04	228890	15.37
Lab Control Sample	KQ1807254-03	233489	15.37
Batch QCMS	KQ1807254-01	243069	15.38
Batch QCDMS	KQ1807254-02	238868	15.38
Batch QC	K1805070-002	247785	15.38
PDI-SG-B330-BL1	K1804978-001	235477	15.37

Client: AECOM **Service Request:** K1804978
Project: Portland Harbor Pre-Remedial Design Investigation/60566335 **Date Analyzed:** 06/30/18 11:23

Internal Standard Area and RT SUMMARY
Low Level Semivolatile Organic Compounds by GC/MS

File ID: J:\MS29\DATA\063018\0630F002.D\ **Lab Code:** KQ1808878-04
Instrument ID: K-MS-29 **Analysis Lot:** 597095
Analysis Method: 8270D **Signal ID:** 1

		Chrysene-d12	
		Area	**RT**
	ICAL Result ==>	269,198	15.37
	Upper Limit ==>	538,396	15.87
	Lower Limit ==>	134,599	14.87
Associated Analyses			
Continuing Calibration Verification	KQ1808878-04	230966	15.38
Method Blank	KQ1807109-06	195178	15.38
Lab Control Sample	KQ1807109-05	206324	15.38
PDI-SG-B333-BL1MS	KQ1807109-01	226279	15.38
PDI-SG-B333-BL1DMS	KQ1807109-02	211138	15.38
PDI-SG-B424-BL1MS	KQ1807109-03	215339	15.38
PDI-SG-B424-BL1DMS	KQ1807109-04	219160	15.38
PDI-SG-B332-BL1	K1804978-002	225820	15.38
PDI-SG-B337-BL1	K1804978-003	223638	15.38
PDI-SG-B333-BL1	K1804978-004	223581	15.38
PDI-SG-B338-BL1	K1804978-005	222979	15.38
PDI-SG-B399-BL1	K1804978-006	219136	15.38
PDI-SG-B424-BL1	K1804978-007	225544	15.38
PDI-SG-B410-BL1	K1804978-008	222410	15.38
PDI-SG-B335-BL1	K1804978-009	212768	15.38
PDI-SG-B326-BL1	K1804978-010	216871	15.38
PDI-SG-B324-BL1	K1804978-011	220683	15.39
PDI-SG-B319-BL1	K1804978-012	210442	15.38
PDI-SG-B318-BL1	K1804978-013	225276	15.41
PDI-SG-B253-BL1	K1804978-014	221439	15.38

Client:	AECOM	**Service Request:**	K1804978
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Collected:**	05/24/18
Sample Matrix:	Sediment	**Date Received:**	05/25/18
		Date Analyzed:	06/30/18
		Date Extracted:	06/1/18

Duplicate Matrix Spike Summary
Low Level Semivolatile Organic Compounds by GC/MS

Sample Name:	PDI-SG-B333-BL1	**Units:**	ug/Kg
Lab Code:	K1804978-004	**Basis:**	Dry
Analysis Method:	8270D		
Prep Method:	EPA 3541		

		Matrix Spike KQ1807109-01			Duplicate Matrix Spike KQ1807109-02					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Bis(2-ethylhexyl) Phthalate	97 J	534	280	156 *	321	279	80	23-123	50*	40

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client:	AECOM	**Service Request:**	K1804978
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Collected:**	05/24/18
Sample Matrix:	Sediment	**Date Received:**	05/25/18
		Date Analyzed:	06/30/18
		Date Extracted:	06/1/18

Duplicate Matrix Spike Summary
Low Level Semivolatile Organic Compounds by GC/MS

Sample Name:	PDI-SG-B424-BL1	**Units:**	ug/Kg
Lab Code:	K1804978-007	**Basis:**	Dry
Analysis Method:	8270D		
Prep Method:	EPA 3541		

		Matrix Spike KQ1807109-03			Duplicate Matrix Spike KQ1807109-04					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Bis(2-ethylhexyl) Phthalate	13 J	172	163	98	151	163	84	23-123	13	40

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client:	AECOM	**Service Request:**	K1804978
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Analyzed:**	06/30/18
Sample Matrix:	Sediment	**Date Extracted:**	06/01/18

Lab Control Sample Summary
Low Level Semivolatile Organic Compounds by GC/MS

Analysis Method:	8270D	**Units:**	ug/Kg
Prep Method:	EPA 3541	**Basis:**	Dry
		Analysis Lot:	597095

Lab Control Sample
KQ1807109-05

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Bis(2-ethylhexyl) Phthalate	217	250	87	39-113

Client:	AECOM	**Service Request:**	K1804978
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Analyzed:**	06/22/18
Sample Matrix:	Sediment	**Date Extracted:**	06/07/18

Lab Control Sample Summary
Low Level Semivolatile Organic Compounds by GC/MS

Analysis Method:	8270D	**Units:**	ug/Kg
Prep Method:	EPA 3541	**Basis:**	Dry
		Analysis Lot:	595977

Lab Control Sample
KQ1807254-03

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Bis(2-ethylhexyl) Phthalate	183	250	73	39-113

Client:	AECOM	**Service Request:**	K1804978
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Analyzed:**	05/31/18
Sample Matrix:	Water	**Date Extracted:**	05/29/18

Duplicate Lab Control Sample Summary
Low Level Semivolatile Organic Compounds by GC/MS

Analysis Method:	8270D	**Units:**	ug/L
Prep Method:	EPA 3520C	**Basis:**	NA
		Analysis Lot:	593429

	Lab Control Sample KQ1807052-01			Duplicate Lab Control Sample KQ1807052-02					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Bis(2-ethylhexyl) Phthalate	4.54	5.00	91	4.73	5.00	95	42-147	4	30

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	AECOM	**Service Request:**	K1804978
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Analyzed:**	05/31/18 11:30
Sample Matrix:	Water	**Date Extracted:**	05/29/18

Method Blank Summary
Low Level Semivolatile Organic Compounds by GC/MS

Sample Name:	Method Blank	**Instrument ID:**	K-MS-29
Lab Code:	KQ1807052-03	**File ID:**	J:\MS29\DATA\053118\0531F005.D\
Analysis Method:	8270D	**Analysis Lot:**	593429
Prep Method:	EPA 3520C	**Extraction Lot:**	314749

This Method Blank applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Lab Control Sample	KQ1807052-01	J:\MS29\DATA\053118\0531F006.D\	05/31/18 11:58
Duplicate Lab Control Sample	KQ1807052-02	J:\MS29\DATA\053118\0531F007.D\	05/31/18 12:27
PDI-RB-VV-180524	K1804978-015	J:\MS29\DATA\053118\0531F009.D\	05/31/18 13:24

Client:	AECOM	**Service Request:**	K1804978
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Analyzed:**	06/30/18 13:45
Sample Matrix:	Sediment	**Date Extracted:**	06/01/18

Method Blank Summary
Low Level Semivolatile Organic Compounds by GC/MS

Sample Name:	Method Blank	**Instrument ID:**	K-MS-29
Lab Code:	KQ1807109-06	**File ID:**	J:\MS29\DATA\063018\0630F007.D\
Analysis Method:	8270D	**Analysis Lot:**	597095
Prep Method:	EPA 3541	**Extraction Lot:**	314812

This Method Blank applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Lab Control Sample	KQ1807109-05	J:\MS29\DATA\063018\0630F008.D\	06/30/18 14:14
PDI-SG-B333-BL1MS	KQ1807109-01	J:\MS29\DATA\063018\0630F009.D\	06/30/18 14:43
PDI-SG-B333-BL1DMS	KQ1807109-02	J:\MS29\DATA\063018\0630F010.D\	06/30/18 15:11
PDI-SG-B424-BL1MS	KQ1807109-03	J:\MS29\DATA\063018\0630F011.D\	06/30/18 15:40
PDI-SG-B424-BL1DMS	KQ1807109-04	J:\MS29\DATA\063018\0630F012.D\	06/30/18 16:08
PDI-SG-B332-BL1	K1804978-002	J:\MS29\DATA\063018\0630F013.D\	06/30/18 16:37
PDI-SG-B337-BL1	K1804978-003	J:\MS29\DATA\063018\0630F014.D\	06/30/18 17:05
PDI-SG-B333-BL1	K1804978-004	J:\MS29\DATA\063018\0630F015.D\	06/30/18 17:34
PDI-SG-B338-BL1	K1804978-005	J:\MS29\DATA\063018\0630F016.D\	06/30/18 18:02
PDI-SG-B399-BL1	K1804978-006	J:\MS29\DATA\063018\0630F017.D\	06/30/18 18:31
PDI-SG-B424-BL1	K1804978-007	J:\MS29\DATA\063018\0630F018.D\	06/30/18 19:00
PDI-SG-B410-BL1	K1804978-008	J:\MS29\DATA\063018\0630F019.D\	06/30/18 19:28
PDI-SG-B335-BL1	K1804978-009	J:\MS29\DATA\063018\0630F020.D\	06/30/18 19:56
PDI-SG-B326-BL1	K1804978-010	J:\MS29\DATA\063018\0630F021.D\	06/30/18 20:25
PDI-SG-B324-BL1	K1804978-011	J:\MS29\DATA\063018\0630F022.D\	06/30/18 20:53
PDI-SG-B319-BL1	K1804978-012	J:\MS29\DATA\063018\0630F023.D\	06/30/18 21:22
PDI-SG-B318-BL1	K1804978-013	J:\MS29\DATA\063018\0630F024.D\	06/30/18 21:51
PDI-SG-B253-BL1	K1804978-014	J:\MS29\DATA\063018\0630F025.D\	06/30/18 22:19

Client:	AECOM	**Service Request:**	K1804978
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Analyzed:**	06/22/18 18:42
Sample Matrix:	Sediment	**Date Extracted:**	06/07/18

Method Blank Summary
Low Level Semivolatile Organic Compounds by GC/MS

Sample Name:	Method Blank	**Instrument ID:**	K-MS-29
Lab Code:	KQ1807254-04	**File ID:**	J:\MS29\DATA\062218\0622F008.D\
Analysis Method:	8270D	**Analysis Lot:**	595977
Prep Method:	EPA 3541	**Extraction Lot:**	315005

This Method Blank applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Lab Control Sample	KQ1807254-03	J:\MS29\DATA\062218\0622F009.D\	06/22/18 19:10
Batch QCMS	KQ1807254-01	J:\MS29\DATA\062218\0622F010.D\	06/22/18 19:39
Batch QCDMS	KQ1807254-02	J:\MS29\DATA\062218\0622F011.D\	06/22/18 20:07
Batch QC	K1805070-002	J:\MS29\DATA\062218\0622F013.D\	06/22/18 21:05
PDI-SG-B330-BL1	K1804978-001	J:\MS29\DATA\062218\0622F016.D\	06/22/18 22:30

Client:	AECOM	**Service Request:**	K1804978
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Analyzed:**	05/31/18 11:58
Sample Matrix:	Water	**Date Extracted:**	05/29/18

Lab Control Sample Summary
Low Level Semivolatile Organic Compounds by GC/MS

Sample Name:	Lab Control Sample	**Instrument ID:**	K-MS-29
Lab Code:	KQ1807052-01	**File ID:**	J:\MS29\DATA\053118\0531F006.D\
Analysis Method:	8270D	**Analysis Lot:**	593429
Prep Method:	EPA 3520C	**Extraction Lot:**	314749

This Lab Control Sample applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Method Blank	KQ1807052-03	J:\MS29\DATA\053118\0531F005.D\	05/31/18 11:30
Duplicate Lab Control Sample	KQ1807052-02	J:\MS29\DATA\053118\0531F007.D\	05/31/18 12:27
PDI-RB-VV-180524	K1804978-015	J:\MS29\DATA\053118\0531F009.D\	05/31/18 13:24

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	AECOM	**Service Request:**	K1804978
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Analyzed:**	06/30/18 14:14
Sample Matrix:	Sediment	**Date Extracted:**	06/01/18

Lab Control Sample Summary
Low Level Semivolatile Organic Compounds by GC/MS

Sample Name:	Lab Control Sample	**Instrument ID:**	K-MS-29
Lab Code:	KQ1807109-05	**File ID:**	J:\MS29\DATA\063018\0630F008.D\
Analysis Method:	8270D	**Analysis Lot:**	597095
Prep Method:	EPA 3541	**Extraction Lot:**	314812

This Lab Control Sample applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Method Blank	KQ1807109-06	J:\MS29\DATA\063018\0630F007.D\	06/30/18 13:45
PDI-SG-B333-BL1MS	KQ1807109-01	J:\MS29\DATA\063018\0630F009.D\	06/30/18 14:43
PDI-SG-B333-BL1DMS	KQ1807109-02	J:\MS29\DATA\063018\0630F010.D\	06/30/18 15:11
PDI-SG-B424-BL1MS	KQ1807109-03	J:\MS29\DATA\063018\0630F011.D\	06/30/18 15:40
PDI-SG-B424-BL1DMS	KQ1807109-04	J:\MS29\DATA\063018\0630F012.D\	06/30/18 16:08
PDI-SG-B332-BL1	K1804978-002	J:\MS29\DATA\063018\0630F013.D\	06/30/18 16:37
PDI-SG-B337-BL1	K1804978-003	J:\MS29\DATA\063018\0630F014.D\	06/30/18 17:05
PDI-SG-B333-BL1	K1804978-004	J:\MS29\DATA\063018\0630F015.D\	06/30/18 17:34
PDI-SG-B338-BL1	K1804978-005	J:\MS29\DATA\063018\0630F016.D\	06/30/18 18:02
PDI-SG-B399-BL1	K1804978-006	J:\MS29\DATA\063018\0630F017.D\	06/30/18 18:31
PDI-SG-B424-BL1	K1804978-007	J:\MS29\DATA\063018\0630F018.D\	06/30/18 19:00
PDI-SG-B410-BL1	K1804978-008	J:\MS29\DATA\063018\0630F019.D\	06/30/18 19:28
PDI-SG-B335-BL1	K1804978-009	J:\MS29\DATA\063018\0630F020.D\	06/30/18 19:56
PDI-SG-B326-BL1	K1804978-010	J:\MS29\DATA\063018\0630F021.D\	06/30/18 20:25
PDI-SG-B324-BL1	K1804978-011	J:\MS29\DATA\063018\0630F022.D\	06/30/18 20:53
PDI-SG-B319-BL1	K1804978-012	J:\MS29\DATA\063018\0630F023.D\	06/30/18 21:22
PDI-SG-B318-BL1	K1804978-013	J:\MS29\DATA\063018\0630F024.D\	06/30/18 21:51
PDI-SG-B253-BL1	K1804978-014	J:\MS29\DATA\063018\0630F025.D\	06/30/18 22:19

Client:	AECOM	**Service Request:**	K1804978
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Analyzed:**	06/22/18 19:10
Sample Matrix:	Sediment	**Date Extracted:**	06/07/18

Lab Control Sample Summary
Low Level Semivolatile Organic Compounds by GC/MS

Sample Name:	Lab Control Sample	**Instrument ID:**	K-MS-29
Lab Code:	KQ1807254-03	**File ID:**	J:\MS29\DATA\062218\0622F009.D\
Analysis Method:	8270D	**Analysis Lot:**	595977
Prep Method:	EPA 3541	**Extraction Lot:**	315005

This Lab Control Sample applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Method Blank	KQ1807254-04	J:\MS29\DATA\062218\0622F008.D\	06/22/18 18:42
Batch QCMS	KQ1807254-01	J:\MS29\DATA\062218\0622F010.D\	06/22/18 19:39
Batch QCDMS	KQ1807254-02	J:\MS29\DATA\062218\0622F011.D\	06/22/18 20:07
Batch QC	K1805070-002	J:\MS29\DATA\062218\0622F013.D\	06/22/18 21:05
PDI-SG-B330-BL1	K1804978-001	J:\MS29\DATA\062218\0622F016.D\	06/22/18 22:30

Client: AECOM **Service Request:**K1804978
Project: Portland Harbor Pre-Remedial Design Investigation/60566335 **Date Analyzed:**05/31/18 08:21

Tune Summary
Low Level Semivolatile Organic Compounds by GC/MS

File ID: J:\MS29\DATA\053118\0531F001.D\ **Analytical Method:** 8270D
Instrument ID: K-MS-29 **Analysis Lot:** 593429

Target Mass	Relative to Mass	Lower Limit %	Upper Limit %	Relative Abundance %	Raw Abundance	Result Pass/Fail
51	198	10	80	25.91	780032	Pass
68	69	0	2	1.68	16062	Pass
69	198	0	100	31.78	956828	Pass
70	69	0	2	0.48	4596	Pass
127	198	10	80	43.73	1316621	Pass
197	198	0	2	0.00	0	Pass
198	442	30	100	72.98	3010560	Pass
199	198	5	9	6.66	200469	Pass
275	198	10	60	29.48	887466	Pass
365	442	1	50	2.16	89128	Pass
441	443	0.01	100	78.01	618133	Pass
442	442	30	100	100.00	4125184	Pass
443	442	15	24	19.21	792341	Pass

Sample Name	Lab Code	File ID:	Date Analyzed:	Q
Continuing Calibration Verification	KQ1807431-02	J:\MS29\DATA\053118\0531F002.D\	05/31/18 08:50	
Method Blank	KQ1807052-03	J:\MS29\DATA\053118\0531F005.D\	05/31/18 11:30	
Lab Control Sample	KQ1807052-01	J:\MS29\DATA\053118\0531F006.D\	05/31/18 11:58	
Duplicate Lab Control Sample	KQ1807052-02	J:\MS29\DATA\053118\0531F007.D\	05/31/18 12:27	
PDI-RB-VV-180524	K1804978-015	J:\MS29\DATA\053118\0531F009.D\	05/31/18 13:24	

Client: AECOM **Service Request:**K1804978
Project: Portland Harbor Pre-Remedial Design Investigation/60566335 **Date Analyzed:**06/22/18 15:22

Tune Summary
Low Level Semivolatile Organic Compounds by GC/MS

File ID: J:\MS29\DATA\062218\0622F001.D\ **Analytical Method:** 8270D
Instrument ID: K-MS-29 **Analysis Lot:** 595977

Target Mass	Relative to Mass	Lower Limit %	Upper Limit %	Relative Abundance %	Raw Abundance	Result Pass/Fail
51	198	10	80	26.39	440661	Pass
68	69	0	2	1.53	8172	Pass
69	198	0	100	32.02	534592	Pass
70	69	0	2	0.48	2571	Pass
127	198	10	80	44.92	750080	Pass
197	198	0	2	0.21	3567	Pass
198	442	30	100	71.54	1669632	Pass
199	198	5	9	6.69	111634	Pass
275	198	10	60	29.81	497685	Pass
365	442	1	50	2.18	50914	Pass
441	443	0.01	100	77.41	351402	Pass
442	442	30	100	100.00	2333866	Pass
443	442	15	24	19.45	453930	Pass

Sample Name	Lab Code	File ID:	Date Analyzed:	Q
Continuing Calibration Verification	KQ1808498-02	J:\MS29\DATA\062218\0622F002.D\	06/22/18 15:50	
Method Blank	KQ1807254-04	J:\MS29\DATA\062218\0622F008.D\	06/22/18 18:42	
Lab Control Sample	KQ1807254-03	J:\MS29\DATA\062218\0622F009.D\	06/22/18 19:10	
Batch QC	KQ1807254-01	J:\MS29\DATA\062218\0622F010.D\	06/22/18 19:39	
Batch QC	KQ1807254-02	J:\MS29\DATA\062218\0622F011.D\	06/22/18 20:07	
Batch QC	K1805070-002	J:\MS29\DATA\062218\0622F013.D\	06/22/18 21:05	
PDI-SG-B330-BL1	K1804978-001	J:\MS29\DATA\062218\0622F016.D\	06/22/18 22:30	

Client: AECOM **Service Request:**K1804978
Project: Portland Harbor Pre-Remedial Design Investigation/60566335 **Date Analyzed:**06/30/18 10:55

Tune Summary
Low Level Semivolatile Organic Compounds by GC/MS

File ID: J:\MS29\DATA\063018\0630F001.D\ **Analytical Method:** 8270D
Instrument ID: K-MS-29 **Analysis Lot:** 597095

Target Mass	Relative to Mass	Lower Limit %	Upper Limit %	Relative Abundance %	Raw Abundance	Result Pass/Fail
51	198	10	80	25.99	377578	Pass
68	69	0	2	1.58	7222	Pass
69	198	0	100	31.44	456757	Pass
70	69	0	2	0.54	2452	Pass
127	198	10	80	44.01	639317	Pass
197	198	0	2	0.27	3908	Pass
198	442	30	100	60.85	1452821	Pass
199	198	5	9	6.67	96968	Pass
275	198	10	60	30.86	448405	Pass
365	442	1	50	2.00	47690	Pass
441	443	0.01	100	77.05	349546	Pass
442	442	30	100	100.00	2387456	Pass
443	442	15	24	19.00	453674	Pass

Sample Name	Lab Code	File ID:	Date Analyzed:	Q
Continuing Calibration Verification	KQ1808878-04	J:\MS29\DATA\063018\0630F002.D\	06/30/18 11:23	
Method Blank	KQ1807109-06	J:\MS29\DATA\063018\0630F007.D\	06/30/18 13:45	
Lab Control Sample	KQ1807109-05	J:\MS29\DATA\063018\0630F008.D\	06/30/18 14:14	
PDI-SG-B333-BL1	KQ1807109-01	J:\MS29\DATA\063018\0630F009.D\	06/30/18 14:43	
PDI-SG-B333-BL1	KQ1807109-02	J:\MS29\DATA\063018\0630F010.D\	06/30/18 15:11	
PDI-SG-B424-BL1	KQ1807109-03	J:\MS29\DATA\063018\0630F011.D\	06/30/18 15:40	
PDI-SG-B424-BL1	KQ1807109-04	J:\MS29\DATA\063018\0630F012.D\	06/30/18 16:08	
PDI-SG-B332-BL1	K1804978-002	J:\MS29\DATA\063018\0630F013.D\	06/30/18 16:37	
PDI-SG-B337-BL1	K1804978-003	J:\MS29\DATA\063018\0630F014.D\	06/30/18 17:05	
PDI-SG-B333-BL1	K1804978-004	J:\MS29\DATA\063018\0630F015.D\	06/30/18 17:34	
PDI-SG-B338-BL1	K1804978-005	J:\MS29\DATA\063018\0630F016.D\	06/30/18 18:02	
PDI-SG-B399-BL1	K1804978-006	J:\MS29\DATA\063018\0630F017.D\	06/30/18 18:31	
PDI-SG-B424-BL1	K1804978-007	J:\MS29\DATA\063018\0630F018.D\	06/30/18 19:00	
PDI-SG-B410-BL1	K1804978-008	J:\MS29\DATA\063018\0630F019.D\	06/30/18 19:28	
PDI-SG-B335-BL1	K1804978-009	J:\MS29\DATA\063018\0630F020.D\	06/30/18 19:56	
PDI-SG-B326-BL1	K1804978-010	J:\MS29\DATA\063018\0630F021.D\	06/30/18 20:25	
PDI-SG-B324-BL1	K1804978-011	J:\MS29\DATA\063018\0630F022.D\	06/30/18 20:53	
PDI-SG-B319-BL1	K1804978-012	J:\MS29\DATA\063018\0630F023.D\	06/30/18 21:22	
PDI-SG-B318-BL1	K1804978-013	J:\MS29\DATA\063018\0630F024.D\	06/30/18 21:51	

PDI-SG-B253-BL1	K1804978-014	J:\MS29\DATA\063018\0630F025.D\	06/30/18 22:19

Client: AECOM **Service Request:** K1804978
Project: Portland Harbor Pre-Remedial Design Investigation **Calibration Date:** 6/19/2018

Initial Calibration Summary
Low Level Semivolatile Organic Compounds by GC/MS

Calibration ID: KC1800284 **Signal ID:** 1
Instrument ID: K-MS-29

#	Lab Code	Sample Name	File Location	Acquisition Date
01	KC1800284-01	SVO_LL ICAL @ 0.05ppm | SVM57-73A	J:\MS29\DATA\061918A\0619A003.D	06/19/2018 12:54
02	KC1800284-02	SVO_LL ICAL @ 0.10ppm | SVM57-73B	J:\MS29\DATA\061918A\0619A004.D	06/19/2018 13:23
03	KC1800284-03	SVO_LL ICAL @ 0.20ppm | SVM57-73C	J:\MS29\DATA\061918A\0619A005.D	06/19/2018 13:51
04	KC1800284-04	SVO_LL ICAL @ 0.50ppm | SVM57-73D	J:\MS29\DATA\061918A\0619A006.D	06/19/2018 14:20
05	KC1800284-05	SVO_LL ICAL @ 1.0ppm | SVM57-73E	J:\MS29\DATA\061918A\0619A007.D	06/19/2018 14:49
06	KC1800284-06	SVO_LL ICAL @ 2.0ppm | SVM57-73F	J:\MS29\DATA\061918A\0619A008.D	06/19/2018 15:17
07	KC1800284-07	SVO_LL ICAL @ 3.0ppm | SVM57-73G	J:\MS29\DATA\061918A\0619A009.D	06/19/2018 15:46
08	KC1800284-08	SVO_LL ICAL @ 5.0ppm | SVM57-73H	J:\MS29\DATA\061918A\0619A010.D	06/19/2018 16:14
09	KC1800284-09	SVO_LL ICAL @ 7.0ppm | SVM57-73I	J:\MS29\DATA\061918A\0619A011.D	06/19/2018 16:43
10	KC1800284-10	SVO_LL ICAL @ 10ppm | SVM57-73J	J:\MS29\DATA\061918A\0619A012.D	06/19/2018 17:11

Analyte

Bis(2-ethylhexyl) Phthalate

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	50.000	0.5731	02	100.000	0.5652	03	200.000	0.621	04	500.000	0.6313
05	1000.000	0.6576	06	2000.000	0.6967	07	3000.000	0.6944	08	5000.000	0.765
09	7000.000	0.7928	10	10000.000	0.8052						

p-Terphenyl-d14

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	50.000	0.7746	02	100.000	0.752	03	200.000	0.8086	04	500.000	0.796
05	1000.000	0.8147	06	2000.000	0.8479	07	3000.000	0.8292	08	5000.000	0.8813
09	7000.000	0.9007	10	10000.000	0.8923						

Client: AECOM **Service Request:** K1804978
Project: Portland Harbor Pre-Remedial Design Investigation **Calibration Date:** 6/19/2018

Initial Calibration Summary
Low Level Semivolatile Organic Compounds by GC/MS

Calibration ID: KC1800284 **Signal ID:** 1
Instrument ID: K-MS-29

		Calibration Evaluation				Calibration Evaluation	
Analyte Name	Compound Type	Fit Type	Eval	Eval Result	Control Criteria	Average RRF	Minimum RRF
Bis(2-ethylhexyl) Phthalate	TRG	Average RF	% RSD	12.7	≤20	0.6802	0.010
p-Terphenyl-d14	SURR	Average RF	% RSD	6.1	≤20	0.8297	0.010

Client: AECOM **Service Request:** K1804978
Project: Portland Harbor Pre-Remedial Design Investigation **Calibration Date:** 5/29/2018

Initial Calibration Summary
Low Level Semivolatile Organic Compounds by GC/MS

Calibration ID: KC1800235 **Signal ID:** 1
Instrument ID: K-MS-29

#	Lab Code	Sample Name	File Location	Acquisition Date
01	KC1800235-01	SVO_LL ICAL @ 0.05ppm | SVM57-73A	J:\MS29\DATA\052918A\0529A003.D	05/29/2018 15:45
02	KC1800235-02	SVO_LL ICAL @ 0.10ppm | SVM57-73B	J:\MS29\DATA\052918A\0529A004.D	05/29/2018 16:14
03	KC1800235-03	SVO_LL ICAL @ 0.20ppm | SVM57-73C	J:\MS29\DATA\052918A\0529A005.D	05/29/2018 16:42
04	KC1800235-04	SVO_LL ICAL @ 0.50ppm | SVM57-73D	J:\MS29\DATA\052918A\0529A006.D	05/29/2018 17:11
05	KC1800235-05	SVO_LL ICAL @ 1.0ppm | SVM57-73E	J:\MS29\DATA\052918A\0529A007.D	05/29/2018 17:40
06	KC1800235-06	SVO_LL ICAL @ 2.0ppm | SVM57-73F	J:\MS29\DATA\052918A\0529A008.D	05/29/2018 18:08
07	KC1800235-07	SVO_LL ICAL @ 3.0ppm | SVM57-73G	J:\MS29\DATA\052918A\0529A009.D	05/29/2018 18:37
08	KC1800235-08	SVO_LL ICAL @ 5.0ppm | SVM57-73H	J:\MS29\DATA\052918A\0529A010.D	05/29/2018 19:05
09	KC1800235-09	SVO_LL ICAL @ 7.0ppm | SVM57-73I	J:\MS29\DATA\052918A\0529A011.D	05/29/2018 19:34
10	KC1800235-10	SVO_LL ICAL @ 10ppm | SVM57-73J	J:\MS29\DATA\052918A\0529A012.D	05/29/2018 20:03

Analyte

Bis(2-ethylhexyl) Phthalate

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	50.000	0.6315	02	100.000	0.6174	03	200.000	0.6534	04	500.000	0.7102
05	1000.000	0.7399	06	2000.000	0.8322	07	3000.000	0.8351	08	5000.000	0.8504
09	7000.000	0.8483	10	10000.000	0.8536						

p-Terphenyl-d14

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	50.000	0.9757	02	100.000	0.9361	03	200.000	0.9256	04	500.000	0.8922
05	1000.000	0.9197	06	2000.000	0.9417	07	3000.000	0.9336	08	5000.000	0.9404
09	7000.000	0.8918	10	10000.000	0.922						

Client: AECOM **Service Request:** K1804978
Project: Portland Harbor Pre-Remedial Design Investigation **Calibration Date:** 5/29/2018

Initial Calibration Summary
Low Level Semivolatile Organic Compounds by GC/MS

Calibration ID: KC1800235 **Signal ID:** 1
Instrument ID: K-MS-29

		Calibration Evaluation				Calibration Evaluation	
Analyte Name	Compound Type	Fit Type	Eval	Eval Result	Control Criteria	Average RRF	Minimum RRF
Bis(2-ethylhexyl) Phthalate	TRG	Average RF	% RSD	13.0	≤20	0.7572	0.010
p-Terphenyl-d14	SURR	Average RF	% RSD	2.6	≤20	0.9279	0.010

Client: AECOM **Service Request:** K1804978
Project: Portland Harbor Pre-Remedial Design Investigation **Calibration Date:** 6/19/2018

Initial Calibration Verification Summary
Low Level Semivolatile Organic Compounds by GC/MS

Calibration ID: KC1800284 **Signal ID:** 1
Instrument ID: K-MS-29

#	Lab Code	Sample Name	File Location	Acquisition Date
11	KC1800284-11	SVO_LL ICV @ 3.0ppm | SVM58-18A	J:\MS29\DATA\061918A\0619A013.D	06/19/2018 17:40

Analyte Name	Expected	Result	Average RF	SSV RF	% D	Criteria	Curve Fit
Bis(2-ethylhexyl) Phthalate	3000	3070	6.802E-1	6.961E-1	2.33	±30	Average RF

Analyte Name	Expected	Result	Average RF	SSV RF	% D	Criteria	Curve Fit
p-Terphenyl-d14	3000	2940	8.297E-1	8.124E-1	-2.095	±30	Average RF

Client: AECOM **Service Request:** K1804978
Project: Portland Harbor Pre-Remedial Design Investigation **Calibration Date:** 5/29/2018

Initial Calibration Verification Summary
Low Level Semivolatile Organic Compounds by GC/MS

Calibration ID: KC1800235 **Signal ID:** 1
Instrument ID: K-MS-29

#	Lab Code	Sample Name	File Location	Acquisition Date
11	KC1800235-11	SVO_LL ICV @ 3.0ppm | SVM58-18A	J:\MS29\DATA\052918A\0529A013.D	05/29/2018 20:31

Analyte Name	Expected	Result	Average RF	SSV RF	% D	Criteria	Curve Fit
Bis(2-ethylhexyl) Phthalate	3000	3370	7.572E-1	8.511E-1	12.40	±30	Average RF

Analyte Name	Expected	Result	Average RF	SSV RF	% D	Criteria	Curve Fit
p-Terphenyl-d14	3000	2960	9.279E-1	9.161E-1	-1.272	±30	Average RF

Client:	AECOM	**Service Request:**	K1804978
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Analyzed:**	05/31/18 08:50

Continuing Calibration Verification (CCV) Summary
Low Level Semivolatile Organic Compounds by GC/MS

Analysis Method:	8270D	**Calibration Date:**	5/29/2018
File ID:	J:\MS29\DATA\053118\0531F002.D\	**Calibration ID:**	KC1800235
Signal ID:	1	**Analysis Lot:**	593429
		Units:	ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Bis(2-ethylhexyl) Phthalate	3000	3390	0.7572	0.8565	13.1	NA	±20	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
p-Terphenyl-d14	3000	3190	0.9279	0.9881	6.5	NA	±20	Average RF

Client:	AECOM	**Service Request:**	K1804978
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Analyzed:**	06/22/18 15:50

Continuing Calibration Verification (CCV) Summary
Low Level Semivolatile Organic Compounds by GC/MS

Analysis Method:	8270D	**Calibration Date:**	6/19/2018
File ID:	J:\MS29\DATA\062218\0622F002.D\	**Calibration ID:**	KC1800284
Signal ID:	1	**Analysis Lot:**	595977
		Units:	ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Bis(2-ethylhexyl) Phthalate	3000	2770	0.6802	0.6276	-7.7	NA	±20	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
p-Terphenyl-d14	3000	2720	0.8297	0.7527	-9.3	NA	±20	Average RF

Client:	AECOM	**Service Request:**	K1804978
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Analyzed:**	06/30/18 11:23

Continuing Calibration Verification (CCV) Summary
Low Level Semivolatile Organic Compounds by GC/MS

Analysis Method:	8270D	**Calibration Date:**	6/19/2018
File ID:	J:\MS29\DATA\063018\0630F002.D\	**Calibration ID:**	KC1800284
Signal ID:	1	**Analysis Lot:**	597095
		Units:	ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Bis(2-ethylhexyl) Phthalate	3000	3270	0.6802	0.7419	9.1	NA	±20	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
p-Terphenyl-d14	3000	3080	0.8297	0.8527	2.8	NA	±20	Average RF

Client: AECOM **Service Request:**K1804978
Project: Portland Harbor Pre-Remedial Design Investigation/60566335

Analysis Run Log
Low Level Semivolatile Organic Compounds by GC/MS

Analysis Method: **Analysis Lot:**593429
Instrument ID:K-MS-29

Raw Data File	Sample Name	Lab Code	Date Analyzed	Time Analyzed	Q
J:\MS29\DATA\053118\0531F001.D\	ZZZZZZZ	ZZZZZZZ	5/31/2018	08:21:00	
J:\MS29\DATA\053118\0531F002.D\	Continuing Calibration Verification	KQ1807431-02	5/31/2018	08:50:00	
J:\MS29\DATA\053118\0531F005.D\	Method Blank	KQ1807052-03	5/31/2018	11:30:00	
J:\MS29\DATA\053118\0531F006.D\	Lab Control Sample	KQ1807052-01	5/31/2018	11:58:00	
J:\MS29\DATA\053118\0531F007.D\	Duplicate Lab Control Sample	KQ1807052-02	5/31/2018	12:27:00	
J:\MS29\DATA\053118\0531F008.D\	ZZZZZZZ	ZZZZZZZ	5/31/2018	12:55:00	
J:\MS29\DATA\053118\0531F009.D\	PDI-RB-VV-180524	K1804978-015	5/31/2018	13:24:00	

Client: AECOM **Service Request:**K1804978

Project: Portland Harbor Pre-Remedial Design Investigation/60566335

Analysis Run Log
Low Level Semivolatile Organic Compounds by GC/MS

Analysis Method: **Analysis Lot:**595977

Instrument ID:K-MS-29

Raw Data File	Sample Name	Lab Code	Date Analyzed	Time Analyzed	Q
J:\MS29\DATA\062218\0622F001.D\	ZZZZZZZ	ZZZZZZZ	6/22/2018	15:22:00	
J:\MS29\DATA\062218\0622F001.D\	ZZZZZZZ	ZZZZZZZ	6/22/2018	15:22:00	
J:\MS29\DATA\062218\0622F002.D\	Continuing Calibration Verification	KQ1808498-02	6/22/2018	15:50:00	
J:\MS29\DATA\062218\0622F002.D\	ZZZZZZZ	ZZZZZZZ	6/22/2018	15:50:00	
J:\MS29\DATA\062218\0622F003.D\	ZZZZZZZ	ZZZZZZZ	6/22/2018	16:19:00	
J:\MS29\DATA\062218\0622F005.D\	ZZZZZZZ	ZZZZZZZ	6/22/2018	17:16:00	
J:\MS29\DATA\062218\0622F006.D\	ZZZZZZZ	ZZZZZZZ	6/22/2018	17:44:00	
J:\MS29\DATA\062218\0622F007.D\	ZZZZZZZ	ZZZZZZZ	6/22/2018	18:13:00	
J:\MS29\DATA\062218\0622F008.D\	Method Blank	KQ1807254-04	6/22/2018	18:42:00	
J:\MS29\DATA\062218\0622F009.D\	Lab Control Sample	KQ1807254-03	6/22/2018	19:10:00	
J:\MS29\DATA\062218\0622F010.D\	Batch QC MS	KQ1807254-01	6/22/2018	19:39:00	
J:\MS29\DATA\062218\0622F011.D\	Batch QC DMS	KQ1807254-02	6/22/2018	20:07:00	
J:\MS29\DATA\062218\0622F012.D\	ZZZZZZZ	ZZZZZZZ	6/22/2018	20:36:00	
J:\MS29\DATA\062218\0622F013.D\	Batch QC	K1805070-002	6/22/2018	21:05:00	
J:\MS29\DATA\062218\0622F014.D\	ZZZZZZZ	ZZZZZZZ	6/22/2018	21:33:00	
J:\MS29\DATA\062218\0622F015.D\	ZZZZZZZ	ZZZZZZZ	6/22/2018	22:02:00	
J:\MS29\DATA\062218\0622F016.D\	PDI-SG-B330-BL1	K1804978-001	6/22/2018	22:30:00	

Client: AECOM **Service Request:**K1804978

Project: Portland Harbor Pre-Remedial Design Investigation/60566335

Analysis Run Log
Low Level Semivolatile Organic Compounds by GC/MS

Analysis Method:

Analysis Lot:597095

Instrument ID:K-MS-29

Raw Data File	Sample Name	Lab Code	Date Analyzed	Time Analyzed	Q
J:\MS29\DATA\063018\0630F001.D\	ZZZZZZZ	ZZZZZZZ	6/30/2018	10:55:00	
J:\MS29\DATA\063018\0630F001.D\	ZZZZZZZ	ZZZZZZZ	6/30/2018	10:55:00	
J:\MS29\DATA\063018\0630F002.D\	Continuing Calibration Verification	KQ1808878-04	6/30/2018	11:23:00	
J:\MS29\DATA\063018\0630F002.D\	ZZZZZZZ	ZZZZZZZ	6/30/2018	11:23:00	
J:\MS29\DATA\063018\0630F003.D\	ZZZZZZZ	ZZZZZZZ	6/30/2018	11:51:00	
J:\MS29\DATA\063018\0630F004.D\	ZZZZZZZ	ZZZZZZZ	6/30/2018	12:20:00	
J:\MS29\DATA\063018\0630F005.D\	ZZZZZZZ	ZZZZZZZ	6/30/2018	12:48:00	
J:\MS29\DATA\063018\0630F006.D\	ZZZZZZZ	ZZZZZZZ	6/30/2018	13:17:00	
J:\MS29\DATA\063018\0630F007.D\	Method Blank	KQ1807109-06	6/30/2018	13:45:00	
J:\MS29\DATA\063018\0630F008.D\	Lab Control Sample	KQ1807109-05	6/30/2018	14:14:00	
J:\MS29\DATA\063018\0630F009.D\	PDI-SG-B333-BL1 MS	KQ1807109-01	6/30/2018	14:43:00	
J:\MS29\DATA\063018\0630F010.D\	PDI-SG-B333-BL1 DMS	KQ1807109-02	6/30/2018	15:11:00	
J:\MS29\DATA\063018\0630F011.D\	PDI-SG-B424-BL1 MS	KQ1807109-03	6/30/2018	15:40:00	
J:\MS29\DATA\063018\0630F012.D\	PDI-SG-B424-BL1 DMS	KQ1807109-04	6/30/2018	16:08:00	
J:\MS29\DATA\063018\0630F013.D\	PDI-SG-B332-BL1	K1804978-002	6/30/2018	16:37:00	
J:\MS29\DATA\063018\0630F014.D\	PDI-SG-B337-BL1	K1804978-003	6/30/2018	17:05:00	
J:\MS29\DATA\063018\0630F015.D\	PDI-SG-B333-BL1	K1804978-004	6/30/2018	17:34:00	
J:\MS29\DATA\063018\0630F016.D\	PDI-SG-B338-BL1	K1804978-005	6/30/2018	18:02:00	
J:\MS29\DATA\063018\0630F017.D\	PDI-SG-B399-BL1	K1804978-006	6/30/2018	18:31:00	
J:\MS29\DATA\063018\0630F018.D\	PDI-SG-B424-BL1	K1804978-007	6/30/2018	19:00:00	
J:\MS29\DATA\063018\0630F019.D\	PDI-SG-B410-BL1	K1804978-008	6/30/2018	19:28:00	
J:\MS29\DATA\063018\0630F020.D\	PDI-SG-B335-BL1	K1804978-009	6/30/2018	19:56:00	
J:\MS29\DATA\063018\0630F021.D\	PDI-SG-B326-BL1	K1804978-010	6/30/2018	20:25:00	
J:\MS29\DATA\063018\0630F022.D\	PDI-SG-B324-BL1	K1804978-011	6/30/2018	20:53:00	
J:\MS29\DATA\063018\0630F023.D\	PDI-SG-B319-BL1	K1804978-012	6/30/2018	21:22:00	
J:\MS29\DATA\063018\0630F024.D\	PDI-SG-B318-BL1	K1804978-013	6/30/2018	21:51:00	
J:\MS29\DATA\063018\0630F025.D\	PDI-SG-B253-BL1	K1804978-014	6/30/2018	22:19:00	
J:\MS29\DATA\063018\0630F026.D\	ZZZZZZZ	ZZZZZZZ	6/30/2018	22:47:00	

Prep Summary Report

Client: AECOM **Service Request:** K1804978
Project: Portland Harbor Pre-Remedial Design Investigation/60566335
Sample Matrix: Sediment

Low Level Semivolatile Organic Compounds by GC/MS

Prep Method: EPA 3541 **Extraction Lot:** 315005
Analytical Method: 8270D **Extraction Date:** 06/07/18 09:43

Sample Name	Lab Code	Date Collected	Date Received	Sample Amount	Final Amount	Percent Solids
PDI-SG-B330-BL1	K1804978-001	5/24/18	5/25/18	40.1100 g	2 mL	45.3
Batch QC	K1805070-002	NA	NA	40.456 g	2 mL	46.1
Matrix Spike	KQ1807254-01MS	NA	NA	40.144 g	2 mL	46.1
Duplicate Matrix Spike	KQ1807254-02DMS	NA	NA	40.391 g	2 mL	46.1
Lab Control Sample	KQ1807254-03LCS	NA	NA	20.0000 g	2 mL	
Method Blank	KQ1807254-04MB	NA	NA	40.4560 g	2 mL	

Prep Summary Report

Client: AECOM **Service Request:** K1804978
Project: Portland Harbor Pre-Remedial Design Investigation/60566335
Sample Matrix: Sediment

Low Level Semivolatile Organic Compounds by GC/MS

Prep Method: EPA 3541 **Extraction Lot:** 314812
Analytical Method: 8270D **Extraction Date:** 06/01/18 09:02

Sample Name	Lab Code	Date Collected	Date Received	Sample Amount	Final Amount	Percent Solids
PDI-SG-B332-BL1	K1804978-002	5/24/18	5/25/18	40.114 g	2 mL	55.6
PDI-SG-B337-BL1	K1804978-003	5/24/18	5/25/18	40.078 g	2 mL	58.9
PDI-SG-B333-BL1	K1804978-004	5/24/18	5/25/18	40.020 g	2 mL	44.6
PDI-SG-B338-BL1	K1804978-005	5/24/18	5/25/18	40.088 g	2 mL	51.9
PDI-SG-B399-BL1	K1804978-006	5/24/18	5/25/18	40.178 g	2 mL	73.3
PDI-SG-B424-BL1	K1804978-007	5/24/18	5/25/18	40.063 g	2 mL	76.3
PDI-SG-B410-BL1	K1804978-008	5/23/18	5/25/18	40.185 g	2 mL	59.1
PDI-SG-B335-BL1	K1804978-009	5/23/18	5/25/18	40.065 g	2 mL	65.3
PDI-SG-B326-BL1	K1804978-010	5/23/18	5/25/18	40.290 g	2 mL	64.4
PDI-SG-B324-BL1	K1804978-011	5/23/18	5/25/18	40.211 g	2 mL	56.9
PDI-SG-B319-BL1	K1804978-012	5/23/18	5/25/18	40.294 g	2 mL	71.3
PDI-SG-B318-BL1	K1804978-013	5/23/18	5/25/18	40.253 g	2 mL	53.2
PDI-SG-B253-BL1	K1804978-014	5/23/18	5/25/18	40.250 g	2 mL	70.3
Matrix Spike	KQ1807109-01MS	5/24/18	5/25/18	40.043 g	2 mL	44.6
Duplicate Matrix Spike	KQ1807109-02DMS	5/24/18	5/25/18	40.121 g	2 mL	44.6
Matrix Spike	KQ1807109-03MS	5/24/18	5/25/18	40.233 g	2 mL	76.3
Duplicate Matrix Spike	KQ1807109-04DMS	5/24/18	5/25/18	40.122 g	2 mL	76.3
Lab Control Sample	KQ1807109-05LCS	NA	NA	20.00 g	2 mL	
Method Blank	KQ1807109-06MB	NA	NA	40.2940 g	2 mL	

Prep Summary Report

Client: AECOM **Service Request:** K1804978
Project: Portland Harbor Pre-Remedial Design Investigation/60566335
Sample Matrix: Water

Low Level Semivolatile Organic Compounds by GC/MS

Prep Method: EPA 3520C **Extraction Lot:** 314749
Analytical Method: 8270D **Extraction Date:** 05/29/18 09:50

Sample Name	Lab Code	Date Collected	Date Received	Sample Amount	Final Amount	Percent Solids
PDI-RB-VV-180524	K1804978-015	5/24/18	5/25/18	1050.0000	2 mL	
Lab Control Sample	KQ1807052-01LCS	NA	NA	1000 mL	2 mL	
Duplicate Lab Control Sample	KQ1807052-02DLCS	NA	NA	1000 mL	2 mL	
Method Blank	KQ1807052-03MB	NA	NA	1050.0000	2 mL	