TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

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TestAmerica Job ID: 580-79948-1
Client Project/Site: Portland Harbor Pre-Remedial Design
Revision: 1

For:
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Authorized for release by:
9/27/2018 2:00:14 PM

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Job ID: 580-79948-1

Laboratory: TestAmerica Seattle

Narrative

CASE NARRATIVE
Client: AECOM
Project: Portland Harbor Pre-Remedial Design
Report Number: 580-79948-1

REVISION 1: SEPTEMBER 27, 2018
This revision was required to remove an unnecessary statement from theTOC section of the narrative. No data has been changed.

This case narrative is in the form of an exception report, where only the anomalies related to this report, method specific performance and/or QA/QC issues are discussed. If there are no issues to report, this narrative will include a statement that documents that there are no relevant data issues.

It should be noted that samples with elevated Reporting Limits (RLs) resulting from a dilution may not be able to satisfy customer reporting limits in some cases. Such increases in the RLs are an unavoidable but acceptable consequence of sample dilution that enables quantification of target analytes within the calibration range of the instrument or that reduces the interferences thereby enabling the quantification of target analytes.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT
Two samples were received on 8/29/2018 1:10 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.3º C.

A sample container was provided to be archived frozen at the TestAmerica Sacramento laboratory pending potential additional analyses.

This report contains results of all analyses performed by TestAmerica Seattle.

Note: All samples which require thermal preservation are considered acceptable if the arrival temperature is within 2C of the required temperature or method specified range. For samples with a specified temperature of 4C, samples with a temperature ranging from just above freezing temperature of water to 6C shall be acceptable. Samples that are hand delivered immediately following collection may not meet these criteria, however they will be deemed acceptable according to NELAC standards, if there is evidence that the chilling process has begun, such as arrival on ice, etc.

SEMIVOLATILE ORGANIC COMPOUNDS - SELECTED ION MODE (SIM)
Samples PDI-SG-S016 (580-79948-1) and PDI-SG-S017 (580-79948-2) were analyzed for semivolatile organic compounds - Selected Ion Mode (SIM) in accordance with SW846 8270D_SIM. The samples were prepared on 09/11/2018 and analyzed on 09/14/2018.

2-Methylnaphthalene, Benzo[a]anthracene, Fluorene, Naphthalene and Phenanthrene were detected in method blank MB 580-283727/1-A at levels that were above the method detection limit but below the reporting limit. The values should be considered estimates, and have been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged.

Fluoranthene, Naphthalene, Phenanthrene and Pyrene failed the recovery criteria high for the MS of sample PDI-SG-S017MS (580-79948-2) in batch 580-284014. Several analytes failed the recovery criteria high for the MSD of sample PDI-SG-S017MSD (580-79948-2) in batch 580-284014. Several analytes exceeded the RPD limit. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

Samples PDI-SG-S016 (580-79948-1)[50X] and PDI-SG-S017 (580-79948-2)[25X] required dilution prior to analysis due to the nature of the sample matrix. The reporting limits have been adjusted accordingly.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Job ID: 580-79948-1 (Continued)

Laboratory: TestAmerica Seattle (Continued)

TOTAL ORGANIC CARBON

Samples PDI-SG-S016 (580-79948-1) and PDI-SG-S017 (580-79948-2) were analyzed for total organic carbon in accordance with EPA SW-846 Method 9060. The samples were analyzed on 09/19/2018.

Total Organic Carbon - Duplicates was detected in method blank MB 580-284391/5 at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GRAIN SIZE

Samples PDI-SG-S016 (580-79948-1) and PDI-SG-S017 (580-79948-2) were analyzed for grain size in accordance with ASTM D7928/D6913. The samples were analyzed on 09/10/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

PERCENT SOLIDS

Samples PDI-SG-S016 (580-79948-1) and PDI-SG-S017 (580-79948-2) were analyzed for percent solids in accordance with ASTM D2216. The samples were analyzed on 09/13/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

TOTAL SOLIDS @ 70CSamples PDI-SG-S016 (580-79948-1) and PDI-SG-S017 (580-79948-2) were analyzed for Total Solids @ 70C. Th samples were analyzed on 09/10/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Definitions/Glossary

Client: AECOM
Project/Site: Portland Harbor Pre-Remedial Design

TestAmerica Job ID: 580-79948-1

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
F1	MS and/or MSD Recovery is outside acceptance limits.
F2	MS/MSD RPD exceeds control limits

General Chemistry

Qualifier	Qualifier Description
H	Sample was prepped or analyzed beyond the specified holding time
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample ID: PDI-SG-S016
Date Collected: 08/28/18 09:28
Date Received: 08/29/18 13:10

Lab Sample ID: 580-79948-1
Matrix: Solid
Percent Solids: 37.4

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylnaphthalene	19	J B	130	11	ug/Kg	☼	09/11/18 16:36	09/14/18 19:24	50
Acenaphthene	18	J	130	15	ug/Kg	☼	09/11/18 16:36	09/14/18 19:24	50
Acenaphthylene	ND		130	13	ug/Kg	☼	09/11/18 16:36	09/14/18 19:24	50
Anthracene	36	J	130	15	ug/Kg	☼	09/11/18 16:36	09/14/18 19:24	50
Benzo[a]anthracene	53	J B	130	19	ug/Kg	☼	09/11/18 16:36	09/14/18 19:24	50
Benzo[a]pyrene	56	J	130	10	ug/Kg	☼	09/11/18 16:36	09/14/18 19:24	50
Benzo[b]fluoranthene	75	J	130	15	ug/Kg	☼	09/11/18 16:36	09/14/18 19:24	50
Benzo[g,h,i]perylene	60	J	130	13	ug/Kg	☼	09/11/18 16:36	09/14/18 19:24	50
Benzo[k]fluoranthene	35	J	130	15	ug/Kg	☼	09/11/18 16:36	09/14/18 19:24	50
Chrysene	99	J	130	38	ug/Kg	☼	09/11/18 16:36	09/14/18 19:24	50
Dibenz(a,h)anthracene	27	J	130	18	ug/Kg	☼	09/11/18 16:36	09/14/18 19:24	50
Fluoranthene	160		130	36	ug/Kg	☼	09/11/18 16:36	09/14/18 19:24	50
Fluorene	22	J B	130	13	ug/Kg	☼	09/11/18 16:36	09/14/18 19:24	50
Indeno[1,2,3-cd]pyrene	64	J	130	15	ug/Kg	☼	09/11/18 16:36	09/14/18 19:24	50
Naphthalene	28	J B	130	20	ug/Kg	☼	09/11/18 16:36	09/14/18 19:24	50
Phenanthrene	94	J B	130	18	ug/Kg	☼	09/11/18 16:36	09/14/18 19:24	50
Pyrene	140		130	25	ug/Kg	☼	09/11/18 16:36	09/14/18 19:24	50

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14	*90*		*57 - 120*	*09/11/18 16:36*	*09/14/18 19:24*	*50*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	39000	B	2000	44	mg/Kg			09/19/18 14:39	1
Total Solids	37.4		0.1	0.1	%			09/13/18 16:03	1
Total Solids @ 70°C	37	H	0.10	0.10	%			09/10/18 15:49	1

Method: D7928/D6913 - ASTM D7928/D6913

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Clay	15.2				%			09/10/18 15:49	1
Coarse Sand	0.0				%			09/10/18 15:49	1
Fine Sand	7.5				%			09/10/18 15:49	1
Gravel	0.0				%			09/10/18 15:49	1
Medium Sand	0.1				%			09/10/18 15:49	1
Silt	77.2				%			09/10/18 15:49	1

Client Sample ID: PDI-SG-S017
Date Collected: 08/28/18 10:54
Date Received: 08/29/18 13:10

Lab Sample ID: 580-79948-2
Matrix: Solid
Percent Solids: 68.0

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylnaphthalene	9.2	J B	34	3.1	ug/Kg	☼	09/11/18 16:36	09/14/18 19:47	25
Acenaphthene	25	J	34	4.1	ug/Kg	☼	09/11/18 16:36	09/14/18 19:47	25
Acenaphthylene	ND	F2 F1	34	3.4	ug/Kg	☼	09/11/18 16:36	09/14/18 19:47	25
Anthracene	12	J F2 F1	34	4.1	ug/Kg	☼	09/11/18 16:36	09/14/18 19:47	25
Benzo[a]anthracene	19	J F2 F1 B	34	5.2	ug/Kg	☼	09/11/18 16:36	09/14/18 19:47	25
Benzo[a]pyrene	16	J F2 F1	34	2.8	ug/Kg	☼	09/11/18 16:36	09/14/18 19:47	25
Benzo[b]fluoranthene	31	J F2 F1	34	4.1	ug/Kg	☼	09/11/18 16:36	09/14/18 19:47	25
Benzo[g,h,i]perylene	20	J F2 F1	34	3.4	ug/Kg	☼	09/11/18 16:36	09/14/18 19:47	25
Benzo[k]fluoranthene	7.3	J F2 F1	34	4.1	ug/Kg	☼	09/11/18 16:36	09/14/18 19:47	25
Chrysene	29	J F2 F1	34	10	ug/Kg	☼	09/11/18 16:36	09/14/18 19:47	25
Dibenz(a,h)anthracene	8.9	J F2	34	5.0	ug/Kg	☼	09/11/18 16:36	09/14/18 19:47	25
Fluoranthene	73	F2 F1	34	9.6	ug/Kg	☼	09/11/18 16:36	09/14/18 19:47	25
Fluorene	12	J B	34	3.4	ug/Kg	☼	09/11/18 16:36	09/14/18 19:47	25
Indeno[1,2,3-cd]pyrene	15	J F2 F1	34	4.1	ug/Kg	☼	09/11/18 16:36	09/14/18 19:47	25
Naphthalene	12	J F2 B F1	34	5.5	ug/Kg	☼	09/11/18 16:36	09/14/18 19:47	25
Phenanthrene	48	F2 F1 B	34	4.7	ug/Kg	☼	09/11/18 16:36	09/14/18 19:47	25
Pyrene	70	F2 F1	34	6.7	ug/Kg	☼	09/11/18 16:36	09/14/18 19:47	25

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14	*89*		*57 - 120*	*09/11/18 16:36*	*09/14/18 19:47*	*25*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	10000	B	2000	44	mg/Kg			09/19/18 14:44	1
Total Solids	68.0		0.1	0.1	%			09/13/18 16:03	1
Total Solids @ 70°C	69	H	0.10	0.10	%			09/10/18 15:49	1

Method: D7928/D6913 - ASTM D7928/D6913

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Clay	4.0				%			09/10/18 15:49	1
Coarse Sand	0.8				%			09/10/18 15:49	1
Fine Sand	61.5				%			09/10/18 15:49	1
Gravel	4.7				%			09/10/18 15:49	1
Medium Sand	21.0				%			09/10/18 15:49	1
Silt	8.1				%			09/10/18 15:49	1

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 580-283727/1-A
Matrix: Solid
Analysis Batch: 284014

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 283727

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylnaphthalene	0.804	J	1.0	0.090	ug/Kg		09/11/18 16:36	09/14/18 17:30	1
Acenaphthene	ND		1.0	0.12	ug/Kg		09/11/18 16:36	09/14/18 17:30	1
Acenaphthylene	ND		1.0	0.10	ug/Kg		09/11/18 16:36	09/14/18 17:30	1
Anthracene	ND		1.0	0.12	ug/Kg		09/11/18 16:36	09/14/18 17:30	1
Benzo[a]anthracene	0.275	J	1.0	0.15	ug/Kg		09/11/18 16:36	09/14/18 17:30	1
Benzo[a]pyrene	ND		1.0	0.080	ug/Kg		09/11/18 16:36	09/14/18 17:30	1
Benzo[b]fluoranthene	ND		1.0	0.12	ug/Kg		09/11/18 16:36	09/14/18 17:30	1
Benzo[g,h,i]perylene	ND		1.0	0.10	ug/Kg		09/11/18 16:36	09/14/18 17:30	1
Benzo[k]fluoranthene	ND		1.0	0.12	ug/Kg		09/11/18 16:36	09/14/18 17:30	1
Chrysene	ND		1.0	0.30	ug/Kg		09/11/18 16:36	09/14/18 17:30	1
Dibenz(a,h)anthracene	ND		1.0	0.14	ug/Kg		09/11/18 16:36	09/14/18 17:30	1
Fluoranthene	ND		1.0	0.28	ug/Kg		09/11/18 16:36	09/14/18 17:30	1
Fluorene	0.166	J	1.0	0.10	ug/Kg		09/11/18 16:36	09/14/18 17:30	1
Indeno[1,2,3-cd]pyrene	ND		1.0	0.12	ug/Kg		09/11/18 16:36	09/14/18 17:30	1
Naphthalene	0.240	J	1.0	0.16	ug/Kg		09/11/18 16:36	09/14/18 17:30	1
Phenanthrene	0.160	J	1.0	0.14	ug/Kg		09/11/18 16:36	09/14/18 17:30	1
Pyrene	ND		1.0	0.19	ug/Kg		09/11/18 16:36	09/14/18 17:30	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14	*95*		*57 - 120*	*09/11/18 16:36*	*09/14/18 17:30*	*1*

Lab Sample ID: LCS 580-283727/2-A
Matrix: Solid
Analysis Batch: 284014

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 283727

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2-Methylnaphthalene	200	166		ug/Kg		83	68 - 120
Acenaphthene	200	170		ug/Kg		85	68 - 120
Acenaphthylene	200	182		ug/Kg		91	68 - 120
Anthracene	200	175		ug/Kg		87	73 - 125
Benzo[a]anthracene	200	188		ug/Kg		94	66 - 120
Benzo[a]pyrene	200	199		ug/Kg		100	72 - 124
Benzo[b]fluoranthene	200	202		ug/Kg		101	63 - 121
Benzo[g,h,i]perylene	200	191		ug/Kg		95	63 - 120
Benzo[k]fluoranthene	200	190		ug/Kg		95	63 - 123
Chrysene	200	197		ug/Kg		99	69 - 120
Dibenz(a,h)anthracene	200	220		ug/Kg		110	70 - 125
Fluoranthene	200	189		ug/Kg		95	74 - 125
Fluorene	200	168		ug/Kg		84	73 - 120
Indeno[1,2,3-cd]pyrene	200	223		ug/Kg		112	65 - 121
Naphthalene	200	159		ug/Kg		80	70 - 120
Phenanthrene	200	173		ug/Kg		87	73 - 120
Pyrene	200	188		ug/Kg		94	70 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Terphenyl-d14	*94*		*57 - 120*

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: 580-79948-2 MS
Matrix: Solid
Analysis Batch: 284014

Client Sample ID: PDI-SG-S017
Prep Type: Total/NA
Prep Batch: 283727

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
2-Methylnaphthalene	9.2	J B	273	277		ug/Kg	☼	98	68 - 120
Acenaphthene	25	J	273	303		ug/Kg	☼	102	68 - 120
Acenaphthylene	ND	F2 F1	273	288		ug/Kg	☼	105	68 - 120
Anthracene	12	J F2 F1	273	263		ug/Kg	☼	92	73 - 125
Benzo[a]anthracene	19	J F2 F1 B	273	285		ug/Kg	☼	97	66 - 120
Benzo[a]pyrene	16	J F2 F1	273	266		ug/Kg	☼	92	72 - 124
Benzo[b]fluoranthene	31	J F2 F1	273	304		ug/Kg	☼	100	63 - 121
Benzo[g,h,i]perylene	20	J F2 F1	273	246		ug/Kg	☼	83	63 - 120
Benzo[k]fluoranthene	7.3	J F2 F1	273	228		ug/Kg	☼	81	63 - 123
Chrysene	29	J F2 F1	273	310		ug/Kg	☼	103	69 - 120
Dibenz(a,h)anthracene	8.9	J F2	273	255		ug/Kg	☼	90	70 - 125
Fluoranthene	73	F2 F1	273	420	F1	ug/Kg	☼	127	74 - 125
Fluorene	12	J B	273	262		ug/Kg	☼	92	73 - 120
Indeno[1,2,3-cd]pyrene	15	J F2 F1	273	322		ug/Kg	☼	112	65 - 121
Naphthalene	12	J F2 B F1	273	416	F1	ug/Kg	☼	148	70 - 120
Phenanthrene	48	F2 F1 B	273	544	F1	ug/Kg	☼	182	73 - 120
Pyrene	70	F2 F1	273	405	F1	ug/Kg	☼	123	70 - 120

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Terphenyl-d14	*97*		*57 - 120*

Lab Sample ID: 580-79948-2 MSD
Matrix: Solid
Analysis Batch: 284014

Client Sample ID: PDI-SG-S017
Prep Type: Total/NA
Prep Batch: 283727

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
2-Methylnaphthalene	9.2	J B	276	249		ug/Kg	☼	87	68 - 120	11	12
Acenaphthene	25	J	276	275		ug/Kg	☼	90	68 - 120	10	12
Acenaphthylene	ND	F2 F1	276	345	F1 F2	ug/Kg	☼	125	68 - 120	18	12
Anthracene	12	J F2 F1	276	404	F1 F2	ug/Kg	☼	142	73 - 125	42	12
Benzo[a]anthracene	19	J F2 F1 B	276	652	F1 F2	ug/Kg	☼	229	66 - 120	78	14
Benzo[a]pyrene	16	J F2 F1	276	672	F1 F2	ug/Kg	☼	238	72 - 124	86	12
Benzo[b]fluoranthene	31	J F2 F1	276	615	F1 F2	ug/Kg	☼	212	63 - 121	68	10
Benzo[g,h,i]perylene	20	J F2 F1	276	413	F1 F2	ug/Kg	☼	143	63 - 120	51	14
Benzo[k]fluoranthene	7.3	J F2 F1	276	351	F1 F2	ug/Kg	☼	125	63 - 123	43	15
Chrysene	29	J F2 F1	276	774	F1 F2	ug/Kg	☼	270	69 - 120	86	10
Dibenz(a,h)anthracene	8.9	J F2	276	338	F2	ug/Kg	☼	119	70 - 125	28	13
Fluoranthene	73	F2 F1	276	843	F1 F2	ug/Kg	☼	279	74 - 125	67	13
Fluorene	12	J B	276	267		ug/Kg	☼	93	73 - 120	2	13
Indeno[1,2,3-cd]pyrene	15	J F2 F1	276	535	F1 F2	ug/Kg	☼	188	65 - 121	50	15
Naphthalene	12	J F2 B F1	276	268	F2	ug/Kg	☼	93	70 - 120	43	12
Phenanthrene	48	F2 F1 B	276	391	F1 F2	ug/Kg	☼	124	73 - 120	33	11
Pyrene	70	F2 F1	276	1050	F1 F2	ug/Kg	☼	354	70 - 120	88	12

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Terphenyl-d14	*94*		*57 - 120*

Method: 9060_PSEP - TOC (Puget Sound)

Lab Sample ID: MB 580-284391/5
Matrix: Solid
Analysis Batch: 284391

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	119	J	2000	44	mg/Kg			09/19/18 12:31	1

Lab Sample ID: LCS 580-284391/6
Matrix: Solid
Analysis Batch: 284391

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Organic Carbon - Duplicates			4270	4310		mg/Kg		101	68 - 149		

Lab Sample ID: LCSD 580-284391/7
Matrix: Solid
Analysis Batch: 284391

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Organic Carbon - Duplicates			4270	3680		mg/Kg		86	68 - 149	16	32

Method: D 2216 - Percent Moisture

Lab Sample ID: 580-79948-1 DU
Matrix: Solid
Analysis Batch: 283937

Client Sample ID: PDI-SG-S016
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Solids	37.4			36.6		%				2	20

Lab Chronicle

Client: AECOM
Project/Site: Portland Harbor Pre-Remedial Design

TestAmerica Job ID: 580-79948-1

Client Sample ID: PDI-SG-S016
Date Collected: 08/28/18 09:28
Date Received: 08/29/18 13:10

Lab Sample ID: 580-79948-1
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	284391	09/19/18 14:39	TTN	TAL SEA
Total/NA	Analysis	D 2216		1	283937	09/13/18 16:03	BAH	TAL SEA
Total/NA	Analysis	Moisture 70C		1	283858	09/10/18 15:49	HJM	TAL SEA
Total/NA	Analysis	D7928/D6913		1	283627	09/10/18 15:49	A1K	TAL SEA

Client Sample ID: PDI-SG-S016
Date Collected: 08/28/18 09:28
Date Received: 08/29/18 13:10

Lab Sample ID: 580-79948-1
Matrix: Solid
Percent Solids: 37.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			283727	09/11/18 16:36	SPS	TAL SEA
Total/NA	Analysis	8270D SIM		50	284014	09/14/18 19:24	T1W	TAL SEA

Client Sample ID: PDI-SG-S017
Date Collected: 08/28/18 10:54
Date Received: 08/29/18 13:10

Lab Sample ID: 580-79948-2
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	284391	09/19/18 14:44	TTN	TAL SEA
Total/NA	Analysis	D 2216		1	283937	09/13/18 16:03	BAH	TAL SEA
Total/NA	Analysis	Moisture 70C		1	283858	09/10/18 15:49	HJM	TAL SEA
Total/NA	Analysis	D7928/D6913		1	283627	09/10/18 15:49	A1K	TAL SEA

Client Sample ID: PDI-SG-S017
Date Collected: 08/28/18 10:54
Date Received: 08/29/18 13:10

Lab Sample ID: 580-79948-2
Matrix: Solid
Percent Solids: 68.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			283727	09/11/18 16:36	SPS	TAL SEA
Total/NA	Analysis	8270D SIM		25	284014	09/14/18 19:47	T1W	TAL SEA

Laboratory References:
TAL SEA = TestAmerica Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Accreditation/Certification Summary

Client: AECOM
TestAmerica Job ID: 580-79948-1
Project/Site: Portland Harbor Pre-Remedial Design

Laboratory: TestAmerica Seattle

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska (UST)	State Program	10	17-024	01-19-19
ANAB	DoD ELAP		L2236	01-19-19
ANAB	ISO/IEC 17025		L2236	01-19-19
California	State Program	9	2901	11-05-18
Montana (UST)	State Program	8	N/A	04-30-20
Nevada	State Program	9	WA000502019-1	07-31-19
Oregon	NELAP	10	WA100007	11-05-18
US Fish & Wildlife	Federal		LE058448-0	07-31-19
USDA	Federal		P330-14-00126	02-10-20
Washington	State Program	10	C553	02-17-19

Sample Summary

Client: AECOM
Project/Site: Portland Harbor Pre-Remedial Design

TestAmerica Job ID: 580-79948-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-79948-1	PDI-SG-S016	Solid	08/28/18 09:28	08/29/18 13:10
580-79948-2	PDI-SG-S017	Solid	08/28/18 10:54	08/29/18 13:10

SURFACE SEDIMENT CHAIN OF CUSTODY

TestAmerica-Seattle 5755-8th-Street-East Tacoma, WA 98424-1317 **Ph: 253-922-2310 Fax: 253-922-5047**	**Project Contact: Amy Dahl / Chelsey Cook** **Tel: (206) 438-2261 / (206) 438-2010** **Analysis Turnaround Time** Calendar (C) or Work Days (W) _____ [x] 21 days [ ] Other _____	**Site Contact: Jennifer Ray / Michaela McCoog** **Laboratory Contact: Elaine-Walker**	**8/29/2018** **Carrier: Courier**	COC No: 1 __1__ of __1__ COCs

Client Contact	
AECOM	
1111 3rd Ave Suite 1600	
Seattle, WA 98101	
Phone: (206) 438-2700 Fax: 1+(866) 495-5288	
Project Name: Portland Harbor Pre-Remedial Design Investigation and Baseline Sampling	
Portland, OR	
Project #: 60566335 Study: Surface Sediment	
Sample Type: SMA/Co-Loc	

Sample Identification	Sample Date	Sample Time	Matrix	QC Sample	Sampler's Initials	Total No. of Cont.	Fraction	PCB Congeners 1668A	PCDD/Fs 1613B	Grain size ASTM D7928/D6913	Total organic carbon, Total solids 9060 (104C & 70C)	Archive Archive -20 C	PAHs, 8270-SIM / 15	Sample Specific Notes:
PDI-SG-S016	8/28/2018	9:28	SS		MT	1/6		x	x	x	x	x	x	
PDI-SG-S017	8/28/2018	10:54	SS		MT	1/6		x	x	x	x	x	x	

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

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

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

Sample Disposal

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

Special Instructions/QC Requirements & Comments:

Separate reports for each lab.

Relinquished by:	Company: Recon	Date/Time: 8/29/18 1230	Received by:	Company: M-E.	Date/Time: 8/29/18 1230
Relinquished by:	Company: M-E.	Date/Time: 8/29/18 1310	Received by:	Company: TARGET	Date/Time: 8/29/18 1310
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

580-79948 Chain of Custody

SURFACE SEDIMENT
CHAIN OF CUSTODY

TestAmerica-Seattle 5755-8th-Street-East Tacoma, WA 98424-1317 **Ph: 253-922-2310 Fax: 253-922-5047**	**Project Contact: Amy Dahl / Chelsey Cook** **Tel: (206) 438-2261 / (206) 438-2010**	**Site Contact: Jennifer Ray / Michaela McCoog** **Laboratory Contact: Elaine-Walker**	**8/29/2018** COC No: 1 **Carrier: Courier** 1 of 1 COCs

Client Contact	Analysis Turnaround Time
AECOM 1111 3rd Ave Suite 1600 Seattle, WA 98101 Phone: (206) 438-2700 Fax: 1+(866) 495-5288 Project Name: Portland Harbor Pre-Remedial Design Investigation and Baseline Sampling Portland, OR Project # 60566335 Study: **Surface Sediment** Sample Type: SMA/Co-Loc	Calendar (C) or Work Days (W) _____ [x] 21 days [ ] Other _____

Sample Identification	Sample Date	Sample Time	Matrix	QC Sample	Sampler's Initials	Total No. of Cont.	Fraction	PCB Congeners 1668A	PCDD/Fs 1613B	Grain size ASTM D7928/D6913	Total organic carbon, Total solids 9060 (104C & 70C)	Archive Archive -20 C	PAHs, 8270-SIM, TS										Sample Specific Notes:
PDI-SG-S016	8/28/2018	9:28	SS		MT	1/6		x	x	x	x	x	x										
PDI-SG-S017	8/28/2018	10:54	SS		MT	1/6		x	x	x	x	x	x										

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

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

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

Sample Disposal

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

Special Instructions/QC Requirements & Comments:

Separate reports for each lab.

	Company	Date/Time		Company	Date/Time
Relinquished by:	TACOM	8/29/18 1630	Received by:	M.E.	8/29/18 1230
Relinquished by:	M.E.	8/29/18 1310	Received by:	TAPOL	8/29/18 1310
Relinquished by:	TAPOL	8/29/18 1700	Received by: B. Hart	SEA TA	8/30/18 0930

IR4 = 3.5/3.4 w/C.S.

Login Sample Receipt Checklist

Client: AECOM

Job Number: 580-79948-1

Login Number: 79948
List Number: 1
Creator: O'Connell, Jason I

List Source: TestAmerica Seattle

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	