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July 31, 2018

Analytical Report for Service Request No: K1804985A

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 **K1804985.**

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

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

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Howard Holmes
Project Manager

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Acronyms

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

Inorganic Data Qualifiers

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

Metals Data Qualifiers

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

Organic Data Qualifiers

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

Additional Petroleum Hydrocarbon Specific Qualifiers

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

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

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

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

Case Narrative

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

Service Request: K1804985
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:

Eleven sediment samples 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 SIM-PAH, 07/26/2018:The matrix spike recovery of Phenanthrene, Fluoranthene, Pyrene, Chrysene and Benzo (b)fluoranthene for sample PDI-SG-S204 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 SIM-PAH, 07/26/2018:The recovery of Phenanthrene, Fluoranthene, Chrysene, Benzo(b)fluoranthene and Benzo (a)pyrene in the Duplicate Matrix Spike (DMS) KWG1803256-2 was outside the recovery control limits listed in the results summary. The DMSS is used to evaluate batch precision. The relative percent difference (RPD) was within control limits indicating the quality of the sample data was not significantly affected. No further corrective action was taken.

Approved by _____ Date 07/31/2018

Chain of Custody

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K1804985

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**	**5/25/2018** COC No: 3
AECOM	**Tel: (206) 438-2261 / (206) 438-2010**	**Laboratory Contact: Howard-Holmes**	**Carrier: courier** 1 of 1 pages
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	☐ 21 days		
Project Name: Portland Harbor Pre-Remedial Design Investigation and Baseline Sampling	☐ Other _____		
Portland, OR			
Project #: 60566335 Study: Surface Sediment - SMA			

Sample Identification	Sample Date	Sample Time	Matrix	QC Sample	Sampler's Initials	Total No. of Cont.	Fraction	Hold -20 C	Pesticides, PAHs, Total Solids 1669M, 8270-SIM, 160.3	Sample Specific Notes:
PDI-SG-S204	5/3/2018	16:25	SS			1		x	H	Frozen 5/3/18 08:00
PDI-SG-S147	5/4/2018	17:19	SS			1		x	H	Frozen 5/4/18 18:30
PDI-SG-S084	5/8/2018	13:40	SS			1		x	H	Frozen 5/8/18 18:20
PDI-SG-S090	5/9/2018	14:34	SS			1		x	H	Frozen 5/9/18 18:50
PDI-SG-S010	5/9/2018	17:30	SS			1		x	H	Frozen 5/9/18 18:50
PDI-SG-S255	5/11/2018	12:40	SS			1		x	H	Frozen 5/14/18 10:45
PDI-SG-S097	5/13/2018	11:45	SS			1		x	H	Frozen 5/13/18 18:45
PDI-SG-S115	5/12/2018	12:21	SS			1		x	H	Frozen 5/12/18 17:15
PDI-SG-S078	5/12/2018	15:50	SS			1		x	H	Frozen 5/12/18 17:15
~~PDI-SG-S155~~	~~5/14/2018~~	~~11:15~~	~~SS~~			~~1~~		~~x~~	~~H~~	Frozen 5/15/18 11:15
PDI-SG-S135	5/14/2018	10:15	SS			1		x	H	Frozen 5/15/18 11:15
PDI-SG-S157	5/14/2018	15:45	SS			1		x	H	Frozen 5/15/18 11:15

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 ☒ sposal By Lab ☒ rchive For **12** Months

Special Instructions/QC Requirements & Comments:

Please hold in freezer pending approval of analyses marked H.

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
	AECOM	5-25-18			
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
	HW	5/25/18 1405		HW	5/25/18 1405
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

PC HH

Cooler Receipt and Preservation Form

Client AECOM Service Request K1804985

Received: 5/25/18 Opened: 5/25/18 By: BR Unloaded: 5/25/18 By: BR

1. Samples were received via? *USPS* *FedEx* *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 (NA)	Tracking Number (NA)	Filed
3.3	3.1	4.9	4.8	-0.2	351			
3.9	3.8	3.4	3.4	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: _____

Total Solids

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Analytical Report

Client:	AECOM	**Service Request:**	K1804985
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Collected:**	05/03/18 - 05/14/18
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-S204	K1804985-001	**70.3**	-	-	1	06/28/18 15:55	
PDI-SG-S147	K1804985-002	**54.8**	-	-	1	06/28/18 15:55	
PDI-SG-S084	K1804985-003	**82.3**	-	-	1	06/28/18 15:55	
PDI-SG-S090	K1804985-004	**75.2**	-	-	1	06/28/18 15:55	
PDI-SG-S010	K1804985-005	**75.9**	-	-	1	06/28/18 15:55	
PDI-SG-S255	K1804985-006	**62.4**	-	-	1	06/28/18 15:55	
PDI-SG-S097	K1804985-007	**62.5**	-	-	1	06/28/18 15:55	
PDI-SG-S115	K1804985-008	**74.0**	-	-	1	06/28/18 15:55	
PDI-SG-S078	K1804985-009	**55.1**	-	-	1	06/28/18 15:55	
PDI-SG-S135	K1804985-010	**70.5**	-	-	1	06/28/18 15:55	
PDI-SG-S157	K1804985-011	**60.6**	-	-	1	06/28/18 15:55	

QA/QC Report

Client:	AECOM	**Service Request:**	K1804985
Project	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Collected:**	05/03/18 - 05/14/18
Sample Matrix:	Sediment	**Date Received:**	05/25/18
Analysis Method:	160.3 Modified	**Units:**	Percent
Prep Method:	None	**Basis:**	As Received

Duplicate Sample Summary
Inorganic Parameters

Sample Name:	Lab Code:	MRL	Sample Result	Duplicate Result	Average	RPD	RPD Limit	Date Analyzed
PDI-SG-S204	K1804985-001DUP	-	70.3	69.4	69.9	1	20	06/28/18
PDI-SG-S157	K1804985-011DUP	-	60.6	61.2	60.9	<1	20	06/28/18

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.

Polynuclear Aromatic Hydrocarbons

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Client: AECOM **Service Request:** K1804985
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-S204	K1804985-001	05/03/2018	05/25/2018
PDI-SG-S147	K1804985-002	05/04/2018	05/25/2018
PDI-SG-S084	K1804985-003	05/08/2018	05/25/2018
PDI-SG-S090	K1804985-004	05/09/2018	05/25/2018
PDI-SG-S010	K1804985-005	05/09/2018	05/25/2018
PDI-SG-S255	K1804985-006	05/11/2018	05/25/2018
PDI-SG-S097	K1804985-007	05/13/2018	05/25/2018
PDI-SG-S115	K1804985-008	05/12/2018	05/25/2018
PDI-SG-S078	K1804985-009	05/12/2018	05/25/2018
PDI-SG-S135	K1804985-010	05/14/2018	05/25/2018
PDI-SG-S157	K1804985-011	05/14/2018	05/25/2018
PDI-SG-S204MS	KWG1803256-1	05/03/2018	05/25/2018
PDI-SG-S204DMS	KWG1803256-2	05/03/2018	05/25/2018

Analytical Results

Client:	AECOM	**Service Request:**	K1804985
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Collected:**	05/03/2018
Sample Matrix:	Sediment	**Date Received:**	05/25/2018

Polynuclear Aromatic Hydrocarbons

Sample Name:	PDI-SG-S204	**Units:**	ug/Kg
Lab Code:	K1804985-001	**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	**7.9**	JD	18	7.5	50	07/03/18	07/10/18	KWG1803256	
2-Methylnaphthalene	ND	U	18	6.0	50	07/03/18	07/10/18	KWG1803256	
Acenaphthylene	**6.5**	JD	8.9	2.3	50	07/03/18	07/10/18	KWG1803256	
Acenaphthene	**6.7**	JD	8.9	2.4	50	07/03/18	07/10/18	KWG1803256	
Fluorene	**9.2**	D	8.9	2.6	50	07/03/18	07/10/18	KWG1803256	
Phenanthrene	**69**	D	8.9	3.3	50	07/03/18	07/10/18	KWG1803256	
Anthracene	**12**	D	8.9	1.9	50	07/03/18	07/10/18	KWG1803256	
Fluoranthene	**170**	D	8.9	2.5	50	07/03/18	07/10/18	KWG1803256	
Pyrene	**250**	D	8.9	2.5	50	07/03/18	07/10/18	KWG1803256	
Benz(a)anthracene	**55**	D	8.9	1.9	50	07/03/18	07/10/18	KWG1803256	
Chrysene	**86**	D	8.9	2.8	50	07/03/18	07/10/18	KWG1803256	
Benzo(b)fluoranthene†	**85**	D	8.9	3.3	50	07/03/18	07/10/18	KWG1803256	
Benzo(k)fluoranthene	**26**	D	8.9	2.9	50	07/03/18	07/10/18	KWG1803256	
Benzo(a)pyrene	**54**	D	8.9	3.7	50	07/03/18	07/10/18	KWG1803256	
Indeno(1,2,3-cd)pyrene	**54**	D	8.9	4.8	50	07/03/18	07/10/18	KWG1803256	
Dibenz(a,h)anthracene	**16**	D	8.9	4.3	50	07/03/18	07/10/18	KWG1803256	
Benzo(g,h,i)perylene	**73**	D	8.9	4.8	50	07/03/18	07/10/18	KWG1803256	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Fluorene-d10	64	42-106	07/10/18	Acceptable
Fluoranthene-d10	69	45-109	07/10/18	Acceptable
Terphenyl-d14	77	41-102	07/10/18	Acceptable

† Analyte Comments

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

Comments:

Analytical Results

Client:	AECOM	**Service Request:**	K1804985
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Collected:**	05/04/2018
Sample Matrix:	Sediment	**Date Received:**	05/25/2018

Polynuclear Aromatic Hydrocarbons

Sample Name:	PDI-SG-S147	**Units:**	ug/Kg
Lab Code:	K1804985-002	**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	**370**	D	2.3	0.75	5	07/03/18	07/10/18	KWG1803256	
2-Methylnaphthalene	**100**	D	2.3	0.60	5	07/03/18	07/10/18	KWG1803256	
Acenaphthylene	**32**	D	1.2	0.23	5	07/03/18	07/10/18	KWG1803256	
Acenaphthene	**59**	D	1.2	0.24	5	07/03/18	07/10/18	KWG1803256	
Fluorene	**61**	D	1.2	0.26	5	07/03/18	07/10/18	KWG1803256	
Phenanthrene	**260**	D	1.2	0.33	5	07/03/18	07/10/18	KWG1803256	
Anthracene	**96**	D	1.2	0.19	5	07/03/18	07/10/18	KWG1803256	
Fluoranthene	**360**	D	1.2	0.25	5	07/03/18	07/10/18	KWG1803256	
Pyrene	**410**	D	1.2	0.25	5	07/03/18	07/10/18	KWG1803256	
Benz(a)anthracene	**140**	D	1.2	0.19	5	07/03/18	07/10/18	KWG1803256	
Chrysene	**220**	D	1.2	0.28	5	07/03/18	07/10/18	KWG1803256	
Benzo(b)fluoranthene†	**170**	D	1.2	0.33	5	07/03/18	07/10/18	KWG1803256	
Benzo(k)fluoranthene	**60**	D	1.2	0.29	5	07/03/18	07/10/18	KWG1803256	
Benzo(a)pyrene	**160**	D	1.2	0.37	5	07/03/18	07/10/18	KWG1803256	
Indeno(1,2,3-cd)pyrene	**120**	D	1.2	0.48	5	07/03/18	07/10/18	KWG1803256	
Dibenz(a,h)anthracene	**22**	D	1.2	0.43	5	07/03/18	07/10/18	KWG1803256	
Benzo(g,h,i)perylene	**130**	D	1.2	0.48	5	07/03/18	07/10/18	KWG1803256	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Fluorene-d10	74	42-106	07/10/18	Acceptable
Fluoranthene-d10	82	45-109	07/10/18	Acceptable
Terphenyl-d14	92	41-102	07/10/18	Acceptable

† Analyte Comments

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

Comments:

Analytical Results

Client:	AECOM	**Service Request:**	K1804985
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Collected:**	05/08/2018
Sample Matrix:	Sediment	**Date Received:**	05/25/2018

Polynuclear Aromatic Hydrocarbons

Sample Name:	PDI-SG-S084	**Units:**	ug/Kg
Lab Code:	K1804985-003	**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	**22**	D	1.6	0.75	5	07/03/18	07/11/18	KWG1803256	
2-Methylnaphthalene	**5.1**	D	1.6	0.60	5	07/03/18	07/11/18	KWG1803256	
Acenaphthylene	**61**	D	0.76	0.23	5	07/03/18	07/11/18	KWG1803256	
Acenaphthene	**4.4**	D	0.76	0.24	5	07/03/18	07/11/18	KWG1803256	
Fluorene	**6.1**	D	0.76	0.26	5	07/03/18	07/11/18	KWG1803256	
Phenanthrene	**14**	D	0.76	0.33	5	07/03/18	07/11/18	KWG1803256	
Anthracene	**29**	D	0.76	0.19	5	07/03/18	07/11/18	KWG1803256	
Fluoranthene	**840**	D	7.6	2.5	50	07/03/18	07/12/18	KWG1803256	
Pyrene	**1500**	D	7.6	2.5	50	07/03/18	07/12/18	KWG1803256	
Benz(a)anthracene	**480**	D	7.6	1.9	50	07/03/18	07/12/18	KWG1803256	
Chrysene	**580**	D	7.6	2.8	50	07/03/18	07/12/18	KWG1803256	
Benzo(b)fluoranthene†	**630**	D	7.6	3.3	50	07/03/18	07/12/18	KWG1803256	
Benzo(k)fluoranthene	**180**	D	0.76	0.29	5	07/03/18	07/11/18	KWG1803256	
Benzo(a)pyrene	**740**	D	7.6	3.7	50	07/03/18	07/12/18	KWG1803256	
Indeno(1,2,3-cd)pyrene	**510**	D	7.6	4.8	50	07/03/18	07/12/18	KWG1803256	
Dibenz(a,h)anthracene	**60**	D	0.76	0.43	5	07/03/18	07/11/18	KWG1803256	
Benzo(g,h,i)perylene	**540**	D	7.6	4.8	50	07/03/18	07/12/18	KWG1803256	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Fluorene-d10	66	42-106	07/11/18	Acceptable
Fluoranthene-d10	75	45-109	07/11/18	Acceptable
Terphenyl-d14	90	41-102	07/11/18	Acceptable

† Analyte Comments

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

Comments:

Analytical Results

Client:	AECOM	**Service Request:**	K1804985
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Collected:**	05/09/2018
Sample Matrix:	Sediment	**Date Received:**	05/25/2018

Polynuclear Aromatic Hydrocarbons

Sample Name:	PDI-SG-S090	**Units:**	ug/Kg
Lab Code:	K1804985-004	**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	**54**	D	17	7.5	50	07/03/18	07/11/18	KWG1803256	
2-Methylnaphthalene	**13**	JD	17	6.0	50	07/03/18	07/11/18	KWG1803256	
Acenaphthylene	**130**	D	8.3	2.3	50	07/03/18	07/11/18	KWG1803256	
Acenaphthene	**7.2**	JD	8.3	2.4	50	07/03/18	07/11/18	KWG1803256	
Fluorene	**11**	D	8.3	2.6	50	07/03/18	07/11/18	KWG1803256	
Phenanthrene	**34**	D	8.3	3.3	50	07/03/18	07/11/18	KWG1803256	
Anthracene	**67**	D	8.3	1.9	50	07/03/18	07/11/18	KWG1803256	
Fluoranthene	**1400**	D	8.3	2.5	50	07/03/18	07/11/18	KWG1803256	
Pyrene	**2500**	D	8.3	2.5	50	07/03/18	07/11/18	KWG1803256	
Benz(a)anthracene	**1200**	D	8.3	1.9	50	07/03/18	07/11/18	KWG1803256	
Chrysene	**1500**	D	8.3	2.8	50	07/03/18	07/11/18	KWG1803256	
Benzo(b)fluoranthene†	**1700**	D	8.3	3.3	50	07/03/18	07/11/18	KWG1803256	
Benzo(k)fluoranthene	**550**	D	8.3	2.9	50	07/03/18	07/11/18	KWG1803256	
Benzo(a)pyrene	**2100**	D	8.3	3.7	50	07/03/18	07/11/18	KWG1803256	
Indeno(1,2,3-cd)pyrene	**1300**	D	8.3	4.8	50	07/03/18	07/11/18	KWG1803256	
Dibenz(a,h)anthracene	**190**	D	8.3	4.3	50	07/03/18	07/11/18	KWG1803256	
Benzo(g,h,i)perylene	**1300**	D	8.3	4.8	50	07/03/18	07/11/18	KWG1803256	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Fluorene-d10	63	42-106	07/11/18	Acceptable
Fluoranthene-d10	68	45-109	07/11/18	Acceptable
Terphenyl-d14	82	41-102	07/11/18	Acceptable

† Analyte Comments

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

Comments:

Analytical Results

Client:	AECOM	**Service Request:**	K1804985
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Collected:**	05/09/2018
Sample Matrix:	Sediment	**Date Received:**	05/25/2018

Polynuclear Aromatic Hydrocarbons

Sample Name:	PDI-SG-S010	**Units:**	ug/Kg
Lab Code:	K1804985-005	**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	**8.6**		0.33	0.15	1	07/03/18	07/10/18	KWG1803256	
2-Methylnaphthalene	**3.2**		0.33	0.12	1	07/03/18	07/10/18	KWG1803256	
Acenaphthylene	**3.3**		0.17	0.046	1	07/03/18	07/10/18	KWG1803256	
Acenaphthene	**5.6**		0.17	0.047	1	07/03/18	07/10/18	KWG1803256	
Fluorene	**7.0**		0.17	0.052	1	07/03/18	07/10/18	KWG1803256	
Phenanthrene	**100**	D	1.7	0.66	10	07/03/18	07/12/18	KWG1803256	
Anthracene	**5.6**		0.17	0.038	1	07/03/18	07/10/18	KWG1803256	
Fluoranthene	**140**	D	1.7	0.49	10	07/03/18	07/12/18	KWG1803256	
Pyrene	**160**	D	1.7	0.50	10	07/03/18	07/12/18	KWG1803256	
Benz(a)anthracene	**35**		0.17	0.038	1	07/03/18	07/10/18	KWG1803256	
Chrysene	**60**		0.17	0.055	1	07/03/18	07/10/18	KWG1803256	
Benzo(b)fluoranthene†	**61**		0.17	0.066	1	07/03/18	07/10/18	KWG1803256	
Benzo(k)fluoranthene	**21**		0.17	0.057	1	07/03/18	07/10/18	KWG1803256	
Benzo(a)pyrene	**56**		0.17	0.073	1	07/03/18	07/10/18	KWG1803256	
Indeno(1,2,3-cd)pyrene	**48**		0.17	0.096	1	07/03/18	07/10/18	KWG1803256	
Dibenz(a,h)anthracene	**6.5**		0.17	0.086	1	07/03/18	07/10/18	KWG1803256	
Benzo(g,h,i)perylene	**52**		0.17	0.095	1	07/03/18	07/10/18	KWG1803256	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Fluorene-d10	64	42-106	07/10/18	Acceptable
Fluoranthene-d10	74	45-109	07/10/18	Acceptable
Terphenyl-d14	86	41-102	07/10/18	Acceptable

† Analyte Comments

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

Comments:

Analytical Results

Client:	AECOM	**Service Request:**	K1804985
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Collected:**	05/11/2018
Sample Matrix:	Sediment	**Date Received:**	05/25/2018

Polynuclear Aromatic Hydrocarbons

Sample Name:	PDI-SG-S255	**Units:**	ug/Kg
Lab Code:	K1804985-006	**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	**2.2**		0.40	0.15	1	07/03/18	07/10/18	KWG1803256	
2-Methylnaphthalene	**0.96**		0.40	0.12	1	07/03/18	07/10/18	KWG1803256	
Acenaphthylene	**11**		0.20	0.046	1	07/03/18	07/10/18	KWG1803256	
Acenaphthene	**1.3**		0.20	0.047	1	07/03/18	07/10/18	KWG1803256	
Fluorene	**2.4**		0.20	0.052	1	07/03/18	07/10/18	KWG1803256	
Phenanthrene	**58**		0.20	0.066	1	07/03/18	07/10/18	KWG1803256	
Anthracene	**10**		0.20	0.038	1	07/03/18	07/10/18	KWG1803256	
Fluoranthene	**180**	D	2.0	0.49	10	07/03/18	07/12/18	KWG1803256	
Pyrene	**240**	D	2.0	0.50	10	07/03/18	07/12/18	KWG1803256	
Benz(a)anthracene	**65**		0.20	0.038	1	07/03/18	07/10/18	KWG1803256	
Chrysene	**100**	D	2.0	0.55	10	07/03/18	07/12/18	KWG1803256	
Benzo(b)fluoranthene†	**110**	D	2.0	0.66	10	07/03/18	07/12/18	KWG1803256	
Benzo(k)fluoranthene	**33**		0.20	0.057	1	07/03/18	07/10/18	KWG1803256	
Benzo(a)pyrene	**110**	D	2.0	0.73	10	07/03/18	07/12/18	KWG1803256	
Indeno(1,2,3-cd)pyrene	**88**	D	2.0	0.96	10	07/03/18	07/12/18	KWG1803256	
Dibenz(a,h)anthracene	**11**		0.20	0.086	1	07/03/18	07/10/18	KWG1803256	
Benzo(g,h,i)perylene	**96**	D	2.0	0.95	10	07/03/18	07/12/18	KWG1803256	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Fluorene-d10	60	42-106	07/10/18	Acceptable
Fluoranthene-d10	67	45-109	07/10/18	Acceptable
Terphenyl-d14	80	41-102	07/10/18	Acceptable

† Analyte Comments

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

Comments:

Analytical Results

Client:	AECOM	**Service Request:**	K1804985
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Collected:**	05/13/2018
Sample Matrix:	Sediment	**Date Received:**	05/25/2018

Polynuclear Aromatic Hydrocarbons

Sample Name:	PDI-SG-S097	**Units:**	ug/Kg
Lab Code:	K1804985-007	**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	**44**	D	2.0	0.75	5	07/03/18	07/11/18	KWG1803256	
2-Methylnaphthalene	**17**	D	2.0	0.60	5	07/03/18	07/11/18	KWG1803256	
Acenaphthylene	**13**	D	1.0	0.23	5	07/03/18	07/11/18	KWG1803256	
Acenaphthene	**33**	D	1.0	0.24	5	07/03/18	07/11/18	KWG1803256	
Fluorene	**27**	D	1.0	0.26	5	07/03/18	07/11/18	KWG1803256	
Phenanthrene	**190**	D	1.0	0.33	5	07/03/18	07/11/18	KWG1803256	
Anthracene	**36**	D	1.0	0.19	5	07/03/18	07/11/18	KWG1803256	
Fluoranthene	**360**	D	1.0	0.25	5	07/03/18	07/11/18	KWG1803256	
Pyrene	**470**	D	2.0	0.50	10	07/03/18	07/12/18	KWG1803256	
Benz(a)anthracene	**170**	D	1.0	0.19	5	07/03/18	07/11/18	KWG1803256	
Chrysene	**230**	D	1.0	0.28	5	07/03/18	07/11/18	KWG1803256	
Benzo(b)fluoranthene†	**230**	D	1.0	0.33	5	07/03/18	07/11/18	KWG1803256	
Benzo(k)fluoranthene	**81**	D	1.0	0.29	5	07/03/18	07/11/18	KWG1803256	
Benzo(a)pyrene	**200**	D	1.0	0.37	5	07/03/18	07/11/18	KWG1803256	
Indeno(1,2,3-cd)pyrene	**140**	D	1.0	0.48	5	07/03/18	07/11/18	KWG1803256	
Dibenz(a,h)anthracene	**28**	D	1.0	0.43	5	07/03/18	07/11/18	KWG1803256	
Benzo(g,h,i)perylene	**140**	D	1.0	0.48	5	07/03/18	07/11/18	KWG1803256	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Fluorene-d10	72	42-106	07/11/18	Acceptable
Fluoranthene-d10	81	45-109	07/11/18	Acceptable
Terphenyl-d14	96	41-102	07/11/18	Acceptable

† Analyte Comments

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

Comments:

Analytical Results

Client:	AECOM	**Service Request:**	K1804985
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Collected:**	05/12/2018
Sample Matrix:	Sediment	**Date Received:**	05/25/2018

Polynuclear Aromatic Hydrocarbons

Sample Name:	PDI-SG-S115	**Units:**	ug/Kg
Lab Code:	K1804985-008	**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	**62**	D	1.7	0.75	5	07/03/18	07/11/18	KWG1803256	
2-Methylnaphthalene	**40**	D	1.7	0.60	5	07/03/18	07/11/18	KWG1803256	
Acenaphthylene	**38**	D	0.84	0.23	5	07/03/18	07/11/18	KWG1803256	
Acenaphthene	**12**	D	0.84	0.24	5	07/03/18	07/11/18	KWG1803256	
Fluorene	**17**	D	0.84	0.26	5	07/03/18	07/11/18	KWG1803256	
Phenanthrene	**210**	D	0.84	0.33	5	07/03/18	07/11/18	KWG1803256	
Anthracene	**56**	D	0.84	0.19	5	07/03/18	07/11/18	KWG1803256	
Fluoranthene	**400**	D	4.2	1.3	25	07/03/18	07/12/18	KWG1803256	
Pyrene	**540**	D	4.2	1.3	25	07/03/18	07/12/18	KWG1803256	
Benz(a)anthracene	**230**	D	0.84	0.19	5	07/03/18	07/11/18	KWG1803256	
Chrysene	**310**	D	0.84	0.28	5	07/03/18	07/11/18	KWG1803256	
Benzo(b)fluoranthene†	**290**	D	0.84	0.33	5	07/03/18	07/11/18	KWG1803256	
Benzo(k)fluoranthene	**98**	D	0.84	0.29	5	07/03/18	07/11/18	KWG1803256	
Benzo(a)pyrene	**300**	D	0.84	0.37	5	07/03/18	07/11/18	KWG1803256	
Indeno(1,2,3-cd)pyrene	**220**	D	0.84	0.48	5	07/03/18	07/11/18	KWG1803256	
Dibenz(a,h)anthracene	**44**	D	0.84	0.43	5	07/03/18	07/11/18	KWG1803256	
Benzo(g,h,i)perylene	**230**	D	0.84	0.48	5	07/03/18	07/11/18	KWG1803256	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Fluorene-d10	60	42-106	07/11/18	Acceptable
Fluoranthene-d10	69	45-109	07/11/18	Acceptable
Terphenyl-d14	82	41-102	07/11/18	Acceptable

† Analyte Comments

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

Comments:

Analytical Results

Client:	AECOM	**Service Request:**	K1804985
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Collected:**	05/12/2018
Sample Matrix:	Sediment	**Date Received:**	05/25/2018

Polynuclear Aromatic Hydrocarbons

Sample Name:	PDI-SG-S078	**Units:**	ug/Kg
Lab Code:	K1804985-009	**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	**21**	D	2.3	0.75	5	07/03/18	07/12/18	KWG1803256	
2-Methylnaphthalene	**9.4**	D	2.3	0.60	5	07/03/18	07/12/18	KWG1803256	
Acenaphthylene	**7.9**	D	1.2	0.23	5	07/03/18	07/12/18	KWG1803256	
Acenaphthene	**17**	D	1.2	0.24	5	07/03/18	07/12/18	KWG1803256	
Fluorene	**20**	D	1.2	0.26	5	07/03/18	07/12/18	KWG1803256	
Phenanthrene	**110**	D	1.2	0.33	5	07/03/18	07/12/18	KWG1803256	
Anthracene	**28**	D	1.2	0.19	5	07/03/18	07/12/18	KWG1803256	
Fluoranthene	**190**	D	1.2	0.25	5	07/03/18	07/12/18	KWG1803256	
Pyrene	**240**	D	1.2	0.25	5	07/03/18	07/12/18	KWG1803256	
Benz(a)anthracene	**94**	D	1.2	0.19	5	07/03/18	07/12/18	KWG1803256	
Chrysene	**120**	D	1.2	0.28	5	07/03/18	07/12/18	KWG1803256	
Benzo(b)fluoranthene†	**130**	D	1.2	0.33	5	07/03/18	07/12/18	KWG1803256	
Benzo(k)fluoranthene	**45**	D	1.2	0.29	5	07/03/18	07/12/18	KWG1803256	
Benzo(a)pyrene	**130**	D	1.2	0.37	5	07/03/18	07/12/18	KWG1803256	
Indeno(1,2,3-cd)pyrene	**99**	D	1.2	0.48	5	07/03/18	07/12/18	KWG1803256	
Dibenz(a,h)anthracene	**16**	D	1.2	0.43	5	07/03/18	07/12/18	KWG1803256	
Benzo(g,h,i)perylene	**100**	D	1.2	0.48	5	07/03/18	07/12/18	KWG1803256	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Fluorene-d10	67	42-106	07/12/18	Acceptable
Fluoranthene-d10	78	45-109	07/12/18	Acceptable
Terphenyl-d14	88	41-102	07/12/18	Acceptable

† Analyte Comments

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

Comments:

Analytical Results

Client:	AECOM	**Service Request:**	K1804985
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Collected:**	05/14/2018
Sample Matrix:	Sediment	**Date Received:**	05/25/2018

Polynuclear Aromatic Hydrocarbons

Sample Name:	PDI-SG-S135	**Units:**	ug/Kg
Lab Code:	K1804985-010	**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	**46**	D	18	7.5	50	07/03/18	07/11/18	KWG1803256	
2-Methylnaphthalene	**6.8**	JD	18	6.0	50	07/03/18	07/11/18	KWG1803256	
Acenaphthylene	**83**	D	8.9	2.3	50	07/03/18	07/11/18	KWG1803256	
Acenaphthene	**12**	D	8.9	2.4	50	07/03/18	07/11/18	KWG1803256	
Fluorene	**13**	D	8.9	2.6	50	07/03/18	07/11/18	KWG1803256	
Phenanthrene	**180**	D	8.9	3.3	50	07/03/18	07/11/18	KWG1803256	
Anthracene	**60**	D	8.9	1.9	50	07/03/18	07/11/18	KWG1803256	
Fluoranthene	**1200**	D	8.9	2.5	50	07/03/18	07/11/18	KWG1803256	
Pyrene	**1600**	D	8.9	2.5	50	07/03/18	07/11/18	KWG1803256	
Benz(a)anthracene	**550**	D	8.9	1.9	50	07/03/18	07/11/18	KWG1803256	
Chrysene	**680**	D	8.9	2.8	50	07/03/18	07/11/18	KWG1803256	
Benzo(b)fluoranthene†	**750**	D	8.9	3.3	50	07/03/18	07/11/18	KWG1803256	
Benzo(k)fluoranthene	**270**	D	8.9	2.9	50	07/03/18	07/11/18	KWG1803256	
Benzo(a)pyrene	**800**	D	8.9	3.7	50	07/03/18	07/11/18	KWG1803256	
Indeno(1,2,3-cd)pyrene	**610**	D	8.9	4.8	50	07/03/18	07/11/18	KWG1803256	
Dibenz(a,h)anthracene	**82**	D	8.9	4.3	50	07/03/18	07/11/18	KWG1803256	
Benzo(g,h,i)perylene	**600**	D	8.9	4.8	50	07/03/18	07/11/18	KWG1803256	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Fluorene-d10	67	42-106	07/11/18	Acceptable
Fluoranthene-d10	81	45-109	07/11/18	Acceptable
Terphenyl-d14	88	41-102	07/11/18	Acceptable

† Analyte Comments

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

Comments:

Analytical Results

Client:	AECOM	**Service Request:**	K1804985
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Collected:**	05/14/2018
Sample Matrix:	Sediment	**Date Received:**	05/25/2018

Polynuclear Aromatic Hydrocarbons

Sample Name:	PDI-SG-S157	**Units:**	ug/Kg
Lab Code:	K1804985-011	**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	**8.8**		0.41	0.15	1	07/03/18	07/10/18	KWG1803256	
2-Methylnaphthalene	**5.8**		0.41	0.12	1	07/03/18	07/10/18	KWG1803256	
Acenaphthylene	**2.6**		0.21	0.046	1	07/03/18	07/10/18	KWG1803256	
Acenaphthene	**5.3**		0.21	0.047	1	07/03/18	07/10/18	KWG1803256	
Fluorene	**7.9**		0.21	0.052	1	07/03/18	07/10/18	KWG1803256	
Phenanthrene	**47**		0.21	0.066	1	07/03/18	07/10/18	KWG1803256	
Anthracene	**9.1**		0.21	0.038	1	07/03/18	07/10/18	KWG1803256	
Fluoranthene	**77**		0.21	0.049	1	07/03/18	07/10/18	KWG1803256	
Pyrene	**80**		0.21	0.050	1	07/03/18	07/10/18	KWG1803256	
Benz(a)anthracene	**23**		0.21	0.038	1	07/03/18	07/10/18	KWG1803256	
Chrysene	**39**		0.21	0.055	1	07/03/18	07/10/18	KWG1803256	
Benzo(b)fluoranthene†	**27**		0.21	0.066	1	07/03/18	07/10/18	KWG1803256	
Benzo(k)fluoranthene	**9.7**		0.21	0.057	1	07/03/18	07/10/18	KWG1803256	
Benzo(a)pyrene	**19**		0.21	0.073	1	07/03/18	07/10/18	KWG1803256	
Indeno(1,2,3-cd)pyrene	**14**		0.21	0.096	1	07/03/18	07/10/18	KWG1803256	
Dibenz(a,h)anthracene	**2.7**		0.21	0.086	1	07/03/18	07/10/18	KWG1803256	
Benzo(g,h,i)perylene	**15**		0.21	0.095	1	07/03/18	07/10/18	KWG1803256	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Fluorene-d10	61	42-106	07/10/18	Acceptable
Fluoranthene-d10	74	45-109	07/10/18	Acceptable
Terphenyl-d14	82	41-102	07/10/18	Acceptable

† Analyte Comments

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

Comments:

Analytical Results

Client:	AECOM	**Service Request:**	K1804985
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:	KWG1803256-4	**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	0.25	0.15	1	07/03/18	07/10/18	KWG1803256	
2-Methylnaphthalene	ND	U	0.25	0.12	1	07/03/18	07/10/18	KWG1803256	
Acenaphthylene	ND	U	0.13	0.046	1	07/03/18	07/10/18	KWG1803256	
Acenaphthene	ND	U	0.13	0.047	1	07/03/18	07/10/18	KWG1803256	
Fluorene	ND	U	0.13	0.052	1	07/03/18	07/10/18	KWG1803256	
Phenanthrene	ND	U	0.13	0.066	1	07/03/18	07/10/18	KWG1803256	
Anthracene	ND	U	0.13	0.038	1	07/03/18	07/10/18	KWG1803256	
Fluoranthene	ND	U	0.13	0.049	1	07/03/18	07/10/18	KWG1803256	
Pyrene	ND	U	0.13	0.050	1	07/03/18	07/10/18	KWG1803256	
Benz(a)anthracene	ND	U	0.13	0.038	1	07/03/18	07/10/18	KWG1803256	
Chrysene	ND	U	0.13	0.055	1	07/03/18	07/10/18	KWG1803256	
Benzo(b)fluoranthene†	ND	U	0.13	0.066	1	07/03/18	07/10/18	KWG1803256	
Benzo(k)fluoranthene	ND	U	0.13	0.057	1	07/03/18	07/10/18	KWG1803256	
Benzo(a)pyrene	ND	U	0.13	0.073	1	07/03/18	07/10/18	KWG1803256	
Indeno(1,2,3-cd)pyrene	ND	U	0.13	0.096	1	07/03/18	07/10/18	KWG1803256	
Dibenz(a,h)anthracene	ND	U	0.13	0.086	1	07/03/18	07/10/18	KWG1803256	
Benzo(g,h,i)perylene	ND	U	0.13	0.095	1	07/03/18	07/10/18	KWG1803256	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Fluorene-d10	61	42-106	07/10/18	Acceptable
Fluoranthene-d10	66	45-109	07/10/18	Acceptable
Terphenyl-d14	75	41-102	07/10/18	Acceptable

† Analyte Comments

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

Comments:

Client: AECOM **Service Request:** K1804985
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-S204	K1804985-001	64 D	69 D	77 D
PDI-SG-S147	K1804985-002	74 D	82 D	92 D
PDI-SG-S084	K1804985-003	66 D	75 D	90 D
PDI-SG-S090	K1804985-004	63 D	68 D	82 D
PDI-SG-S010	K1804985-005	64	74	86
PDI-SG-S255	K1804985-006	60	67	80
PDI-SG-S097	K1804985-007	72 D	81 D	96 D
PDI-SG-S115	K1804985-008	60 D	69 D	82 D
PDI-SG-S078	K1804985-009	67 D	78 D	88 D
PDI-SG-S135	K1804985-010	67 D	81 D	88 D
PDI-SG-S157	K1804985-011	61	74	82
Method Blank	KWG1803256-4	61	66	75
PDI-SG-S204MS	KWG1803256-1	75 D	68 D	80 D
PDI-SG-S204DMS	KWG1803256-2	73 D	67 D	78 D
Lab Control Sample	KWG1803256-3	56	62	72

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: K1804985
Date Analyzed: 07/10/2018
Time Analyzed: 15:36

Internal Standard Area and RT Summary
Polynuclear Aromatic Hydrocarbons

File ID: J:\MS20\DATA\071018\0710F017.D
Instrument ID: MS20
Analysis Method: 8270D SIM

Lab Code: KWG1803364-2
Analysis Lot: KWG1803364

		Naphthalene-d8		Acenaphthene-d10		Phenanthrene-d10	
		Area	**RT**	**Area**	**RT**	**Area**	**RT**
	Results ==>	89,619	5.93	47,018	8.24	100,099	11.42
	Upper Limit ==>	179,238	6.43	94,036	8.74	200,198	11.92
	Lower Limit ==>	44,810	5.43	23,509	7.74	50,050	10.92
	ICAL Result ==>	90,101	6.06	44,197	8.42	87,517	11.64
Associated Analyses							
Method Blank	KWG1803256-4	78,166	5.94	43,527	8.25	87,936	11.43
Lab Control Sample	KWG1803256-3	76,732	5.93	40,988	8.24	84,096	11.42
PDI-SG-S010	K1804985-005	69,421	5.94	39,089	8.25	75,395	11.43
PDI-SG-S255	K1804985-006	70,351	5.94	39,166	8.25	78,045	11.43
PDI-SG-S157	K1804985-011	68,836	5.94	38,733	8.25	71,998	11.43
PDI-SG-S204	K1804985-001	71,423	5.94	41,045	8.25	82,385	11.43
PDI-SG-S147	K1804985-002	75,771	5.93	41,527	8.25	82,291	11.43
PDI-SG-S084	K1804985-003	77,730	5.93	42,090	8.25	85,825	11.43
PDI-SG-S090	K1804985-004	76,666	5.94	44,290	8.25	88,964	11.43
PDI-SG-S135	K1804985-010	78,031	5.94	44,853	8.25	91,701	11.43
PDI-SG-S097	K1804985-007	82,281	5.93	44,652	8.24	89,720	11.42
PDI-SG-S115	K1804985-008	80,286	5.93	42,575	8.25	86,490	11.42

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

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

Service Request: K1804985
Date Analyzed: 07/10/2018
Time Analyzed: 15:36

Internal Standard Area and RT Summary
Polynuclear Aromatic Hydrocarbons

File ID: J:\MS20\DATA\071018\0710F017.D
Instrument ID: MS20
Analysis Method: 8270D SIM

Lab Code: KWG1803364-2
Analysis Lot: KWG1803364

		Chrysene-d12		Perylene-d12	
		Area	**RT**	**Area**	**RT**
	Results ==>	110,826	18.78	122,835	23.09
	Upper Limit ==>	221,652	19.28	245,670	23.59
	Lower Limit ==>	55,413	18.28	61,418	22.59
	ICAL Result ==>	105,110	19.00	102,151	23.35
Associated Analyses					
Method Blank	KWG1803256-4	95,568	18.79	108,069	23.09
Lab Control Sample	KWG1803256-3	88,463	18.78	101,452	23.08
PDI-SG-S010	K1804985-005	78,327	18.81	89,758	23.13
PDI-SG-S255	K1804985-006	79,457	18.80	92,556	23.13
PDI-SG-S157	K1804985-011	76,943	18.82	89,793	23.14
PDI-SG-S204	K1804985-001	86,335	18.80	97,504	23.11
PDI-SG-S147	K1804985-002	85,995	18.80	99,481	23.12
PDI-SG-S084	K1804985-003	84,276	18.80	102,887	23.10
PDI-SG-S090	K1804985-004	91,310	18.79	107,749	23.09
PDI-SG-S135	K1804985-010	96,836	18.79	109,351	23.09
PDI-SG-S097	K1804985-007	88,491	18.79	102,725	23.10
PDI-SG-S115	K1804985-008	85,290	18.79	101,456	23.10

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: K1804985
Date Analyzed: 07/12/2018
Time Analyzed: 06:21

Internal Standard Area and RT Summary
Polynuclear Aromatic Hydrocarbons

File ID: J:\MS20\DATA\071218\0712F002.D
Instrument ID: MS20
Analysis Method: 8270D SIM

Lab Code: KWG1803435-2
Analysis Lot: KWG1803435

		Naphthalene-d8		Acenaphthene-d10		Phenanthrene-d10	
		Area	**RT**	**Area**	**RT**	**Area**	**RT**
	Results ==>	88,527	5.93	47,488	8.25	99,112	11.42
	Upper Limit ==>	177,054	6.43	94,976	8.75	198,224	11.92
	Lower Limit ==>	44,264	5.43	23,744	7.75	49,556	10.92
	ICAL Result ==>	90,101	6.06	44,197	8.42	87,517	11.64
Associated Analyses							
PDI-SG-S078	K1804985-009	83,640	5.93	45,475	8.24	88,725	11.42
PDI-SG-S010DL	K1804985-005	76,768	5.93	43,852	8.25	88,314	11.42
PDI-SG-S255DL	K1804985-006	80,247	5.93	44,926	8.25	90,900	11.42
PDI-SG-S084DL	K1804985-003	78,738	5.93	44,617	8.25	90,124	11.43
PDI-SG-S097DL	K1804985-007	83,295	5.93	45,749	8.25	91,783	11.42
PDI-SG-S115DL	K1804985-008	80,083	5.93	44,661	8.25	92,248	11.42

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

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

Service Request: K1804985
Date Analyzed: 07/12/2018
Time Analyzed: 06:21

Internal Standard Area and RT Summary
Polynuclear Aromatic Hydrocarbons

File ID: J:\MS20\DATA\071218\0712F002.D
Instrument ID: MS20
Analysis Method: 8270D SIM

Lab Code: KWG1803435-2
Analysis Lot: KWG1803435

		Chrysene-d12		Perylene-d12	
		Area	**RT**	**Area**	**RT**
	Results ==>	109,372	18.78	120,089	23.09
	Upper Limit ==>	218,744	19.28	240,178	23.59
	Lower Limit ==>	54,686	18.28	60,045	22.59
	ICAL Result ==>	105,110	19.00	102,151	23.35
Associated Analyses					
PDI-SG-S078	K1804985-009	92,097	18.79	106,793	23.09
PDI-SG-S010DL	K1804985-005	93,198	18.79	105,736	23.09
PDI-SG-S255DL	K1804985-006	96,322	18.79	108,770	23.09
PDI-SG-S084DL	K1804985-003	95,946	18.79	109,520	23.09
PDI-SG-S097DL	K1804985-007	92,958	18.79	108,239	23.09
PDI-SG-S115DL	K1804985-008	96,123	18.79	110,888	23.09

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: K1804985
Date Analyzed: 07/25/2018
Time Analyzed: 23:20

Internal Standard Area and RT Summary
Polynuclear Aromatic Hydrocarbons

File ID: J:\MS14\DATA\072518\0725F028.D
Instrument ID: MS14
Analysis Method: 8270D SIM

Lab Code: KWG1803644-2
Analysis Lot: KWG1803644

		Naphthalene-d8		Acenaphthene-d10		Phenanthrene-d10	
		Area	**RT**	**Area**	**RT**	**Area**	**RT**
	Results ==>	47,711	4.80	22,281	6.36	49,366	7.59
	Upper Limit ==>	95,422	5.30	44,562	6.86	98,732	8.09
	Lower Limit ==>	23,856	4.30	11,141	5.86	24,683	7.09
	ICAL Result ==>	60,855	4.80	25,959	6.35	53,916	7.59
Associated Analyses							
PDI-SG-S204MS	KWG1803256-1	47,011	4.80	24,742	6.36	50,688	7.59
PDI-SG-S204DMS	KWG1803256-2	49,241	4.81	25,955	6.36	53,157	7.60

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

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

Service Request: K1804985
Date Analyzed: 07/25/2018
Time Analyzed: 23:20

Internal Standard Area and RT Summary
Polynuclear Aromatic Hydrocarbons

File ID: J:\MS14\DATA\072518\0725F028.D
Instrument ID: MS14
Analysis Method: 8270D SIM

Lab Code: KWG1803644-2
Analysis Lot: KWG1803644

		Chrysene-d12		Perylene-d12	
		Area	**RT**	**Area**	**RT**
	Results ==>	52,395	10.16	54,650	13.32
	Upper Limit ==>	104,790	10.66	109,300	13.82
	Lower Limit ==>	26,198	9.66	27,325	12.82
	ICAL Result ==>	68,964	10.15	73,742	13.30
Associated Analyses					
PDI-SG-S204MS	KWG1803256-1	49,546	10.16	58,017	13.34
PDI-SG-S204DMS	KWG1803256-2	53,359	10.17	61,997	13.35

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

Client:	AECOM	**Service Request:**	K1804985
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Extracted:**	07/03/2018
Sample Matrix:	Sediment	**Date Analyzed:**	07/26/2018

Matrix Spike/Duplicate Matrix Spike Summary
Polynuclear Aromatic Hydrocarbons

Sample Name:	PDI-SG-S204	**Units:**	ug/Kg
Lab Code:	K1804985-001	**Basis:**	Dry
Extraction Method:	EPA 3541	**Level:**	Low
Analysis Method:	8270D SIM	**Extraction Lot:**	KWG1803256

		PDI-SG-S204MS KWG1803256-1 Matrix Spike			PDI-SG-S204DMS KWG1803256-2 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
Naphthalene	7.9	47.0	88.7	44	55.9	88.4	54	37-104	17	40
2-Methylnaphthalene	ND	55.1	88.7	62	60.2	88.4	68	39-115	9	40
Acenaphthylene	6.5	54.3	88.7	54	59.2	88.4	60	39-115	9	40
Acenaphthene	6.7	62.5	88.7	63	62.1	88.4	63	41-116	1	40
Fluorene	9.2	75.2	88.7	74	67.0	88.4	65	43-117	12	40
Phenanthrene	69	255	88.7	209 *	222	88.4	173 *	42-119	14	40
Anthracene	12	75.7	88.7	71	70.8	88.4	66	42-124	7	40
Fluoranthene	170	381	88.7	241 *	332	88.4	187 *	42-130	14	40
Pyrene	250	373	88.7	143 *	338	88.4	103	33-125	10	40
Benz(a)anthracene	55	145	88.7	101	154	88.4	112	42-123	6	40
Chrysene	86	232	88.7	165 *	266	88.4	204 *	40-134	14	40
Benzo(b)fluoranthene	85	229	88.7	161 *	239	88.4	174 *	27-139	5	40
Benzo(k)fluoranthene	26	120	88.7	106	121	88.4	107	40-125	0	40
Benzo(a)pyrene	54	151	88.7	109	182	88.4	144 *	39-130	18	40
Indeno(1,2,3-cd)pyrene	54	114	88.7	67	142	88.4	100	37-143	22	40
Dibenz(a,h)anthracene	16	51.1	88.7	40	60.3	88.4	50	39-141	16	40
Benzo(g,h,i)perylene	73	140	88.7	76	164	88.4	103	35-140	16	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:**	K1804985
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Extracted:**	07/03/2018
Sample Matrix:	Sediment	**Date Analyzed:**	07/10/2018

Lab Control Spike Summary
Polynuclear Aromatic Hydrocarbons

Extraction Method:	EPA 3541	**Units:**	ug/Kg
Analysis Method:	8270D SIM	**Basis:**	Dry
		Level:	Low
		Extraction Lot:	KWG1803256

Lab Control Sample
KWG1803256-3
Lab Control Spike

Analyte Name	Result	Spike Amount	%Rec	%Rec Limits
Naphthalene	55.0	100	55	42-107
2-Methylnaphthalene	54.2	100	54	40-116
Acenaphthylene	56.9	100	57	41-112
Acenaphthene	53.9	100	54	43-113
Fluorene	54.4	100	54	44-114
Phenanthrene	53.4	100	53	44-115
Anthracene	56.6	100	57	45-121
Fluoranthene	57.8	100	58	47-123
Pyrene	67.2	100	67	41-121
Benz(a)anthracene	71.9	100	72	42-123
Chrysene	66.8	100	67	46-130
Benzo(b)fluoranthene	65.6	100	66	46-125
Benzo(k)fluoranthene	62.3	100	62	47-125
Benzo(a)pyrene	65.3	100	65	45-128
Indeno(1,2,3-cd)pyrene	66.4	100	66	45-128
Dibenz(a,h)anthracene	65.6	100	66	44-128
Benzo(g,h,i)perylene	58.7	100	59	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:**	K1804985
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Extracted:**	07/03/2018
Sample Matrix:	Sediment	**Date Analyzed:**	07/10/2018
		Time Analyzed:	16:54

Method Blank Summary
Polynuclear Aromatic Hydrocarbons

Sample Name:	Method Blank	**Instrument ID:**	MS20
Lab Code:	KWG1803256-4	**File ID:**	J:\MS20\DATA\071018\0710F019.D
Extraction Method:	EPA 3541	**Level:**	Low
Analysis Method:	8270D SIM	**Extraction Lot:**	KWG1803256

This Method Blank applies to the following analyses:

Sample Name	Lab Code	File ID	Date Analyzed	Time Analyzed
Lab Control Sample	KWG1803256-3	J:\MS20\DATA\071018\0710F020.D	07/10/18	17:34
PDI-SG-S010	K1804985-005	J:\MS20\DATA\071018\0710F023.D	07/10/18	19:32
PDI-SG-S255	K1804985-006	J:\MS20\DATA\071018\0710F024.D	07/10/18	20:11
PDI-SG-S157	K1804985-011	J:\MS20\DATA\071018\0710F025.D	07/10/18	20:50
PDI-SG-S204	K1804985-001	J:\MS20\DATA\071018\0710F026.D	07/10/18	21:29
PDI-SG-S147	K1804985-002	J:\MS20\DATA\071018\0710F029.D	07/10/18	23:27
PDI-SG-S084	K1804985-003	J:\MS20\DATA\071018\0710F030.D	07/11/18	00:06
PDI-SG-S090	K1804985-004	J:\MS20\DATA\071018\0710F031.D	07/11/18	00:45
PDI-SG-S135	K1804985-010	J:\MS20\DATA\071018\0710F032.D	07/11/18	01:25
PDI-SG-S097	K1804985-007	J:\MS20\DATA\071018\0710F033.D	07/11/18	02:04
PDI-SG-S115	K1804985-008	J:\MS20\DATA\071018\0710F034.D	07/11/18	02:43
PDI-SG-S078	K1804985-009	J:\MS20\DATA\071218\0712F007.D	07/12/18	09:37
PDI-SG-S010	K1804985-005	J:\MS20\DATA\071218\0712F008.D	07/12/18	10:16
PDI-SG-S255	K1804985-006	J:\MS20\DATA\071218\0712F009.D	07/12/18	10:55
PDI-SG-S084	K1804985-003	J:\MS20\DATA\071218\0712F010.D	07/12/18	11:35
PDI-SG-S097	K1804985-007	J:\MS20\DATA\071218\0712F011.D	07/12/18	12:14
PDI-SG-S115	K1804985-008	J:\MS20\DATA\071218\0712F012.D	07/12/18	12:54
PDI-SG-S204MS	KWG1803256-1	J:\MS14\DATA\072518\0725F044.D	07/26/18	06:13
PDI-SG-S204DMS	KWG1803256-2	J:\MS14\DATA\072518\0725F045.D	07/26/18	06:39

QA/QC Report

Client:	AECOM	**Service Request:**	K1804985
Project:	Portland Harbor Pre-Remedial Design Investigation/60566335	**Date Extracted:**	07/03/2018
Sample Matrix:	Sediment	**Date Analyzed:**	07/10/2018
		Time Analyzed:	17:34

Lab Control Sample Summary
Polynuclear Aromatic Hydrocarbons

Sample Name:	Lab Control Sample	**Instrument ID:**	MS20
Lab Code:	KWG1803256-3	**File ID:**	J:\MS20\DATA\071018\0710F020.D
Extraction Method:	EPA 3541	**Level:**	Low
Analysis Method:	8270D SIM	**Extraction Lot:**	KWG1803256

This Lab Control Sample applies to the following analyses:

Sample Name	Lab Code	File ID	Date Analyzed	Time Analyzed
Method Blank	KWG1803256-4	J:\MS20\DATA\071018\0710F019.D	07/10/18	16:54
PDI-SG-S010	K1804985-005	J:\MS20\DATA\071018\0710F023.D	07/10/18	19:32
PDI-SG-S255	K1804985-006	J:\MS20\DATA\071018\0710F024.D	07/10/18	20:11
PDI-SG-S157	K1804985-011	J:\MS20\DATA\071018\0710F025.D	07/10/18	20:50
PDI-SG-S204	K1804985-001	J:\MS20\DATA\071018\0710F026.D	07/10/18	21:29
PDI-SG-S147	K1804985-002	J:\MS20\DATA\071018\0710F029.D	07/10/18	23:27
PDI-SG-S084	K1804985-003	J:\MS20\DATA\071018\0710F030.D	07/11/18	00:06
PDI-SG-S090	K1804985-004	J:\MS20\DATA\071018\0710F031.D	07/11/18	00:45
PDI-SG-S135	K1804985-010	J:\MS20\DATA\071018\0710F032.D	07/11/18	01:25
PDI-SG-S097	K1804985-007	J:\MS20\DATA\071018\0710F033.D	07/11/18	02:04
PDI-SG-S115	K1804985-008	J:\MS20\DATA\071018\0710F034.D	07/11/18	02:43
PDI-SG-S078	K1804985-009	J:\MS20\DATA\071218\0712F007.D	07/12/18	09:37
PDI-SG-S010	K1804985-005	J:\MS20\DATA\071218\0712F008.D	07/12/18	10:16
PDI-SG-S255	K1804985-006	J:\MS20\DATA\071218\0712F009.D	07/12/18	10:55
PDI-SG-S084	K1804985-003	J:\MS20\DATA\071218\0712F010.D	07/12/18	11:35
PDI-SG-S097	K1804985-007	J:\MS20\DATA\071218\0712F011.D	07/12/18	12:14
PDI-SG-S115	K1804985-008	J:\MS20\DATA\071218\0712F012.D	07/12/18	12:54
PDI-SG-S204MS	KWG1803256-1	J:\MS14\DATA\072518\0725F044.D	07/26/18	06:13
PDI-SG-S204DMS	KWG1803256-2	J:\MS14\DATA\072518\0725F045.D	07/26/18	06:39

QA/QC Results

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

Service Request: K1804985
Date Analyzed: 07/10/2018
Time Analyzed: 14:56

Tune Summary
Polynuclear Aromatic Hydrocarbons

File ID: J:\MS20\DATA\071018\0710F016.D
Instrument ID: MS20
Column:

Analysis Method: 8270D SIM
Analysis Lot: KWG1803364

Target Mass	Relative to Mass	Lower Limit%	Upper Limit%	Relative Abundance %	Raw Abundance	Result Pass/Fail
51	198	10	80	26.5	159168	PASS
68	69	0	2	0.0	0	PASS
69	198	0	100	27.6	165866	PASS
70	69	0	2	0.5	901	PASS
127	198	10	80	39.4	236352	PASS
197	198	0	2	0.0	0	PASS
198	442	30	100	41.3	600106	PASS
199	198	5	9	6.7	40312	PASS
275	198	10	60	37.4	224725	PASS
365	442	1	50	2.5	36480	PASS
441	443	0	100	82.7	243157	PASS
442	442	100	100	100.0	1454250	PASS
443	442	15	24	20.2	294037	PASS

Sample Name	Lab Code	File ID	Date Analyzed	Time Analyzed	Q
Continuing Calibration Verification	KWG1803364-2	J:\MS20\DATA\071018\0710F017.D	07/10/2018	15:36	
Method Blank	KWG1803256-4	J:\MS20\DATA\071018\0710F019.D	07/10/2018	16:54	
Lab Control Sample	KWG1803256-3	J:\MS20\DATA\071018\0710F020.D	07/10/2018	17:34	
PDI-SG-S010	K1804985-005	J:\MS20\DATA\071018\0710F023.D	07/10/2018	19:32	
PDI-SG-S255	K1804985-006	J:\MS20\DATA\071018\0710F024.D	07/10/2018	20:11	
PDI-SG-S157	K1804985-011	J:\MS20\DATA\071018\0710F025.D	07/10/2018	20:50	
PDI-SG-S204	K1804985-001	J:\MS20\DATA\071018\0710F026.D	07/10/2018	21:29	
PDI-SG-S147	K1804985-002	J:\MS20\DATA\071018\0710F029.D	07/10/2018	23:27	
PDI-SG-S084	K1804985-003	J:\MS20\DATA\071018\0710F030.D	07/11/2018	00:06	
PDI-SG-S090	K1804985-004	J:\MS20\DATA\071018\0710F031.D	07/11/2018	00:45	
PDI-SG-S135	K1804985-010	J:\MS20\DATA\071018\0710F032.D	07/11/2018	01:25	
PDI-SG-S097	K1804985-007	J:\MS20\DATA\071018\0710F033.D	07/11/2018	02:04	
PDI-SG-S115	K1804985-008	J:\MS20\DATA\071018\0710F034.D	07/11/2018	02:43	

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: K1804985
Date Analyzed: 07/12/2018
Time Analyzed: 05:41

Tune Summary
Polynuclear Aromatic Hydrocarbons

File ID: J:\MS20\DATA\071218\0712F001.D
Instrument ID: MS20
Column:

Analysis Method: 8270D SIM
Analysis Lot: KWG1803435

Target Mass	Relative to Mass	Lower Limit%	Upper Limit%	Relative Abundance %	Raw Abundance	Result Pass/Fail
51	198	10	80	24.7	141898	PASS
68	69	0	2	0.0	0	PASS
69	198	0	100	26.5	152260	PASS
70	69	0	2	0.2	333	PASS
127	198	10	80	37.3	214101	PASS
197	198	0	2	0.0	0	PASS
198	442	30	100	38.7	573760	PASS
199	198	5	9	6.8	39146	PASS
275	198	10	60	37.5	215018	PASS
365	442	1	50	2.4	35437	PASS
441	443	0	100	84.8	249045	PASS
442	442	100	100	100.0	1480704	PASS
443	442	15	24	19.8	293546	PASS

Sample Name	Lab Code	File ID	Date Analyzed	Time Analyzed	Q
Continuing Calibration Verification	KWG1803435-2	J:\MS20\DATA\071218\0712F002.D	07/12/2018	06:21	
PDI-SG-S078	K1804985-009	J:\MS20\DATA\071218\0712F007.D	07/12/2018	09:37	
PDI-SG-S010	K1804985-005	J:\MS20\DATA\071218\0712F008.D	07/12/2018	10:16	
PDI-SG-S255	K1804985-006	J:\MS20\DATA\071218\0712F009.D	07/12/2018	10:55	
PDI-SG-S084	K1804985-003	J:\MS20\DATA\071218\0712F010.D	07/12/2018	11:35	
PDI-SG-S097	K1804985-007	J:\MS20\DATA\071218\0712F011.D	07/12/2018	12:14	
PDI-SG-S115	K1804985-008	J:\MS20\DATA\071218\0712F012.D	07/12/2018	12:54	

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: K1804985
Date Analyzed: 07/25/2018
Time Analyzed: 22:54

Tune Summary
Polynuclear Aromatic Hydrocarbons

File ID: J:\MS14\DATA\072518\0725F027.D
Instrument ID: MS14
Column:

Analysis Method: 8270D SIM
Analysis Lot: KWG1803644

Target Mass	Relative to Mass	Lower Limit%	Upper Limit%	Relative Abundance %	Raw Abundance	Result Pass/Fail
443	442	15	24	18.6	46781	PASS
51	198	10	80	33.6	42605	PASS
68	69	0	2	0.0	0	PASS
69	198	0	100	36.2	45874	PASS
70	69	0	2	0.6	287	PASS
127	198	10	80	43.1	54618	PASS
197	198	0	2	0.0	0	PASS
198	442	30	100	50.5	126613	PASS
199	198	5	9	6.5	8255	PASS
275	198	10	60	36.6	46320	PASS
365	442	1	50	2.8	6992	PASS
441	443	0	100	78.1	36552	PASS
442	442	100	100	100.0	250837	PASS

Sample Name	Lab Code	File ID	Date Analyzed	Time Analyzed	Q
Continuing Calibration Verification	KWG1803644-2	J:\MS14\DATA\072518\0725F028.D	07/25/2018	23:20	
PDI-SG-S204MS	KWG1803256-1	J:\MS14\DATA\072518\0725F044.D	07/26/2018	06:13	
PDI-SG-S204DMS	KWG1803256-2	J:\MS14\DATA\072518\0725F045.D	07/26/2018	06:39	

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

Client: AECOM **Service Request:** K1804985
Project: Portland Harbor Pre-Remedial Design Investigation/60566335 **Calibration Date:** 07/11/2018

Initial Calibration Summary
Polynuclear Aromatic Hydrocarbons

Calibration ID: CAL15779 **Column:** MS
Instrument ID: MS14

Level ID	File ID	Level ID	File ID
A	J:\MS14\DATA\071118\0711F003.D	G	J:\MS14\DATA\071118\0711F009.D
B	J:\MS14\DATA\071118\0711F004.D	H	J:\MS14\DATA\071118\0711F010.D
C	J:\MS14\DATA\071118\0711F005.D	I	J:\MS14\DATA\071118\0711F011.D
D	J:\MS14\DATA\071118\0711F006.D	J	J:\MS14\DATA\071118\0711F012.D
E	J:\MS14\DATA\071118\0711F007.D		
F	J:\MS14\DATA\071118\0711F008.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	1.42	B	4.0	1.31	C	8.0	1.19	D	20	1.15	E	100	1.13
	F	200	1.11	G	400	1.09	H	1000	1.06	I	1600	1.03	J	2000	1.07
2-Methylnaphthalene	A	2.0	0.789	B	4.0	0.741	C	8.0	0.734	D	20	0.715	E	100	0.718
	F	200	0.692	G	400	0.662	H	1000	0.650	I	1600	0.627	J	2000	0.635
Acenaphthylene	A	2.0	2.52	B	4.0	2.35	C	8.0	2.29	D	20	2.33	E	100	2.37
	F	200	2.41	G	400	2.42	H	1000	2.41	I	1600	2.43	J	2000	2.34
Acenaphthene	A	2.0	1.44	B	4.0	1.38	C	8.0	1.33	D	20	1.38	E	100	1.38
	F	200	1.39	G	400	1.38	H	1000	1.35	I	1600	1.38	J	2000	1.32
Fluorene	A	2.0	1.81	B	4.0	1.68	C	8.0	1.62	D	20	1.64	E	100	1.70
	F	200	1.68	G	400	1.67	H	1000	1.60	I	1600	1.63	J	2000	1.56
Phenanthrene	A	2.0	1.33	B	4.0	1.33	C	8.0	1.25	D	20	1.23	E	100	1.25
	F	200	1.25	G	400	1.22	H	1000	1.23	I	1600	1.22	J	2000	1.16
Anthracene	A	2.0	1.20	B	4.0	1.17	C	8.0	1.17	D	20	1.14	E	100	1.21
	F	200	1.22	G	400	1.22	H	1000	1.22	I	1600	1.21	J	2000	1.17
Fluoranthene	A	2.0	1.50	B	4.0	1.44	C	8.0	1.44	D	20	1.41	E	100	1.54
	F	200	1.60	G	400	1.58	H	1000	1.63	I	1600	1.65	J	2000	1.62
Pyrene	A	2.0	1.49	B	4.0	1.46	C	8.0	1.38	D	20	1.37	E	100	1.34
	F	200	1.29	G	400	1.32	H	1000	1.33	I	1600	1.39	J	2000	1.36
Benz(a)anthracene	A	2.0	1.50	B	4.0	1.32	C	8.0	1.26	D	20	1.19	E	100	1.20
	F	200	1.23	G	400	1.27	H	1000	1.32	I	1600	1.34	J	2000	1.31
Chrysene	A	2.0	1.23	B	4.0	1.21	C	8.0	1.23	D	20	1.20	E	100	1.24
	F	200	1.25	G	400	1.25	H	1000	1.26	I	1600	1.28	J	2000	1.24
Benzo(b)fluoranthene	A	2.0	1.19	B	4.0	1.16	C	8.0	1.15	D	20	1.16	E	100	1.20
	F	200	1.26	G	400	1.30	H	1000	1.34	I	1600	1.32	J	2000	1.27
Benzo(k)fluoranthene	A	2.0	1.16	B	4.0	1.17	C	8.0	1.13	D	20	1.19	E	100	1.23
	F	200	1.26	G	400	1.29	H	1000	1.29	I	1600	1.29	J	2000	1.25
Benzo(a)pyrene	A	2.0	1.09	B	4.0	1.01	C	8.0	1.03	D	20	1.04	E	100	1.05
	F	200	1.07	G	400	1.11	H	1000	1.15	I	1600	1.16	J	2000	1.12

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

† SPCC Compound **‡ CCC Compound**

Client: AECOM **Service Request:** K1804985
Project: Portland Harbor Pre-Remedial Design Investigation/60566335 **Calibration Date:** 07/11/2018

Initial Calibration Summary
Polynuclear Aromatic Hydrocarbons

Calibration ID: CAL15779 **Column:** MS
Instrument ID: MS14

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	1.23	B	4.0	1.10	C	8.0	1.06	D	20	1.06	E	100	1.07
	F	200	1.08	G	400	1.05	H	1000	1.01	I	1600	0.996	J	2000	0.959
Dibenz(a,h)anthracene	A	2.0	1.12	B	4.0	1.10	C	8.0	1.09	D	20	1.17	E	100	1.12
	F	200	1.10	G	400	1.07	H	1000	1.02	I	1600	1.00	J	2000	0.971
Benzo(g,h,i)perylene	A	2.0	1.44	B	4.0	1.37	C	8.0	1.31	D	20	1.34	E	100	1.28
	F	200	1.27	G	400	1.21	H	1000	1.12	I	1600	1.07	J	2000	1.04
Fluorene-d10				B	4.0	1.49	C	8.0	1.33	D	20	1.28	E	100	1.25
	F	200	1.24	G	400	1.25	H	1000	1.21	I	1600	1.24	J	2000	1.20
Fluoranthene-d10	A	2.0	1.18	B	4.0	1.19	C	8.0	1.15	D	20	1.11	E	100	1.20
	F	200	1.26	G	400	1.31	H	1000	1.40	I	1600	1.42	J	2000	1.39
Terphenyl-d14				B	4.0	1.05	C	8.0	0.934	D	20	0.867	E	100	0.832
	F	200	0.823	G	400	0.835	H	1000	0.837	I	1600	0.830	J	2000	0.801

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

† SPCC Compound **‡ CCC Compound**

Client: AECOM **Service Request:** K1804985
Project: Portland Harbor Pre-Remedial Design Investigation/60566335 **Calibration Date:** 07/11/2018

Initial Calibration Summary
Polynuclear Aromatic Hydrocarbons

Calibration ID: CAL15779 **Column:** MS
Instrument ID: MS14

		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	10.7		≤ 20	1.15		0.70
2-Methylnaphthalene	MS	AverageRF	% RSD	7.5		≤ 20	0.696		0.40
Acenaphthylene	MS	AverageRF	% RSD	2.7		≤ 20	2.39		0.90
Acenaphthene	MS	AverageRF	% RSD	2.3		≤ 20	1.37		0.90
Fluorene	MS	AverageRF	% RSD	4.1		≤ 20	1.66		0.90
Phenanthrene	MS	AverageRF	% RSD	4.1		≤ 20	1.25		0.70
Anthracene	MS	AverageRF	% RSD	2.4		≤ 20	1.19		0.70
Fluoranthene	MS	AverageRF	% RSD	5.8		≤ 20	1.54		0.60
Pyrene	MS	AverageRF	% RSD	4.5		≤ 20	1.37		0.60
Benz(a)anthracene	MS	AverageRF	% RSD	6.8		≤ 20	1.29		0.80
Chrysene	MS	AverageRF	% RSD	1.9		≤ 20	1.24		0.70
Benzo(b)fluoranthene	MS	AverageRF	% RSD	5.7		≤ 20	1.24		0.70
Benzo(k)fluoranthene	MS	AverageRF	% RSD	4.7		≤ 20	1.23		0.70
Benzo(a)pyrene	MS	AverageRF	% RSD	4.7		≤ 20	1.08		0.70
Indeno(1,2,3-cd)pyrene	MS	AverageRF	% RSD	6.9		≤ 20	1.06		0.50
Dibenz(a,h)anthracene	MS	AverageRF	% RSD	5.7		≤ 20	1.08		0.40
Benzo(g,h,i)perylene	MS	AverageRF	% RSD	10.7		≤ 20	1.24		0.50
Fluorene-d10	SURR	AverageRF	% RSD	6.9		≤ 20	1.28		0.01
Fluoranthene-d10	SURR	AverageRF	% RSD	9.0		≤ 20	1.26		0.01
Terphenyl-d14	SURR	AverageRF	% RSD	8.9		≤ 20	0.867		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: K1804985
Calibration Date: 07/11/2018
Date Analyzed: 07/11/2018

Second Source Calibration Verification
Polynuclear Aromatic Hydrocarbons

Calibration Type: Internal Standard
Analysis Method: 8270D SIM

Calibration ID: CAL15779
Units: ng/ml

File ID: J:\MS14\DATA\071118\0711F013.D

Analyte Name	Expected	Result	Average RF	SSV RF	%D	%Drift	Criteria	Curve Fit
Naphthalene	400	370	1.15	1.06	-8	NA	± 30 %	AverageRF
2-Methylnaphthalene	400	390	0.696	0.683	-2	NA	± 30 %	AverageRF
Acenaphthylene	400	390	2.39	2.33	-2	NA	± 30 %	AverageRF
Acenaphthene	400	380	1.37	1.32	-4	NA	± 30 %	AverageRF
Fluorene	400	390	1.66	1.60	-4	NA	± 30 %	AverageRF
Phenanthrene	400	380	1.25	1.19	-4	NA	± 30 %	AverageRF
Anthracene	400	400	1.19	1.18	-1	NA	± 30 %	AverageRF
Fluoranthene	400	410	1.54	1.60	4	NA	± 30 %	AverageRF
Pyrene	400	350	1.37	1.21	-12	NA	± 30 %	AverageRF
Benz(a)anthracene	400	380	1.29	1.22	-6	NA	± 30 %	AverageRF
Chrysene	400	390	1.24	1.20	-3	NA	± 30 %	AverageRF
Benzo(b)fluoranthene	400	410	1.24	1.27	2	NA	± 30 %	AverageRF
Benzo(k)fluoranthene	400	420	1.23	1.28	4	NA	± 30 %	AverageRF
Benzo(a)pyrene	400	400	1.08	1.08	0	NA	± 30 %	AverageRF
Indeno(1,2,3-cd)pyrene	400	370	1.06	0.993	-7	NA	± 30 %	AverageRF
Dibenz(a,h)anthracene	400	380	1.08	1.03	-4	NA	± 30 %	AverageRF
Benzo(g,h,i)perylene	400	370	1.24	1.14	-9	NA	± 30 %	AverageRF

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

† SPCC Compound **‡ CCC Compound**

Client: AECOM **Service Request:** K1804985
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:** K1804985
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:** K1804985
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: K1804985
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:** K1804985
Project: Portland Harbor Pre-Remedial Design Investigation/60566335 **Date Analyzed:** 07/10/2018

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: KWG1803364
Units: ng/ml

File ID: J:\MS20\DATA\071018\0710F017.D

Analyte Name	Expected	Result	Min RF	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Naphthalene	400	410	0.70	1.02	1.03	1	NA	± 20	AverageRF
2-Methylnaphthalene	400	400	0.40	0.682	0.684	0	NA	± 20	AverageRF
Acenaphthylene	400	420	0.90	2.03	2.12	4	NA	± 20	AverageRF
Acenaphthene	400	390	0.90	1.25	1.22	-2	NA	± 20	AverageRF
Fluorene	400	400	0.90	1.50	1.49	0	NA	± 20	AverageRF
Phenanthrene	400	380	0.70	1.17	1.10	-6	NA	± 20	AverageRF
Anthracene	400	350	0.70	1.09	0.956	-12	NA	± 20	AverageRF
Fluoranthene	400	410	0.60	1.27	1.31	3	NA	± 20	AverageRF
Pyrene	400	440	0.60	1.13	1.25	11	NA	± 20	AverageRF
Benz(a)anthracene	400	450	0.80	1.09	1.23	13	NA	± 20	AverageRF
Chrysene	400	420	0.70	1.08	1.13	4	NA	± 20	AverageRF
Benzo(b)fluoranthene	400	420	0.70	1.14	1.20	5	NA	± 20	AverageRF
Benzo(k)fluoranthene	400	410	0.70	1.15	1.19	4	NA	± 20	AverageRF
Benzo(a)pyrene	400	430	0.70	0.984	1.07	8	NA	± 20	AverageRF
Indeno(1,2,3-cd)pyrene	400	440	0.50	1.02	1.11	9	NA	± 20	AverageRF
Dibenz(a,h)anthracene	400	430	0.40	1.05	1.12	7	NA	± 20	AverageRF
Benzo(g,h,i)perylene	400	390	0.50	1.22	1.19	-3	NA	± 20	AverageRF
Fluorene-d10	400	390	0.01	1.28	1.26	-2	NA	± 20	AverageRF
Fluoranthene-d10	400	410	0.01	1.15	1.18	2	NA	± 20	AverageRF
Terphenyl-d14	400	410	0.01	0.853	0.880	3	NA	± 20	AverageRF

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

† SPCC Compound **‡ CCC Compound**

Client: AECOM **Service Request:** K1804985
Project: Portland Harbor Pre-Remedial Design Investigation/60566335 **Date Analyzed:** 07/12/2018

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: KWG1803435
Units: ng/ml

File ID: J:\MS20\DATA\071218\0712F002.D

Analyte Name	Expected	Result	Min RF	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Naphthalene	400	410	0.70	1.02	1.04	2	NA	± 20	AverageRF
2-Methylnaphthalene	400	410	0.40	0.682	0.691	1	NA	± 20	AverageRF
Acenaphthylene	400	410	0.90	2.03	2.10	4	NA	± 20	AverageRF
Acenaphthene	400	390	0.90	1.25	1.23	-2	NA	± 20	AverageRF
Fluorene	400	400	0.90	1.50	1.49	0	NA	± 20	AverageRF
Phenanthrene	400	380	0.70	1.17	1.12	-4	NA	± 20	AverageRF
Anthracene	400	360	0.70	1.09	0.979	-10	NA	± 20	AverageRF
Fluoranthene	400	410	0.60	1.27	1.31	3	NA	± 20	AverageRF
Pyrene	400	440	0.60	1.13	1.25	11	NA	± 20	AverageRF
Benz(a)anthracene	400	450	0.80	1.09	1.22	13	NA	± 20	AverageRF
Chrysene	400	420	0.70	1.08	1.14	5	NA	± 20	AverageRF
Benzo(b)fluoranthene	400	420	0.70	1.14	1.20	5	NA	± 20	AverageRF
Benzo(k)fluoranthene	400	420	0.70	1.15	1.21	5	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	430	0.40	1.05	1.14	8	NA	± 20	AverageRF
Benzo(g,h,i)perylene	400	390	0.50	1.22	1.18	-3	NA	± 20	AverageRF
Fluorene-d10	400	390	0.01	1.28	1.25	-2	NA	± 20	AverageRF
Fluoranthene-d10	400	410	0.01	1.15	1.19	3	NA	± 20	AverageRF
Terphenyl-d14	400	420	0.01	0.853	0.901	6	NA	± 20	AverageRF

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

† SPCC Compound **‡ CCC Compound**

Client: AECOM **Service Request:** K1804985
Project: Portland Harbor Pre-Remedial Design Investigation/60566335 **Date Analyzed:** 07/25/2018

Continuing Calibration Verification Summary
Polynuclear Aromatic Hydrocarbons

Calibration Type: Internal Standard **Calibration Date:** 07/11/2018
Analysis Method: 8270D SIM **Calibration ID:** CAL15779
Analysis Lot: KWG1803644
Units: ng/ml

File ID: J:\MS14\DATA\072518\0725F028.D

Analyte Name	Expected	Result	Min RF	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Naphthalene	400	380	0.70	1.15	1.10	-4	NA	± 20	AverageRF
2-Methylnaphthalene	400	400	0.40	0.696	0.698	0	NA	± 20	AverageRF
Acenaphthylene	400	410	0.90	2.39	2.42	1	NA	± 20	AverageRF
Acenaphthene	400	410	0.90	1.37	1.40	2	NA	± 20	AverageRF
Fluorene	400	430	0.90	1.66	1.76	6	NA	± 20	AverageRF
Phenanthrene	400	400	0.70	1.25	1.25	0	NA	± 20	AverageRF
Anthracene	400	390	0.70	1.19	1.17	-2	NA	± 20	AverageRF
Fluoranthene	400	370	0.60	1.54	1.44	-7	NA	± 20	AverageRF
Pyrene	400	430	0.60	1.37	1.46	7	NA	± 20	AverageRF
Benz(a)anthracene	400	410	0.80	1.29	1.34	4	NA	± 20	AverageRF
Chrysene	400	410	0.70	1.24	1.28	4	NA	± 20	AverageRF
Benzo(b)fluoranthene	400	430	0.70	1.24	1.32	7	NA	± 20	AverageRF
Benzo(k)fluoranthene	400	440	0.70	1.23	1.34	9	NA	± 20	AverageRF
Benzo(a)pyrene	400	410	0.70	1.08	1.12	3	NA	± 20	AverageRF
Indeno(1,2,3-cd)pyrene	400	400	0.50	1.06	1.06	0	NA	± 20	AverageRF
Dibenz(a,h)anthracene	400	400	0.40	1.08	1.08	0	NA	± 20	AverageRF
Benzo(g,h,i)perylene	400	410	0.50	1.24	1.27	2	NA	± 20	AverageRF
Fluorene-d10	400	450	0.01	1.28	1.44	13	NA	± 20	AverageRF
Fluoranthene-d10	400	420	0.01	1.26	1.32	5	NA	± 20	AverageRF
Terphenyl-d14	400	420	0.01	0.867	0.922	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:** K1804985
Project: Portland Harbor Pre-Remedial Design Investigation/60566335

Analysis Run Log
Polynuclear Aromatic Hydrocarbons

Analysis Method: 8270D SIM **Analysis Lot:** KWG1803644
Instrument ID: MS14

File ID	Sample Name	Lab Code	Date Analysis Started	Start Time	Q	Date Analysis Finished	Finish Time
0725F027.D	GC/MS Tuning - Decafluorotriphenylphosph	KWG1803644-1	7/25/2018	22:54		7/25/2018	23:14
0725F028.D	Continuing Calibration Verification	KWG1803644-2	7/25/2018	23:20		7/25/2018	23:39
0725F029.D	ZZZZZZ	ZZZZZZ	7/25/2018	23:45		7/26/2018	00:04
0725F030.D	ZZZZZZ	ZZZZZZ	7/26/2018	00:11		7/26/2018	00:30
0725F031.D	ZZZZZZ	ZZZZZZ	7/26/2018	00:37		7/26/2018	00:56
0725F032.D	ZZZZZZ	ZZZZZZ	7/26/2018	01:03		7/26/2018	01:22
0725F033.D	ZZZZZZ	ZZZZZZ	7/26/2018	01:29		7/26/2018	01:48
0725F034.D	ZZZZZZ	ZZZZZZ	7/26/2018	01:55		7/26/2018	02:14
0725F035.D	ZZZZZZ	ZZZZZZ	7/26/2018	02:20		7/26/2018	02:39
0725F036.D	ZZZZZZ	ZZZZZZ	7/26/2018	02:46		7/26/2018	03:05
0725F037.D	ZZZZZZ	ZZZZZZ	7/26/2018	03:12		7/26/2018	03:31
0725F038.D	ZZZZZZ	ZZZZZZ	7/26/2018	03:38		7/26/2018	03:57
0725F039.D	ZZZZZZ	ZZZZZZ	7/26/2018	04:04		7/26/2018	04:23
0725F040.D	ZZZZZZ	ZZZZZZ	7/26/2018	04:30		7/26/2018	04:49
0725F041.D	ZZZZZZ	ZZZZZZ	7/26/2018	04:56		7/26/2018	05:15
0725F042.D	ZZZZZZ	ZZZZZZ	7/26/2018	05:22		7/26/2018	05:41
0725F043.D	ZZZZZZ	ZZZZZZ	7/26/2018	05:47		7/26/2018	06:06
0725F044.D	PDI-SG-S204MS	KWG1803256-1	7/26/2018	06:13		7/26/2018	06:32
0725F045.D	PDI-SG-S204DMS	KWG1803256-2	7/26/2018	06:39		7/26/2018	06:58

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

Client: AECOM **Service Request:** K1804985
Project: Portland Harbor Pre-Remedial Design Investigation/60566335

Analysis Run Log
Polynuclear Aromatic Hydrocarbons

Analysis Method: 8270D SIM **Analysis Lot:** KWG1803364
Instrument ID: MS20

File ID	Sample Name	Lab Code	Date Analysis Started	Start Time	Q	Date Analysis Finished	Finish Time
0710F016.D	GC/MS Tuning - Decafluorotriphenylphosph	KWG1803364-1	7/10/2018	14:56		7/10/2018	15:26
0710F017.D	Continuing Calibration Verification	KWG1803364-2	7/10/2018	15:36		7/10/2018	16:05
0710F019.D	Method Blank	KWG1803256-4	7/10/2018	16:54		7/10/2018	17:23
0710F020.D	Lab Control Sample	KWG1803256-3	7/10/2018	17:34		7/10/2018	18:03
0710F021.D	ZZZZZZ	ZZZZZZ	7/10/2018	18:13		7/10/2018	18:42
0710F022.D	ZZZZZZ	ZZZZZZ	7/10/2018	18:52		7/10/2018	19:21
0710F023.D	PDI-SG-S010	K1804985-005	7/10/2018	19:32		7/10/2018	20:01
0710F024.D	PDI-SG-S255	K1804985-006	7/10/2018	20:11		7/10/2018	20:40
0710F025.D	PDI-SG-S157	K1804985-011	7/10/2018	20:50		7/10/2018	21:19
0710F026.D	PDI-SG-S204	K1804985-001	7/10/2018	21:29		7/10/2018	21:58
0710F027.D	ZZZZZZ	ZZZZZZ	7/10/2018	22:08		7/10/2018	22:37
0710F028.D	ZZZZZZ	ZZZZZZ	7/10/2018	22:48		7/10/2018	23:17
0710F029.D	PDI-SG-S147	K1804985-002	7/10/2018	23:27		7/10/2018	23:56
0710F030.D	PDI-SG-S084	K1804985-003	7/11/2018	00:06		7/11/2018	00:35
0710F031.D	PDI-SG-S090	K1804985-004	7/11/2018	00:45		7/11/2018	01:14
0710F032.D	PDI-SG-S135	K1804985-010	7/11/2018	01:25		7/11/2018	01:54
0710F033.D	PDI-SG-S097	K1804985-007	7/11/2018	02:04		7/11/2018	02:33
0710F034.D	PDI-SG-S115	K1804985-008	7/11/2018	02:43		7/11/2018	03:12

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

QA/QC Results

Client: AECOM **Service Request:** K1804985
Project: Portland Harbor Pre-Remedial Design Investigation/60566335

Analysis Run Log
Polynuclear Aromatic Hydrocarbons

Analysis Method: 8270D SIM **Analysis Lot:** KWG1803435
Instrument ID: MS20

File ID	Sample Name	Lab Code	Date Analysis Started	Start Time	Q	Date Analysis Finished	Finish Time
0712F001.D	GC/MS Tuning - Decafluorotriphenylphosph	KWG1803435-1	7/12/2018	05:41		7/12/2018	06:11
0712F002.D	Continuing Calibration Verification	KWG1803435-2	7/12/2018	06:21		7/12/2018	06:50
0712F003.D	ZZZZZZ	ZZZZZZ	7/12/2018	07:00		7/12/2018	07:29
0712F004.D	ZZZZZZ	ZZZZZZ	7/12/2018	07:39		7/12/2018	08:08
0712F005.D	ZZZZZZ	ZZZZZZ	7/12/2018	08:18		7/12/2018	08:47
0712F006.D	ZZZZZZ	ZZZZZZ	7/12/2018	08:57		7/12/2018	09:26
0712F007.D	PDI-SG-S078	K1804985-009	7/12/2018	09:37		7/12/2018	10:06
0712F008.D	PDI-SG-S010	K1804985-005	7/12/2018	10:16		7/12/2018	10:45
0712F009.D	PDI-SG-S255	K1804985-006	7/12/2018	10:55		7/12/2018	11:24
0712F010.D	PDI-SG-S084	K1804985-003	7/12/2018	11:35		7/12/2018	12:04
0712F011.D	PDI-SG-S097	K1804985-007	7/12/2018	12:14		7/12/2018	12:43
0712F012.D	PDI-SG-S115	K1804985-008	7/12/2018	12:54		7/12/2018	13:23
0712F013.D	ZZZZZZ	ZZZZZZ	7/12/2018	13:33		7/12/2018	14:02
0712F014.D	ZZZZZZ	ZZZZZZ	7/12/2018	14:13		7/12/2018	14:42
0712F015.D	ZZZZZZ	ZZZZZZ	7/12/2018	14:52		7/12/2018	15:21
0712F016.D	ZZZZZZ	ZZZZZZ	7/12/2018	15:32		7/12/2018	16:01
0712F017.D	ZZZZZZ	ZZZZZZ	7/12/2018	16:12		7/12/2018	16:41
0712F018.D	ZZZZZZ	ZZZZZZ	7/12/2018	16:51		7/12/2018	17:20
0712F019.D	ZZZZZZ	ZZZZZZ	7/12/2018	17:31		7/12/2018	18:00

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: K1804985
Date Extracted: 07/03/2018

Extraction Prep Log
Polynuclear Aromatic Hydrocarbons

Extraction Method: EPA 3541
Analysis Method: 8270D SIM

Extraction Lot: KWG1803256
Level: Low

Sample Name	Lab Code	Date Collected	Date Received	Sample Amount	Final Volume	% Solids	Note
PDI-SG-S204	K1804985-001	05/03/18	05/25/18	40.268g	1mL	70.3	
PDI-SG-S147	K1804985-002	05/04/18	05/25/18	40.342g	1mL	54.8	
PDI-SG-S084DL	K1804985-003	05/08/18	05/25/18	40.336g	1mL	82.3	
PDI-SG-S084	K1804985-003	05/08/18	05/25/18	40.336g	1mL	82.3	
PDI-SG-S090	K1804985-004	05/09/18	05/25/18	40.141g	1mL	75.2	
PDI-SG-S010DL	K1804985-005	05/09/18	05/25/18	40.113g	1mL	75.9	
PDI-SG-S010	K1804985-005	05/09/18	05/25/18	40.113g	1mL	75.9	
PDI-SG-S255	K1804985-006	05/11/18	05/25/18	40.393g	1mL	62.4	
PDI-SG-S255DL	K1804985-006	05/11/18	05/25/18	40.393g	1mL	62.4	
PDI-SG-S097	K1804985-007	05/13/18	05/25/18	40.037g	1mL	62.5	
PDI-SG-S097DL	K1804985-007	05/13/18	05/25/18	40.037g	1mL	62.5	
PDI-SG-S115DL	K1804985-008	05/12/18	05/25/18	40.425g	1mL	74	
PDI-SG-S115	K1804985-008	05/12/18	05/25/18	40.425g	1mL	74	
PDI-SG-S078	K1804985-009	05/12/18	05/25/18	40.393g	1mL	55.1	
PDI-SG-S135	K1804985-010	05/14/18	05/25/18	40.282g	1mL	70.5	
PDI-SG-S157	K1804985-011	05/14/18	05/25/18	40.484g	1mL	60.6	
Method Blank	KWG1803256-4	NA	NA	40.484g	1mL	NA	
PDI-SG-S204MS	KWG1803256-1	05/03/18	05/25/18	40.098g	1mL	70.3	
PDI-SG-S204DMS	KWG1803256-2	05/03/18	05/25/18	40.221g	1mL	70.3	
Lab Control Sample	KWG1803256-3	NA	NA	20.000g	1mL	NA	

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