ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	AECOM	**Service Request:**	K1807964
Project:	Portland Harbor 2018/60566335	**Date Analyzed:**	09/11/18 19:32
Sample Matrix:	Surface Water	**Date Extracted:**	08/27/18

Lab Control Sample Summary
Butyltins

Sample Name:	Lab Control Sample	**Instrument ID:**	K-GC-26
Lab Code:	KQ1811832-01	**File ID:**	J:\GC26\DATA\091118\0911F005.D\
Analysis Method:	ALS SOP	**Analysis Lot:**	605940
Prep Method:	EPA 3520C	**Extraction Lot:**	320755

This Lab Control Sample applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Duplicate Lab Control Sample	KQ1811832-02	J:\GC26\DATA\091118\0911F006.D\	09/11/18 19:51
Method Blank	KQ1811832-03	J:\GC26\DATA\091118\0911F007.D\	09/11/18 20:10
PDI-RB-PP-180820	K1807964-001	J:\GC26\DATA\091118\0911F008.D\	09/11/18 20:29

Client: AECOM **Service Request:** K1807964
Project: Portland Harbor 2018 **Calibration Date:** 6/13/2018

Initial Calibration Summary
Butyltins

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

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

Analyte

Tri-n-butyltin Cation

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

Tri-n-propyltin

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

Client: AECOM **Service Request:** K1807964
Project: Portland Harbor 2018 **Calibration Date:** 6/13/2018

Initial Calibration Summary
Butyltins

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

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

Client: AECOM **Service Request:** K1807964
Project: Portland Harbor 2018 **Calibration Date:** 6/13/2018

Initial Calibration Summary
Butyltins

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

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

Analyte

Tri-n-butyltin Cation

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

Tri-n-propyltin

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

Client: AECOM **Service Request:** K1807964
Project: Portland Harbor 2018 **Calibration Date:** 6/13/2018

Initial Calibration Summary
Butyltins

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

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

Client: AECOM **Service Request:** K1807964
Project: Portland Harbor 2018 **Calibration Date:** 6/13/2018

Initial Calibration Verification Summary
Butyltins

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

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

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

Client: AECOM **Service Request:** K1807964
Project: Portland Harbor 2018 **Calibration Date:** 6/13/2018

Initial Calibration Verification Summary
Butyltins

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

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

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

Client:	AECOM	**Service Request:**	K1807964
Project:	Portland Harbor 2018/60566335	**Date Analyzed:**	09/11/18 18:54

Continuing Calibration Verification (CCV) Summary
Butyltins

Analysis Method:	ALS SOP	**Calibration Date:**	6/13/2018
File ID:	J:\GC26\DATA\091118\0911F003.D\	**Calibration ID:**	KC1800264
Signal ID:	RTX-35	**Analysis Lot:**	605940
		Units:	ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Tri-n-butyltin Cation	44.6	39.1	1.163E5	1.022E5	-12.2	NA	±25	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Tri-n-propyltin	50.0	40.0	9.938E4	7.95E4	-20.0	NA	±25	Average RF

Client:	AECOM	**Service Request:**	K1807964
Project:	Portland Harbor 2018/60566335	**Date Analyzed:**	09/11/18 18:54

Continuing Calibration Verification (CCV) Summary
Butyltins

Analysis Method:	ALS SOP	**Calibration Date:**	6/13/2018
File ID:	J:\GC26\DATA\091118\0911F003.D\	**Calibration ID:**	KC1800264
Signal ID:	RTX-1	**Analysis Lot:**	605940
		Units:	ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Tri-n-butyltin Cation	44.6	43.0	5.455E4	5.259E4	-3.6	NA	±25	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Tri-n-propyltin	50.0	47.2	4.354E4	4.112E4	-5.6	NA	±25	Average RF

Client:	AECOM	**Service Request:**	K1807964
Project:	Portland Harbor 2018/60566335	**Date Analyzed:**	09/11/18 22:42

Continuing Calibration Verification (CCV) Summary
Butyltins

Analysis Method:	ALS SOP	**Calibration Date:**	6/13/2018
File ID:	J:\GC26\DATA\091118\0911F015.D\	**Calibration ID:**	KC1800264
Signal ID:	RTX-35	**Analysis Lot:**	605940
		Units:	ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Tri-n-butyltin Cation	44.6	41.0	1.163E5	1.071E5	-7.9	NA	±25	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Tri-n-propyltin	50.0	45.2	9.938E4	8.986E4	-9.6	NA	±25	Average RF

Client:	AECOM	**Service Request:**	K1807964
Project:	Portland Harbor 2018/60566335	**Date Analyzed:**	09/11/18 22:42

Continuing Calibration Verification (CCV) Summary
Butyltins

Analysis Method:	ALS SOP	**Calibration Date:**	6/13/2018
File ID:	J:\GC26\DATA\091118\0911F015.D\	**Calibration ID:**	KC1800264
Signal ID:	RTX-1	**Analysis Lot:**	605940
		Units:	ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Tri-n-butyltin Cation	44.6	51.8	5.455E4	6.337E4	16.2	NA	±25	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Tri-n-propyltin	50.0	55.7	4.354E4	4.847E4	11.3	NA	±25	Average RF

Client: AECOM **Service Request:**K1807964
Project: Portland Harbor 2018/60566335

Analysis Run Log
Butyltins

Analysis Method: ALS SOP **Analysis Lot:**605940
Instrument ID:K-GC-26

Raw Data File	Sample Name	Lab Code	Date Analyzed	Time Analyzed	Q
J:\GC26\DATA\091118\0911F003.D\	Continuing Calibration Verification	KQ1812683-03	9/11/2018	18:54:00	
J:\GC26\DATA\091118\0911F004.D\	ZZZZZZZ	ZZZZZZZ	9/11/2018	19:13:00	
J:\GC26\DATA\091118\0911F005.D\	Lab Control Sample	KQ1811832-01	9/11/2018	19:32:00	
J:\GC26\DATA\091118\0911F006.D\	Duplicate Lab Control Sample	KQ1811832-02	9/11/2018	19:51:00	
J:\GC26\DATA\091118\0911F007.D\	Method Blank	KQ1811832-03	9/11/2018	20:10:00	
J:\GC26\DATA\091118\0911F008.D\	PDI-RB-PP-180820	K1807964-001	9/11/2018	20:29:00	
J:\GC26\DATA\091118\0911F009.D\	ZZZZZZZ	ZZZZZZZ	9/11/2018	20:48:00	
J:\GC26\DATA\091118\0911F010.D\	ZZZZZZZ	ZZZZZZZ	9/11/2018	21:07:00	
J:\GC26\DATA\091118\0911F011.D\	ZZZZZZZ	ZZZZZZZ	9/11/2018	21:26:00	
J:\GC26\DATA\091118\0911F012.D\	ZZZZZZZ	ZZZZZZZ	9/11/2018	21:45:00	
J:\GC26\DATA\091118\0911F013.D\	ZZZZZZZ	ZZZZZZZ	9/11/2018	22:04:00	
J:\GC26\DATA\091118\0911F014.D\	ZZZZZZZ	ZZZZZZZ	9/11/2018	22:23:00	
J:\GC26\DATA\091118\0911F015.D\	Continuing Calibration Verification	KQ1812683-04	9/11/2018	22:42:00	
J:\GC26\DATA\091118\0911F016.D\	ZZZZZZZ	ZZZZZZZ	9/11/2018	23:01:00	

Prep Summary Report

Client: AECOM **Service Request:** K1807964
Project: Portland Harbor 2018/60566335
Sample Matrix: Surface Water

Butyltins

Prep Method: EPA 3520C **Extraction Lot:** 320755
Analytical Method: ALS SOP **Extraction Date:** 08/27/18 19:43

Sample Name	Lab Code	Date Collected	Date Received	Sample Amount	Final Amount	Percent Solids
PDI-RB-PP-180820	K1807964-001	8/20/18	8/21/18	500 mL	1 mL	
Lab Control Sample	KQ1811832-01LCS	NA	NA	500 mL	1 mL	
Duplicate Lab Control Sample	KQ1811832-02DLCS	NA	NA	500 mL	1 mL	
Method Blank	KQ1811832-03MB	NA	NA	500 mL	1 mL	

Low Level Semivolatile Organic Compounds by GC/MS

ALS Environmental—Kelso Laboratory
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www.alsglobal.com

Analytical Report

Client:	AECOM	**Service Request:**	K1807964
Project:	Portland Harbor 2018/60566335	**Date Collected:**	08/20/18 16:00
Sample Matrix:	Surface Water	**Date Received:**	08/21/18 13:48
Sample Name:	PDI-RB-PP-180820	**Units:**	ug/L
Lab Code:	K1807964-001	**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	**0.41 J**	1.0	0.13	1	09/11/18 19:20	8/23/18	
Pentachlorophenol (PCP)	ND U	1.0	0.34	1	09/11/18 19:20	8/23/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
2,4,6-Tribromophenol	52	35 - 132	09/11/18 19:20	
p-Terphenyl-d14	55	48 - 109	09/11/18 19:20	

Analytical Report

Client:	AECOM	**Service Request:**	K1807964
Project:	Portland Harbor 2018/60566335	**Date Collected:**	NA
Sample Matrix:	Surface Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KQ1811695-04	**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	0.98	0.13	1	09/11/18 02:19	8/23/18	
Pentachlorophenol (PCP)	ND U	0.98	0.34	1	09/11/18 02:19	8/23/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
2,4,6-Tribromophenol	47	35 - 132	09/11/18 02:19	
p-Terphenyl-d14	52	48 - 109	09/11/18 02:19	

Client: AECOM **Service Request:** K1807964
Project: Portland Harbor 2018/60566335
Sample Matrix: Surface Water

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

Analysis Method: 8270D
Extraction Method: EPA 3520C

		2,4,6-Tribromophenol	p-Terphenyl-d14
Sample Name	**Lab Code**	**35-132**	**48-109**
PDI-RB-PP-180820	K1807964-001	52	55
Batch QC	K1808047-002	53	42*
Method Blank	KQ1811695-04	47	52
Lab Control Sample	KQ1811695-03	51	52
Batch QC	KQ1811695-01	62	51
Batch QC	KQ1811695-02	69	57

Client: AECOM **Service Request:** K1807964
Project: Portland Harbor 2018/60566335 **Date Analyzed:** 09/11/18 01:22

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

File ID: J:\MS29\DATA\091018\0910F024.D\ **Lab Code:** KQ1812566-02
Instrument ID: K-MS-29 **Analysis Lot:** 605994
Analysis Method: 8270D **Signal ID:** 1

		Chrysene-d12		Phenanthrene-d10	
		Area	**RT**	**Area**	**RT**
	Result ==>	184,408	15.52	167,143	12.05
	Upper Limit ==>	368,816	16.02	334,286	12.55
	Lower Limit ==>	92,204	15.02	83,572	11.55
Associated Analyses					
Method Blank	KQ1811695-04	185526	15.52	163469	12.05
Lab Control Sample	KQ1811695-03	180356	15.52	183665	12.05
Batch QCMS	KQ1811695-01	221632	15.52	175652	12.06
Batch QCDMS	KQ1811695-02	214587	15.52	172305	12.06
Batch QC	K1808047-002	210529	15.52	160369	12.05

Client: AECOM **Service Request:** K1807964
Project: Portland Harbor 2018/60566335 **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\ **Lab Code:** KQ1812567-02
Instrument ID: K-MS-29 **Analysis Lot:** 605996
Analysis Method: 8270D **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					
PDI-RB-PP-180820	K1807964-001	176695	15.51	145088	12.05

Client:	AECOM	**Service Request:**	K1807964
Project:	Portland Harbor 2018/60566335	**Date Collected:**	N/A
Sample Matrix:	Surface Water	**Date Received:**	N/A
		Date Analyzed:	09/11/18
		Date Extracted:	08/23/18

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

Sample Name:	Batch QC	**Units:**	ug/L
Lab Code:	K1808047-002	**Basis:**	NA
Analysis Method:	8270D		
Prep Method:	EPA 3520C		

		Matrix Spike KQ1811695-01			Duplicate Matrix Spike KQ1811695-02					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Bis(2-ethylhexyl) Phthalate	0.26 J	2.76	4.90	51	3.03	4.90	57	10-171	9	30
Pentachlorophenol (PCP)	ND U	4.21	4.90	86	4.99	4.90	102	28-158	17	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.

Client:	AECOM	**Service Request:**	K1807964
Project:	Portland Harbor 2018/60566335	**Date Analyzed:**	09/11/18
Sample Matrix:	Surface Water	**Date Extracted:**	08/23/18

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:	605994

Lab Control Sample
KQ1811695-03

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Bis(2-ethylhexyl) Phthalate	3.46	5.00	69	42-147
Pentachlorophenol (PCP)	2.76	5.00	55	27-112

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	AECOM	**Service Request:**	K1807964
Project:	Portland Harbor 2018/60566335	**Date Analyzed:**	09/11/18 02:19
Sample Matrix:	Surface Water	**Date Extracted:**	08/23/18

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

Sample Name:	Method Blank	**Instrument ID:**	K-MS-29
Lab Code:	KQ1811695-04	**File ID:**	J:\MS29\DATA\091018\0910F026.D\
Analysis Method:	8270D	**Analysis Lot:**	605994,605996
Prep Method:	EPA 3520C	**Extraction Lot:**	320576

This Method Blank applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Lab Control Sample	KQ1811695-03	J:\MS29\DATA\091018\0910F027.D\	09/11/18 02:47
Batch QCMS	KQ1811695-01	J:\MS29\DATA\091018\0910F028.D\	09/11/18 03:16
Batch QCDMS	KQ1811695-02	J:\MS29\DATA\091018\0910F029.D\	09/11/18 03:44
Batch QC	K1808047-002	J:\MS29\DATA\091018\0910F030.D\	09/11/18 04:12
PDI-RB-PP-180820	K1807964-001	J:\MS29\DATA\091118\0911F017.D\	09/11/18 19:20

Client:	AECOM	**Service Request:**	K1807964
Project:	Portland Harbor 2018/60566335	**Date Analyzed:**	09/11/18 02:47
Sample Matrix:	Surface Water	**Date Extracted:**	08/23/18

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

Sample Name:	Lab Control Sample	**Instrument ID:**	K-MS-29
Lab Code:	KQ1811695-03	**File ID:**	J:\MS29\DATA\091018\0910F027.D\
Analysis Method:	8270D	**Analysis Lot:**	605994,605996
Prep Method:	EPA 3520C	**Extraction Lot:**	320576

This Lab Control Sample applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Method Blank	KQ1811695-04	J:\MS29\DATA\091018\0910F026.D\	09/11/18 02:19
Batch QCMS	KQ1811695-01	J:\MS29\DATA\091018\0910F028.D\	09/11/18 03:16
Batch QCDMS	KQ1811695-02	J:\MS29\DATA\091018\0910F029.D\	09/11/18 03:44
Batch QC	K1808047-002	J:\MS29\DATA\091018\0910F030.D\	09/11/18 04:12
PDI-RB-PP-180820	K1807964-001	J:\MS29\DATA\091118\0911F017.D\	09/11/18 19:20

Client: AECOM **Service Request:**K1807964
Project: Portland Harbor 2018/60566335 **Date Analyzed:**09/11/18 00:54

Tune Summary
Low Level Semivolatile Organic Compounds by GC/MS

File ID: J:\MS29\DATA\091018\0910F023.D\ **Analytical Method:** 8270D
Instrument ID: K-MS-29 **Analysis Lot:** 605994

Target Mass	Relative to Mass	Lower Limit %	Upper Limit %	Relative Abundance %	Raw Abundance	Result Pass/Fail
51	198	10	80	31.26	1184132	Pass
68	69	0	2	1.67	23274	Pass
69	198	0	100	36.80	1394114	Pass
70	69	0	2	0.46	6452	Pass
127	198	10	80	46.82	1773643	Pass
197	198	0	2	0.15	5509	Pass
198	442	30	100	68.62	3788597	Pass
199	198	5	9	6.56	248362	Pass
275	198	10	60	30.62	1160106	Pass
365	442	1	50	2.50	138106	Pass
441	443	0.01	100	78.50	826816	Pass
442	442	30	100	100.00	5520922	Pass
443	442	15	24	19.08	1053205	Pass

Sample Name	Lab Code	File ID:	Date Analyzed:	Q
Continuing Calibration Verification	KQ1812566-02	J:\MS29\DATA\091018\0910F024.D\	09/11/18 01:22	
Method Blank	KQ1811695-04	J:\MS29\DATA\091018\0910F026.D\	09/11/18 02:19	
Lab Control Sample	KQ1811695-03	J:\MS29\DATA\091018\0910F027.D\	09/11/18 02:47	
Batch QC	KQ1811695-01	J:\MS29\DATA\091018\0910F028.D\	09/11/18 03:16	
Batch QC	KQ1811695-02	J:\MS29\DATA\091018\0910F029.D\	09/11/18 03:44	
Batch QC	K1808047-002	J:\MS29\DATA\091018\0910F030.D\	09/11/18 04:12	

Client: AECOM **Service Request:**K1807964
Project: Portland Harbor 2018/60566335 **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\ **Analytical Method:** 8270D
Instrument ID: K-MS-29 **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	
PDI-RB-PP-180820	K1807964-001	J:\MS29\DATA\091118\0911F017.D\	09/11/18 19:20	

Client: AECOM **Service Request:** K1807964
Project: Portland Harbor 2018 **Calibration Date:** 9/5/2018

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

Calibration ID: KC1800425 **Signal ID:** 1
Instrument ID: K-MS-29

#	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 **Service Request:** K1807964
Project: Portland Harbor 2018 **Calibration Date:** 9/5/2018

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

Calibration ID: KC1800425 **Signal ID:** 1
Instrument ID: K-MS-29

		Calibration Evaluation				Calibration Evaluation	
Analyte Name	Compound Type	Fit Type	Eval	Eval Result	Control Criteria	Average RRF	Minimum RRF
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 **Service Request:** K1807964
Project: Portland Harbor 2018 **Calibration Date:** 9/5/2018

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

Calibration ID: KC1800425 **Signal ID:** 1
Instrument ID: K-MS-29

#	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 2018/60566335

Service Request: K1807964
Date Analyzed: 09/11/18 01:22

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

Analysis Method: 8270D
File ID: J:\MS29\DATA\091018\0910F024.D\
Signal ID: 1

Calibration Date: 9/5/2018
Calibration ID: KC1800425
Analysis Lot: 605994
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Bis(2-ethylhexyl) Phthalate	3000	2890	0.8897	0.8565	-3.7	NA	±20	Average RF
Pentachlorophenol (PCP)	3000	3180	0.1303	0.1381	NA	6.0	±20	Quadratic

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
2,4,6-Tribromophenol	3000	3190	0.1484	0.1578	6.3	NA	±20	Average RF
p-Terphenyl-d14	3000	2620	0.9597	0.8394	-12.5	NA	±20	Average RF

Client: AECOM
Project: Portland Harbor 2018/60566335

Service Request: K1807964
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 **Service Request:**K1807964
Project: Portland Harbor 2018/60566335

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

Analysis Method: **Analysis Lot:**605994
Instrument ID:K-MS-29

Raw Data File	Sample Name	Lab Code	Date Analyzed	Time Analyzed	Q
J:\MS29\DATA\091018\0910F023.D\	ZZZZZZZ	ZZZZZZZ	9/11/2018	00:54:00	
J:\MS29\DATA\091018\0910F024.D\	Continuing Calibration Verification	KQ1812566-02	9/11/2018	01:22:00	
J:\MS29\DATA\091018\0910F026.D\	Method Blank	KQ1811695-04	9/11/2018	02:19:00	
J:\MS29\DATA\091018\0910F027.D\	Lab Control Sample	KQ1811695-03	9/11/2018	02:47:00	
J:\MS29\DATA\091018\0910F028.D\	Batch QC MS	KQ1811695-01	9/11/2018	03:16:00	
J:\MS29\DATA\091018\0910F029.D\	Batch QC DMS	KQ1811695-02	9/11/2018	03:44:00	
J:\MS29\DATA\091018\0910F030.D\	Batch QC	K1808047-002	9/11/2018	04:12:00	
J:\MS29\DATA\091018\0910F031.D\	ZZZZZZZ	ZZZZZZZ	9/11/2018	04:41:00	
J:\MS29\DATA\091018\0910F032.D\	ZZZZZZZ	ZZZZZZZ	9/11/2018	05:09:00	
J:\MS29\DATA\091018\0910F033.D\	ZZZZZZZ	ZZZZZZZ	9/11/2018	05:38:00	
J:\MS29\DATA\091018\0910F034.D\	ZZZZZZZ	ZZZZZZZ	9/11/2018	06:06:00	
J:\MS29\DATA\091018\0910F035.D\	ZZZZZZZ	ZZZZZZZ	9/11/2018	06:34:00	
J:\MS29\DATA\091018\0910F036.D\	ZZZZZZZ	ZZZZZZZ	9/11/2018	07:03:00	
J:\MS29\DATA\091018\0910F037.D\	ZZZZZZZ	ZZZZZZZ	9/11/2018	07:31:00	
J:\MS29\DATA\091018\0910F038.D\	ZZZZZZZ	ZZZZZZZ	9/11/2018	08:00:00	
J:\MS29\DATA\091018\0910F039.D\	ZZZZZZZ	ZZZZZZZ	9/11/2018	08:28:00	
J:\MS29\DATA\091018\0910F040.D\	ZZZZZZZ	ZZZZZZZ	9/11/2018	08:56:00	
J:\MS29\DATA\091018\0910F041.D\	ZZZZZZZ	ZZZZZZZ	9/11/2018	09:25:00	
J:\MS29\DATA\091018\0910F042.D\	ZZZZZZZ	ZZZZZZZ	9/11/2018	09:53:00	
J:\MS29\DATA\091018\0910F043.D\	ZZZZZZZ	ZZZZZZZ	9/11/2018	10:22:00	
J:\MS29\DATA\091018\0910F045.D\	ZZZZZZZ	ZZZZZZZ	9/11/2018	11:19:00	

Client: AECOM **Service Request:**K1807964
Project: Portland Harbor 2018/60566335

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\	ZZZZZZZ	ZZZZZZZ	9/11/2018	12:43:00	
J:\MS29\DATA\091118\0911F004.D\	ZZZZZZZ	ZZZZZZZ	9/11/2018	13:12:00	
J:\MS29\DATA\091118\0911F005.D\	ZZZZZZZ	ZZZZZZZ	9/11/2018	13:40:00	
J:\MS29\DATA\091118\0911F006.D\	ZZZZZZZ	ZZZZZZZ	9/11/2018	14:08:00	
J:\MS29\DATA\091118\0911F007.D\	ZZZZZZZ	ZZZZZZZ	9/11/2018	14:37:00	
J:\MS29\DATA\091118\0911F008.D\	ZZZZZZZ	ZZZZZZZ	9/11/2018	15:05:00	
J:\MS29\DATA\091118\0911F009.D\	ZZZZZZZ	ZZZZZZZ	9/11/2018	15:33:00	
J:\MS29\DATA\091118\0911F010.D\	ZZZZZZZ	ZZZZZZZ	9/11/2018	16:02:00	
J:\MS29\DATA\091118\0911F011.D\	ZZZZZZZ	ZZZZZZZ	9/11/2018	16:30:00	
J:\MS29\DATA\091118\0911F012.D\	ZZZZZZZ	ZZZZZZZ	9/11/2018	16:58:00	
J:\MS29\DATA\091118\0911F013.D\	ZZZZZZZ	ZZZZZZZ	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\	PDI-RB-PP-180820	K1807964-001	9/11/2018	19:20:00	

Prep Summary Report

Client: AECOM **Service Request:** K1807964
Project: Portland Harbor 2018/60566335
Sample Matrix: Surface Water

Low Level Semivolatile Organic Compounds by GC/MS

Prep Method: EPA 3520C **Extraction Lot:** 320576
Analytical Method: 8270D **Extraction Date:** 08/23/18 15:08

Sample Name	Lab Code	Date Collected	Date Received	Sample Amount	Final Amount	Percent Solids
PDI-RB-PP-180820	K1807964-001	8/20/18	8/21/18	1000 mL	2 mL	
Batch QC	K1808047-002	NA	NA	1020.0000	2 mL	
Matrix Spike	KQ1811695-01MS	NA	NA	1020.0000	2 mL	
Duplicate Matrix Spike	KQ1811695-02DMS	NA	NA	1020.0000	2 mL	
Lab Control Sample	KQ1811695-03LCS	NA	NA	1000 mL	2 mL	
Method Blank	KQ1811695-04MB	NA	NA	1020.0000	2 mL	