



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

September 21, 2018

Analytical Report for Service Request No: K1808117

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 August 24, 2018
For your reference, these analyses have been assigned our service request number **K1808117**.

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

Qualifiers

State Certifications, Accreditations, And Licenses

Case Narrative

Chain of Custody

Butyltins

Low Level Semivolatile Organic Compounds by GCMS

Acronyms

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

Inorganic Data Qualifiers

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

Metals Data Qualifiers

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

Organic Data Qualifiers

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

Additional Petroleum Hydrocarbon Specific Qualifiers

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

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

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

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

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



Case Narrative

ALS Environmental—Kelso Laboratory
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: Surface Water

Service Request: K1808117
Date Received: 08/24/2018

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:

Four surface water samples were received for analysis at ALS Environmental on 08/24/2018. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

Semivolatiles by GC/MS:

Method 8270D, Low Level Semivolatile Organic Compounds by GC/MS 09/11/2018: The spike recovery of Bis(2-ethylhexyl) Phthalate for Laboratory Control Sample (LCS) KQ1811891-05 was outside the lower control criterion (33, 42-147). With the exception of sample PDI-WS-T07-1808 (1.1 ug/L) the analyte in question was not detected in the associated field samples. The error associated with reduced recovery indicated a potential low bias. Additional analysis of the associated field samples was not performed per client request as the subsequent analysis would have been performed past holding time. The data was flagged to indicate the problem.

Method 8270D, Low Level Semivolatile Organic Compounds by GC/MS 09/11/2018: The control criteria were exceeded for p-Terphenyl-d14 in samples PDI-WS-T04-1808, PDI-WS-T07-1808MS, and Batch QC due to matrix interference. The presence of non-target background components prevented adequate resolution of the surrogate. Accurate quantitation was not possible. No further corrective action was appropriate.

Method 8270D, Low Level Semivolatile Organic Compounds by GC/MS 09/11/2018: The Relative Percent Difference (RPD) for Bis(2-ethylhexyl) Phthalate in the replicate matrix spike analyses of sample PDI-WS-T07-1808 was outside control criteria: 52, 30. All spike recoveries in the MS and DMS were within acceptance limits, indicating the analytical batch was in control. No further corrective action was appropriate.

Semivolatile GC:

No significant anomalies were noted with this analysis.



Approved by _____

Date 09/21/2018



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

K1808117

**SURFACE WATER
CHAIN OF CUSTODY**

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

Client Contact	Project Contact: Amy Dahl / Chelsey Cook	Site Contact: Jennifer Ray / Michaela McCoog	8/24/2018	COC No:
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 Water	Tel: (206) 438-2261 / (206) 438-2010	Laboratory Contact: Howard-Holmes	Carrier:	___ of ___ COCs
Analysis Turnaround Time				
Calendar (C) or Work Days (W)				
<input type="checkbox"/> 21 days <input type="checkbox"/> Other _____				

Sample Identification	Sample Date	Sample Time	Matrix	QC Sample	Sampler's Initials	Total No. of Cont.	Fraction	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Sample Specific Notes:
PDI-WS-T 03 - 18 08	8/22/2018	17:55	W		MT	4	BEHP, Pentachlorophenol, EPA 8270D-LL	2	2																			
PDI-WS-T 04 - 18 08	8/23/2018	10:20	W		MM	4	Trihalofen, Unger et al. (TBT)	2	2																			
PDI-WS-T 07 - 18 08	8/23/2018	18:20	W	MS/MSD	MT	11		5	6																			
PDI-WS-T 05 - 18 08	8/21/2018	20:28	W		MT	4		2	2																			
PDI-WS-T																												
PDI-WS-T																												
PDI-WS-T																												
PDI-WS-T																												
PDI-WS-T																												
PDI-WS-T																												

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 Disposal By Lab Archive For 12 Months

Special Instructions/QC Requirements & Comments:

Relinquished by: <i>[Signature]</i>	Company: AECOM	Date/Time: 8/24/18 11:20	Received by: <i>[Signature]</i>	Company: AFW	Date/Time: 8/24/18 11:20
Relinquished by: <i>[Signature]</i>	Company: AFW	Date/Time: 8/24/18 1335	Received by: <i>[Signature]</i>	Company: AFW	Date/Time: 8/24/18 1335
Relinquished by: <i>[Signature]</i>	Company: AFW	Date/Time: 8/24/18 1335	Received by: <i>[Signature]</i>	Company: ALS	Date/Time: 8/24/18, 335



PC A2

Cooler Receipt and Preservation Form

Client Accom Service Request K18 08117
 Received: 8/24/18 Opened: 8/24/18 By: BR Unloaded: 8/24/18 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
 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	Filed
<u>7.3</u>	<u>7.4</u>	<u>6.1</u>	<u>6.2</u>	<u>+0.1</u>	<u>391</u>	<u>NA</u>		<u>NA</u>
<u>6.3</u>	<u>6.1</u>	<u>4.9</u>	<u>4.7</u>	<u>-0.2</u>	<u>392</u>			

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:

Supposed to have 12 bottles for BR

COPY K1808117

**SURFACE WATER
CHAIN OF CUSTODY**

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

Client Contact: _____ Project Contact: Amy Dahl / Chelsey Cook Site Contact: Jennifer Ray / Michaela McCoog Date: 8/27/2018 COC No: _____
AECOM Tel: (206) 438-2261 / (206) 438-2010 Laboratory Contact: Howard-Holmes Carrier: _____ of _____ COCs

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 Water

Analysis Turnaround Time
Calendar (C) or Work Days (W) _____
 21 days
 Other _____

Sample Identification	Sample Date	Sample Time	Matrix	QC Sample	Sampler's Initials	Total No. of Cont.	Fraction	BEHP, Perachlorophenol, EPA 8790D-LL	Trihalymtin, Unger et al.	Sample Specific Notes:
PDI-WS-T 02 - -18 08	8/24/2018	12:22	SW		MM	4		2	2	
PDI-WS-T 02 - -18 08 D	8/24/2018	12:22	SW	Duplicate	MM	4		2	2	
PDI-WS-T 06 - -18 08	8/24/2018	16:32	SW		ED	4		2	2	
PDI-WS-T 01 - -18 08	8/25/2018	12:02	SW		AC	4		2	2	
PDI-WS-T 07 - -18 08	8/25/2018	18:20	SW	MS/MSD	MT	1		1	1	3 BEHP bottles were sent on 8/24 via courier, 6th bottle was missed and sent now.
PDI-WS-T										
PDI-WS-T										
PDI-WS-T										
PDI-WS-T										
PDI-WS-T										
PDI-WS-T										
PDI-WS-T										

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 Disposal By Lab Archive For 12 Months

Special Instructions/QC Requirements & Comments:

Relinquished by:	Company: AECOM	Date/Time: 8/27/18 12:10	Received by:	Company: AECOM	Date/Time: 8/27/18 12:10
Relinquished by:	Company: AECOM	Date/Time: 8/27/18 13:25	Received by:	Company: ALS	Date/Time: 8/27/18 13:25
Relinquished by:	Company: _____	Date/Time: _____	Received by: _____	Company: _____	Date/Time: _____



Cooler Receipt and Preservation Form

Client: AECOM Service Request K1808117
 Received: 8/27/18 Opened: 8/27/18 By: [Signature] Unloaded: 8/27/18 By: [Signature]

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? _____
- 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	Filed
2.2	2.0	2.0	1.8	-0.2	370	NA		NA
3.8	3.9	1.3	1.4	+0.1	351			

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:
 Remark on right hand side of COC is presumably on the incorrect line item as "PDI-WS-T-01" was not rec'd 8/24/18 but "PDI-WS-T-07" was.



Butyltins

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

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: AECOM
Project: Portland Harbor Pre-Remedial Design Investigation/60566335
Sample Matrix: Surface Water
Sample Name: PDI-WS-T03-1808
Lab Code: K1808117-001

Service Request: K1808117
Date Collected: 08/22/18 17:55
Date Received: 08/24/18 13:35

Units: ug/L
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	09/18/18 19:49	8/28/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Tri-n-propyltin	63	31 - 137	09/18/18 19:49	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: AECOM
Project: Portland Harbor Pre-Remedial Design Investigation/60566335
Sample Matrix: Surface Water
Sample Name: PDI-WS-T04-1808
Lab Code: K1808117-002

Service Request: K1808117
Date Collected: 08/23/18 10:20
Date Received: 08/24/18 13:35

Units: ug/L
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	09/18/18 20:07	8/28/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Tri-n-propyltin	81	31 - 137	09/18/18 20:07	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: AECOM
Project: Portland Harbor Pre-Remedial Design Investigation/60566335
Sample Matrix: Surface Water
Sample Name: PDI-WS-T07-1808
Lab Code: K1808117-003

Service Request: K1808117
Date Collected: 08/23/18 18:20
Date Received: 08/24/18 13:35

Units: ug/L
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	09/18/18 20:26	8/28/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Tri-n-propyltin	91	31 - 137	09/18/18 20:26	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: AECOM
Project: Portland Harbor Pre-Remedial Design Investigation/60566335
Sample Matrix: Surface Water
Sample Name: PDI-WS-T05-1808
Lab Code: K1808117-004

Service Request: K1808117
Date Collected: 08/21/18 20:28
Date Received: 08/24/18 13:35

Units: ug/L
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	09/18/18 21:21	8/28/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Tri-n-propyltin	87	31 - 137	09/18/18 21:21	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: AECOM
Project: Portland Harbor Pre-Remedial Design Investigation/60566335
Sample Matrix: Surface Water
Sample Name: Method Blank
Lab Code: KQ1811909-04

Service Request: K1808117
Date Collected: NA
Date Received: NA
Units: ug/L
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	09/18/18 19:31	8/28/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Tri-n-propyltin	93	31 - 137	09/18/18 19:31	

ALS Group USA, Corp.
dba ALS Environmental

Confirmation Results

Client: AECOM
Project: Portland Harbor Pre-Remedial Design
SRM Matrix: Surface Water
Sample Name: PDI-WS-T07-1808
Lab Code: KQ1811909-01

Service Request: K1808117
Date Collected: 08/23/18 18:20
Date Received: 8/24/18

Units: ug/L
Basis: NA

Butyltins

Analytical Method: ALS SOP
Prep Method: EPA 3520C

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
Tri-n-butyltin Cation	0.012	0.434	0.493	13		1	09/18/18 20:44

ALS Group USA, Corp.
dba ALS Environmental

Confirmation Results

Client: AECOM
Project: Portland Harbor Pre-Remedial Design
SRM Matrix: Surface Water
Sample Name: PDI-WS-T07-1808
Lab Code: KQ1811909-02

Service Request: K1808117
Date Collected: 08/23/18 18:20
Date Received: 8/24/18

Units: ug/L
Basis: NA

Butyltins

Analytical Method: ALS SOP
Prep Method: EPA 3520C

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
Tri-n-butyltin Cation	0.012	0.450	0.480	6		1	09/18/18 21:03

ALS Group USA, Corp.
dba ALS Environmental

Confirmation Results

Client: AECOM
Project: Portland Harbor Pre-Remedial Design
SRM Matrix: Surface Water
Sample Name: Lab Control Sample
Lab Code: KQ1811909-03

Service Request: K1808117
Date Collected: NA
Date Received:

Units: ug/L
Basis: NA

Butyltins

Analytical Method: ALS SOP
Prep Method: EPA 3520C

	MDL	Primary Result	Confirmation Result	RPD	Q	Dilution Factor	Date Analyzed
Tri-n-butyltin Cation	0.012	0.422	0.491	15		1	09/18/18 19:12

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

Service Request: K1808117

SURROGATE RECOVERY SUMMARY

Butyltins

Analysis Method: ALS SOP
Extraction Method: EPA 3520C

Sample Name	Lab Code	Tri-n-propyltin
		31-137
PDI-WS-T03-1808	K1808117-001	63
PDI-WS-T04-1808	K1808117-002	81
PDI-WS-T07-1808	K1808117-003	91
PDI-WS-T05-1808	K1808117-004	87
Method Blank	KQ1811909-04	93
Lab Control Sample	KQ1811909-03	86
PDI-WS-T07-1808	KQ1811909-01	57
PDI-WS-T07-1808	KQ1811909-02	70

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

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

Service Request: K1808117
Date Collected: 08/23/18
Date Received: 08/24/18
Date Analyzed: 09/18/18
Date Extracted: 08/28/18

Duplicate Matrix Spike Summary
Butyltins

Sample Name: PDI-WS-T07-1808
Lab Code: K1808117-003
Analysis Method: ALS SOP
Prep Method: EPA 3520C

Units: ug/L
Basis: NA

Analyte Name	Sample Result	Result	Matrix Spike KQ1811909-01		Duplicate Matrix Spike KQ1811909-02		% Rec Limits	RPD	RPD Limit	
			Spike Amount	% Rec	Result	Spike Amount				% Rec
Tri-n-butyltin Cation	ND U	0.434	0.446	97	0.450	0.446	101	17-142	4	30

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

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

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

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

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

Service Request: K1808117
Date Analyzed: 09/18/18
Date Extracted: 08/28/18

Lab Control Sample Summary
Butyltins

Analysis Method: ALS SOP
Prep Method: EPA 3520C

Units: ug/L
Basis: NA
Analysis Lot: 607600

Lab Control Sample
KQ1811909-03

<u>Analyte Name</u>	<u>Result</u>	<u>Spike Amount</u>	<u>% Rec</u>	<u>% Rec Limits</u>
Tri-n-butyltin Cation	0.422	0.446	95	32-122

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

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

Service Request: K1808117
Date Analyzed: 09/18/18 19:31
Date Extracted: 08/28/18

Method Blank Summary
Butyltins

Sample Name: Method Blank
Lab Code: KQ1811909-04
Analysis Method: ALS SOP
Prep Method: EPA 3520C

Instrument ID: K-GC-26
File ID: J:\GC26\DATA\091818\0918F027.D\
Analysis Lot: 607600
Extraction Lot: 320833

This Method Blank applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Lab Control Sample	KQ1811909-03	J:\GC26\DATA\091818\0918F026.D\	09/18/18 19:12
PDI-WS-T03-1808	K1808117-001	J:\GC26\DATA\091818\0918F028.D\	09/18/18 19:49
PDI-WS-T04-1808	K1808117-002	J:\GC26\DATA\091818\0918F029.D\	09/18/18 20:07
PDI-WS-T07-1808	K1808117-003	J:\GC26\DATA\091818\0918F030.D\	09/18/18 20:26
PDI-WS-T07-1808MS	KQ1811909-01	J:\GC26\DATA\091818\0918F031.D\	09/18/18 20:44
PDI-WS-T07-1808DMS	KQ1811909-02	J:\GC26\DATA\091818\0918F032.D\	09/18/18 21:03
PDI-WS-T05-1808	K1808117-004	J:\GC26\DATA\091818\0918F033.D\	09/18/18 21:21

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

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

Service Request: K1808117
Date Analyzed: 09/18/18 19:12
Date Extracted: 08/28/18

Lab Control Sample Summary
Butyltins

Sample Name: Lab Control Sample **Instrument ID:** K-GC-26
Lab Code: KQ1811909-03 **File ID:** J:\GC26\DATA\091818\0918F026.D\
Analysis Method: ALS SOP **Analysis Lot:** 607600
Prep Method: EPA 3520C **Extraction Lot:** 320833

This Lab Control Sample applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Method Blank	KQ1811909-04	J:\GC26\DATA\091818\0918F027.D\	09/18/18 19:31
PDI-WS-T03-1808	K1808117-001	J:\GC26\DATA\091818\0918F028.D\	09/18/18 19:49
PDI-WS-T04-1808	K1808117-002	J:\GC26\DATA\091818\0918F029.D\	09/18/18 20:07
PDI-WS-T07-1808	K1808117-003	J:\GC26\DATA\091818\0918F030.D\	09/18/18 20:26
PDI-WS-T07-1808MS	KQ1811909-01	J:\GC26\DATA\091818\0918F031.D\	09/18/18 20:44
PDI-WS-T07-1808DMS	KQ1811909-02	J:\GC26\DATA\091818\0918F032.D\	09/18/18 21:03
PDI-WS-T05-1808	K1808117-004	J:\GC26\DATA\091818\0918F033.D\	09/18/18 21:21

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

Service Request: K1808117
Calibration Date: 9/17/2018

Initial Calibration Summary
Butyltins

Calibration ID: KC1800436
Instrument ID: K-GC-26

Signal ID: RTX-1

#	Lab Code	Sample Name	File Location	Acquisition Date
01	KC1800436-01	OT5-010A @ 2PPB	J:\GC26\DATA\091718\0917F004.D	09/17/2018 14:55
02	KC1800436-02	OT5-010B @ 5PPB	J:\GC26\DATA\091718\0917F005.D	09/17/2018 15:13
03	KC1800436-03	OT5-010C @ 10PPB	J:\GC26\DATA\091718\0917F006.D	09/17/2018 15:32
04	KC1800436-04	OT5-010D @ 20PPB	J:\GC26\DATA\091718\0917F007.D	09/17/2018 15:50
05	KC1800436-05	OT5-010K @ 50 PPB	J:\GC26\DATA\091718\0917F008.D	09/17/2018 16:08
06	KC1800436-06	OT5-010E @ 200 PPB	J:\GC26\DATA\091718\0917F009.D	09/17/2018 16:27
07	KC1800436-07	OT5-010F @ 500 PPB	J:\GC26\DATA\091718\0917F010.D	09/17/2018 16:45

Analyte

Tri-n-butyltin Cation

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.782	7.605E4	02	4.455	7.24E4	03	8.910	6.65E4	04	17.820	6.585E4
05	44.550	6.93E4	06	178.200	6.9E4	07	445.500	6.747E4			

Tri-n-propyltin

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	2.000	6.839E4	02	5.000	5.283E4	03	10.000	4.594E4	04	20.000	5.002E4
05	50.000	5.595E4	06	200.000	5.459E4	07	500.000	5.511E4			

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

Service Request: K1808117
Calibration Date: 9/17/2018

Initial Calibration Summary
Butyltins

Calibration ID: KC1800436
Instrument ID: K-GC-26

Signal ID: RTX-1

Analyte Name	Compound Type	Calibration Evaluation				Calibration Evaluation	
		Fit Type	Eval	Eval Result	Control Criteria	Average RRF	Minimum RRF
Tri-n-butyltin Cation	TRG	Average RF	% RSD	5.2	20	6.951E4	
Tri-n-propyltin	SURR	Average RF	% RSD	12.7	20	5.469E4	

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

Service Request: K1808117
Calibration Date: 9/17/2018

Initial Calibration Summary
Butyltins

Calibration ID: KC1800436
Instrument ID: K-GC-26

Signal ID: RTX-35

#	Lab Code	Sample Name	File Location	Acquisition Date
01	KC1800436-01	OT5-010A @ 2PPB	J:\GC26\DATA\091718\0917F004.D	09/17/2018 14:55
02	KC1800436-02	OT5-010B @ 5PPB	J:\GC26\DATA\091718\0917F005.D	09/17/2018 15:13
03	KC1800436-03	OT5-010C @ 10PPB	J:\GC26\DATA\091718\0917F006.D	09/17/2018 15:32
04	KC1800436-04	OT5-010D @ 20PPB	J:\GC26\DATA\091718\0917F007.D	09/17/2018 15:50
05	KC1800436-05	OT5-010K @ 50 PPB	J:\GC26\DATA\091718\0917F008.D	09/17/2018 16:08
06	KC1800436-06	OT5-010E @ 200 PPB	J:\GC26\DATA\091718\0917F009.D	09/17/2018 16:27
07	KC1800436-07	OT5-010F @ 500 PPB	J:\GC26\DATA\091718\0917F010.D	09/17/2018 16:45

Analyte

Tri-n-butyltin Cation

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.782	1.246E5	02	4.455	9.429E4	03	8.910	1.125E5	04	17.820	9.717E4
05	44.550	1.058E5	06	178.200	9.935E4	07	445.500	9.552E4			

Tri-n-propyltin

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	2.000	7.47E4	02	5.000	7.544E4	03	10.000	7.709E4	04	20.000	7.852E4
05	50.000	8.615E4	06	200.000	7.943E4	07	500.000	7.633E4			

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

Service Request: K1808117
Calibration Date: 9/17/2018

Initial Calibration Summary
Butyltins

Calibration ID: KC1800436
Instrument ID: K-GC-26

Signal ID: RTX-35

Analyte Name	Compound Type	Calibration Evaluation				Calibration Evaluation	
		Fit Type	Eval	Eval Result	Control Criteria	Average RRF	Minimum RRF
Tri-n-butyltin Cation	TRG	Average RF	% RSD	10.6	20	1.042E5	
Tri-n-propyltin	SURR	Average RF	% RSD	4.9	20	7.824E4	

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

Service Request: K1808117
Calibration Date: 9/17/2018

Initial Calibration Verification Summary
Butyltins

Calibration ID: KC1800436
Instrument ID: K-GC-26

Signal ID: RTX-1

#	Lab Code	Sample Name	File Location	Acquisition Date
08	KC1800436-08	OT5-09P @ 50PPB ICV	J:\GC26\DATA\091718\0917F012.D	09/17/2018 17:22

Analyte Name	Expected	Result	Average RF	SSV RF	% D	Criteria	Curve Fit
Tri-n-butyltin Cation	44.6	52.9	6.951E4	8.251E4	18.71	±25	Average RF

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

Service Request: K1808117
Calibration Date: 9/17/2018

Initial Calibration Verification Summary
Butyltins

Calibration ID: KC1800436
Instrument ID: K-GC-26

Signal ID: RTX-35

#	Lab Code	Sample Name	File Location	Acquisition Date
08	KC1800436-08	OT5-09P @ 50PPB ICV	J:\GC26\DATA\091718\0917F012.D	09/17/2018 17:22

Analyte Name	Expected	Result	Average RF	SSV RF	% D	Criteria	Curve Fit
Tri-n-butyltin Cation	44.6	50.1	1.042E5	1.172E5	12.50	±25	Average RF

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

Service Request: K1808117
Date Analyzed: 09/18/18 16:45

**Continuing Calibration Verification (CCV) Summary
Butyltins**

Analysis Method: ALS SOP
File ID: J:\GC26\DATA\091818\0918F018.D\
Signal ID: RTX-35

Calibration Date: 9/17/2018
Calibration ID: KC1800436
Analysis Lot: 607600
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Tri-n-butyltin Cation	44.6	49.6	1.042E5	1.161E5	11.4	NA	±25	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Tri-n-propyltin	50.0	57.6	7.824E4	9.014E4	15.2	NA	±25	Average RF

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

Service Request: K1808117
Date Analyzed: 09/18/18 16:45

**Continuing Calibration Verification (CCV) Summary
Butyltins**

Analysis Method: ALS SOP
File ID: J:\GC26\DATA\091818\0918F018.D\
Signal ID: RTX-1

Calibration Date: 9/17/2018
Calibration ID: KC1800436
Analysis Lot: 607600
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Tri-n-butyltin Cation	44.6	50.5	6.951E4	7.886E4	13.4	NA	±25	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Tri-n-propyltin	50.0	52.6	5.469E4	5.755E4	5.2	NA	±25	Average RF

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

Service Request: K1808117
Date Analyzed: 09/18/18 21:39

**Continuing Calibration Verification (CCV) Summary
Butyltins**

Analysis Method: ALS SOP
File ID: J:\GC26\DATA\091818\0918F034.D\
Signal ID: RTX-1

Calibration Date: 9/17/2018
Calibration ID: KC1800436
Analysis Lot: 607600
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Tri-n-butyltin Cation	44.6	49.3	6.951E4	7.692E4	10.7	NA	±25	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Tri-n-propyltin	50.0	53.1	5.469E4	5.804E4	6.1	NA	±25	Average RF

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

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

Service Request: K1808117
Date Analyzed: 09/18/18 21:39

Continuing Calibration Verification (CCV) Summary
Butyltins

Analysis Method: ALS SOP
File ID: J:\GC26\DATA\091818\0918F034.D\
Signal ID: RTX-35

Calibration Date: 9/17/2018
Calibration ID: KC1800436
Analysis Lot: 607600
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Tri-n-butyltin Cation	44.6	52.3	1.042E5	1.222E5	17.3	NA	±25	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Tri-n-propyltin	50.0	61.2	7.824E4	9.569E4	22.3	NA	±25	Average RF

ALS Group USA, Corp.

dba ALS Environmental

QA/QC Report

Client: AECOM

Service Request:K1808117

Project: Portland Harbor Pre-Remedial Design Investigation/60566335

Analysis Run Log

Butyltins

Analysis Method: ALS SOP

Analysis Lot:607600

Instrument ID:K-GC-26

Raw Data File	Sample Name	Lab Code	Date Analyzed	Time Analyzed	Q
J:\GC26\DATA\091818\0918F018.D\	Continuing Calibration Verification	KQ1813197-01	9/18/2018	16:45:00	
J:\GC26\DATA\091818\0918F019.D\	ZZZZZZZ	ZZZZZZZ	9/18/2018	17:03:00	
J:\GC26\DATA\091818\0918F026.D\	Lab Control Sample	KQ1811909-03	9/18/2018	19:12:00	
J:\GC26\DATA\091818\0918F027.D\	Method Blank	KQ1811909-04	9/18/2018	19:31:00	
J:\GC26\DATA\091818\0918F028.D\	PDI-WS-T03-1808	K1808117-001	9/18/2018	19:49:00	
J:\GC26\DATA\091818\0918F029.D\	PDI-WS-T04-1808	K1808117-002	9/18/2018	20:07:00	
J:\GC26\DATA\091818\0918F030.D\	PDI-WS-T07-1808	K1808117-003	9/18/2018	20:26:00	
J:\GC26\DATA\091818\0918F031.D\	PDI-WS-T07-1808 MS	KQ1811909-01	9/18/2018	20:44:00	
J:\GC26\DATA\091818\0918F032.D\	PDI-WS-T07-1808 DMS	KQ1811909-02	9/18/2018	21:03:00	
J:\GC26\DATA\091818\0918F033.D\	PDI-WS-T05-1808	K1808117-004	9/18/2018	21:21:00	
J:\GC26\DATA\091818\0918F034.D\	Continuing Calibration Verification	KQ1813197-03	9/18/2018	21:39:00	
J:\GC26\DATA\091818\0918F035.D\	ZZZZZZZ	ZZZZZZZ	9/18/2018	21:58:00	

ALS Group USA, Corp.
dba ALS Environmental

Prep Summary Report

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

Service Request:K1808117

Butyltins

Prep Method: EPA 3520C
Analytical Method: ALS SOP

Extraction Lot: 320833
Extraction Date: 08/28/18 18:21

Sample Name	Lab Code	Date Collected	Date Received	Sample Amount	Final Amount	Percent Solids
PDI-WS-T03-1808	K1808117-001	8/22/18	8/24/18	500 mL	1 mL	
PDI-WS-T04-1808	K1808117-002	8/23/18	8/24/18	500 mL	1 mL	
PDI-WS-T07-1808	K1808117-003	8/23/18	8/24/18	500 mL	1 mL	
PDI-WS-T05-1808	K1808117-004	8/21/18	8/24/18	500 mL	1 mL	
Matrix Spike	KQ1811909-01MS	8/23/18	8/24/18	500 mL	1 mL	
Duplicate Matrix Spike	KQ1811909-02DMS	8/23/18	8/24/18	500 mL	1 mL	
Lab Control Sample	KQ1811909-03LCS	NA	NA	500 mL	1 mL	
Method Blank	KQ1811909-04MB	NA	NA	500 mL	1 mL	



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

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: AECOM
Project: Portland Harbor Pre-Remedial Design Investigation/60566335
Sample Matrix: Surface Water
Sample Name: PDI-WS-T03-1808
Lab Code: K1808117-001

Service Request: K1808117
Date Collected: 08/22/18 17:55
Date Received: 08/24/18 13:35

Units: ug/L
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	09/11/18 15:05	8/28/18	*
Pentachlorophenol (PCP)	ND U	0.95	0.34	1	09/11/18 15:05	8/28/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
2,4,6-Tribromophenol	51	35 - 132	09/11/18 15:05	
p-Terphenyl-d14	49	48 - 109	09/11/18 15:05	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: AECOM
Project: Portland Harbor Pre-Remedial Design Investigation/60566335
Sample Matrix: Surface Water
Sample Name: PDI-WS-T04-1808
Lab Code: K1808117-002

Service Request: K1808117
Date Collected: 08/23/18 10:20
Date Received: 08/24/18 13:35

Units: ug/L
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	0.14 J	1.0	0.13	1	09/11/18 15:33	8/28/18	*
Pentachlorophenol (PCP)	ND U	1.0	0.34	1	09/11/18 15:33	8/28/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
2,4,6-Tribromophenol	43	35 - 132	09/11/18 15:33	
p-Terphenyl-d14	36	48 - 109	09/11/18 15:33	*

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: AECOM
Project: Portland Harbor Pre-Remedial Design Investigation/60566335
Sample Matrix: Surface Water
Sample Name: PDI-WS-T07-1808
Lab Code: K1808117-003

Service Request: K1808117
Date Collected: 08/23/18 18:20
Date Received: 08/24/18 13:35

Units: ug/L
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	1.1	0.96	0.13	1	09/11/18 14:37	8/28/18	*
Pentachlorophenol (PCP)	ND U	0.96	0.34	1	09/11/18 14:37	8/28/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
2,4,6-Tribromophenol	52	35 - 132	09/11/18 14:37	
p-Terphenyl-d14	49	48 - 109	09/11/18 14:37	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: AECOM
Project: Portland Harbor Pre-Remedial Design Investigation/60566335
Sample Matrix: Surface Water
Sample Name: PDI-WS-T05-1808
Lab Code: K1808117-004

Service Request: K1808117
Date Collected: 08/21/18 20:28
Date Received: 08/24/18 13:35

Units: ug/L
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	0.94	0.13	1	09/11/18 16:02	8/28/18	*
Pentachlorophenol (PCP)	ND U	0.94	0.34	1	09/11/18 16:02	8/28/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
2,4,6-Tribromophenol	47	35 - 132	09/11/18 16:02	
p-Terphenyl-d14	48	48 - 109	09/11/18 16:02	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: AECOM
Project: Portland Harbor Pre-Remedial Design Investigation/60566335
Sample Matrix: Surface Water
Sample Name: Method Blank
Lab Code: KQ1811891-06

Service Request: K1808117
Date Collected: NA
Date Received: NA
Units: ug/L
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	0.94	0.13	1	09/11/18 12:43	8/28/18	
Pentachlorophenol (PCP)	ND U	0.94	0.34	1	09/11/18 12:43	8/28/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
2,4,6-Tribromophenol	52	35 - 132	09/11/18 12:43	
p-Terphenyl-d14	52	48 - 109	09/11/18 12:43	

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

Service Request: K1808117

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

Analysis Method: 8270D
Extraction Method: EPA 3520C

Sample Name	Lab Code	2,4,6-Tribromophenol	p-Terphenyl-d14
		35-132	48-109
PDI-WS-T03-1808	K1808117-001	51	49
PDI-WS-T04-1808	K1808117-002	43	36*
PDI-WS-T07-1808	K1808117-003	52	49
PDI-WS-T05-1808	K1808117-004	47	48
Batch QC	K1808140-004	55	48
Method Blank	KQ1811891-06	52	52
Lab Control Sample	KQ1811891-05	57	53
PDI-WS-T07-1808	KQ1811891-01	56	46*
PDI-WS-T07-1808	KQ1811891-02	61	51
Batch QC	KQ1811891-03	58	39*
Batch QC	KQ1811891-04	53	41*

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

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

Service Request: K1808117
Date Analyzed: 09/11/18 12:15

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

File ID: J:\MS29\DATA\091118\0911F002.D\
Instrument ID: K-MS-29
Analysis Method: 8270D

Lab Code: KQ1812567-02
Analysis Lot: 605996
Signal ID: 1

	Chrysene-d12		Phenanthrene-d10	
	Area	RT	Area	RT
Result ==>	191,011	15.52	166,826	12.05
Upper Limit ==>	382,022	16.02	333,652	12.55
Lower Limit ==>	95,506	15.02	83,413	11.55

Associated Analyses

Method Blank	KQ1811891-06	177278	15.52	145430	12.05
Lab Control Sample	KQ1811891-05	165954	15.51	148185	12.05
PDI-WS-T07-1808MS	KQ1811891-01	166753	15.51	159232	12.05
PDI-WS-T07-1808DMS	KQ1811891-02	166548	15.51	163906	12.04
PDI-WS-T07-1808	K1808117-003	162611	15.52	158916	12.05
PDI-WS-T03-1808	K1808117-001	164193	15.52	151287	12.05
PDI-WS-T04-1808	K1808117-002	169972	15.52	160235	12.05
PDI-WS-T05-1808	K1808117-004	165268	15.51	152935	12.04
Batch QCMS	KQ1811891-03	179665	15.51	155855	12.05
Batch QCDMS	KQ1811891-04	184273	15.51	172350	12.05
Batch QC	K1808140-004	164005	15.51	150457	12.05

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

Service Request: K1808117
Date Collected: 08/23/18
Date Received: 08/24/18
Date Analyzed: 09/11/18
Date Extracted: 08/28/18

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

Sample Name: PDI-WS-T07-1808
Lab Code: K1808117-003
Analysis Method: 8270D
Prep Method: EPA 3520C

Units: ug/L
Basis: NA

Analyte Name	Sample Result	Matrix Spike KQ1811891-01			Duplicate Matrix Spike KQ1811891-02			% Rec Limits	RPD	RPD Limit
		Result	Spike Amount	% Rec	Result	Spike Amount	% Rec			
Bis(2-ethylhexyl) Phthalate	1.1	3.39	4.81	48	2.00	4.76	19	10-171	52*	30
Pentachlorophenol (PCP)	ND U	3.10	4.81	64	3.05	4.76	64	28-158	2	30

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

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

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

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: AECOM **Service Request:** K1808117
Project: Portland Harbor Pre-Remedial Design Investigation/60566335 **Date Analyzed:** 09/11/18
Sample Matrix: Surface Water **Date Extracted:** 08/28/18

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: 605996

Lab Control Sample
KQ1811891-05

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Bis(2-ethylhexyl) Phthalate	1.63	5.00	33 *	42-147
Pentachlorophenol (PCP)	1.97	5.00	39	27-112

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

Service Request: K1808117
Date Analyzed: 09/11/18 12:43
Date Extracted: 08/28/18

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

Sample Name: Method Blank **Instrument ID:** K-MS-29
Lab Code: KQ1811891-06 **File ID:** J:\MS29\DATA\091118\0911F003.D\
Analysis Method: 8270D **Analysis Lot:** 605996
Prep Method: EPA 3520C **Extraction Lot:** 320820

This Method Blank applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Lab Control Sample	KQ1811891-05	J:\MS29\DATA\091118\0911F004.D\	09/11/18 13:12
PDI-WS-T07-1808MS	KQ1811891-01	J:\MS29\DATA\091118\0911F005.D\	09/11/18 13:40
PDI-WS-T07-1808DMS	KQ1811891-02	J:\MS29\DATA\091118\0911F006.D\	09/11/18 14:08
PDI-WS-T07-1808	K1808117-003	J:\MS29\DATA\091118\0911F007.D\	09/11/18 14:37
PDI-WS-T03-1808	K1808117-001	J:\MS29\DATA\091118\0911F008.D\	09/11/18 15:05
PDI-WS-T04-1808	K1808117-002	J:\MS29\DATA\091118\0911F009.D\	09/11/18 15:33
PDI-WS-T05-1808	K1808117-004	J:\MS29\DATA\091118\0911F010.D\	09/11/18 16:02
Batch QCMS	KQ1811891-03	J:\MS29\DATA\091118\0911F011.D\	09/11/18 16:30
Batch QCDMS	KQ1811891-04	J:\MS29\DATA\091118\0911F012.D\	09/11/18 16:58
Batch QC	K1808140-004	J:\MS29\DATA\091118\0911F013.D\	09/11/18 17:27

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

Service Request: K1808117
Date Analyzed: 09/11/18 13:12
Date Extracted: 08/28/18

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

Sample Name: Lab Control Sample **Instrument ID:** K-MS-29
Lab Code: KQ1811891-05 **File ID:** J:\MS29\DATA\091118\0911F004.D\
Analysis Method: 8270D **Analysis Lot:** 605996
Prep Method: EPA 3520C **Extraction Lot:** 320820

This Lab Control Sample applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Method Blank	KQ1811891-06	J:\MS29\DATA\091118\0911F003.D\	09/11/18 12:43
PDI-WS-T07-1808MS	KQ1811891-01	J:\MS29\DATA\091118\0911F005.D\	09/11/18 13:40
PDI-WS-T07-1808DMS	KQ1811891-02	J:\MS29\DATA\091118\0911F006.D\	09/11/18 14:08
PDI-WS-T07-1808	K1808117-003	J:\MS29\DATA\091118\0911F007.D\	09/11/18 14:37
PDI-WS-T03-1808	K1808117-001	J:\MS29\DATA\091118\0911F008.D\	09/11/18 15:05
PDI-WS-T04-1808	K1808117-002	J:\MS29\DATA\091118\0911F009.D\	09/11/18 15:33
PDI-WS-T05-1808	K1808117-004	J:\MS29\DATA\091118\0911F010.D\	09/11/18 16:02
Batch QCMS	KQ1811891-03	J:\MS29\DATA\091118\0911F011.D\	09/11/18 16:30
Batch QCDMS	KQ1811891-04	J:\MS29\DATA\091118\0911F012.D\	09/11/18 16:58
Batch QC	K1808140-004	J:\MS29\DATA\091118\0911F013.D\	09/11/18 17:27

ALS Group USA, Corp.
dba ALS Environmental

QC/QC Report

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

Service Request: K1808117
Date Analyzed: 09/11/18 11:47

Tune Summary
Low Level Semivolatile Organic Compounds by GC/MS

File ID: J:\MS29\DATA\091118\0911F001.D\
Instrument ID: K-MS-29

Analytical Method: 8270D
Analysis Lot: 605996

Target Mass	Relative to Mass	Lower Limit %	Upper Limit %	Relative Abundance %	Raw Abundance	Result Pass/Fail
51	198	10	80	30.89	1126528	Pass
68	69	0	2	1.59	21165	Pass
69	198	0	100	36.40	1327638	Pass
70	69	0	2	0.48	6437	Pass
127	198	10	80	46.59	1699271	Pass
197	198	0	2	0.28	10154	Pass
198	442	30	100	64.33	3647146	Pass
199	198	5	9	6.55	238762	Pass
275	198	10	60	31.30	1141610	Pass
365	442	1	50	2.41	136792	Pass
441	443	0.01	100	77.96	838165	Pass
442	442	30	100	100.00	5669144	Pass
443	442	15	24	18.97	1075157	Pass

Sample Name	Lab Code	File ID:	Date Analyzed:	Q
Continuing Calibration Verification	KQ1812567-02	J:\MS29\DATA\091118\0911F002.D\	09/11/18 12:15	
Method Blank	KQ1811891-06	J:\MS29\DATA\091118\0911F003.D\	09/11/18 12:43	
Lab Control Sample	KQ1811891-05	J:\MS29\DATA\091118\0911F004.D\	09/11/18 13:12	
PDI-WS-T07-1808	KQ1811891-01	J:\MS29\DATA\091118\0911F005.D\	09/11/18 13:40	
PDI-WS-T07-1808	KQ1811891-02	J:\MS29\DATA\091118\0911F006.D\	09/11/18 14:08	
PDI-WS-T07-1808	K1808117-003	J:\MS29\DATA\091118\0911F007.D\	09/11/18 14:37	
PDI-WS-T03-1808	K1808117-001	J:\MS29\DATA\091118\0911F008.D\	09/11/18 15:05	
PDI-WS-T04-1808	K1808117-002	J:\MS29\DATA\091118\0911F009.D\	09/11/18 15:33	
PDI-WS-T05-1808	K1808117-004	J:\MS29\DATA\091118\0911F010.D\	09/11/18 16:02	
Batch QC	KQ1811891-03	J:\MS29\DATA\091118\0911F011.D\	09/11/18 16:30	
Batch QC	KQ1811891-04	J:\MS29\DATA\091118\0911F012.D\	09/11/18 16:58	
Batch QC	K1808140-004	J:\MS29\DATA\091118\0911F013.D\	09/11/18 17:27	

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

Service Request: K1808117
Calibration Date: 9/5/2018

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

Calibration ID: KC1800425
Instrument ID: K-MS-29

Signal ID: 1

#	Lab Code	Sample Name	File Location	Acquisition Date
01	KC1800425-01	SVO_LL ICAL @ 0.05ppm SVM59-49D	J:\MS29\DATA\090518\0905F003.D	09/05/2018 09:38
02	KC1800425-02	SVO_LL ICAL @ 0.10ppm SVM59-49E	J:\MS29\DATA\090518\0905F004.D	09/05/2018 10:07
03	KC1800425-03	SVO_LL ICAL @ 0.20ppm SVM59-49F	J:\MS29\DATA\090518\0905F005.D	09/05/2018 10:35
04	KC1800425-04	SVO_LL ICAL @ 0.50ppm SVM59-49G	J:\MS29\DATA\090518\0905F006.D	09/05/2018 11:04
05	KC1800425-05	SVO_LL ICAL @ 1.0ppm SVM59-49H	J:\MS29\DATA\090518\0905F007.D	09/05/2018 11:32
06	KC1800425-06	SVO_LL ICAL @ 2.0ppm SVM59-49I	J:\MS29\DATA\090518\0905F008.D	09/05/2018 12:01
07	KC1800425-07	SVO_LL ICAL @ 3.0ppm SVM59-49J	J:\MS29\DATA\090518\0905F009.D	09/05/2018 12:29
08	KC1800425-08	SVO_LL ICAL @ 5.0ppm SVM59-49K	J:\MS29\DATA\090518\0905F010.D	09/05/2018 12:57
09	KC1800425-09	SVO_LL ICAL @ 7.0ppm SVM59-49L	J:\MS29\DATA\090518\0905F011.D	09/05/2018 13:26
10	KC1800425-10	SVO_LL ICAL @ 10ppm SVM59-49M	J:\MS29\DATA\090518\0905F012.D	09/05/2018 15:34

Analyte

2,4,6-Tribromophenol

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	100.000	0.1121	03	200.000	0.123	04	500.000	0.1508	05	1000.000	0.1434
06	2000.000	0.1532	07	3000.000	0.159	08	5000.000	0.1581	09	7000.000	0.1653
10	10000.000	0.1708									

Bis(2-ethylhexyl) Phthalate

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	50.000	0.8007	02	100.000	0.8041	03	200.000	0.6543	04	500.000	0.8414
05	1000.000	0.8723	06	2000.000	0.8923	07	3000.000	0.9896	08	5000.000	1.016
09	7000.000	1.029	10	10000.000	0.9975						

Pentachlorophenol (PCP)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
04	500.000	0.09654	05	1000.000	0.1134	06	2000.000	0.1192	07	3000.000	0.1261
08	5000.000	0.141	09	7000.000	0.1515	10	10000.000	0.1643			

p-Terphenyl-d14

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	100.000	0.9898	03	200.000	0.933	04	500.000	1.007	05	1000.000	0.9279
06	2000.000	0.888	07	3000.000	0.9595	08	5000.000	0.9929	09	7000.000	0.9874
10	10000.000	0.9521									

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

Service Request: K1808117
Calibration Date: 9/5/2018

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

Calibration ID: KC1800425
Instrument ID: K-MS-29

Signal ID: 1

Analyte Name	Compound Type	Calibration Evaluation				Calibration Evaluation	
		Fit Type	Eval	Eval Result	Control Criteria	Average RRF	Minimum RRF
2,4,6-Tribromophenol	SURR	Average RF	% RSD	13.1	20	0.1484	0.010
Bis(2-ethylhexyl) Phthalate	TRG	Average RF	% RSD	13.5	20	0.8897	0.010
Pentachlorophenol (PCP)	TRG	Quadratic	COD	0.9999	0.990	0.1303	0.050
p-Terphenyl-d14	SURR	Average RF	% RSD	4.0	20	0.9597	0.010

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

Service Request: K1808117
Calibration Date: 9/5/2018

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

Calibration ID: KC1800425
Instrument ID: K-MS-29

Signal ID: 1

#	Lab Code	Sample Name	File Location	Acquisition Date
12	KC1800425-12	SVO_LL ICV @ 3.0ppm SVM59-50C	J:\MS29\DATA\090518\0905F013.D	09/05/2018 16:02
11	KC1800425-11	SVO_LL ICV @ 3.0ppm SVM59-50C	J:\MS29\DATA\090518\0905F013.D	09/05/2018 16:02

Analyte Name	Expected	Result	Average RF	SSV RF	% D	Criteria	Curve Fit
Bis(2-ethylhexyl) Phthalate	3000	2830	8.897E-1	8.405E-1	-5.530	±30	Average RF
Pentachlorophenol (PCP)	3000	2960	1.303E-1	1.272E-1	-1.369	±30	Quadratic

Analyte Name	Expected	Result	Average RF	SSV RF	% D	Criteria	Curve Fit
2,4,6-Tribromophenol	3000	2970	1.484E-1	1.47E-1	-0.978	±30	Average RF
p-Terphenyl-d14	3000	2710	9.597E-1	8.672E-1	-9.634	±30	Average RF

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

Service Request: K1808117
Date Analyzed: 09/11/18 12:15

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

Analysis Method: 8270D
File ID: J:\MS29\DATA\091118\0911F002.D\
Signal ID: 1

Calibration Date: 9/5/2018
Calibration ID: KC1800425
Analysis Lot: 605996
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Bis(2-ethylhexyl) Phthalate	3000	2790	0.8897	0.8277	-7.0	NA	±20	Average RF
Pentachlorophenol (PCP)	3000	3170	0.1303	0.1378	NA	5.8	±20	Quadratic

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
2,4,6-Tribromophenol	3000	3300	0.1484	0.1632	9.9	NA	±20	Average RF
p-Terphenyl-d14	3000	2570	0.9597	0.822	-14.3	NA	±20	Average RF

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

Service Request: K1808117

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

Analysis Method:

Analysis Lot: 605996
Instrument ID: K-MS-29

Raw Data File	Sample Name	Lab Code	Date Analyzed	Time Analyzed	Q
J:\MS29\DATA\091118\0911F001.D\	ZZZZZZZ	ZZZZZZZ	9/11/2018	11:47:00	
J:\MS29\DATA\091118\0911F002.D\	Continuing Calibration Verification	KQ1812567-02	9/11/2018	12:15:00	
J:\MS29\DATA\091118\0911F003.D\	Method Blank	KQ1811891-06	9/11/2018	12:43:00	
J:\MS29\DATA\091118\0911F004.D\	Lab Control Sample	KQ1811891-05	9/11/2018	13:12:00	
J:\MS29\DATA\091118\0911F005.D\	PDI-WS-T07-1808 MS	KQ1811891-01	9/11/2018	13:40:00	
J:\MS29\DATA\091118\0911F006.D\	PDI-WS-T07-1808 DMS	KQ1811891-02	9/11/2018	14:08:00	
J:\MS29\DATA\091118\0911F007.D\	PDI-WS-T07-1808	K1808117-003	9/11/2018	14:37:00	
J:\MS29\DATA\091118\0911F008.D\	PDI-WS-T03-1808	K1808117-001	9/11/2018	15:05:00	
J:\MS29\DATA\091118\0911F009.D\	PDI-WS-T04-1808	K1808117-002	9/11/2018	15:33:00	
J:\MS29\DATA\091118\0911F010.D\	PDI-WS-T05-1808	K1808117-004	9/11/2018	16:02:00	
J:\MS29\DATA\091118\0911F011.D\	Batch QC MS	KQ1811891-03	9/11/2018	16:30:00	
J:\MS29\DATA\091118\0911F012.D\	Batch QC DMS	KQ1811891-04	9/11/2018	16:58:00	
J:\MS29\DATA\091118\0911F013.D\	Batch QC	K1808140-004	9/11/2018	17:27:00	
J:\MS29\DATA\091118\0911F014.D\	ZZZZZZZ	ZZZZZZZ	9/11/2018	17:55:00	
J:\MS29\DATA\091118\0911F015.D\	ZZZZZZZ	ZZZZZZZ	9/11/2018	18:23:00	
J:\MS29\DATA\091118\0911F016.D\	ZZZZZZZ	ZZZZZZZ	9/11/2018	18:52:00	
J:\MS29\DATA\091118\0911F017.D\	ZZZZZZZ	ZZZZZZZ	9/11/2018	19:20:00	

ALS Group USA, Corp.
dba ALS Environmental

Prep Summary Report

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

Service Request:K1808117

Low Level Semivolatile Organic Compounds by GC/MS

Prep Method: EPA 3520C
Analytical Method: 8270D

Extraction Lot: 320820
Extraction Date: 08/28/18 23:17

Sample Name	Lab Code	Date Collected	Date Received	Sample Amount	Final Amount	Percent Solids
PDI-WS-T03-1808	K1808117-001	8/22/18	8/24/18	1050.0000	2 mL	
PDI-WS-T04-1808	K1808117-002	8/23/18	8/24/18	1000 mL	2 mL	
PDI-WS-T07-1808	K1808117-003	8/23/18	8/24/18	1040.0000	2 mL	
PDI-WS-T05-1808	K1808117-004	8/21/18	8/24/18	1060.0000	2 mL	
Batch QC	K1808140-004	NA	NA	1000 mL	2 mL	
Matrix Spike	KQ1811891-01MS	8/23/18	8/24/18	1040.0000	2 mL	
Duplicate Matrix Spike	KQ1811891-02DMS	8/23/18	8/24/18	1050.0000	2 mL	
Matrix Spike	KQ1811891-03MS	NA	NA	1000 mL	2 mL	
Duplicate Matrix Spike	KQ1811891-04DMS	NA	NA	1000 mL	2 mL	
Lab Control Sample	KQ1811891-05LCS	NA	NA	1000 mL	2 mL	
Method Blank	KQ1811891-06MB	NA	NA	1060.0000	2 mL	