TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

TestAmerica Job ID: 580-78604-7
Client Project/Site: Portland Harbor Pre-Remedial Design
Revision: 1

For:
AECOM
1111 Third Ave
Suite 1600
Seattle, Washington 98101

Attn: Amy Dahl

M. Elaine Walker

Authorized for release by:
10/15/2018 3:56:04 PM

Elaine Walker, Project Manager II
(253)248-4972
elaine.walker@testamericainc.com

Table of Contents

Job ID: 580-78604-7

Laboratory: TestAmerica Seattle

Narrative

CASE NARRATIVE
Client: AECOM
Project: Portland Harbor Pre-Remedial Design
Report Number: 580-78604-7

REVISION 1: OCTOBER 15, 2018

This revision was required to add a comment to the SIM PAH section of the narrative to indicate some samples contain the incorrect reference spectra for Fluoranthene. In addition, Manganese was removed from the QC samples as no samples in this job contain manganese as a target analyte.

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

Eleven samples were received on 7/5/2018 3:00 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 0.3º C, 0.7º C and 2.2º C.

The following samples were activated by the client on 8/16/18 for all On Hold analysis: PDI-SG-B458 (580-78604-1), PDI-SG-B470 (580-78604-2), PDI-SG-B469 (580-78604-3), PDI-SG-B456 (580-78604-4), PDI-SG-B462 (580-78604-5), PDI-SG-B463 (580-78604-6), PDI-SG-B463 (580-78604-6[MS]), PDI-SG-B463 (580-78604-6[MSD]), PDI-SG-B464 (580-78604-7), PDI-SG-B466 (580-78604-8), PDI-SG-B468 (580-78604-9), and PDI-SG-B429 (580-78604-10).

The following samples were canceled by the client for Atterberg Limits on 8/23/18: PDI-SG-B470 (580-78604-2), PDI-SG-B469 (580-78604-3), PDI-SG-B462 (580-78604-5), PDI-SG-B463 (580-78604-6), PDI-SG-B466 (580-78604-8) and PDI-SG-B468 (580-78604-9).

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.

The Rinse Blank sample results have been reported under separate cover.

All samples were frozen to preserve the holding times. Samples were originally received and frozen at TestAmerica Sacramento on 7/7/18. Frozen samples were shipped to the Seattle laboratory on 9/10/18 and received/frozen in Seattle on 9/11/18.

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 (GC-MS)

Samples PDI-SG-B458 (580-78604-1), PDI-SG-B470 (580-78604-2), PDI-SG-B469 (580-78604-3), PDI-SG-B456 (580-78604-4), PDI-SG-B462 (580-78604-5), PDI-SG-B463 (580-78604-6), PDI-SG-B464 (580-78604-7), PDI-SG-B466 (580-78604-8), PDI-SG-B468 (580-78604-9) and PDI-SG-B429 (580-78604-10) were analyzed for semivolatile organic compounds (GC-MS) in accordance with

Job ID: 580-78604-7 (Continued)

Laboratory: TestAmerica Seattle (Continued)

8270D. The samples were prepared on 09/15/2018 and 09/19/2018 and analyzed on 09/19/2018 and 09/21/2018.

Bis(2-ethylhexyl) phthalate was detected in method blank MB 580-284043/1-A 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. This target analyte concentration was less than half the reporting limit (1/2RL); therefore, re-extraction and/or re-analysis of samples were not performed.

Bis(2-ethylhexyl) phthalate was detected in method blank MB 580-284408/1-A 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. This target analyte concentration was less than half the reporting limit (1/2RL); therefore, re-extraction and/or re-analysis of samples were not performed.

Terphenyl-d14 (Surr) failed the surrogate recovery criteria high for PDI-SG-B470 (580-78604-2). This sample did not contain any target analytes; therefore, re-extraction and/or re-analysis were not performed.

Terphenyl-d14 (Surr) failed the surrogate recovery criteria high for method blank MB 580-284408/1-A. Since the affected samples were within control limits and the target analyte was not detected above 1/2 the RL in the method blank, the data is qualified and reported.

The following samples were diluted due to matrix interference: PDI-SG-B463 (580-78604-6[MS]) and PDI-SG-B463 (580-78604-6[MSD]). Because of this dilution, the matrix spike concentration in the sample was reduced to a level where the recovery calculation cannot be successfully done and does not provide useful information.

The following samples were frozen were preserved by freezing within holding time: PDI-SG-B458 (580-78604-1), PDI-SG-B470 (580-78604-2), PDI-SG-B469 (580-78604-3), PDI-SG-B456 (580-78604-4), PDI-SG-B462 (580-78604-5), PDI-SG-B463 (580-78604-6), PDI-SG-B463 (580-78604-6[MS]), PDI-SG-B463 (580-78604-6[MSD]), PDI-SG-B464 (580-78604-7), PDI-SG-B466 (580-78604-8), PDI-SG-B468 (580-78604-9), and PDI-SG-B429 (580-78604-10). The samples were removed from freezer on 9/12/2018.

The opening CCV for analytical batch 284395 was 3% above %D criteria for surrogate Terphenyl-d14. Since all samples and batch QC were well above 3% of the lower %R limit for this surrogate, the small bias has not caused any of the data to be artificially passing due to the instrument bias. Therefore the data is qualified and reported. The following samples are impacted: PDI-SG-B458 (580-78604-1), PDI-SG-B470 (580-78604-2), PDI-SG-B469 (580-78604-3), PDI-SG-B456 (580-78604-4), PDI-SG-B462 (580-78604-5), PDI-SG-B463 (580-78604-6), PDI-SG-B463 (580-78604-6[MS]), PDI-SG-B463 (580-78604-6[MSD]), PDI-SG-B464 (580-78604-7), PDI-SG-B429 (580-78604-10), (CCVIS 580-284395/3) and (MB 580-284043/1-A).

The opening CCV for analytical batch 284567 was 1% above %D criteria for surrogate Terphenyl-d14. Since all samples and batch QC were well above 1% %R for this surrogate, the small bias has not caused any of the data to be artificially passing due to the instrument bias. Therefore the data is qualified and reported. The following samples are impacted: PDI-SG-B466 (580-78604-8), PDI-SG-B468 (580-78604-9), and (CCVIS 580-284567/3).

The following samples were diluted due to dark colored and viscous extracts, indicative of matrix interference: PDI-SG-B458 (580-78604-1), PDI-SG-B470 (580-78604-2), PDI-SG-B469 (580-78604-3), PDI-SG-B456 (580-78604-4), PDI-SG-B462 (580-78604-5), PDI-SG-B463 (580-78604-6), PDI-SG-B463 (580-78604-6[MS]), PDI-SG-B463 (580-78604-6[MSD]), PDI-SG-B464 (580-78604-7), PDI-SG-B466 (580-78604-8), PDI-SG-B468 (580-78604-9), and PDI-SG-B429 (580-78604-10). Elevated reporting limits (RL) are provided.

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

SEMIVOLATILE ORGANIC COMPOUNDS - SELECTED ION MODE (SIM)

Samples PDI-SG-B458 (580-78604-1), PDI-SG-B470 (580-78604-2), PDI-SG-B469 (580-78604-3), PDI-SG-B456 (580-78604-4), PDI-SG-B462 (580-78604-5), PDI-SG-B463 (580-78604-6), PDI-SG-B464 (580-78604-7), PDI-SG-B466 (580-78604-8), PDI-SG-B468 (580-78604-9) and PDI-SG-B429 (580-78604-10) were analyzed for semivolatile organic compounds - Selected Ion Mode (SIM) in accordance with SW846 8270D_SIM. The samples were prepared on 09/15/2018 and 10/03/2018 and analyzed on 09/18/2018, 10/04/2018 and 10/06/2018.

The 8270D SIM reference spectra for Fluoranthene is incorrect in the raw data for samples PDI-SG-B458 (580-78604-1), PDI-SG-B470

Job ID: 580-78604-7 (Continued)

Laboratory: TestAmerica Seattle (Continued)

(580-78604-2), PDI-SG-B469 (580-78604-3), PDI-SG-B456 (580-78604-4), PDI-SG-B462 (580-78604-5), PDI-SG-B463 (580-78604-6), PDI-SG-B464 (580-78604-7), and PDI-SG-B429 (580-78604-10). However, this reference spectra is correct for samples PDI-SG-B466 (580-78604-8) and PDI-SG-B468 (580-78604-9) and this reference spectra can be utilized for review of data for the samples that do not have the correct spectra.

Terphenyl-d14 failed the surrogate recovery criteria low for PDI-SG-B458 (580-78604-1). Terphenyl-d14 failed the surrogate recovery criteria low for PDI-SG-B466 (580-78604-8). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis were not performed.

Acenaphthylene failed the recovery criteria high for LCS 580-285535/2-A for the reanalysis batch. This analyte was not detected above 1/2 the RL in the associated samples. Qualified results have been reported.

The following samples were received frozen: PDI-SG-B458 (580-78604-1), PDI-SG-B470 (580-78604-2), PDI-SG-B469 (580-78604-3), PDI-SG-B456 (580-78604-4), PDI-SG-B462 (580-78604-5), PDI-SG-B463 (580-78604-6), PDI-SG-B463 (580-78604-6[MS]), PDI-SG-B463 (580-78604-6[MSD]), PDI-SG-B464 (580-78604-7), PDI-SG-B466 (580-78604-8), PDI-SG-B468 (580-78604-9), and PDI-SG-B429 (580-78604-10). The samples were removed from freezer on 09/13/18

Several analytes failed the recovery criteria low for the MS of sample PDI-SG-B463MS (580-78604-6) in batch 580-284269. Several analytes failed the recovery criteria low for the MSD of sample PDI-SG-B463MSD (580-78604-6) in batch 580-284269. Benzo[b]fluoranthene exceeded the RPD limit. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recoveries were within acceptance limits.

The opening CCV for analytical batch 285645 was 2% below the %D criteria for surrogate Terphenyl-d14. Since all samples and batch QC were well within the %R for this surrogate, the small bias has not caused any of the data to be artificially passing due to the instrument bias. Therefore the data is qualified and reported. The following samples are impacted: MB 580-285535/1-A, LCS 580-285535/2-A and (CCVIS 580-285645/3).

The following samples were diluted due to the nature of the sample matrix: PDI-SG-B458 (580-78604-1), PDI-SG-B470 (580-78604-2), PDI-SG-B469 (580-78604-3), PDI-SG-B456 (580-78604-4), PDI-SG-B462 (580-78604-5), PDI-SG-B463 (580-78604-6), PDI-SG-B463 (580-78604-6[MS]), PDI-SG-B463 (580-78604-6[MSD]), PDI-SG-B464 (580-78604-7), PDI-SG-B466 (580-78604-8), PDI-SG-B468 (580-78604-9), and PDI-SG-B429 (580-78604-10). Elevated reporting limits (RLs) are provided.

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

ORGANOTINS BY GC/MS

Samples PDI-SG-B458 (580-78604-1), PDI-SG-B470 (580-78604-2), PDI-SG-B469 (580-78604-3), PDI-SG-B456 (580-78604-4), PDI-SG-B462 (580-78604-5), PDI-SG-B463 (580-78604-6), PDI-SG-B464 (580-78604-7), PDI-SG-B466 (580-78604-8), PDI-SG-B468 (580-78604-9) and PDI-SG-B429 (580-78604-10) were analyzed for organotins by GC/MS in accordance with the Krone Method. The samples were prepared on 09/15/2018 and 09/26/2018 and analyzed on 09/22/2018, 09/23/2018, 10/09/2018 and 10/10/2018.

Tributyltin exceeded the RPD limit for the MSD of sample PDI-SG-B463MSD (580-78604-6) in batch 580-284676. Sample matrix interference and/or non-homogeneity are suspected because the MS/MSD and associated LCS recoveries and precision were within acceptance limits.

The following samples were frozen to maintain holding time: PDI-SG-B458 (580-78604-1), PDI-SG-B470 (580-78604-2), PDI-SG-B469 (580-78604-3), PDI-SG-B456 (580-78604-4), PDI-SG-B462 (580-78604-5), PDI-SG-B463 (580-78604-6), PDI-SG-B463 (580-78604-6[MS]), PDI-SG-B463 (580-78604-6[MSD]), PDI-SG-B464 (580-78604-7) PDI-SG-B466 (580-78604-8), PDI-SG-B468 (580-78604-9), and PDI-SG-B429 (580-78604-10). The samples were removed from the freezer for prep on 9/12/18.

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

DIESEL AND EXTENDED RANGE ORGANICS

Samples PDI-SG-B458 (580-78604-1), PDI-SG-B470 (580-78604-2), PDI-SG-B469 (580-78604-3), PDI-SG-B456 (580-78604-4), PDI-SG-B462 (580-78604-5), PDI-SG-B463 (580-78604-6), PDI-SG-B464 (580-78604-7), PDI-SG-B466 (580-78604-8), PDI-SG-B468 (580-78604-9) and PDI-SG-B429 (580-78604-10) were analyzed for diesel and extended range organics in accordance with Method

Job ID: 580-78604-7 (Continued)

Laboratory: TestAmerica Seattle (Continued)

NWTPH-Dx. The samples were prepared on 09/15/2018 and 09/19/2018 and analyzed on 09/17/2018, 09/20/2018 and 09/22/2018.

The %D of surrogate (o-Terphenyl) for CCV associated with batch 580-284139 was outside the upper control limits. All associated sample surrogate fell within acceptance criteria; therefore, the data have been reported. (CCV 580-284139/14), (CCV 580-284139/25) and (CCVRT 580-284139/3).

The following samples contained a hydrocarbon pattern in the diesel range; however, the elution pattern was later than the typical diesel fuel pattern used by the laboratory for quantitative purposes: PDI-SG-B458 (580-78604-1), PDI-SG-B470 (580-78604-2), PDI-SG-B469 (580-78604-3), PDI-SG-B456 (580-78604-4), PDI-SG-B462 (580-78604-5), PDI-SG-B464 (580-78604-7), PDI-SG-B466 (580-78604-8), PDI-SG-B468 (580-78604-9) and (580-78604-F-9-E DU).

The following samples were received frozen: PDI-SG-B458 (580-78604-1), PDI-SG-B470 (580-78604-2), PDI-SG-B469 (580-78604-3), PDI-SG-B456 (580-78604-4), PDI-SG-B462 (580-78604-5), PDI-SG-B463 (580-78604-6), PDI-SG-B463 (580-78604-6[MS]), PDI-SG-B463 (580-78604-6[MSD]), PDI-SG-B464 (580-78604-7), PDI-SG-B466 (580-78604-8), PDI-SG-B468 (580-78604-9), and PDI-SG-B429 (580-78604-10). The samples were removed from the freezer on 09/13/18.

Continuing calibration verification (CCV) standard associated with batch 580-284335 recovered outside %Drift acceptance criteria for o-Terphenyl surrogate. The %Recovery is within acceptance criteria for the surrogate in the CCV and associated samples; therefore, the data are qualified and reported. The following samples are impacted: PDI-SG-B463 (580-78604-6), PDI-SG-B463 (580-78604-6[MS]), PDI-SG-B463 (580-78604-6[MSD]), (CCV 580-284335/14), (CCV 580-284335/25), (CCVRT 580-284335/3), (LCS 580-284058/2-A), (LCSD 580-284058/3-A) and (MB 580-284058/1-A).

The %D of surrogate (o-Terphenyl) for CCVs associated with batch 580-284139 were outside the upper control limits. All associated sample surrogate fell within acceptance criteria; therefore, the data have been reported. (CCV 580-284139/14), (CCV 580-284139/25) and (CCVRT 580-284139/3).

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

METALS (ICPMS)

Samples PDI-SG-B458 (580-78604-1), PDI-SG-B470 (580-78604-2), PDI-SG-B469 (580-78604-3), PDI-SG-B456 (580-78604-4), PDI-SG-B462 (580-78604-5), PDI-SG-B463 (580-78604-6), PDI-SG-B464 (580-78604-7) and PDI-SG-B429 (580-78604-10) were analyzed for Metals (ICPMS) in accordance with 6020A_LL. The samples were prepared on 08/23/2018 and analyzed on 08/24/2018.

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

TOTAL MERCURY

Samples PDI-SG-B458 (580-78604-1), PDI-SG-B470 (580-78604-2), PDI-SG-B469 (580-78604-3), PDI-SG-B456 (580-78604-4), PDI-SG-B462 (580-78604-5), PDI-SG-B463 (580-78604-6), PDI-SG-B464 (580-78604-7), PDI-SG-B466 (580-78604-8), PDI-SG-B468 (580-78604-9) and PDI-SG-B429 (580-78604-10) were analyzed for total mercury in accordance with EPA SW-846 Method 7471A. The samples were prepared and analyzed on 08/23/2018.

The samples were prepared outside of preparation holding time due to client requesting analysis after holding time expired. Mercury does not get the hold time extended by freezing the samples.

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

TOTAL ORGANIC CARBON

Samples PDI-SG-B458 (580-78604-1), PDI-SG-B470 (580-78604-2), PDI-SG-B469 (580-78604-3), PDI-SG-B456 (580-78604-4), PDI-SG-B462 (580-78604-5), PDI-SG-B463 (580-78604-6), PDI-SG-B464 (580-78604-7) and PDI-SG-B429 (580-78604-10) were analyzed for total organic carbon in accordance with EPA SW-846 Method 9060. The samples were analyzed on 09/18/2018.

The following samples were frozen upon receipt: PDI-SG-B458 (580-78604-1), PDI-SG-B470 (580-78604-2), PDI-SG-B469 (580-78604-3), PDI-SG-B456 (580-78604-4), PDI-SG-B462 (580-78604-5), PDI-SG-B463 (580-78604-6), PDI-SG-B464 (580-78604-7) and PDI-SG-B429 (580-78604-10). The samples were removed from the freezer on 09/13/18.

Job ID: 580-78604-7 (Continued)

Laboratory: TestAmerica Seattle (Continued)

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

PERCENT SOLIDS

Samples PDI-SG-B458 (580-78604-1), PDI-SG-B470 (580-78604-2), PDI-SG-B469 (580-78604-3), PDI-SG-B456 (580-78604-4), PDI-SG-B462 (580-78604-5), PDI-SG-B463 (580-78604-6), PDI-SG-B464 (580-78604-7) and PDI-SG-B429 (580-78604-10) were analyzed for percent solids in accordance with ASTM D2216. The samples were analyzed on 09/14/2018.

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

TOTAL SOLIDS @ 70C

Samples PDI-SG-B458 (580-78604-1), PDI-SG-B470 (580-78604-2), PDI-SG-B469 (580-78604-3), PDI-SG-B456 (580-78604-4), PDI-SG-B462 (580-78604-5), PDI-SG-B463 (580-78604-6), PDI-SG-B464 (580-78604-7) and PDI-SG-B429 (580-78604-10) were analyzed for Total Solids @ 70C. 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.

Qualifiers

GC/MS Semi VOA

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

GC Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

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

General Chemistry

Qualifier	Qualifier Description
H	Sample was prepped or analyzed beyond the specified holding time

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-B458

Date Collected: 07/02/18 11:00
Date Received: 07/05/18 14:59

Lab Sample ID: 580-78604-1

Matrix: Solid
Percent Solids: 57.7

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylnaphthalene	18	J	41	3.7	ug/Kg	☼	09/15/18 08:40	09/18/18 16:56	25
Acenaphthene	11	J	41	4.9	ug/Kg	☼	09/15/18 08:40	09/18/18 16:56	25
Acenaphthylene	20	J	41	4.1	ug/Kg	☼	09/15/18 08:40	09/18/18 16:56	25
Anthracene	25	J	41	4.9	ug/Kg	☼	09/15/18 08:40	09/18/18 16:56	25
Benzo[a]anthracene	38	J	41	6.2	ug/Kg	☼	09/15/18 08:40	09/18/18 16:56	25
Benzo[a]pyrene	32	J	41	3.3	ug/Kg	☼	09/15/18 08:40	09/18/18 16:56	25
Benzo[b]fluoranthene	42		41	4.8	ug/Kg	☼	09/15/18 08:40	09/18/18 16:56	25
Benzo[g,h,i]perylene	22	J	41	4.1	ug/Kg	☼	09/15/18 08:40	09/18/18 16:56	25
Benzo[k]fluoranthene	17	J	41	4.9	ug/Kg	☼	09/15/18 08:40	09/18/18 16:56	25
Chrysene	54		41	12	ug/Kg	☼	09/15/18 08:40	09/18/18 16:56	25
Dibenz(a,h)anthracene	ND		41	5.9	ug/Kg	☼	09/15/18 08:40	09/18/18 16:56	25
Fluoranthene	110		41	12	ug/Kg	☼	09/15/18 08:40	09/18/18 16:56	25
Fluorene	13	J	41	4.1	ug/Kg	☼	09/15/18 08:40	09/18/18 16:56	25
Indeno[1,2,3-cd]pyrene	24	J	41	4.9	ug/Kg	☼	09/15/18 08:40	09/18/18 16:56	25
Naphthalene	67		41	6.6	ug/Kg	☼	09/15/18 08:40	09/18/18 16:56	25
Phenanthrene	97		41	5.7	ug/Kg	☼	09/15/18 08:40	09/18/18 16:56	25
Pyrene	120		41	8.0	ug/Kg	☼	09/15/18 08:40	09/18/18 16:56	25

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14	*56*	*X*	*57 - 120*	*09/15/18 08:40*	*09/18/18 16:56*	*25*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-ethylhexyl) phthalate	ND		1200	140	ug/Kg	☼	09/15/18 08:47	09/19/18 18:12	25

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14 (Surr)	*100*		*58 - 120*	*09/15/18 08:47*	*09/19/18 18:12*	*25*

Method: Organotins - Organotins, PSEP (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tributyltin	ND		130	33	ug/Kg	☼	09/15/18 09:00	09/22/18 21:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tripentyltin	*87*		*10 - 113*	*09/15/18 09:00*	*09/22/18 21:10*	*1*

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	150		80	20	mg/Kg	☼	09/15/18 08:55	09/17/18 17:30	1
Motor Oil (>C24-C36)	660		80	28	mg/Kg	☼	09/15/18 08:55	09/17/18 17:30	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*105*		*50 - 150*	*09/15/18 08:55*	*09/17/18 17:30*	*1*

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	4.1		0.33	0.066	mg/Kg	☼	08/23/18 17:18	08/24/18 15:14	5
Cadmium	0.17	J	0.26	0.051	mg/Kg	☼	08/23/18 17:18	08/24/18 15:14	5
Copper	33		0.66	0.14	mg/Kg	☼	08/23/18 17:18	08/24/18 15:14	5
Lead	13		0.33	0.032	mg/Kg	☼	08/23/18 17:18	08/24/18 15:14	5
Zinc	110		3.3	1.1	mg/Kg	☼	08/23/18 17:18	08/24/18 15:14	5

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

TestAmerica Job ID: 580-78604-7

Client Sample ID: PDI-SG-B458
Date Collected: 07/02/18 11:00
Date Received: 07/05/18 14:59

Lab Sample ID: 580-78604-1
Matrix: Solid
Percent Solids: 57.7

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.10	H	0.042	0.013	mg/Kg	☼	08/23/18 10:12	08/23/18 14:39	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	55000		2000	44	mg/Kg			09/18/18 13:45	1
Total Solids	57.7		0.1	0.1	%			09/14/18 12:42	1
Total Solids @ 70°C	52	H	0.10	0.10	%			09/10/18 18:15	1

Client Sample ID: PDI-SG-B470

Date Collected: 07/02/18 15:20
Date Received: 07/05/18 14:59

Lab Sample ID: 580-78604-2

Matrix: Solid
Percent Solids: 58.9

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylnaphthalene	ND		38	3.4	ug/Kg	☼	09/15/18 08:40	09/18/18 17:21	25
Acenaphthene	ND		38	4.5	ug/Kg	☼	09/15/18 08:40	09/18/18 17:21	25
Acenaphthylene	ND		38	3.8	ug/Kg	☼	09/15/18 08:40	09/18/18 17:21	25
Anthracene	ND		38	4.5	ug/Kg	☼	09/15/18 08:40	09/18/18 17:21	25
Benzo[a]anthracene	**6.4**	**J**	38	5.7	ug/Kg	☼	09/15/18 08:40	09/18/18 17:21	25
Benzo[a]pyrene	**9.7**	**J**	38	3.0	ug/Kg	☼	09/15/18 08:40	09/18/18 17:21	25
Benzo[b]fluoranthene	ND		38	4.4	ug/Kg	☼	09/15/18 08:40	09/18/18 17:21	25
Benzo[g,h,i]perylene	ND		38	3.8	ug/Kg	☼	09/15/18 08:40	09/18/18 17:21	25
Benzo[k]fluoranthene	ND		38	4.5	ug/Kg	☼	09/15/18 08:40	09/18/18 17:21	25
Chrysene	ND		38	11	ug/Kg	☼	09/15/18 08:40	09/18/18 17:21	25
Dibenz(a,h)anthracene	ND		38	5.4	ug/Kg	☼	09/15/18 08:40	09/18/18 17:21	25
Fluoranthene	**18**	**J**	38	11	ug/Kg	☼	09/15/18 08:40	09/18/18 17:21	25
Fluorene	ND		38	3.8	ug/Kg	☼	09/15/18 08:40	09/18/18 17:21	25
Indeno[1,2,3-cd]pyrene	ND		38	4.5	ug/Kg	☼	09/15/18 08:40	09/18/18 17:21	25
Naphthalene	**12**	**J**	38	6.0	ug/Kg	☼	09/15/18 08:40	09/18/18 17:21	25
Phenanthrene	**10**	**J**	38	5.2	ug/Kg	☼	09/15/18 08:40	09/18/18 17:21	25
Pyrene	**19**	**J**	38	7.3	ug/Kg	☼	09/15/18 08:40	09/18/18 17:21	25

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14	*87*		*57 - 120*	*09/15/18 08:40*	*09/18/18 17:21*	*25*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-ethylhexyl) phthalate	ND		2100	250	ug/Kg	☼	09/15/18 08:47	09/19/18 18:36	25

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14 (Surr)	*148*	*X*	*58 - 120*	*09/15/18 08:47*	*09/19/18 18:36*	*25*

Method: Organotins - Organotins, PSEP (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tributyltin	ND		120	32	ug/Kg	☼	09/15/18 09:00	09/22/18 21:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tripentyltin	*64*		*10 - 113*	*09/15/18 09:00*	*09/22/18 21:36*	*1*

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	**78**	**J**	81	20	mg/Kg	☼	09/15/18 08:55	09/17/18 17:52	1
Motor Oil (>C24-C36)	**320**		81	28	mg/Kg	☼	09/15/18 08:55	09/17/18 17:52	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*105*		*50 - 150*	*09/15/18 08:55*	*09/17/18 17:52*	*1*

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**3.4**		0.30	0.061	mg/Kg	☼	08/23/18 17:18	08/24/18 15:18	5
Cadmium	**0.10**	**J**	0.24	0.047	mg/Kg	☼	08/23/18 17:18	08/24/18 15:18	5
Copper	**26**		0.61	0.13	mg/Kg	☼	08/23/18 17:18	08/24/18 15:18	5
Lead	**7.0**		0.30	0.029	mg/Kg	☼	08/23/18 17:18	08/24/18 15:18	5
Zinc	**70**		3.0	0.98	mg/Kg	☼	08/23/18 17:18	08/24/18 15:18	5

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

TestAmerica Job ID: 580-78604-7

Client Sample ID: PDI-SG-B470
Date Collected: 07/02/18 15:20
Date Received: 07/05/18 14:59

Lab Sample ID: 580-78604-2
Matrix: Solid
Percent Solids: 58.9

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.034	J H	0.045	0.014	mg/Kg	☼	08/23/18 10:12	08/23/18 14:41	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	30000		2000	44	mg/Kg			09/18/18 13:50	1
Total Solids	58.9		0.1	0.1	%			09/14/18 12:42	1
Total Solids @ 70°C	51	H	0.10	0.10	%			09/10/18 18:15	1

Client Sample ID: PDI-SG-B469

Date Collected: 07/02/18 16:30
Date Received: 07/05/18 14:59

Lab Sample ID: 580-78604-3

Matrix: Solid
Percent Solids: 57.4

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylnaphthalene	ND		42	3.8	ug/Kg	☼	09/15/18 08:40	09/18/18 17:47	25
Acenaphthene	ND		42	5.1	ug/Kg	☼	09/15/18 08:40	09/18/18 17:47	25
Acenaphthylene	ND		42	4.2	ug/Kg	☼	09/15/18 08:40	09/18/18 17:47	25
Anthracene	ND		42	5.1	ug/Kg	☼	09/15/18 08:40	09/18/18 17:47	25
Benzo[a]anthracene	**23**	**J**	42	6.4	ug/Kg	☼	09/15/18 08:40	09/18/18 17:47	25
Benzo[a]pyrene	**20**	**J**	42	3.4	ug/Kg	☼	09/15/18 08:40	09/18/18 17:47	25
Benzo[b]fluoranthene	**19**	**J**	42	5.0	ug/Kg	☼	09/15/18 08:40	09/18/18 17:47	25
Benzo[g,h,i]perylene	**13**	**J**	42	4.2	ug/Kg	☼	09/15/18 08:40	09/18/18 17:47	25
Benzo[k]fluoranthene	**8.1**	**J**	42	5.1	ug/Kg	☼	09/15/18 08:40	09/18/18 17:47	25
Chrysene	**19**	**J**	42	13	ug/Kg	☼	09/15/18 08:40	09/18/18 17:47	25
Dibenz(a,h)anthracene	ND		42	6.1	ug/Kg	☼	09/15/18 08:40	09/18/18 17:47	25
Fluoranthene	ND		42	12	ug/Kg	☼	09/15/18 08:40	09/18/18 17:47	25
Fluorene	ND		42	4.2	ug/Kg	☼	09/15/18 08:40	09/18/18 17:47	25
Indeno[1,2,3-cd]pyrene	**16**	**J**	42	5.1	ug/Kg	☼	09/15/18 08:40	09/18/18 17:47	25
Naphthalene	**8.0**	**J**	42	6.8	ug/Kg	☼	09/15/18 08:40	09/18/18 17:47	25
Phenanthrene	ND		42	5.8	ug/Kg	☼	09/15/18 08:40	09/18/18 17:47	25
Pyrene	**38**	**J**	42	8.2	ug/Kg	☼	09/15/18 08:40	09/18/18 17:47	25

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14	*66*		*57 - 120*	*09/15/18 08:40*	*09/18/18 17:47*	*25*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-ethylhexyl) phthalate	ND		1200	140	ug/Kg	☼	09/15/18 08:47	09/19/18 19:01	25

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14 (Surr)	*81*		*58 - 120*	*09/15/18 08:47*	*09/19/18 19:01*	*25*

Method: Organotins - Organotins, PSEP (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tributyltin	ND		130	33	ug/Kg	☼	09/15/18 09:00	09/22/18 22:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tripentyltin	*66*		*10 - 113*	*09/15/18 09:00*	*09/22/18 22:02*	*1*

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	**95**		74	18	mg/Kg	☼	09/15/18 08:55	09/17/18 18:14	1
Motor Oil (>C24-C36)	**350**		74	26	mg/Kg	☼	09/15/18 08:55	09/17/18 18:14	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*101*		*50 - 150*	*09/15/18 08:55*	*09/17/18 18:14*	*1*

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**3.8**		0.33	0.066	mg/Kg	☼	08/23/18 17:18	08/24/18 15:22	5
Cadmium	**0.12**	**J**	0.26	0.051	mg/Kg	☼	08/23/18 17:18	08/24/18 15:22	5
Copper	**29**		0.66	0.14	mg/Kg	☼	08/23/18 17:18	08/24/18 15:22	5
Lead	**7.3**		0.33	0.032	mg/Kg	☼	08/23/18 17:18	08/24/18 15:22	5
Zinc	**72**		3.3	1.1	mg/Kg	☼	08/23/18 17:18	08/24/18 15:22	5

Client Sample ID: PDI-SG-B469
Lab Sample ID: 580-78604-3
Date Collected: 07/02/18 16:30
Matrix: Solid
Date Received: 07/05/18 14:59
Percent Solids: 57.4

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.036	J H	0.042	0.013	mg/Kg	☼	08/23/18 10:12	08/23/18 14:43	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	31000		2000	44	mg/Kg			09/18/18 13:55	1
Total Solids	57.4		0.1	0.1	%			09/14/18 12:42	1
Total Solids @ 70°C	49	H	0.10	0.10	%			09/10/18 18:15	1

Client Sample ID: PDI-SG-B456

Date Collected: 07/02/18 10:19
Date Received: 07/05/18 14:59

Lab Sample ID: 580-78604-4

Matrix: Solid
Percent Solids: 58.5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylnaphthalene	ND		39	3.5	ug/Kg	☼	09/15/18 08:40	09/18/18 18:13	25
Acenaphthene	ND		39	4.7	ug/Kg	☼	09/15/18 08:40	09/18/18 18:13	25
Acenaphthylene	ND		39	3.9	ug/Kg	☼	09/15/18 08:40	09/18/18 18:13	25
Anthracene	ND		39	4.7	ug/Kg	☼	09/15/18 08:40	09/18/18 18:13	25
Benzo[a]anthracene	**14**	**J**	39	6.0	ug/Kg	☼	09/15/18 08:40	09/18/18 18:13	25
Benzo[a]pyrene	**18**	**J**	39	3.1	ug/Kg	☼	09/15/18 08:40	09/18/18 18:13	25
Benzo[b]fluoranthene	**17**	**J**	39	4.6	ug/Kg	☼	09/15/18 08:40	09/18/18 18:13	25
Benzo[g,h,i]perylene	**17**	**J**	39	3.9	ug/Kg	☼	09/15/18 08:40	09/18/18 18:13	25
Benzo[k]fluoranthene	**6.5**	**J**	39	4.7	ug/Kg	☼	09/15/18 08:40	09/18/18 18:13	25
Chrysene	**17**	**J**	39	12	ug/Kg	☼	09/15/18 08:40	09/18/18 18:13	25
Dibenz(a,h)anthracene	ND		39	5.6	ug/Kg	☼	09/15/18 08:40	09/18/18 18:13	25
Fluoranthene	**23**	**J**	39	11	ug/Kg	☼	09/15/18 08:40	09/18/18 18:13	25
Fluorene	ND		39	3.9	ug/Kg	☼	09/15/18 08:40	09/18/18 18:13	25
Indeno[1,2,3-cd]pyrene	**19**	**J**	39	4.7	ug/Kg	☼	09/15/18 08:40	09/18/18 18:13	25
Naphthalene	**7.5**	**J**	39	6.3	ug/Kg	☼	09/15/18 08:40	09/18/18 18:13	25
Phenanthrene	**10**	**J**	39	5.4	ug/Kg	☼	09/15/18 08:40	09/18/18 18:13	25
Pyrene	**32**	**J**	39	7.6	ug/Kg	☼	09/15/18 08:40	09/18/18 18:13	25

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14	*59*		*57 - 120*	*09/15/18 08:40*	*09/18/18 18:13*	*25*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-ethylhexyl) phthalate	**130**	**J B**	890	110	ug/Kg	☼	09/15/18 08:47	09/19/18 19:25	25

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14 (Surr)	*94*		*58 - 120*	*09/15/18 08:47*	*09/19/18 19:25*	*25*

Method: Organotins - Organotins, PSEP (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tributyltin	ND		120	31	ug/Kg	☼	09/15/18 09:00	09/22/18 22:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tripentyltin	*78*		*10 - 113*	*09/15/18 09:00*	*09/22/18 22:27*	*1*

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	**45**	**J**	83	20	mg/Kg	☼	09/15/18 08:55	09/17/18 18:35	1
Motor Oil (>C24-C36)	**180**		83	29	mg/Kg	☼	09/15/18 08:55	09/17/18 18:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*103*		*50 - 150*	*09/15/18 08:55*	*09/17/18 18:35*	*1*

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**3.3**		0.22	0.043	mg/Kg	☼	08/23/18 17:18	08/24/18 15:26	5
Cadmium	**0.10**	**J**	0.17	0.033	mg/Kg	☼	08/23/18 17:18	08/24/18 15:26	5
Copper	**24**		0.43	0.095	mg/Kg	☼	08/23/18 17:18	08/24/18 15:26	5
Lead	**7.2**		0.22	0.021	mg/Kg	☼	08/23/18 17:18	08/24/18 15:26	5
Zinc	**74**		2.2	0.70	mg/Kg	☼	08/23/18 17:18	08/24/18 15:26	5

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

TestAmerica Job ID: 580-78604-7

Client Sample ID: PDI-SG-B456
Date Collected: 07/02/18 10:19
Date Received: 07/05/18 14:59

Lab Sample ID: 580-78604-4
Matrix: Solid
Percent Solids: 58.5

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.036	J H	0.040	0.012	mg/Kg	☼	08/23/18 10:12	08/23/18 14:50	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	14000		2000	44	mg/Kg			09/18/18 14:00	1
Total Solids	58.5		0.1	0.1	%			09/14/18 12:42	1
Total Solids @ 70°C	59	H	0.10	0.10	%			09/10/18 18:15	1

Client Sample ID: PDI-SG-B462

Date Collected: 07/02/18 11:56
Date Received: 07/05/18 14:59

Lab Sample ID: 580-78604-5

Matrix: Solid
Percent Solids: 54.1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylnaphthalene	ND		46	4.1	ug/Kg	☼	09/15/18 08:40	09/18/18 18:39	25
Acenaphthene	ND		46	5.5	ug/Kg	☼	09/15/18 08:40	09/18/18 18:39	25
Acenaphthylene	ND		46	4.6	ug/Kg	☼	09/15/18 08:40	09/18/18 18:39	25
Anthracene	ND		46	5.5	ug/Kg	☼	09/15/18 08:40	09/18/18 18:39	25
Benzo[a]anthracene	**8.4**	**J**	46	7.0	ug/Kg	☼	09/15/18 08:40	09/18/18 18:39	25
Benzo[a]pyrene	ND		46	3.7	ug/Kg	☼	09/15/18 08:40	09/18/18 18:39	25
Benzo[b]fluoranthene	ND		46	5.4	ug/Kg	☼	09/15/18 08:40	09/18/18 18:39	25
Benzo[g,h,i]perylene	ND		46	4.6	ug/Kg	☼	09/15/18 08:40	09/18/18 18:39	25
Benzo[k]fluoranthene	ND		46	5.5	ug/Kg	☼	09/15/18 08:40	09/18/18 18:39	25
Chrysene	ND		46	14	ug/Kg	☼	09/15/18 08:40	09/18/18 18:39	25
Dibenz(a,h)anthracene	ND		46	6.6	ug/Kg	☼	09/15/18 08:40	09/18/18 18:39	25
Fluoranthene	ND		46	13	ug/Kg	☼	09/15/18 08:40	09/18/18 18:39	25
Fluorene	ND		46	4.6	ug/Kg	☼	09/15/18 08:40	09/18/18 18:39	25
Indeno[1,2,3-cd]pyrene	ND		46	5.5	ug/Kg	☼	09/15/18 08:40	09/18/18 18:39	25
Naphthalene	ND		46	7.4	ug/Kg	☼	09/15/18 08:40	09/18/18 18:39	25
Phenanthrene	ND		46	6.4	ug/Kg	☼	09/15/18 08:40	09/18/18 18:39	25
Pyrene	**11**	**J**	46	8.9	ug/Kg	☼	09/15/18 08:40	09/18/18 18:39	25

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14	*59*		*57 - 120*	*09/15/18 08:40*	*09/18/18 18:39*	*25*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-ethylhexyl) phthalate	ND		950	110	ug/Kg	☼	09/15/18 08:47	09/19/18 19:50	25

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14 (Surr)	*94*		*58 - 120*	*09/15/18 08:47*	*09/19/18 19:50*	*25*

Method: Organotins - Organotins, PSEP (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tributyltin	ND		130	35	ug/Kg	☼	09/15/18 09:00	09/22/18 22:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tripentyltin	*78*		*10 - 113*	*09/15/18 09:00*	*09/22/18 22:53*	*1*

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	**61**	**J**	80	20	mg/Kg	☼	09/15/18 08:55	09/17/18 18:57	1
Motor Oil (>C24-C36)	**270**		80	28	mg/Kg	☼	09/15/18 08:55	09/17/18 18:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*97*		*50 - 150*	*09/15/18 08:55*	*09/17/18 18:57*	*1*

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**3.5**		0.30	0.060	mg/Kg	☼	08/23/18 17:18	08/24/18 15:31	5
Cadmium	**0.12**	**J**	0.24	0.046	mg/Kg	☼	08/23/18 17:18	08/24/18 15:31	5
Copper	**29**		0.60	0.13	mg/Kg	☼	08/23/18 17:18	08/24/18 15:31	5
Lead	**7.1**		0.30	0.029	mg/Kg	☼	08/23/18 17:18	08/24/18 15:31	5
Zinc	**73**		3.0	0.97	mg/Kg	☼	08/23/18 17:18	08/24/18 15:31	5

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

TestAmerica Job ID: 580-78604-7

Client Sample ID: PDI-SG-B462
Date Collected: 07/02/18 11:56
Date Received: 07/05/18 14:59

Lab Sample ID: 580-78604-5
Matrix: Solid
Percent Solids: 54.1

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.059	H	0.034	0.010	mg/Kg	☼	08/23/18 10:12	08/23/18 14:53	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	20000		2000	44	mg/Kg			09/18/18 14:04	1
Total Solids	54.1		0.1	0.1	%			09/14/18 12:42	1
Total Solids @ 70°C	54	H	0.10	0.10	%			09/10/18 18:15	1

Client Sample ID: PDI-SG-B463

Date Collected: 07/02/18 12:58
Date Received: 07/05/18 14:59

Lab Sample ID: 580-78604-6

Matrix: Solid
Percent Solids: 60.2

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylnaphthalene	4.7	J	39	3.5	ug/Kg	☼	09/15/18 08:40	09/18/18 19:05	25
Acenaphthene	ND		39	4.6	ug/Kg	☼	09/15/18 08:40	09/18/18 19:05	25
Acenaphthylene	24	J	39	3.9	ug/Kg	☼	09/15/18 08:40	09/18/18 19:05	25
Anthracene	19	J	39	4.6	ug/Kg	☼	09/15/18 08:40	09/18/18 19:05	25
Benzo[a]anthracene	80	F1	39	5.9	ug/Kg	☼	09/15/18 08:40	09/18/18 19:05	25
Benzo[a]pyrene	110	F1	39	3.1	ug/Kg	☼	09/15/18 08:40	09/18/18 19:05	25
Benzo[b]fluoranthene	150	F2 F1	39	4.5	ug/Kg	☼	09/15/18 08:40	09/18/18 19:05	25
Benzo[g,h,i]perylene	100	F1	39	3.9	ug/Kg	☼	09/15/18 08:40	09/18/18 19:05	25
Benzo[k]fluoranthene	63	F1	39	4.6	ug/Kg	☼	09/15/18 08:40	09/18/18 19:05	25
Chrysene	160	F1	39	12	ug/Kg	☼	09/15/18 08:40	09/18/18 19:05	25
Dibenz(a,h)anthracene	14	J	39	5.6	ug/Kg	☼	09/15/18 08:40	09/18/18 19:05	25
Fluoranthene	350	F1	39	11	ug/Kg	☼	09/15/18 08:40	09/18/18 19:05	25
Fluorene	4.7	J	39	3.9	ug/Kg	☼	09/15/18 08:40	09/18/18 19:05	25
Indeno[1,2,3-cd]pyrene	110		39	4.6	ug/Kg	☼	09/15/18 08:40	09/18/18 19:05	25
Naphthalene	25	J F1	39	6.2	ug/Kg	☼	09/15/18 08:40	09/18/18 19:05	25
Phenanthrene	310	F1	39	5.3	ug/Kg	☼	09/15/18 08:40	09/18/18 19:05	25
Pyrene	380	F1	39	7.5	ug/Kg	☼	09/15/18 08:40	09/18/18 19:05	25

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14	*62*		*57 - 120*	*09/15/18 08:40*	*09/18/18 19:05*	*25*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-ethylhexyl) phthalate	ND		850	100	ug/Kg	☼	09/15/18 08:47	09/19/18 20:14	25

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14 (Surr)	*89*		*58 - 120*	*09/15/18 08:47*	*09/19/18 20:14*	*25*

Method: Organotins - Organotins, PSEP (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tributyltin	ND	F2	120	32	ug/Kg	☼	09/15/18 09:00	09/22/18 23:19	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tripentyltin	*62*		*10 - 113*	*09/15/18 09:00*	*09/22/18 23:19*	*1*

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	43	J	69	17	mg/Kg	☼	09/15/18 17:01	09/20/18 01:58	1
Motor Oil (>C24-C36)	230		69	24	mg/Kg	☼	09/15/18 17:01	09/20/18 01:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*95*		*50 - 150*	*09/15/18 17:01*	*09/20/18 01:58*	*1*

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	3.3		0.22	0.045	mg/Kg	☼	08/23/18 17:18	08/24/18 14:36	5
Cadmium	0.095	J	0.18	0.034	mg/Kg	☼	08/23/18 17:18	08/24/18 14:36	5
Copper	28		0.45	0.098	mg/Kg	☼	08/23/18 17:18	08/24/18 14:36	5
Lead	7.5		0.22	0.021	mg/Kg	☼	08/23/18 17:18	08/24/18 14:36	5
Zinc	78		2.2	0.72	mg/Kg	☼	08/23/18 17:18	08/24/18 14:36	5

Client Sample ID: PDI-SG-B463
Date Collected: 07/02/18 12:58
Date Received: 07/05/18 14:59

Lab Sample ID: 580-78604-6
Matrix: Solid
Percent Solids: 60.2

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.032	J H	0.039	0.012	mg/Kg	☼	08/23/18 10:12	08/23/18 14:30	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	14000		2000	44	mg/Kg			09/18/18 13:09	1
Total Solids	60.2		0.1	0.1	%			09/14/18 12:42	1
Total Solids @ 70°C	60	H	0.10	0.10	%			09/10/18 18:15	1

Client Sample ID: PDI-SG-B464

Date Collected: 07/02/18 14:39
Date Received: 07/05/18 14:59

Lab Sample ID: 580-78604-7
Matrix: Solid
Percent Solids: 49.4

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylnaphthalene	ND		47	4.2	ug/Kg	☼	09/15/18 08:40	09/18/18 20:22	25
Acenaphthene	ND		47	5.7	ug/Kg	☼	09/15/18 08:40	09/18/18 20:22	25
Acenaphthylene	ND		47	4.7	ug/Kg	☼	09/15/18 08:40	09/18/18 20:22	25
Anthracene	ND		47	5.7	ug/Kg	☼	09/15/18 08:40	09/18/18 20:22	25
Benzo[a]anthracene	**13**	**J**	47	7.2	ug/Kg	☼	09/15/18 08:40	09/18/18 20:22	25
Benzo[a]pyrene	**17**	**J**	47	3.8	ug/Kg	☼	09/15/18 08:40	09/18/18 20:22	25
Benzo[b]fluoranthene	**16**	**J**	47	5.6	ug/Kg	☼	09/15/18 08:40	09/18/18 20:22	25
Benzo[g,h,i]perylene	**13**	**J**	47	4.7	ug/Kg	☼	09/15/18 08:40	09/18/18 20:22	25
Benzo[k]fluoranthene	**7.4**	**J**	47	5.7	ug/Kg	☼	09/15/18 08:40	09/18/18 20:22	25
Chrysene	**19**	**J**	47	14	ug/Kg	☼	09/15/18 08:40	09/18/18 20:22	25
Dibenz(a,h)anthracene	ND		47	6.8	ug/Kg	☼	09/15/18 08:40	09/18/18 20:22	25
Fluoranthene	**22**	**J**	47	13	ug/Kg	☼	09/15/18 08:40	09/18/18 20:22	25
Fluorene	ND		47	4.7	ug/Kg	☼	09/15/18 08:40	09/18/18 20:22	25
Indeno[1,2,3-cd]pyrene	**15**	**J**	47	5.7	ug/Kg	☼	09/15/18 08:40	09/18/18 20:22	25
Naphthalene	**12**	**J**	47	7.6	ug/Kg	☼	09/15/18 08:40	09/18/18 20:22	25
Phenanthrene	**12**	**J**	47	6.5	ug/Kg	☼	09/15/18 08:40	09/18/18 20:22	25
Pyrene	**24**	**J**	47	9.2	ug/Kg	☼	09/15/18 08:40	09/18/18 20:22	25

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14	*79*		*57 - 120*	*09/15/18 08:40*	*09/18/18 20:22*	*25*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-ethylhexyl) phthalate	ND		1300	150	ug/Kg	☼	09/15/18 08:47	09/19/18 21:28	25

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14 (Surr)	*89*		*58 - 120*	*09/15/18 08:47*	*09/19/18 21:28*	*25*

Method: Organotins - Organotins, PSEP (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tributyltin	ND		140	37	ug/Kg	☼	09/26/18 09:35	10/09/18 19:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tripentyltin	*15*		*10 - 113*	*09/26/18 09:35*	*10/09/18 19:43*	*1*

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	**82**	**J**	99	24	mg/Kg	☼	09/15/18 08:55	09/17/18 19:41	1
Motor Oil (>C24-C36)	**360**		99	35	mg/Kg	☼	09/15/18 08:55	09/17/18 19:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*100*		*50 - 150*	*09/15/18 08:55*	*09/17/18 19:41*	*1*

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**4.2**		0.39	0.079	mg/Kg	☼	08/23/18 17:18	08/24/18 15:35	5
Cadmium	**0.13**	**J**	0.31	0.060	mg/Kg	☼	08/23/18 17:18	08/24/18 15:35	5
Copper	**34**		0.79	0.17	mg/Kg	☼	08/23/18 17:18	08/24/18 15:35	5
Lead	**9.1**		0.39	0.038	mg/Kg	☼	08/23/18 17:18	08/24/18 15:35	5
Zinc	**86**		3.9	1.3	mg/Kg	☼	08/23/18 17:18	08/24/18 15:35	5

Client Sample ID: PDI-SG-B464
Date Collected: 07/02/18 14:39
Date Received: 07/05/18 14:59

Lab Sample ID: 580-78604-7
Matrix: Solid
Percent Solids: 49.4

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.049	H	0.037	0.011	mg/Kg	☼	08/23/18 10:12	08/23/18 14:55	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	28000		2000	44	mg/Kg			09/18/18 14:09	1
Total Solids	49.4		0.1	0.1	%			09/14/18 12:42	1
Total Solids @ 70°C	50	H	0.10	0.10	%			09/10/18 18:15	1

Client Sample ID: PDI-SG-B466

Date Collected: 07/02/18 15:34
Date Received: 07/05/18 14:59

Lab Sample ID: 580-78604-8

Matrix: Solid
Percent Solids: 55.4

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylnaphthalene	ND		8.7	0.78	ug/Kg	☼	10/03/18 09:05	10/04/18 17:31	5
Anthracene	**2.2**	**J**	8.7	1.0	ug/Kg	☼	10/03/18 09:05	10/04/18 17:31	5
Benzo[a]anthracene	**2.7**	**J**	8.7	1.3	ug/Kg	☼	10/03/18 09:05	10/04/18 17:31	5
Benzo[a]pyrene	**3.0**	**J**	8.7	0.70	ug/Kg	☼	10/03/18 09:05	10/04/18 17:31	5
Benzo[g,h,i]perylene	**2.2**	**J**	8.7	0.87	ug/Kg	☼	10/03/18 09:05	10/04/18 17:31	5
Chrysene	**3.8**	**J**	8.7	2.6	ug/Kg	☼	10/03/18 09:05	10/04/18 17:31	5
Dibenz(a,h)anthracene	ND		8.7	1.3	ug/Kg	☼	10/03/18 09:05	10/04/18 17:31	5
Indeno[1,2,3-cd]pyrene	**1.6**	**J**	8.7	1.0	ug/Kg	☼	10/03/18 09:05	10/04/18 17:31	5
Naphthalene	**2.1**	**J**	8.7	1.4	ug/Kg	☼	10/03/18 09:05	10/04/18 17:31	5
Phenanthrene	**7.5**	**J**	8.7	1.2	ug/Kg	☼	10/03/18 09:05	10/04/18 17:31	5
Pyrene	**7.0**	**J**	8.7	1.7	ug/Kg	☼	10/03/18 09:05	10/04/18 17:31	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14	*45*	*X*	*57 - 120*	*10/03/18 09:05*	*10/04/18 17:31*	*5*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		8.7	1.0	ug/Kg	☼	10/03/18 09:05	10/06/18 14:21	5
Acenaphthylene	**1.2**	**J ***	8.7	0.87	ug/Kg	☼	10/03/18 09:05	10/06/18 14:21	5
Benzo[b]fluoranthene	**4.4**	**J**	8.7	1.0	ug/Kg	☼	10/03/18 09:05	10/06/18 14:21	5
Benzo[k]fluoranthene	**1.3**	**J**	8.7	1.0	ug/Kg	☼	10/03/18 09:05	10/06/18 14:21	5
Fluoranthene	**4.8**	**J**	8.7	2.4	ug/Kg	☼	10/03/18 09:05	10/06/18 14:21	5
Fluorene	**1.1**	**J**	8.7	0.87	ug/Kg	☼	10/03/18 09:05	10/06/18 14:21	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-ethylhexyl) phthalate	ND		520	62	ug/Kg	☼	09/19/18 17:04	09/21/18 16:07	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14 (Surr)	*113*		*58 - 120*	*09/19/18 17:04*	*09/21/18 16:07*	*10*

Method: Organotins - Organotins, PSEP (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tributyltin	ND		130	35	ug/Kg	☼	09/26/18 09:35	10/10/18 02:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tripentyltin	*13*		*10 - 113*	*09/26/18 09:35*	*10/10/18 02:33*	*1*

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	**92**		87	21	mg/Kg	☼	09/19/18 16:08	09/22/18 20:26	1
Motor Oil (>C24-C36)	**410**		87	30	mg/Kg	☼	09/19/18 16:08	09/22/18 20:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*106*		*50 - 150*	*09/19/18 16:08*	*09/22/18 20:26*	*1*

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**0.038**	**J H**	0.039	0.012	mg/Kg	☼	08/23/18 10:12	08/23/18 14:57	1

Client Sample ID: PDI-SG-B468

Date Collected: 07/02/18 16:33
Date Received: 07/05/18 14:59

Lab Sample ID: 580-78604-9

Matrix: Solid
Percent Solids: 61.9

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylnaphthalene	ND		8.0	0.72	ug/Kg	☼	10/03/18 09:05	10/04/18 17:56	5
Anthracene	**1.9**	**J**	8.0	0.96	ug/Kg	☼	10/03/18 09:05	10/04/18 17:56	5
Benzo[a]anthracene	**2.9**	**J**	8.0	1.2	ug/Kg	☼	10/03/18 09:05	10/04/18 17:56	5
Benzo[a]pyrene	ND		8.0	0.64	ug/Kg	☼	10/03/18 09:05	10/04/18 17:56	5
Benzo[g,h,i]perylene	**3.9**	**J**	8.0	0.80	ug/Kg	☼	10/03/18 09:05	10/04/18 17:56	5
Chrysene	**4.3**	**J**	8.0	2.4	ug/Kg	☼	10/03/18 09:05	10/04/18 17:56	5
Dibenz(a,h)anthracene	ND		8.0	1.2	ug/Kg	☼	10/03/18 09:05	10/04/18 17:56	5
Indeno[1,2,3-cd]pyrene	**3.6**	**J**	8.0	0.96	ug/Kg	☼	10/03/18 09:05	10/04/18 17:56	5
Naphthalene	**1.6**	**J**	8.0	1.3	ug/Kg	☼	10/03/18 09:05	10/04/18 17:56	5
Phenanthrene	**5.6**	**J**	8.0	1.1	ug/Kg	☼	10/03/18 09:05	10/04/18 17:56	5
Pyrene	**8.0**		8.0	1.6	ug/Kg	☼	10/03/18 09:05	10/04/18 17:56	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14	*74*		*57 - 120*	*10/03/18 09:05*	*10/04/18 17:56*	*5*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		8.0	0.96	ug/Kg	☼	10/03/18 09:05	10/06/18 14:46	5
Acenaphthylene	ND	*	8.0	0.80	ug/Kg	☼	10/03/18 09:05	10/06/18 14:46	5
Benzo[b]fluoranthene	**5.8**	**J**	8.0	0.95	ug/Kg	☼	10/03/18 09:05	10/06/18 14:46	5
Benzo[k]fluoranthene	**2.0**	**J**	8.0	0.96	ug/Kg	☼	10/03/18 09:05	10/06/18 14:46	5
Fluoranthene	**8.3**		8.0	2.2	ug/Kg	☼	10/03/18 09:05	10/06/18 14:46	5
Fluorene	ND		8.0	0.80	ug/Kg	☼	10/03/18 09:05	10/06/18 14:46	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-ethylhexyl) phthalate	ND		470	56	ug/Kg	☼	09/19/18 17:04	09/21/18 16:32	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14 (Surr)	*112*		*58 - 120*	*09/19/18 17:04*	*09/21/18 16:32*	*10*

Method: Organotins - Organotins, PSEP (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tributyltin	ND		100	27	ug/Kg	☼	09/26/18 09:35	10/10/18 02:07	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tripentyltin	*11*		*10 - 113*	*09/26/18 09:35*	*10/10/18 02:07*	*1*

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	**31**	**J**	80	20	mg/Kg	☼	09/19/18 16:08	09/22/18 20:47	1
Motor Oil (>C24-C36)	**130**		80	28	mg/Kg	☼	09/19/18 16:08	09/22/18 20:47	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*75*		*50 - 150*	*09/19/18 16:08*	*09/22/18 20:47*	*1*

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**0.026**	**J H**	0.041	0.012	mg/Kg	☼	08/23/18 10:12	08/23/18 14:59	1

Client Sample ID: PDI-SG-B429

Date Collected: 07/03/18 10:15
Date Received: 07/05/18 14:59

Lab Sample ID: 580-78604-10

Matrix: Solid
Percent Solids: 57.4

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylnaphthalene	ND		40	3.6	ug/Kg	☼	09/15/18 08:40	09/18/18 20:48	25
Acenaphthene	ND		40	4.9	ug/Kg	☼	09/15/18 08:40	09/18/18 20:48	25
Acenaphthylene	ND		40	4.0	ug/Kg	☼	09/15/18 08:40	09/18/18 20:48	25
Anthracene	ND		40	4.9	ug/Kg	☼	09/15/18 08:40	09/18/18 20:48	25
Benzo[a]anthracene	**6.8**	**J**	40	6.1	ug/Kg	☼	09/15/18 08:40	09/18/18 20:48	25
Benzo[a]pyrene	ND		40	3.2	ug/Kg	☼	09/15/18 08:40	09/18/18 20:48	25
Benzo[b]fluoranthene	**9.6**	**J**	40	4.8	ug/Kg	☼	09/15/18 08:40	09/18/18 20:48	25
Benzo[g,h,i]perylene	**7.8**	**J**	40	4.0	ug/Kg	☼	09/15/18 08:40	09/18/18 20:48	25
Benzo[k]fluoranthene	ND		40	4.9	ug/Kg	☼	09/15/18 08:40	09/18/18 20:48	25
Chrysene	ND		40	12	ug/Kg	☼	09/15/18 08:40	09/18/18 20:48	25
Dibenz(a,h)anthracene	ND		40	5.8	ug/Kg	☼	09/15/18 08:40	09/18/18 20:48	25
Fluoranthene	**22**	**J**	40	11	ug/Kg	☼	09/15/18 08:40	09/18/18 20:48	25
Fluorene	ND		40	4.0	ug/Kg	☼	09/15/18 08:40	09/18/18 20:48	25
Indeno[1,2,3-cd]pyrene	ND		40	4.9	ug/Kg	☼	09/15/18 08:40	09/18/18 20:48	25
Naphthalene	**12**	**J**	40	6.5	ug/Kg	☼	09/15/18 08:40	09/18/18 20:48	25
Phenanthrene	**15**	**J**	40	5.6	ug/Kg	☼	09/15/18 08:40	09/18/18 20:48	25
Pyrene	**20**	**J**	40	7.8	ug/Kg	☼	09/15/18 08:40	09/18/18 20:48	25

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14	*76*		*57 - 120*	*09/15/18 08:40*	*09/18/18 20:48*	*25*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-ethylhexyl) phthalate	**150**	**J B**	1200	150	ug/Kg	☼	09/15/18 08:47	09/19/18 21:53	25

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14 (Surr)	*87*		*58 - 120*	*09/15/18 08:47*	*09/19/18 21:53*	*25*

Method: Organotins - Organotins, PSEP (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tributyltin	ND		130	33	ug/Kg	☼	09/15/18 09:00	09/23/18 00:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tripentyltin	*58*		*10 - 113*	*09/15/18 09:00*	*09/23/18 00:37*	*1*

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	**79**	**J**	85	21	mg/Kg	☼	09/15/18 08:55	09/17/18 20:25	1
Motor Oil (>C24-C36)	**360**		85	30	mg/Kg	☼	09/15/18 08:55	09/17/18 20:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*107*		*50 - 150*	*09/15/18 08:55*	*09/17/18 20:25*	*1*

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**3.5**		0.32	0.063	mg/Kg	☼	08/23/18 17:18	08/24/18 15:39	5
Cadmium	**0.12**	**J**	0.25	0.049	mg/Kg	☼	08/23/18 17:18	08/24/18 15:39	5
Copper	**29**		0.63	0.14	mg/Kg	☼	08/23/18 17:18	08/24/18 15:39	5
Lead	**8.0**		0.32	0.030	mg/Kg	☼	08/23/18 17:18	08/24/18 15:39	5
Zinc	**79**		3.2	1.0	mg/Kg	☼	08/23/18 17:18	08/24/18 15:39	5

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

TestAmerica Job ID: 580-78604-7

Client Sample ID: PDI-SG-B429
Date Collected: 07/03/18 10:15
Date Received: 07/05/18 14:59

Lab Sample ID: 580-78604-10
Matrix: Solid
Percent Solids: 57.4

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.040	J H	0.044	0.013	mg/Kg	☼	08/23/18 10:12	08/23/18 15:02	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	30000		2000	44	mg/Kg			09/18/18 14:13	1
Total Solids	57.4		0.1	0.1	%			09/14/18 12:42	1
Total Solids @ 70°C	51	H	0.10	0.10	%			09/10/18 18:15	1

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

Lab Sample ID: MB 580-284043/1-A
Matrix: Solid
Analysis Batch: 284395

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 284043

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-ethylhexyl) phthalate	3.89	J	30	3.6	ug/Kg		09/15/18 08:47	09/19/18 17:23	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14 (Surr)	*107*		*58 - 120*	*09/15/18 08:47*	*09/19/18 17:23*	*1*

Lab Sample ID: LCS 580-284043/2-A
Matrix: Solid
Analysis Batch: 284567

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 284043

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Bis(2-ethylhexyl) phthalate			50.0	46.4		ug/Kg		93	59 - 123		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Terphenyl-d14 (Surr)	*113*		*58 - 120*

Lab Sample ID: 580-78604-6 MS
Matrix: Solid
Analysis Batch: 284395

Client Sample ID: PDI-SG-B463
Prep Type: Total/NA
Prep Batch: 284043

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Bis(2-ethylhexyl) phthalate	ND		63.7	115	J	ug/Kg	☼	NC	59 - 123		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Terphenyl-d14 (Surr)	*105*		*58 - 120*

Lab Sample ID: 580-78604-6 MSD
Matrix: Solid
Analysis Batch: 284395

Client Sample ID: PDI-SG-B463
Prep Type: Total/NA
Prep Batch: 284043

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Bis(2-ethylhexyl) phthalate	ND		68.2	ND		ug/Kg	☼	NC	59 - 123	NC	13

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Terphenyl-d14 (Surr)	*88*		*58 - 120*

Lab Sample ID: MB 580-284408/1-A
Matrix: Solid
Analysis Batch: 284567

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 284408

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-ethylhexyl) phthalate	5.71	J	30	3.6	ug/Kg		09/19/18 17:04	09/21/18 13:15	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14 (Surr)	*129*	*X*	*58 - 120*	*09/19/18 17:04*	*09/21/18 13:15*	*1*

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

Lab Sample ID: LCS 580-284408/2-A
Matrix: Solid
Analysis Batch: 284567

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 284408

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Bis(2-ethylhexyl) phthalate	50.0	48.6		ug/Kg		97	59 - 123

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Terphenyl-d14 (Surr)	*99*		*58 - 120*

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

Lab Sample ID: MB 580-284042/1-A
Matrix: Solid
Analysis Batch: 284269

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 284042

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylnaphthalene	ND		1.0	0.090	ug/Kg		09/15/18 08:40	09/18/18 16:04	1
Acenaphthene	ND		1.0	0.12	ug/Kg		09/15/18 08:40	09/18/18 16:04	1
Acenaphthylene	ND		1.0	0.10	ug/Kg		09/15/18 08:40	09/18/18 16:04	1
Anthracene	ND		1.0	0.12	ug/Kg		09/15/18 08:40	09/18/18 16:04	1
Benzo[a]anthracene	ND		1.0	0.15	ug/Kg		09/15/18 08:40	09/18/18 16:04	1
Benzo[a]pyrene	ND		1.0	0.080	ug/Kg		09/15/18 08:40	09/18/18 16:04	1
Benzo[b]fluoranthene	ND		1.0	0.12	ug/Kg		09/15/18 08:40	09/18/18 16:04	1
Benzo[g,h,i]perylene	ND		1.0	0.10	ug/Kg		09/15/18 08:40	09/18/18 16:04	1
Benzo[k]fluoranthene	ND		1.0	0.12	ug/Kg		09/15/18 08:40	09/18/18 16:04	1
Chrysene	ND		1.0	0.30	ug/Kg		09/15/18 08:40	09/18/18 16:04	1
Dibenz(a,h)anthracene	ND		1.0	0.14	ug/Kg		09/15/18 08:40	09/18/18 16:04	1
Fluoranthene	ND		1.0	0.28	ug/Kg		09/15/18 08:40	09/18/18 16:04	1
Fluorene	ND		1.0	0.10	ug/Kg		09/15/18 08:40	09/18/18 16:04	1
Indeno[1,2,3-cd]pyrene	ND		1.0	0.12	ug/Kg		09/15/18 08:40	09/18/18 16:04	1
Naphthalene	ND		1.0	0.16	ug/Kg		09/15/18 08:40	09/18/18 16:04	1
Phenanthrene	ND		1.0	0.14	ug/Kg		09/15/18 08:40	09/18/18 16:04	1
Pyrene	ND		1.0	0.19	ug/Kg		09/15/18 08:40	09/18/18 16:04	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14	*88*		*57 - 120*	*09/15/18 08:40*	*09/18/18 16:04*	*1*

Lab Sample ID: LCS 580-284042/2-A
Matrix: Solid
Analysis Batch: 284269

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 284042

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2-Methylnaphthalene	200	178		ug/Kg		89	68 - 120
Acenaphthene	200	178		ug/Kg		89	68 - 120
Acenaphthylene	200	187		ug/Kg		94	68 - 120
Anthracene	200	183		ug/Kg		92	73 - 125
Benzo[a]anthracene	200	189		ug/Kg		95	66 - 120
Benzo[a]pyrene	200	174		ug/Kg		87	72 - 124
Benzo[b]fluoranthene	200	192		ug/Kg		96	63 - 121
Benzo[g,h,i]perylene	200	199		ug/Kg		100	63 - 120
Benzo[k]fluoranthene	200	200		ug/Kg		100	63 - 123

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

Lab Sample ID: LCS 580-284042/2-A
Matrix: Solid
Analysis Batch: 284269

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 284042

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chrysene	200	176		ug/Kg		88	69 - 120
Dibenz(a,h)anthracene	200	194		ug/Kg		97	70 - 125
Fluoranthene	200	185		ug/Kg		92	74 - 125
Fluorene	200	181		ug/Kg		91	73 - 120
Indeno[1,2,3-cd]pyrene	200	183		ug/Kg		92	65 - 121
Naphthalene	200	158		ug/Kg		79	70 - 120
Phenanthrene	200	177		ug/Kg		88	73 - 120
Pyrene	200	182		ug/Kg		91	70 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Terphenyl-d14	*82*		*57 - 120*

Lab Sample ID: 580-78604-6 MS
Matrix: Solid
Analysis Batch: 284269

Client Sample ID: PDI-SG-B463
Prep Type: Total/NA
Prep Batch: 284042

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
2-Methylnaphthalene	4.7	J	310	223		ug/Kg	☼	70	68 - 120
Acenaphthene	ND		310	254		ug/Kg	☼	82	68 - 120
Acenaphthylene	24	J	310	272		ug/Kg	☼	80	68 - 120
Anthracene	19	J	310	272		ug/Kg	☼	81	73 - 125
Benzo[a]anthracene	80	F1	310	266	F1	ug/Kg	☼	60	66 - 120
Benzo[a]pyrene	110	F1	310	235	F1	ug/Kg	☼	39	72 - 124
Benzo[b]fluoranthene	150	F2 F1	310	256	F1	ug/Kg	☼	35	63 - 121
Benzo[g,h,i]perylene	100	F1	310	258	F1	ug/Kg	☼	50	63 - 120
Benzo[k]fluoranthene	63	F1	310	235	F1	ug/Kg	☼	56	63 - 123
Chrysene	160	F1	310	259	F1	ug/Kg	☼	31	69 - 120
Dibenz(a,h)anthracene	14	J	310	243		ug/Kg	☼	74	70 - 125
Fluoranthene	350	F1	310	259	F1	ug/Kg	☼	-31	74 - 125
Fluorene	4.7	J	310	253		ug/Kg	☼	80	73 - 120
Indeno[1,2,3-cd]pyrene	110		310	342		ug/Kg	☼	76	65 - 121
Naphthalene	25	J F1	310	205	F1	ug/Kg	☼	58	70 - 120
Phenanthrene	310	F1	310	259	F1	ug/Kg	☼	-18	73 - 120
Pyrene	380	F1	310	264	F1	ug/Kg	☼	-38	70 - 120

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Terphenyl-d14	*71*		*57 - 120*

Lab Sample ID: 580-78604-6 MSD
Matrix: Solid
Analysis Batch: 284269

Client Sample ID: PDI-SG-B463
Prep Type: Total/NA
Prep Batch: 284042

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
2-Methylnaphthalene	4.7	J	284	206		ug/Kg	☼	71	68 - 120	8	12
Acenaphthene	ND		284	251		ug/Kg	☼	88	68 - 120	1	12
Acenaphthylene	24	J	284	252		ug/Kg	☼	81	68 - 120	7	12
Anthracene	19	J	284	266		ug/Kg	☼	87	73 - 125	2	12
Benzo[a]anthracene	80	F1	284	263	F1	ug/Kg	☼	64	66 - 120	1	14

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

Lab Sample ID: 580-78604-6 MSD
Matrix: Solid
Analysis Batch: 284269

Client Sample ID: PDI-SG-B463
Prep Type: Total/NA
Prep Batch: 284042

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzo[a]pyrene	110	F1	284	231	F1	ug/Kg	☼	41	72 - 124	2	12
Benzo[b]fluoranthene	150	F2 F1	284	221	F2 F1	ug/Kg	☼	26	63 - 121	15	10
Benzo[g,h,i]perylene	100	F1	284	263	F1	ug/Kg	☼	57	63 - 120	2	14
Benzo[k]fluoranthene	63	F1	284	256		ug/Kg	☼	68	63 - 123	9	15
Chrysene	160	F1	284	256	F1	ug/Kg	☼	33	69 - 120	1	10
Dibenz(a,h)anthracene	14	J	284	262		ug/Kg	☼	88	70 - 125	7	13
Fluoranthene	350	F1	284	266	F1	ug/Kg	☼	-31	74 - 125	3	13
Fluorene	4.7	J	284	260		ug/Kg	☼	90	73 - 120	2	13
Indeno[1,2,3-cd]pyrene	110		284	346		ug/Kg	☼	84	65 - 121	1	15
Naphthalene	25	J F1	284	190	F1	ug/Kg	☼	58	70 - 120	7	12
Phenanthrene	310	F1	284	252	F1	ug/Kg	☼	-22	73 - 120	3	11
Pyrene	380	F1	284	266	F1	ug/Kg	☼	-41	70 - 120	1	12

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Terphenyl-d14	*73*		*57 - 120*

Lab Sample ID: MB 580-285535/1-A
Matrix: Solid
Analysis Batch: 285645

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 285535

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylnaphthalene	ND		1.0	0.090	ug/Kg		10/03/18 09:05	10/04/18 10:55	1
Anthracene	ND		1.0	0.12	ug/Kg		10/03/18 09:05	10/04/18 10:55	1
Benzo[a]anthracene	ND		1.0	0.15	ug/Kg		10/03/18 09:05	10/04/18 10:55	1
Benzo[a]pyrene	ND		1.0	0.080	ug/Kg		10/03/18 09:05	10/04/18 10:55	1
Benzo[g,h,i]perylene	ND		1.0	0.10	ug/Kg		10/03/18 09:05	10/04/18 10:55	1
Chrysene	ND		1.0	0.30	ug/Kg		10/03/18 09:05	10/04/18 10:55	1
Dibenz(a,h)anthracene	ND		1.0	0.14	ug/Kg		10/03/18 09:05	10/04/18 10:55	1
Indeno[1,2,3-cd]pyrene	ND		1.0	0.12	ug/Kg		10/03/18 09:05	10/04/18 10:55	1
Naphthalene	ND		1.0	0.16	ug/Kg		10/03/18 09:05	10/04/18 10:55	1
Phenanthrene	ND		1.0	0.14	ug/Kg		10/03/18 09:05	10/04/18 10:55	1
Pyrene	ND		1.0	0.19	ug/Kg		10/03/18 09:05	10/04/18 10:55	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14	*83*		*57 - 120*	*10/03/18 09:05*	*10/04/18 10:55*	*1*

Lab Sample ID: LCS 580-285535/2-A
Matrix: Solid
Analysis Batch: 285645

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 285535

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2-Methylnaphthalene	200	170		ug/Kg		85	68 - 120
Anthracene	200	196		ug/Kg		98	73 - 125
Benzo[a]anthracene	200	184		ug/Kg		92	66 - 120
Benzo[a]pyrene	200	181		ug/Kg		91	72 - 124
Benzo[g,h,i]perylene	200	195		ug/Kg		97	63 - 120
Chrysene	200	175		ug/Kg		88	69 - 120
Dibenz(a,h)anthracene	200	188		ug/Kg		94	70 - 125

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

Lab Sample ID: LCS 580-285535/2-A
Matrix: Solid
Analysis Batch: 285645

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 285535

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Indeno[1,2,3-cd]pyrene	200	190		ug/Kg		95	65 - 121
Naphthalene	200	173		ug/Kg		86	70 - 120
Phenanthrene	200	189		ug/Kg		95	73 - 120
Pyrene	200	183		ug/Kg		92	70 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Terphenyl-d14	*70*		*57 - 120*

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

Lab Sample ID: MB 580-285535/1-A
Matrix: Solid
Analysis Batch: 285848

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 285535

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene - RA	ND		1.0	0.12	ug/Kg		10/03/18 09:05	10/06/18 11:29	1
Acenaphthylene - RA	ND		1.0	0.10	ug/Kg		10/03/18 09:05	10/06/18 11:29	1
Benzo[b]fluoranthene - RA	ND		1.0	0.12	ug/Kg		10/03/18 09:05	10/06/18 11:29	1
Benzo[k]fluoranthene - RA	ND		1.0	0.12	ug/Kg		10/03/18 09:05	10/06/18 11:29	1
Fluoranthene - RA	ND		1.0	0.28	ug/Kg		10/03/18 09:05	10/06/18 11:29	1
Fluorene - RA	ND		1.0	0.10	ug/Kg		10/03/18 09:05	10/06/18 11:29	1
Phenanthrene - RA	ND		1.0	0.14	ug/Kg		10/03/18 09:05	10/06/18 11:29	1
Pyrene - RA	ND		1.0	0.19	ug/Kg		10/03/18 09:05	10/06/18 11:29	1

Lab Sample ID: LCS 580-285535/2-A
Matrix: Solid
Analysis Batch: 285848

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 285535

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acenaphthene - RA	200	178		ug/Kg		89	68 - 120
Acenaphthylene - RA	200	131	*	ug/Kg		66	68 - 120
Benzo[b]fluoranthene - RA	200	195		ug/Kg		97	63 - 121
Benzo[k]fluoranthene - RA	200	190		ug/Kg		95	63 - 123
Fluoranthene - RA	200	181		ug/Kg		91	74 - 125
Fluorene - RA	200	187		ug/Kg		93	73 - 120
Phenanthrene - RA	200	180		ug/Kg		90	73 - 120
Pyrene - RA	200	175		ug/Kg		87	70 - 120

Method: Organotins - Organotins, PSEP (GC/MS)

Lab Sample ID: MB 580-284045/1-A
Matrix: Solid
Analysis Batch: 284676

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 284045

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tributyltin	ND		75	20	ug/Kg		09/15/18 09:00	09/22/18 18:04	1

Method: Organotins - Organotins, PSEP (GC/MS) (Continued)

Lab Sample ID: MB 580-284045/1-A
Matrix: Solid
Analysis Batch: 284676

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 284045

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tripentyltin	52		10 - 113	09/15/18 09:00	09/22/18 18:04	1

Lab Sample ID: LCS 580-284045/2-A
Matrix: Solid
Analysis Batch: 284676

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 284045

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Tributyltin	71.8	46.9	J	ug/Kg		65	14 - 150

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Tripentyltin	64		10 - 113

Lab Sample ID: 580-78604-6 MS
Matrix: Solid
Analysis Batch: 284676

Client Sample ID: PDI-SG-B463
Prep Type: Total/NA
Prep Batch: 284045

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Tributyltin	ND	F2	117	54.7	J	ug/Kg	☼	47	14 - 150

Surrogate	MS %Recovery	MS Qualifier	Limits
Tripentyltin	73		10 - 113

Lab Sample ID: 580-78604-6 MSD
Matrix: Solid
Analysis Batch: 284676

Client Sample ID: PDI-SG-B463
Prep Type: Total/NA
Prep Batch: 284045

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Tributyltin	ND	F2	118	127	F2	ug/Kg	☼	107	14 - 150	80	20

Surrogate	MSD %Recovery	MSD Qualifier	Limits
Tripentyltin	62		10 - 113

Lab Sample ID: MB 580-284918/1-A
Matrix: Solid
Analysis Batch: 285981

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 284918

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tributyltin	ND		75	20	ug/Kg		09/26/18 09:35	10/09/18 16:44	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tripentyltin	54		10 - 113	09/26/18 09:35	10/09/18 16:44	1

Method: Organotins - Organotins, PSEP (GC/MS) (Continued)

Lab Sample ID: LCS 580-284918/2-A
Matrix: Solid
Analysis Batch: 285981

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 284918

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Tributyltin			178	95.2		ug/Kg		53	14 - 150		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Tripentyltin	*52*		*10 - 113*

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Lab Sample ID: MB 580-284044/1-A
Matrix: Solid
Analysis Batch: 284139

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 284044

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		50	12	mg/Kg		09/15/18 08:55	09/17/18 16:24	1
Motor Oil (>C24-C36)	ND		50	18	mg/Kg		09/15/18 08:55	09/17/18 16:24	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*94*		*50 - 150*	*09/15/18 08:55*	*09/17/18 16:24*	*1*

Lab Sample ID: LCS 580-284044/2-A
Matrix: Solid
Analysis Batch: 284139

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 284044

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
#2 Diesel (C10-C24)			500	555		mg/Kg		111	70 - 125		
Motor Oil (>C24-C36)			500	545		mg/Kg		109	70 - 129		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl	*122*		*50 - 150*

Lab Sample ID: LCSD 580-284044/3-A
Matrix: Solid
Analysis Batch: 284139

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 284044

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
#2 Diesel (C10-C24)			500	598		mg/Kg		120	70 - 125	8	16
Motor Oil (>C24-C36)			500	585		mg/Kg		117	70 - 129	7	16

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
o-Terphenyl	*121*		*50 - 150*

Lab Sample ID: 580-78604-10 DU
Matrix: Solid
Analysis Batch: 284139

Client Sample ID: PDI-SG-B429
Prep Type: Total/NA
Prep Batch: 284044

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
#2 Diesel (C10-C24)	79	J		83.0	J	mg/Kg	☼			5	35
Motor Oil (>C24-C36)	360			383		mg/Kg	☼			8	35

Surrogate	DU %Recovery	DU Qualifier	Limits
o-Terphenyl	106		50 - 150

Lab Sample ID: MB 580-284058/1-A
Matrix: Solid
Analysis Batch: 284335

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 284058

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		50	12	mg/Kg		09/15/18 15:32	09/19/18 22:17	1
Motor Oil (>C24-C36)	ND		50	18	mg/Kg		09/15/18 15:32	09/19/18 22:17	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	93		50 - 150	09/15/18 15:32	09/19/18 22:17	1

Lab Sample ID: LCS 580-284058/2-A
Matrix: Solid
Analysis Batch: 284335

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 284058

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
#2 Diesel (C10-C24)	500	499		mg/Kg		100	70 - 125
Motor Oil (>C24-C36)	500	504		mg/Kg		101	70 - 129

Surrogate	LCS %Recovery	LCS Qualifier	Limits
o-Terphenyl	113		50 - 150

Lab Sample ID: LCSD 580-284058/3-A
Matrix: Solid
Analysis Batch: 284335

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 284058

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
#2 Diesel (C10-C24)	500	515		mg/Kg		103	70 - 125	3	16
Motor Oil (>C24-C36)	500	515		mg/Kg		103	70 - 129	2	16

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
o-Terphenyl	119		50 - 150

Lab Sample ID: 580-78604-6 MS
Matrix: Solid
Analysis Batch: 284335

Client Sample ID: PDI-SG-B463
Prep Type: Total/NA
Prep Batch: 284058

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
#2 Diesel (C10-C24)	43	J	735	761		mg/Kg	☼	98	70 - 125
Motor Oil (>C24-C36)	230		735	945		mg/Kg	☼	98	70 - 129

Surrogate	MS %Recovery	MS Qualifier	Limits
o-Terphenyl	99		50 - 150

Lab Sample ID: 580-78604-6 MSD
Matrix: Solid
Analysis Batch: 284335

Client Sample ID: PDI-SG-B463
Prep Type: Total/NA
Prep Batch: 284058

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
#2 Diesel (C10-C24)	43	J	771	718		mg/Kg	☼	87	70 - 125	6	16
Motor Oil (>C24-C36)	230		771	899		mg/Kg	☼	87	70 - 129	5	16

Surrogate	MSD %Recovery	MSD Qualifier	Limits
o-Terphenyl	93		50 - 150

Lab Sample ID: MB 580-284396/1-A
Matrix: Solid
Analysis Batch: 284670

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 284396

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		50	12	mg/Kg		09/19/18 16:08	09/22/18 14:52	1
Motor Oil (>C24-C36)	ND		50	18	mg/Kg		09/19/18 16:08	09/22/18 14:52	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	104		50 - 150	09/19/18 16:08	09/22/18 14:52	1

Lab Sample ID: LCS 580-284396/2-A
Matrix: Solid
Analysis Batch: 284670

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 284396

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
#2 Diesel (C10-C24)	500	471		mg/Kg		94	70 - 125
Motor Oil (>C24-C36)	500	484		mg/Kg		97	70 - 129

Surrogate	LCS %Recovery	LCS Qualifier	Limits
o-Terphenyl	97		50 - 150

Lab Sample ID: LCSD 580-284396/3-A
Matrix: Solid
Analysis Batch: 284670

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 284396

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
#2 Diesel (C10-C24)	500	476		mg/Kg		95	70 - 125	1	16
Motor Oil (>C24-C36)	500	495		mg/Kg		99	70 - 129	2	16

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
o-Terphenyl	96		50 - 150

Lab Sample ID: 580-78604-9 DU
Matrix: Solid
Analysis Batch: 284670

Client Sample ID: PDI-SG-B468
Prep Type: Total/NA
Prep Batch: 284396

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
#2 Diesel (C10-C24)	31	J	29.6	J	mg/Kg	☼	4	35
Motor Oil (>C24-C36)	130		136		mg/Kg	☼	4	35

Surrogate	DU %Recovery	DU Qualifier	Limits
o-Terphenyl	99		50 - 150

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 580-282341/22-A
Matrix: Solid
Analysis Batch: 282750

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 282341

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.25	0.050	mg/Kg		08/23/18 17:18	08/24/18 14:19	5
Cadmium	ND		0.20	0.039	mg/Kg		08/23/18 17:18	08/24/18 14:19	5
Copper	ND		0.50	0.11	mg/Kg		08/23/18 17:18	08/24/18 14:19	5
Lead	ND		0.25	0.024	mg/Kg		08/23/18 17:18	08/24/18 14:19	5
Zinc	ND		2.5	0.81	mg/Kg		08/23/18 17:18	08/24/18 14:19	5

Lab Sample ID: LCS 580-282341/23-A
Matrix: Solid
Analysis Batch: 282750

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 282341

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	200	199		mg/Kg		100	80 - 120
Cadmium	5.00	5.21		mg/Kg		104	80 - 120
Copper	25.0	25.2		mg/Kg		101	80 - 120
Lead	50.0	47.6		mg/Kg		95	80 - 120
Zinc	200	195		mg/Kg		98	80 - 120

Lab Sample ID: LCSD 580-282341/24-A
Matrix: Solid
Analysis Batch: 282750

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 282341

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	200	196		mg/Kg		98	80 - 120	1	20
Cadmium	5.00	5.18		mg/Kg		104	80 - 120	1	20
Copper	25.0	24.8		mg/Kg		99	80 - 120	2	20
Lead	50.0	47.4		mg/Kg		95	80 - 120	1	20
Zinc	200	195		mg/Kg		97	80 - 120	0	20

Lab Sample ID: 580-78604-6 MS
Matrix: Solid
Analysis Batch: 282750

Client Sample ID: PDI-SG-B463
Prep Type: Total/NA
Prep Batch: 282341

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	3.3		182	197		mg/Kg	☼	106	80 - 120
Cadmium	0.095	J	4.54	4.85		mg/Kg	☼	105	80 - 120
Copper	28		22.7	53.0		mg/Kg	☼	112	80 - 120
Lead	7.5		45.4	55.7		mg/Kg	☼	106	80 - 120
Zinc	78		182	275		mg/Kg	☼	109	80 - 120

Lab Sample ID: 580-78604-6 MSD
Matrix: Solid
Analysis Batch: 282750

Client Sample ID: PDI-SG-B463
Prep Type: Total/NA
Prep Batch: 282341

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	3.3		176	194		mg/Kg	☼	109	80 - 120	1	20
Cadmium	0.095	J	4.40	4.91		mg/Kg	☼	109	80 - 120	1	20
Copper	28		22.0	51.6		mg/Kg	☼	109	80 - 120	3	20
Lead	7.5		44.0	54.6		mg/Kg	☼	107	80 - 120	2	20
Zinc	78		176	272		mg/Kg	☼	110	80 - 120	1	20

Lab Sample ID: 580-78604-6 DU
Matrix: Solid
Analysis Batch: 282750

Client Sample ID: PDI-SG-B463
Prep Type: Total/NA
Prep Batch: 282341

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Arsenic	3.3		2.99		mg/Kg	☼	9	20
Cadmium	0.095	J	0.0884	J	mg/Kg	☼	8	20
Copper	28		22.9		mg/Kg	☼	19	20
Lead	7.5		6.67		mg/Kg	☼	12	20
Zinc	78		69.7		mg/Kg	☼	11	20

Method: 7471A - Mercury (CVAA)

Lab Sample ID: MB 580-282266/22-A
Matrix: Solid
Analysis Batch: 282350

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 282266

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.030	0.0090	mg/Kg		08/23/18 10:12	08/23/18 14:23	1

Lab Sample ID: LCS 580-282266/23-A
Matrix: Solid
Analysis Batch: 282350

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 282266

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.167	0.163		mg/Kg		98	80 - 120

Lab Sample ID: LCSD 580-282266/24-A
Matrix: Solid
Analysis Batch: 282350

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 282266

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	0.167	0.160		mg/Kg		96	80 - 120	2	20

Lab Sample ID: 580-78604-6 MS
Matrix: Solid
Analysis Batch: 282350

Client Sample ID: PDI-SG-B463
Prep Type: Total/NA
Prep Batch: 282266

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.032	J H	0.219	0.281	H	mg/Kg	☼	114	80 - 120

Lab Sample ID: 580-78604-6 MSD
Matrix: Solid
Analysis Batch: 282350

Client Sample ID: PDI-SG-B463
Prep Type: Total/NA
Prep Batch: 282266

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	0.032	J H	0.214	0.282	H	mg/Kg	☼	117	80 - 120	0	20

Lab Sample ID: 580-78604-6 DU
Matrix: Solid
Analysis Batch: 282350

Client Sample ID: PDI-SG-B463
Prep Type: Total/NA
Prep Batch: 282266

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Mercury	0.032	J H	0.0366	J	mg/Kg	☼	12	20

Method: 9060_PSEP - TOC (Puget Sound)

Lab Sample ID: MB 580-284243/5
Matrix: Solid
Analysis Batch: 284243

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	ND		2000	44	mg/Kg			09/18/18 12:32	1

Lab Sample ID: LCS 580-284243/6
Matrix: Solid
Analysis Batch: 284243

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	3440		mg/Kg		80	68 - 149		

Lab Sample ID: LCSD 580-284243/7
Matrix: Solid
Analysis Batch: 284243

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	3220		mg/Kg		76	68 - 149	6	32

Lab Sample ID: 580-78604-6 MS
Matrix: Solid
Analysis Batch: 284243

Client Sample ID: PDI-SG-B463
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Organic Carbon - Duplicates	14000		120000	156000		mg/Kg		119	68 - 149		

Lab Sample ID: 580-78604-6 MSD
Matrix: Solid
Analysis Batch: 284243

Client Sample ID: PDI-SG-B463
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Organic Carbon - Duplicates	14000		120000	153000		mg/Kg		116	68 - 149	2	32

Lab Sample ID: 580-78604-6 DU
Matrix: Solid
Analysis Batch: 284243

Client Sample ID: PDI-SG-B463
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Organic Carbon - Duplicates	14000		14600		mg/Kg		5	50

Lab Sample ID: 580-78604-6 TRL
Matrix: Solid
Analysis Batch: 284243

Client Sample ID: PDI-SG-B463
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	TRL Result	TRL Qualifier	Unit	D	RSD	RSD Limit
Total Organic Carbon - Duplicates	14000		14500		mg/Kg		3	20

Lab Chronicle

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

TestAmerica Job ID: 580-78604-7

Client Sample ID: PDI-SG-B458
Date Collected: 07/02/18 11:00
Date Received: 07/05/18 14:59

Lab Sample ID: 580-78604-1
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	284243	09/18/18 13:45	A1K	TAL SEA
Total/NA	Analysis	D 2216		1	283991	09/14/18 12:42	KMS	TAL SEA
Total/NA	Analysis	Moisture 70C		1	283652	09/10/18 18:15	HJM	TAL SEA

Client Sample ID: PDI-SG-B458
Date Collected: 07/02/18 11:00
Date Received: 07/05/18 14:59

Lab Sample ID: 580-78604-1
Matrix: Solid
Percent Solids: 57.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550B			284043	09/15/18 08:47	DB	TAL SEA
Total/NA	Analysis	8270D		25	284395	09/19/18 18:12	ERZ	TAL SEA
Total/NA	Prep	3546			284042	09/15/18 08:40	BAH	TAL SEA
Total/NA	Analysis	8270D SIM		25	284269	09/18/18 16:56	W1T	TAL SEA
Total/NA	Prep	Organotin Prep			284045	09/15/18 09:00	KMS	TAL SEA
Total/NA	Analysis	Organotins		1	284676	09/22/18 21:10	ERZ	TAL SEA
Total/NA	Prep	3546			284044	09/15/18 08:55	BAH	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	284139	09/17/18 17:30	CJ	TAL SEA
Total/NA	Prep	3050B			282341	08/23/18 17:18	T1H	TAL SEA
Total/NA	Analysis	6020B		5	282750	08/24/18 15:14	FCW	TAL SEA
Total/NA	Prep	7471A			282266	08/23/18 10:12	T1H	TAL SEA
Total/NA	Analysis	7471A		1	282350	08/23/18 14:39	FCW	TAL SEA

Client Sample ID: PDI-SG-B470
Date Collected: 07/02/18 15:20
Date Received: 07/05/18 14:59

Lab Sample ID: 580-78604-2
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	284243	09/18/18 13:50	A1K	TAL SEA
Total/NA	Analysis	D 2216		1	283991	09/14/18 12:42	KMS	TAL SEA
Total/NA	Analysis	Moisture 70C		1	283652	09/10/18 18:15	HJM	TAL SEA

Client Sample ID: PDI-SG-B470
Date Collected: 07/02/18 15:20
Date Received: 07/05/18 14:59

Lab Sample ID: 580-78604-2
Matrix: Solid
Percent Solids: 58.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550B			284043	09/15/18 08:47	DB	TAL SEA
Total/NA	Analysis	8270D		25	284395	09/19/18 18:36	ERZ	TAL SEA
Total/NA	Prep	3546			284042	09/15/18 08:40	BAH	TAL SEA
Total/NA	Analysis	8270D SIM		25	284269	09/18/18 17:21	W1T	TAL SEA
Total/NA	Prep	Organotin Prep			284045	09/15/18 09:00	KMS	TAL SEA
Total/NA	Analysis	Organotins		1	284676	09/22/18 21:36	ERZ	TAL SEA

Client Sample ID: PDI-SG-B470
Date Collected: 07/02/18 15:20
Date Received: 07/05/18 14:59

Lab Sample ID: 580-78604-2
Matrix: Solid
Percent Solids: 58.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			284044	09/15/18 08:55	BAH	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	284139	09/17/18 17:52	CJ	TAL SEA
Total/NA	Prep	3050B			282341	08/23/18 17:18	T1H	TAL SEA
Total/NA	Analysis	6020B		5	282750	08/24/18 15:18	FCW	TAL SEA
Total/NA	Prep	7471A			282266	08/23/18 10:12	T1H	TAL SEA
Total/NA	Analysis	7471A		1	282350	08/23/18 14:41	FCW	TAL SEA

Client Sample ID: PDI-SG-B469
Date Collected: 07/02/18 16:30
Date Received: 07/05/18 14:59

Lab Sample ID: 580-78604-3
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	284243	09/18/18 13:55	A1K	TAL SEA
Total/NA	Analysis	D 2216		1	283991	09/14/18 12:42	KMS	TAL SEA
Total/NA	Analysis	Moisture 70C		1	283652	09/10/18 18:15	HJM	TAL SEA

Client Sample ID: PDI-SG-B469
Date Collected: 07/02/18 16:30
Date Received: 07/05/18 14:59

Lab Sample ID: 580-78604-3
Matrix: Solid
Percent Solids: 57.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550B			284043	09/15/18 08:47	DB	TAL SEA
Total/NA	Analysis	8270D		25	284395	09/19/18 19:01	ERZ	TAL SEA
Total/NA	Prep	3546			284042	09/15/18 08:40	BAH	TAL SEA
Total/NA	Analysis	8270D SIM		25	284269	09/18/18 17:47	W1T	TAL SEA
Total/NA	Prep	Organotin Prep			284045	09/15/18 09:00	KMS	TAL SEA
Total/NA	Analysis	Organotins		1	284676	09/22/18 22:02	ERZ	TAL SEA
Total/NA	Prep	3546			284044	09/15/18 08:55	BAH	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	284139	09/17/18 18:14	CJ	TAL SEA
Total/NA	Prep	3050B			282341	08/23/18 17:18	T1H	TAL SEA
Total/NA	Analysis	6020B		5	282750	08/24/18 15:22	FCW	TAL SEA
Total/NA	Prep	7471A			282266	08/23/18 10:12	T1H	TAL SEA
Total/NA	Analysis	7471A		1	282350	08/23/18 14:43	FCW	TAL SEA

Client Sample ID: PDI-SG-B456
Date Collected: 07/02/18 10:19
Date Received: 07/05/18 14:59

Lab Sample ID: 580-78604-4
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	284243	09/18/18 14:00	A1K	TAL SEA
Total/NA	Analysis	D 2216		1	283991	09/14/18 12:42	KMS	TAL SEA
Total/NA	Analysis	Moisture 70C		1	283652	09/10/18 18:15	HJM	TAL SEA

Lab Chronicle

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

TestAmerica Job ID: 580-78604-7

Client Sample ID: PDI-SG-B456

Lab Sample ID: 580-78604-4
Date Collected: 07/02/18 10:19
Matrix: Solid
Date Received: 07/05/18 14:59
Percent Solids: 58.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550B			284043	09/15/18 08:47	DB	TAL SEA
Total/NA	Analysis	8270D		25	284395	09/19/18 19:25	ERZ	TAL SEA
Total/NA	Prep	3546			284042	09/15/18 08:40	BAH	TAL SEA
Total/NA	Analysis	8270D SIM		25	284269	09/18/18 18:13	W1T	TAL SEA
Total/NA	Prep	Organotin Prep			284045	09/15/18 09:00	KMS	TAL SEA
Total/NA	Analysis	Organotins		1	284676	09/22/18 22:27	ERZ	TAL SEA
Total/NA	Prep	3546			284044	09/15/18 08:55	BAH	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	284139	09/17/18 18:35	CJ	TAL SEA
Total/NA	Prep	3050B			282341	08/23/18 17:18	T1H	TAL SEA
Total/NA	Analysis	6020B		5	282750	08/24/18 15:26	FCW	TAL SEA
Total/NA	Prep	7471A			282266	08/23/18 10:12	T1H	TAL SEA
Total/NA	Analysis	7471A		1	282350	08/23/18 14:50	FCW	TAL SEA

Client Sample ID: PDI-SG-B462

Lab Sample ID: 580-78604-5
Date Collected: 07/02/18 11:56
Matrix: Solid
Date Received: 07/05/18 14:59

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	284243	09/18/18 14:04	A1K	TAL SEA
Total/NA	Analysis	D 2216		1	283991	09/14/18 12:42	KMS	TAL SEA
Total/NA	Analysis	Moisture 70C		1	283652	09/10/18 18:15	HJM	TAL SEA

Client Sample ID: PDI-SG-B462

Lab Sample ID: 580-78604-5
Date Collected: 07/02/18 11:56
Matrix: Solid
Date Received: 07/05/18 14:59
Percent Solids: 54.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550B			284043	09/15/18 08:47	DB	TAL SEA
Total/NA	Analysis	8270D		25	284395	09/19/18 19:50	ERZ	TAL SEA
Total/NA	Prep	3546			284042	09/15/18 08:40	BAH	TAL SEA
Total/NA	Analysis	8270D SIM		25	284269	09/18/18 18:39	W1T	TAL SEA
Total/NA	Prep	Organotin Prep			284045	09/15/18 09:00	KMS	TAL SEA
Total/NA	Analysis	Organotins		1	284676	09/22/18 22:53	ERZ	TAL SEA
Total/NA	Prep	3546			284044	09/15/18 08:55	BAH	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	284139	09/17/18 18:57	CJ	TAL SEA
Total/NA	Prep	3050B			282341	08/23/18 17:18	T1H	TAL SEA
Total/NA	Analysis	6020B		5	282750	08/24/18 15:31	FCW	TAL SEA
Total/NA	Prep	7471A			282266	08/23/18 10:12	T1H	TAL SEA
Total/NA	Analysis	7471A		1	282350	08/23/18 14:53	FCW	TAL SEA

Lab Chronicle

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

TestAmerica Job ID: 580-78604-7

Client Sample ID: PDI-SG-B463

Lab Sample ID: 580-78604-6
Date Collected: 07/02/18 12:58
Matrix: Solid
Date Received: 07/05/18 14:59

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	284243	09/18/18 13:09	A1K	TAL SEA
Total/NA	Analysis	D 2216		1	283991	09/14/18 12:42	KMS	TAL SEA
Total/NA	Analysis	Moisture 70C		1	283652	09/10/18 18:15	HJM	TAL SEA

Client Sample ID: PDI-SG-B463

Lab Sample ID: 580-78604-6
Date Collected: 07/02/18 12:58
Matrix: Solid
Date Received: 07/05/18 14:59
Percent Solids: 60.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550B			284043	09/15/18 08:47	DB	TAL SEA
Total/NA	Analysis	8270D		25	284395	09/19/18 20:14	ERZ	TAL SEA
Total/NA	Prep	3546			284042	09/15/18 08:40	BAH	TAL SEA
Total/NA	Analysis	8270D SIM		25	284269	09/18/18 19:05	W1T	TAL SEA
Total/NA	Prep	Organotin Prep			284045	09/15/18 09:00	KMS	TAL SEA
Total/NA	Analysis	Organotins		1	284676	09/22/18 23:19	ERZ	TAL SEA
Total/NA	Prep	3546			284058	09/15/18 17:01	DB	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	284335	09/20/18 01:58	JCM	TAL SEA
Total/NA	Prep	3050B			282341	08/23/18 17:18	T1H	TAL SEA
Total/NA	Analysis	6020B		5	282750	08/24/18 14:36	FCW	TAL SEA
Total/NA	Prep	7471A			282266	08/23/18 10:12	T1H	TAL SEA
Total/NA	Analysis	7471A		1	282350	08/23/18 14:30	FCW	TAL SEA

Client Sample ID: PDI-SG-B464

Lab Sample ID: 580-78604-7
Date Collected: 07/02/18 14:39
Matrix: Solid
Date Received: 07/05/18 14:59

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	284243	09/18/18 14:09	A1K	TAL SEA
Total/NA	Analysis	D 2216		1	283991	09/14/18 12:42	KMS	TAL SEA
Total/NA	Analysis	Moisture 70C		1	283652	09/10/18 18:15	HJM	TAL SEA

Client Sample ID: PDI-SG-B464

Lab Sample ID: 580-78604-7
Date Collected: 07/02/18 14:39
Matrix: Solid
Date Received: 07/05/18 14:59
Percent Solids: 49.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550B			284043	09/15/18 08:47	DB	TAL SEA
Total/NA	Analysis	8270D		25	284395	09/19/18 21:28	ERZ	TAL SEA
Total/NA	Prep	3546			284042	09/15/18 08:40	BAH	TAL SEA
Total/NA	Analysis	8270D SIM		25	284269	09/18/18 20:22	W1T	TAL SEA
Total/NA	Prep	Organotin Prep			284918	09/26/18 09:35	APR	TAL SEA
Total/NA	Analysis	Organotins		1	285981	10/09/18 19:43	ERZ	TAL SEA

Client Sample ID: PDI-SG-B464

Lab Sample ID: 580-78604-7

Date Collected: 07/02/18 14:39

Matrix: Solid

Date Received: 07/05/18 14:59

Percent Solids: 49.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			284044	09/15/18 08:55	BAH	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	284139	09/17/18 19:41	CJ	TAL SEA
Total/NA	Prep	3050B			282341	08/23/18 17:18	T1H	TAL SEA
Total/NA	Analysis	6020B		5	282750	08/24/18 15:35	FCW	TAL SEA
Total/NA	Prep	7471A			282266	08/23/18 10:12	T1H	TAL SEA
Total/NA	Analysis	7471A		1	282350	08/23/18 14:55	FCW	TAL SEA

Client Sample ID: PDI-SG-B466

Lab Sample ID: 580-78604-8

Date Collected: 07/02/18 15:34

Matrix: Solid

Date Received: 07/05/18 14:59

Percent Solids: 55.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550B			284408	09/19/18 17:04	SPS	TAL SEA
Total/NA	Analysis	8270D		10	284567	09/21/18 16:07	ERZ	TAL SEA
Total/NA	Prep	3546			285535	10/03/18 09:05	BAH	TAL SEA
Total/NA	Analysis	8270D SIM		5	285696	10/04/18 17:31	W1T	TAL SEA
Total/NA	Prep	3546	RA		285535	10/03/18 09:05	BAH	TAL SEA
Total/NA	Analysis	8270D SIM	RA	5	285848	10/06/18 14:21	ERZ	TAL SEA
Total/NA	Prep	Organotin Prep			284918	09/26/18 09:35	APR	TAL SEA
Total/NA	Analysis	Organotins		1	285981	10/10/18 02:33	ERZ	TAL SEA
Total/NA	Prep	3546			284396	09/19/18 16:08	SPS	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	284670	09/22/18 20:26	JCM	TAL SEA
Total/NA	Prep	7471A			282266	08/23/18 10:12	T1H	TAL SEA
Total/NA	Analysis	7471A		1	282350	08/23/18 14:57	FCW	TAL SEA

Client Sample ID: PDI-SG-B468

Lab Sample ID: 580-78604-9

Date Collected: 07/02/18 16:33

Matrix: Solid

Date Received: 07/05/18 14:59

Percent Solids: 61.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550B			284408	09/19/18 17:04	SPS	TAL SEA
Total/NA	Analysis	8270D		10	284567	09/21/18 16:32	ERZ	TAL SEA
Total/NA	Prep	3546			285535	10/03/18 09:05	BAH	TAL SEA
Total/NA	Analysis	8270D SIM		5	285696	10/04/18 17:56	W1T	TAL SEA
Total/NA	Prep	3546	RA		285535	10/03/18 09:05	BAH	TAL SEA
Total/NA	Analysis	8270D SIM	RA	5	285848	10/06/18 14:46	ERZ	TAL SEA
Total/NA	Prep	Organotin Prep			284918	09/26/18 09:35	APR	TAL SEA
Total/NA	Analysis	Organotins		1	285981	10/10/18 02:07	ERZ	TAL SEA
Total/NA	Prep	3546			284396	09/19/18 16:08	SPS	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	284670	09/22/18 20:47	JCM	TAL SEA
Total/NA	Prep	7471A			282266	08/23/18 10:12	T1H	TAL SEA
Total/NA	Analysis	7471A		1	282350	08/23/18 14:59	FCW	TAL SEA

Lab Chronicle

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

TestAmerica Job ID: 580-78604-7

Client Sample ID: PDI-SG-B429

Date Collected: 07/03/18 10:15
Date Received: 07/05/18 14:59

Lab Sample ID: 580-78604-10

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	284243	09/18/18 14:13	A1K	TAL SEA
Total/NA	Analysis	D 2216		1	283991	09/14/18 12:42	KMS	TAL SEA
Total/NA	Analysis	Moisture 70C		1	283652	09/10/18 18:15	HJM	TAL SEA

Client Sample ID: PDI-SG-B429

Date Collected: 07/03/18 10:15
Date Received: 07/05/18 14:59

Lab Sample ID: 580-78604-10

Matrix: Solid
Percent Solids: 57.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550B			284043	09/15/18 08:47	DB	TAL SEA
Total/NA	Analysis	8270D		25	284395	09/19/18 21:53	ERZ	TAL SEA
Total/NA	Prep	3546			284042	09/15/18 08:40	BAH	TAL SEA
Total/NA	Analysis	8270D SIM		25	284269	09/18/18 20:48	W1T	TAL SEA
Total/NA	Prep	Organotin Prep			284045	09/15/18 09:00	KMS	TAL SEA
Total/NA	Analysis	Organotins		1	284676	09/23/18 00:37	ERZ	TAL SEA
Total/NA	Prep	3546			284044	09/15/18 08:55	BAH	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	284139	09/17/18 20:25	CJ	TAL SEA
Total/NA	Prep	3050B			282341	08/23/18 17:18	T1H	TAL SEA
Total/NA	Analysis	6020B		5	282750	08/24/18 15:39	FCW	TAL SEA
Total/NA	Prep	7471A			282266	08/23/18 10:12	T1H	TAL SEA
Total/NA	Analysis	7471A		1	282350	08/23/18 15:02	FCW	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: 580-78604-7
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

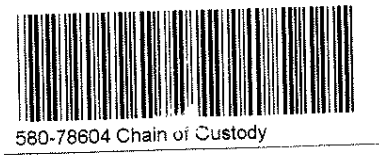
Sample Summary

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

TestAmerica Job ID: 580-78604-7

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-78604-1	PDI-SG-B458	Solid	07/02/18 11:00	07/05/18 14:59
580-78604-2	PDI-SG-B470	Solid	07/02/18 15:20	07/05/18 14:59
580-78604-3	PDI-SG-B469	Solid	07/02/18 16:30	07/05/18 14:59
580-78604-4	PDI-SG-B456	Solid	07/02/18 10:19	07/05/18 14:59
580-78604-5	PDI-SG-B462	Solid	07/02/18 11:56	07/05/18 14:59
580-78604-6	PDI-SG-B463	Solid	07/02/18 12:58	07/05/18 14:59
580-78604-7	PDI-SG-B464	Solid	07/02/18 14:39	07/05/18 14:59
580-78604-8	PDI-SG-B466	Solid	07/02/18 15:34	07/05/18 14:59
580-78604-9	PDI-SG-B468	Solid	07/02/18 16:33	07/05/18 14:59
580-78604-10	PDI-SG-B429	Solid	07/03/18 10:15	07/05/18 14:59

580-78604



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)	**Site Contact: Jennifer Ray** **Laboratory Contact: Elaine-Walker**	**7/5/2018** **Carrier: Courier**	COC No: 1 1 of 1 pages
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: **D/U**	☐ 21 days ☒ Other _ASAP_(sediments only)_____			

Sample Identification	Sample Date	Sample Time	Matrix	QC Sample	Sampler's Initials	Total No. of Cont.	Fraction	PCB Congeners 1668A	PCDD/Fs 1613B	TPH Diesel, Metals, Mercury, NWTPH-Dx, 6020B, 7471A	Grain size ASTM D7928/D6913	Total organic carbon, Total solids 9060 (104C & 70C)	Archive Archive -20 C	PAHs, BEHP, Tributyltin, 8270-SIM, 8270-LL, Krone/Unger	Atterberg Limits ASTM D4318	WQ - PCB Congeners 1668A	WQ - PCDD/Fs 1613B	TPH Diesel, Metals, Mercury NWTPH-Dx, 6020B, 7471A	WQ - Total Organic Carbon SM5310B	WQ - PAHs 8270-SIM	WQ - BEHP EPA 8270D-LL	WQ - Tributyltin Krone/Unger		Sample Specific Notes:
PDI-SG-B458	7/2/2018	11:00	SS		AC	7		H	H	H	x	H	H	H										
PDI-SG-B470	7/2/2018	15:20	SS		AC	B		H	H	H	x	H	H	H	H									
PDI-SG-B469	7/2/2018	16:30	SS		AC	B		H	H	H	x	H	H	H	H									
PDI-SG-B456	7/2/2018	10:19	SS		SH	7		H	H	H	x	H	H	H										
PDI-SG-B462	7/2/2018	11:56	SS		SH	B		H	H	H	x	H	H	H	H									
PDI-SG-B463	7/2/2018	12:58	SS	MS/MSD	SH	14		H	H	H	x	H	H	H	H									
PDI-SG-B464	7/2/2018	14:39	SS		SH	8		H	H	H	x	H	H	H	H									
PDI-SG-B466	7/2/2018	15:34	SS		SH	8		H	H	x*	x*	x*	H	H	H									
PDI-SG-B468	7/2/2018	14:02 16:35	SS		SH	8		H	H	H	x	H	H	H	H									
PDI-SG-B429	7/3/2018	10:15	SS		SH	7		H	H	H	x	H	H	H										
RB-VV-180703-1720	7/3/2018	17:20	W		SH	14										x	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 ☒ Disposal By Lab ☒ Archive For **12** Months

Special Instructions/QC Requirements & Comments:

Separate reports for each lab.

x*- Analyze for grain size, metals (6020B analytes only), and TOC (9060 @ 104C & 70C) ASAP. Rush TAT for these take precedent over remaining rush grain size analyses requested ASAP.

H - Hold analyses pending further instruction.

0.7, 2.2, 0.3

Relinquished by:	Company: AECOM	Date/Time: 7/5/18 1234	Received by:	Company: M.E.	Date/Time: 7/5/18 1235
Relinquished by:	Company: M.E.	Date/Time: 7/5/18 1500	Received by:	Company: TAPOR	Date/Time: 7/5/18 1500
Relinquished by:	Company: TAPOR	Date/Time: 7/5/18 1700	Received by:	Company: SFAT	Date/Time: 7/6/18 0930

= 0.8 / 0.8 w/cs

IRS = 0.7 / 0.7 w/cs.

= -1.9 / -1.9 w/cs

Revised COC

580-78604

580-78604 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 Analysis Turnaround Time Calendar (C) or Work Days (W) ☐ 21 days ☒ Other _ASAP_(sediments only)_____	Site Contact: Jennifer Ray Laboratory Contact: Elaine-Walker Carrier: Courier 7/5/2018 COC No: 1 1 of 1 pages

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: D/U

Sample Identification	Sample Date	Sample Time	Matrix	QC Sample	Sampler's Initials	Total No. of Cont.	PCB Congeners 1668A	PCDD/Fs 1613B	TPH Diesel, Metals, Mercury NWTPH-Dx, 6020B, 7471A	Grain size ASTM D7928/D4913	Total organic carbon, Total solids 9060 (104C & 70C)	Archive Archive -30 C	PAHs, BEHP, Tributyltin, 8270-SIM, 8270-LL, Kreosl/Unger	Atterberg Limits ASTM D4318	WQ - PCB Congeners 1668A	WQ - PCDD/Fs 1613B	TPH Diesel, Metals, Mercury NWTPH-Dx, 6020B, 7471A	WQ - Total Organic Carbon SM5310B	WQ - PAHs 8270-SIM	WQ - BEHP EPA 8270D-LL	WQ - Tributyltin Kreosl/Unger	Sample Specific Notes:
PDI-SG-B458	7/2/2018	11:00	SS		AC	7	H	H	H	x	H	H	H									
PDI-SG-B470	7/2/2018	15:20	SS		AC	B	H	H	H	x	H	H	H	H								
PDI-SG-B469	7/2/2018	16:30	SS		AC	B	H	H	H	x	H	H	H	H								
PDI-SG-B456	7/2/2018	10:19	SS		SH	7	H	H	H	x	H	H	H									
PDI-SG-B462	7/2/2018	11:56	SS		SH	B	H	H	H	x	H	H	H	H								
PDI-SG-B463	7/2/2018	12:58	SS	MS/MSD	SH	14	H	H	H	x	H	H	H	H								
PDI-SG-B464	7/2/2018	14:39	SS		SH	8	H	H	H	x	H	H	H	H								
PDI-SG-B466	7/2/2018	15:34	SS		SH	8	H	H	x*	x*	x*	H	H	H								
PDI-SG-B468	7/2/2018	14:02 16:35	SS		SH	8	H	H	H	x	H	H	H	H								
PDI-SG-B429	7/3/2018	10:15	SS		SH	7	H	H	HX	x	X	X	H									
FDI-RB-VV-180703-1720 (KP 7/22/18 Per Alleon)	7/3/2018	17:20	W		SH	14									x	x	x	x	x	x	x	***Added analysis 7/19 (KP) Per Alleon

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:
Separate reports for each lab.
x*- Analyze for grain size, metals (6020B analytes only), and TOC (9060 @ 104C & 70C) ASAP. Rush TAT for these take precedent over remaining rush grain size analyses requested ASAP.
H - Hold analyses pending further instruction.

0.7, 2.2, 0.3

	Company	Date/Time		Company	Date/Time
Relinquished by:	AECOM	7/5/18 1234	Received by:	M.E.	7/5/18 1235
Relinquished by:	M.E.	7/5/18 1500	Received by:	TAPOR	7/5/18 1500
Relinquished by:	TAPOR	7/5/18 1700	Received by: B.	SFPT	7/6/18 0930

*** Metals, TOC, Solids activated
In On Hold Samples Per Alleon
7/19/18 (KP)

*** Revised ~~Corrected~~ Changed Sample Id! Add PDI-RB-VV-180703-1720 Remove -1720 (KP) Per Alleon 7/22/18

= 0.8 / 0.8 w/cs
IRS = 0.7 / 0.7 w/cs.
= -1.9 / -1.9 w/cs

10/15/2018 (Rev. 1)

Login Sample Receipt Checklist

Client: AECOM

Job Number: 580-78604-7

Login Number: 78604
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	