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ANALYTICAL REPORT

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Laboratory Job ID: 580-88125-1
Client Project/Site: Swan Island Lagoon Sediment Investigatio

For:
Pacific Groundwater Group
2377 Eastlake Avenue E
Seattle, Washington 98102

Attn: Ms. Inger Jackson

M. Elaine Walker

Authorized for release by:
8/30/2019 2:34:25 PM

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Narrative

CASE NARRATIVE
Client: Pacific Groundwater Group
Project: Swan Island Lagoon Sediment Investigation
Report Number: 580-88125-1

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

These samples were previously received under various COCs and were archived per client request. The samples were activated on 7/26/2019; the samples were removed from the freezer to perform these analyses.

Receipt Exceptions

The following samples were frozen upon receipt by the laboratory. They were taken out of the freezer on 8/11, extracted the morning of 8/12, and then placed back into the freezer. Therefore the samples are within hold for analyses with the exception of Grainsize, TOC, Total Solids and Mercury. Mercury still has a 28-Day hold time if samples are frozen. Grainsize does not get frozen and this method has a 6 month hold time.TOC and Total Solids have 6 months if frozen. These analyses were activated after the hold times for these methods had expired. A1-0to30-102018 (580-88125-1), A2-0to26-100818 (580-88125-2), A3-0to31-100818 (580-88125-3), A4-0to25-100818 (580-88125-4), A5-0to25-100818 (580-88125-5), A6-0to23-100818 (580-88125-6), A7-0to26-100918 (580-88125-7), C4-0to27-100918 (580-88125-8), D2-0to19-101018 (580-88125-9), F2-0to19-101018 (580-88125-10), H2-0to30-101218 (580-88125-12), J2A3-0to18-101218 (580-88125-13), M4-0to26-101918 (580-88125-14), 515-0to26-101918 (580-88125-15), N5-0to28-101418 (580-88125-16), N7-0to27-101418 (580-88125-17), O7-0to27-101918 (580-88125-18), Q2-0to13-101818 (580-88125-19), Q6-0to27-102018 (580-88125-20), T6-0to29-101618 (580-88125-21), (580-88125-A-10 MS) and (580-88125-A-10 MSD)

One or more containers for the following samples were broken in storage: A1-0to30-102018 (580-88125-1), H2-0to30-101218 (580-88125-12) and M4-0to26-101918 (580-88125-14). They have been taken to disposal and destroyed. Analysts have found enough back up sample for their analyses.

This report contains all data with the exception of the 1668A PCB Congeners, being performed at Eurofins TestAmerica Knoxville. This data will be reported under separate cover.

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.

DIOXIN/ FURAN

Samples A1-0to30-102018 (580-88125-1), A2-0to26-100818 (580-88125-2), A3-0to31-100818 (580-88125-3), A4-0to25-100818 (580-88125-4), A5-0to25-100818 (580-88125-5), A6-0to23-100818 (580-88125-6), A7-0to26-100918 (580-88125-7), C4-0to27-100918 (580-88125-8), D2-0to19-101018 (580-88125-9), F2-0to19-101018 (580-88125-10), G6-0to27-101818 (580-88125-11), H2-0to30-101218 (580-88125-12), J2A3-0to18-101218 (580-88125-13), M4-0to26-101918 (580-88125-14), 515-0to26-101918 (580-88125-15),

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Laboratory: Eurofins TestAmerica, Seattle (Continued)

N5-0to28-101418 (580-88125-16), N7-0to27-101418 (580-88125-17), O7-0to27-101918 (580-88125-18), Q2-0to13-101818 (580-88125-19), Q6-0to27-102018 (580-88125-20) and T6-0to29-101618 (580-88125-21) were analyzed for Dioxin/ Furan in accordance with 1613B. The samples were prepared on 08/14/2019 and analyzed on 08/17/2019, 08/19/2019, 08/20/2019 and 08/21/2019.

OCDD was detected in method blank MB 320-315077/1-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.

1,2,3,4,7,8-HxCDD, OCDD and Total HxCDD were detected in method blank MB 320-315080/1-A at levels that were above the method detection limit but below the reporting limit. The values should be considered estimates, and have been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Refer to the QC report for details.

1,2,3,4,6,7,8-HpCDF, 1,2,3,6,7,8-HxCDD, 1,2,3,7,8-PeCDD, 1,2,3,7,8-PeCDF and 2,3,4,7,8-PeCDF failed the recovery criteria low for LCSSRM 320-315077/4-A. 1,2,3,6,7,8-HxCDD, 1,2,3,7,8-PeCDD, 1,2,3,7,8-PeCDF and 2,3,4,7,8-PeCDF failed the recovery criteria low for LCSSRM 320-315077/5-A.

2,3,7,8-TCDD failed the recovery criteria high. 1,2,3,6,7,8-HxCDD failed the recovery criteria low for LCSSRM 320-315080/4-A. Refer to the QC report for details.

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

POLYCHLORINATED BIPHENYLS (PCBS)

Samples A1-0to30-102018 (580-88125-1), A2-0to26-100818 (580-88125-2), A3-0to31-100818 (580-88125-3), A4-0to25-100818 (580-88125-4), A5-0to25-100818 (580-88125-5), A6-0to23-100818 (580-88125-6), A7-0to26-100918 (580-88125-7), C4-0to27-100918 (580-88125-8), D2-0to19-101018 (580-88125-9), F2-0to19-101018 (580-88125-10), G6-0to27-101818 (580-88125-11), H2-0to30-101218 (580-88125-12), J2A3-0to18-101218 (580-88125-13), M4-0to26-101918 (580-88125-14), 515-0to26-101918 (580-88125-15), N5-0to28-101418 (580-88125-16), N7-0to27-101418 (580-88125-17), O7-0to27-101918 (580-88125-18), Q2-0to13-101818 (580-88125-19), Q6-0to27-102018 (580-88125-20) and T6-0to29-101618 (580-88125-21) were analyzed for polychlorinated biphenyls (PCBs) in accordance with EPA sw-846 method 8082A. The samples were prepared on 08/13/2019 and analyzed on 08/15/2019 and 08/16/2019.

Surrogate recovery for the following samples were outside control limits: A2-0to26-100818 (580-88125-2), A4-0to25-100818 (580-88125-4), A6-0to23-100818 (580-88125-6), A7-0to26-100918 (580-88125-7), C4-0to27-100918 (580-88125-8), D2-0to19-101018 (580-88125-9), and F2-0to19-101018 (580-88125-10). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis were not performed.

Internal standard (ISTD) response for the following sample exceeded the control limit on Column ZB-CLPesticides-1 and ZB-CLPesticides-2: J2A3-0to18-101218 (580-88125-13). As such, the sample results associated with this ISTD were reported from the other column, which met ISTD acceptance criteria.

The continuing calibration verification (CCV) associated with batch 580-308439 recovered above the upper control limit for PCB-1232. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The following samples are impacted: G6-0to27-101818 (580-88125-11), H2-0to30-101218 (580-88125-12), J2A3-0to18-101218 (580-88125-13), M4-0to26-101918 (580-88125-14), 515-0to26-101918 (580-88125-15), N5-0to28-101418 (580-88125-16), N7-0to27-101418 (580-88125-17), O7-0to27-101918 (580-88125-18), Q2-0to13-101818 (580-88125-19), Q6-0to27-102018 (580-88125-20), T6-0to29-101618 (580-88125-21) and (CCV 580-308439/3).

The continuing calibration verification (CCV) associated with 580-308439 recovered high and outside the control limits for PCB-1221 on one column. Results are confirmed on both columns and reported from the passing column. The following samples are impacted: G6-0to27-101818 (580-88125-11), H2-0to30-101218 (580-88125-12), J2A3-0to18-101218 (580-88125-13), M4-0to26-101918 (580-88125-14), N5-0to28-101418 (580-88125-16), N7-0to27-101418 (580-88125-17), O7-0to27-101918 (580-88125-18), Q2-0to13-101818 (580-88125-19), Q6-0to27-102018 (580-88125-20), T6-0to29-101618 (580-88125-21) and (CCV 580-308439/6).

The continuing calibration verification (CCV) associated with batch 580-308552 recovered above the upper control limit for PCB-1232,

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PCB-1016 and PCB-1260. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The following samples are impacted: A5-0to25-100818 (580-88125-5), (CCV 580-308552/13), (CCV 580-308552/3) and (CCVIS 580-308552/7).

The continuing calibration verification (CCV) associated with 580-308552 recovered high and outside the control limits for PCB-1221 on one column. Results are confirmed on both columns and reported from the passing column. The following samples are impacted: A5-0to25-100818 (580-88125-5) and (CCV 580-308552/6).

The following continuing calibration verification (CCV) standard associated with batch 580-308552 recovered outside acceptance criteria for %D for surrogate DCB Decachlorobiphenyl and Tetrachloro-m-xylene. Since all the other surrogates were within %D criteria; therefore, the data have been reported. The following samples are impacted: (CCV 580-308552/13) and (CCVIS 580-308552/7).

The following closing continuing calibration verification (CCV) and continuing calibration blank (CCB) standard associated with batch 580-308552 failed to meet acceptance limits for Tetrachloro-m-xylene and DCB Decachlorobiphenyl. The associated samples were analyzed following a successful CCV, indicating that the sample matrix is adversely affecting the instrument and causing the failures.

Due to the high concentration, PCB-1260 failed the recovery criteria high for the MS of sample G6-0to27-101818MS (580-88125-11) in batch 580-308439. PCB-1260 failed the recovery criteria low for the MSD of sample G6-0to27-101818MSD (580-88125-11) in batch 580-308439. PCB-1260 exceeded the RPD limit. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

In analytical batch 580-308439, the %RPD between the primary and confirmation column exceeded 40% for PCB-1260 and PCB-1254 for the following sample(s): G6-0to27-101818 (580-88125-11[1.0]), H2-0to30-101218 (580-88125-12[1.0]), M4-0to26-101918 (580-88125-14[1.0]), N7-0to27-101418 (580-88125-17[1.0]), O7-0to27-101918 (580-88125-18[1.0]), (580-88125-D-11-D MS) and (580-88125-D-11-E MSD). The lower value(s) has been reported in accordance with the laboratory's SOP.

%RPD between the primary and confirmation column exceeded 40% for some analytes for the following sample: A4-0to25-100818 (580-88125-4[3.0]). The lower values have been reported in accordance with the laboratory's SOP.

The following samples required a TBA clean-up to reduce matrix interferences caused by sulfur: A1-0to30-102018 (580-88125-1), A1-0to30-102018 MS (580-88125-1 MS), A1-0to30-102018 MSD (580-88125-1 MSD), A2-0to26-100818 (580-88125-2), A3-0to31-100818 (580-88125-3), A4-0to25-100818 (580-88125-4), A6-0to23-100818 (580-88125-6), A7-0to26-100918 (580-88125-7), C4-0to27-100918 (580-88125-8), D2-0to19-101018 (580-88125-9), F2-0to19-101018 (580-88125-10), G6-0to27-101818 (580-88125-11), G6-0to27-101818 MS (580-88125-11 MS), G6-0to27-101818 MSD (580-88125-11 MSD), H2-0to30-101218 (580-88125-12), J2A3-0to18-101218 (580-88125-13), M4-0to26-101918 (580-88125-14), N5-0to28-101418 (580-88125-16), N7-0to27-101418 (580-88125-17), O7-0to27-101918 (580-88125-18), Q2-0to13-101818 (580-88125-19), Q6-0to27-102018 (580-88125-20), T6-0to29-101618 (580-88125-21), (LCS 580-308204/2-A), and (MB 580-308204/1-A).

Sample A4-0to25-100818 (580-88125-4)[3X] required dilution prior to analysis to bring the concentration of target analytes within the calibration range. The reporting limits have been adjusted accordingly.

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

DIESEL AND EXTENDED RANGE ORGANICS

Samples A1-0to30-102018 (580-88125-1), A2-0to26-100818 (580-88125-2), A3-0to31-100818 (580-88125-3), A4-0to25-100818 (580-88125-4), A5-0to25-100818 (580-88125-5), A6-0to23-100818 (580-88125-6), A7-0to26-100918 (580-88125-7), C4-0to27-100918 (580-88125-8), D2-0to19-101018 (580-88125-9), F2-0to19-101018 (580-88125-10), G6-0to27-101818 (580-88125-11), H2-0to30-101218 (580-88125-12), J2A3-0to18-101218 (580-88125-13), M4-0to26-101918 (580-88125-14), 515-0to26-101918 (580-88125-15), N5-0to28-101418 (580-88125-16), N7-0to27-101418 (580-88125-17), O7-0to27-101918 (580-88125-18), Q2-0to13-101818 (580-88125-19), Q6-0to27-102018 (580-88125-20) and T6-0to29-101618 (580-88125-21) were analyzed for diesel and extended range organics in accordance with Method NWTPH-Dx. The samples were prepared on 08/12/2019 and 08/13/2019 and analyzed on 08/14/2019 and 08/15/2019.

Surrogate recovery for the following samples were outside control limits: A6-0to23-100818 (580-88125-6) and J2A3-0to18-101218 (580-88125-13). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis were not performed.

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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: A1-0to30-102018 (580-88125-1), A2-0to26-100818 (580-88125-2), A3-0to31-100818 (580-88125-3), A4-0to25-100818 (580-88125-4), A5-0to25-100818 (580-88125-5), A6-0to23-100818 (580-88125-6), A7-0to26-100918 (580-88125-7), C4-0to27-100918 (580-88125-8), D2-0to19-101018 (580-88125-9), F2-0to19-101018 (580-88125-10), G6-0to27-101818 (580-88125-11), G6-0to27-101818 DU (580-88125-11 DU), H2-0to30-101218 (580-88125-12), J2A3-0to18-101218 (580-88125-13), M4-0to26-101918 (580-88125-14), 515-0to26-101918 (580-88125-15), N5-0to28-101418 (580-88125-16), N7-0to27-101418 (580-88125-17), O7-0to27-101918 (580-88125-18), Q2-0to13-101818 (580-88125-19), Q6-0to27-102018 (580-88125-20) and T6-0to29-101618 (580-88125-21).

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

METALS (ICPMS)

Samples A1-0to30-102018 (580-88125-1), A2-0to26-100818 (580-88125-2), A3-0to31-100818 (580-88125-3), A4-0to25-100818 (580-88125-4), A5-0to25-100818 (580-88125-5), A6-0to23-100818 (580-88125-6), A7-0to26-100918 (580-88125-7), C4-0to27-100918 (580-88125-8), D2-0to19-101018 (580-88125-9), F2-0to19-101018 (580-88125-10), G6-0to27-101818 (580-88125-11), H2-0to30-101218 (580-88125-12), J2A3-0to18-101218 (580-88125-13), M4-0to26-101918 (580-88125-14), 515-0to26-101918 (580-88125-15), N5-0to28-101418 (580-88125-16), N7-0to27-101418 (580-88125-17), O7-0to27-101918 (580-88125-18), Q2-0to13-101818 (580-88125-19), Q6-0to27-102018 (580-88125-20) and T6-0to29-101618 (580-88125-21) were analyzed for Metals (ICPMS) in accordance with 6020A_LL. The samples were prepared on 08/09/2019 and 08/14/2019 and analyzed on 08/13/2019 and 08/14/2019.

Lead was detected in method blank MB 580-308354/6-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. Because the result concentration was less than ½ the reporting limit, no corrective action was performed.

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

TOTAL MERCURY

Samples A1-0to30-102018 (580-88125-1), A2-0to26-100818 (580-88125-2), A3-0to31-100818 (580-88125-3), A4-0to25-100818 (580-88125-4), A5-0to25-100818 (580-88125-5), A6-0to23-100818 (580-88125-6), A7-0to26-100918 (580-88125-7), C4-0to27-100918 (580-88125-8), D2-0to19-101018 (580-88125-9), F2-0to19-101018 (580-88125-10), G6-0to27-101818 (580-88125-11), H2-0to30-101218 (580-88125-12), J2A3-0to18-101218 (580-88125-13), M4-0to26-101918 (580-88125-14), 515-0to26-101918 (580-88125-15), N5-0to28-101418 (580-88125-16), N7-0to27-101418 (580-88125-17), O7-0to27-101918 (580-88125-18), Q2-0to13-101818 (580-88125-19), Q6-0to27-102018 (580-88125-20) and T6-0to29-101618 (580-88125-21) were analyzed for total mercury in accordance with EPA SW-846 Method 7471A. The samples were prepared on 08/14/2019 and analyzed on 08/14/2019 and 08/15/2019.

Mercury failed the recovery criteria high for the MS of sample A1-0to30-102018MS (580-88125-1) in batch 580-308412. Mercury failed the recovery criteria high for the MSD of sample A1-0to30-102018MSD (580-88125-1) in batch 580-308412. The associated LCS and LCSD recoveries met acceptance limits.

Mercury exceeded the RPD limit for the duplicate of sample A1-0to30-102018DU (580-88125-1).

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

PUGET SOUND ESTUARY PROGRAM TOTAL ORGANIC CARBON

Samples A1-0to30-102018 (580-88125-1), A2-0to26-100818 (580-88125-2), A3-0to31-100818 (580-88125-3), A4-0to25-100818 (580-88125-4), A5-0to25-100818 (580-88125-5), A6-0to23-100818 (580-88125-6), A7-0to26-100918 (580-88125-7), C4-0to27-100918 (580-88125-8), D2-0to19-101018 (580-88125-9), F2-0to19-101018 (580-88125-10), G6-0to27-101818 (580-88125-11), H2-0to30-101218 (580-88125-12), J2A3-0to18-101218 (580-88125-13), M4-0to26-101918 (580-88125-14), 515-0to26-101918 (580-88125-15), N5-0to28-101418 (580-88125-16), N7-0to27-101418 (580-88125-17), O7-0to27-101918 (580-88125-18), Q2-0to13-101818 (580-88125-19), Q6-0to27-102018 (580-88125-20) and T6-0to29-101618 (580-88125-21) were analyzed for Puget Sound Estuary Program total organic carbon in accordance with EPA SW-846 Method 9060, modified to meet the Puget Sound Estuary Program requirements. The samples were analyzed on 08/18/2019.

Total Organic Carbon - Duplicates was detected in method blank MB 580-308680/3 at a level that was above the method detection limit

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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. Because the result concentration was less than ½ the reporting limit, no corrective action was performed.

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

GRAIN SIZE

Samples A1-0to30-102018 (580-88125-1), A2-0to26-100818 (580-88125-2), A3-0to31-100818 (580-88125-3), A4-0to25-100818 (580-88125-4), A5-0to25-100818 (580-88125-5), A6-0to23-100818 (580-88125-6), A7-0to26-100918 (580-88125-7), C4-0to27-100918 (580-88125-8), D2-0to19-101018 (580-88125-9), F2-0to19-101018 (580-88125-10), G6-0to27-101818 (580-88125-11), H2-0to30-101218 (580-88125-12), J2A3-0to18-101218 (580-88125-13), M4-0to26-101918 (580-88125-14), 515-0to26-101918 (580-88125-15), N5-0to28-101418 (580-88125-16), N7-0to27-101418 (580-88125-17), O7-0to27-101918 (580-88125-18), Q2-0to13-101818 (580-88125-19), Q6-0to27-102018 (580-88125-20) and T6-0to29-101618 (580-88125-21) were analyzed for grain size in accordance with ASTM D7928 & D6913. The samples were analyzed on 08/06/2019.

Coarse Sand and Medium Sand exceeded the RPD limit for the duplicate of sample G6-0to27-101818DU (580-88125-11).

Coarse Sand exceeded the RPD limit for the duplicate of sample A1-0to30-102018DU (580-88125-1).

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

SPECIFIC GRAVITY

Samples A1-0to30-102018 (580-88125-1), A2-0to26-100818 (580-88125-2), A3-0to31-100818 (580-88125-3), A4-0to25-100818 (580-88125-4), A5-0to25-100818 (580-88125-5), A6-0to23-100818 (580-88125-6), A7-0to26-100918 (580-88125-7), C4-0to27-100918 (580-88125-8), D2-0to19-101018 (580-88125-9), F2-0to19-101018 (580-88125-10), G6-0to27-101818 (580-88125-11), H2-0to30-101218 (580-88125-12), J2A3-0to18-101218 (580-88125-13), M4-0to26-101918 (580-88125-14), 515-0to26-101918 (580-88125-15), N5-0to28-101418 (580-88125-16), N7-0to27-101418 (580-88125-17), O7-0to27-101918 (580-88125-18), Q2-0to13-101818 (580-88125-19), Q6-0to27-102018 (580-88125-20) and T6-0to29-101618 (580-88125-21) were analyzed for specific gravity in accordance with ASTM D854. The samples were analyzed on 08/13/2019 and 08/14/2019.

The density (or specific gravity) of the samples was determined using SOP number KNOX-WC-0015, based on ASTM Methods D1475 (replaced D1963) and D854. A Hubbard-Carmick type pycnometer is tared on a four-place analytical balance. The pycnometer filled with water is weighed to calibrate the volume at the desired temperature. The pycnometer filled with sample is weighed to determine the weight of the sample at the calibrated volume. The standard temperature for this procedure is 25ºC. The density and specific gravity of the material are calculated using the following equations:

d(SAMP) = [C(T) - A] / V(T)

Where:
d(SAMP) = Density of the liquid sample at temperature T, g/cm3
C(T) = Weight of pycnometer filled with sample at temperature T, g
A = Weight of pycnometer, g
V(T) = Volume of pycnometer at temperature T, cm3

d(SAMP) = [C(T) - A] / [V(T) - [(D(T) - C(T)) / dH2O(T)]]

Where:
d(SAMP) = Density of the solid sample at temperature T, g/cm3
D(T) = Weight of pycnometer filled with water and an aliquot of the sample at temperature T, g
C(T) = Weight of pycnometer partially filled with an aliquot of the sample at temperature T, g
A = Weight of pycnometer, g
dH2O(T) = Density of pure water at temperature T, g/cm3
V(T) = Volume of pycnometer at temperature T, cm3

S(T) = d(SAMP) / dH2O(T)

Job ID: 580-88125-1 (Continued)

Laboratory: Eurofins TestAmerica, Seattle (Continued)

Where:
S(T) = Specific gravity of the sample at temperature T, unitless
d(SAMP) = Density of the sample at temperature T, g/cm3
dH2O(T) = Density of pure water at temperature T, g/cm3
T = Temperature of analysis

Conversion factors:
1 lb/gal = 0.1198 g/cm3
1 Kg/cu. m = 0.001 g/cm3

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

PERCENT SOLIDS

Samples A1-0to30-102018 (580-88125-1), A2-0to26-100818 (580-88125-2), A3-0to31-100818 (580-88125-3), A4-0to25-100818 (580-88125-4), A5-0to25-100818 (580-88125-5), A6-0to23-100818 (580-88125-6), A7-0to26-100918 (580-88125-7), C4-0to27-100918 (580-88125-8), D2-0to19-101018 (580-88125-9), F2-0to19-101018 (580-88125-10), G6-0to27-101818 (580-88125-11), H2-0to30-101218 (580-88125-12), J2A3-0to18-101218 (580-88125-13), M4-0to26-101918 (580-88125-14), 515-0to26-101918 (580-88125-15), N5-0to28-101418 (580-88125-16), N7-0to27-101418 (580-88125-17), O7-0to27-101918 (580-88125-18), Q2-0to13-101818 (580-88125-19), Q6-0to27-102018 (580-88125-20) and T6-0to29-101618 (580-88125-21) were analyzed for percent solids in accordance with ASTM D2216. The samples were analyzed on 08/13/2019.

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

TOTAL SOLIDS @ 70C

Samples A1-0to30-102018 (580-88125-1), A2-0to26-100818 (580-88125-2), A3-0to31-100818 (580-88125-3), A4-0to25-100818 (580-88125-4), A5-0to25-100818 (580-88125-5), A6-0to23-100818 (580-88125-6), A7-0to26-100918 (580-88125-7), C4-0to27-100918 (580-88125-8), D2-0to19-101018 (580-88125-9), F2-0to19-101018 (580-88125-10), G6-0to27-101818 (580-88125-11), H2-0to30-101218 (580-88125-12), J2A3-0to18-101218 (580-88125-13), M4-0to26-101918 (580-88125-14), 515-0to26-101918 (580-88125-15), N5-0to28-101418 (580-88125-16), N7-0to27-101418 (580-88125-17), O7-0to27-101918 (580-88125-18), Q2-0to13-101818 (580-88125-19), Q6-0to27-102018 (580-88125-20) and T6-0to29-101618 (580-88125-21) were analyzed for Total Solids @ 70C in accordance with Moisture @ 70C. The samples were analyzed on 08/21/2019.

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

Definitions/Glossary

Client: Pacific Groundwater Group
Job ID: 580-88125-1
Project/Site: Swan Island Lagoon Sediment Investigatio

Qualifiers

GC Semi VOA

Qualifier	Qualifier Description
E	Result exceeded calibration range.
F1	MS and/or MSD Recovery is outside acceptance limits.
F2	MS/MSD RPD exceeds control limits
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
p	The %RPD between the primary and confirmation column/detector is >40%. The lower value has been reported.
X	Surrogate is outside control limits

Dioxin

Qualifier	Qualifier Description
*	LCS or LCSD is outside acceptance limits.
B	Compound was found in the blank and sample.
E	Result exceeded calibration range.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
q	The reported result is the estimated maximum possible concentration of this analyte, quantitated using the theoretical ion ratio. The measured ion ratio does not meet qualitative identification criteria and indicates a possible interference.

Metals

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
F1	MS and/or MSD Recovery is outside acceptance limits.
F5	Duplicate RPD exceeds limit, and one or both sample results are less than 5 times RL. The data are considered valid because the absolute difference is less than the RL.
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
B	Compound was found in the blank and sample.
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.

Geotechnical

Qualifier	Qualifier Description
F3	Duplicate RPD exceeds the control limit
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

Glossary (Continued)

Abbreviation	These commonly used abbreviations may or may not be present in this report.
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: A1-0to30-102018
Lab Sample ID: 580-88125-1

Date Collected: 10/20/18 12:05
Matrix: Solid

Date Received: 07/26/19 13:10
Percent Solids: 55.1

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		3.4	1.3	ug/Kg	☼	08/13/19 10:43	08/15/19 22:52	1
PCB-1221	ND		3.4	1.6	ug/Kg	☼	08/13/19 10:43	08/15/19 22:52	1
PCB-1232	ND		3.4	1.6	ug/Kg	☼	08/13/19 10:43	08/15/19 22:52	1
PCB-1242	ND		3.4	0.84	ug/Kg	☼	08/13/19 10:43	08/15/19 22:52	1
PCB-1248	ND		3.4	0.62	ug/Kg	☼	08/13/19 10:43	08/15/19 22:52	1
PCB-1254	ND		3.4	1.4	ug/Kg	☼	08/13/19 10:43	08/15/19 22:52	1
PCB-1260	ND		3.4	1.3	ug/Kg	☼	08/13/19 10:43	08/15/19 22:52	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl	*61*		*39 - 142*	*08/13/19 10:43*	*08/15/19 22:52*	*1*
Tetrachloro-m-xylene	*54*		*35 - 129*	*08/13/19 10:43*	*08/15/19 22:52*	*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)	ND		83	20	mg/Kg	☼	08/12/19 12:08	08/14/19 17:36	1
Motor Oil (>C24-C36)	**49**	**J**	83	29	mg/Kg	☼	08/12/19 12:08	08/14/19 17:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*93*		*50 - 150*	*08/12/19 12:08*	*08/14/19 17:36*	*1*

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3,4,6,7,8-HpCDD	**0.0015**	**J**	0.0046	0.00015	ug/Kg	☼	08/14/19 12:31	08/17/19 08:20	1
1,2,3,4,6,7,8-HpCDF	ND	*	0.0046	0.00022	ug/Kg	☼	08/14/19 12:31	08/17/19 08:20	1
1,2,3,4,7,8,9-HpCDF	ND	*	0.0046	0.00025	ug/Kg	☼	08/14/19 12:31	08/17/19 08:20	1
1,2,3,4,7,8-HxCDD	ND		0.0046	0.00014	ug/Kg	☼	08/14/19 12:31	08/17/19 08:20	1
1,2,3,4,7,8-HxCDF	ND		0.0046	0.000082	ug/Kg	☼	08/14/19 12:31	08/17/19 08:20	1
1,2,3,6,7,8-HxCDD	ND	*	0.0046	0.00014	ug/Kg	☼	08/14/19 12:31	08/17/19 08:20	1
1,2,3,6,7,8-HxCDF	ND		0.0046	0.000086	ug/Kg	☼	08/14/19 12:31	08/17/19 08:20	1
1,2,3,7,8,9-HxCDD	ND		0.0046	0.00013	ug/Kg	☼	08/14/19 12:31	08/17/19 08:20	1
1,2,3,7,8,9-HxCDF	ND		0.0046	0.000084	ug/Kg	☼	08/14/19 12:31	08/17/19 08:20	1
1,2,3,7,8-PeCDD	ND	*	0.0046	0.00025	ug/Kg	☼	08/14/19 12:31	08/17/19 08:20	1
1,2,3,7,8-PeCDF	ND	*	0.0046	0.00015	ug/Kg	☼	08/14/19 12:31	08/17/19 08:20	1
2,3,4,6,7,8-HxCDF	ND		0.0046	0.000077	ug/Kg	☼	08/14/19 12:31	08/17/19 08:20	1
2,3,4,7,8-PeCDF	ND	*	0.0046	0.00016	ug/Kg	☼	08/14/19 12:31	08/17/19 08:20	1
2,3,7,8-TCDD	ND	*	0.00091	0.00016	ug/Kg	☼	08/14/19 12:31	08/17/19 08:20	1
2,3,7,8-TCDF	ND		0.00091	0.00011	ug/Kg	☼	08/14/19 12:31	08/17/19 08:20	1
OCDD	**0.027**	**B**	0.0091	0.00031	ug/Kg	☼	08/14/19 12:31	08/17/19 08:20	1
OCDF	ND		0.0091	0.00034	ug/Kg	☼	08/14/19 12:31	08/17/19 08:20	1
Total HpCDD	**0.0037**	**J**	0.0046	0.00015	ug/Kg	☼	08/14/19 12:31	08/17/19 08:20	1
Total HpCDF	ND	*	0.0046	0.00025	ug/Kg	☼	08/14/19 12:31	08/17/19 08:20	1
Total HxCDD	**0.00054**	**J**	0.0046	0.00014	ug/Kg	☼	08/14/19 12:31	08/17/19 08:20	1
Total HxCDF	ND		0.0046	0.000086	ug/Kg	☼	08/14/19 12:31	08/17/19 08:20	1
Total PeCDD	ND	*	0.0046	0.00025	ug/Kg	☼	08/14/19 12:31	08/17/19 08:20	1
Total PeCDF	ND		0.0046	0.00016	ug/Kg	☼	08/14/19 12:31	08/17/19 08:20	1
Total TCDD	ND		0.00091	0.00016	ug/Kg	☼	08/14/19 12:31	08/17/19 08:20	1
Total TCDF	ND		0.00091	0.00011	ug/Kg	☼	08/14/19 12:31	08/17/19 08:20	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*42*		*23 - 140*	*08/14/19 12:31*	*08/17/19 08:20*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*45*		*28 - 143*	*08/14/19 12:31*	*08/17/19 08:20*	*1*

Client Sample ID: A1-0to30-102018
Lab Sample ID: 580-88125-1

Date Collected: 10/20/18 12:05
Matrix: Solid

Date Received: 07/26/19 13:10
Percent Solids: 55.1

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,7,8,9-HpCDF	*51*		*26 - 138*	*08/14/19 12:31*	*08/17/19 08:20*	*1*
13C-1,2,3,4,7,8-HxCDD	*57*		*32 - 141*	*08/14/19 12:31*	*08/17/19 08:20*	*1*
13C-1,2,3,4,7,8-HxCDF	*66*		*26 - 152*	*08/14/19 12:31*	*08/17/19 08:20*	*1*
13C-1,2,3,6,7,8-HxCDD	*59*		*28 - 130*	*08/14/19 12:31*	*08/17/19 08:20*	*1*
13C-1,2,3,6,7,8-HxCDF	*61*		*26 - 123*	*08/14/19 12:31*	*08/17/19 08:20*	*1*
13C-1,2,3,7,8,9-HxCDF	*64*		*29 - 147*	*08/14/19 12:31*	*08/17/19 08:20*	*1*
13C-1,2,3,7,8-PeCDD	*61*		*25 - 181*	*08/14/19 12:31*	*08/17/19 08:20*	*1*
13C-1,2,3,7,8-PeCDF	*62*		*24 - 185*	*08/14/19 12:31*	*08/17/19 08:20*	*1*
13C-2,3,4,6,7,8-HxCDF	*62*		*28 - 136*	*08/14/19 12:31*	*08/17/19 08:20*	*1*
13C-2,3,4,7,8-PeCDF	*64*		*21 - 178*	*08/14/19 12:31*	*08/17/19 08:20*	*1*
13C-2,3,7,8-TCDD	*65*		*25 - 164*	*08/14/19 12:31*	*08/17/19 08:20*	*1*
13C-2,3,7,8-TCDF	*71*		*24 - 169*	*08/14/19 12:31*	*08/17/19 08:20*	*1*
13C-OCDD	*35*		*17 - 157*	*08/14/19 12:31*	*08/17/19 08:20*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*105*		*35 - 197*	*08/14/19 12:31*	*08/17/19 08:20*	*1*

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	4.0		0.28	0.056	mg/Kg	☼	08/09/19 14:36	08/13/19 15:02	5
Cadmium	0.074	J	0.22	0.043	mg/Kg	☼	08/09/19 14:36	08/13/19 15:02	5
Copper	46		0.56	0.12	mg/Kg	☼	08/09/19 14:36	08/13/19 15:02	5
Lead	12		0.28	0.027	mg/Kg	☼	08/09/19 14:36	08/13/19 15:02	5
Zinc	65		2.8	0.90	mg/Kg	☼	08/09/19 14:36	08/13/19 15:02	5

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.059	H F1	0.043	0.013	mg/Kg	☼	08/14/19 10:54	08/14/19 18:11	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	2900	H B	2000	97	mg/Kg			08/18/19 13:17	1
Total Solids	55.1	H	0.1	0.1	%			08/13/19 17:21	1
Percent Moisture	44	H	0.10	0.10	%			08/21/19 13:20	1
Percent Solids	56	H	0.10	0.10	%			08/21/19 13:20	1

Method: D7928/D6913 - ASTM D7928/D6913

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Clay	19.5	H			%			08/06/19 11:26	1
Coarse Sand	1.6	H			%			08/06/19 11:26	1
Fine Sand	18.7	H			%			08/06/19 11:26	1
Gravel	0.0	H			%			08/06/19 11:26	1
Medium Sand	0.3	H			%			08/06/19 11:26	1
Silt	59.9	H			%			08/06/19 11:26	1

Method: D854 - Specific Gravity

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Density	1.52		0.0100	0.0100	g/cm3			08/13/19 00:00	1
Specific Gravity	1.53		0.0100	0.0100	NONE			08/13/19 00:00	1

Client Sample ID: A2-0to26-100818
Lab Sample ID: 580-88125-2

Date Collected: 10/08/18 14:04
Matrix: Solid

Date Received: 07/26/19 13:10
Percent Solids: 31.7

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		5.9	2.2	ug/Kg	☼	08/13/19 10:43	08/15/19 23:43	1
PCB-1221	ND		5.9	2.8	ug/Kg	☼	08/13/19 10:43	08/15/19 23:43	1
PCB-1232	ND		5.9	2.8	ug/Kg	☼	08/13/19 10:43	08/15/19 23:43	1
PCB-1242	ND		5.9	1.5	ug/Kg	☼	08/13/19 10:43	08/15/19 23:43	1
PCB-1248	ND		5.9	1.1	ug/Kg	☼	08/13/19 10:43	08/15/19 23:43	1
PCB-1254	ND		5.9	2.3	ug/Kg	☼	08/13/19 10:43	08/15/19 23:43	1
PCB-1260	**6.0**	**p**	5.9	2.3	ug/Kg	☼	08/13/19 10:43	08/15/19 23:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl	*37*	*p X*	*39 - 142*	*08/13/19 10:43*	*08/15/19 23:43*	*1*
Tetrachloro-m-xylene	*53*		*35 - 129*	*08/13/19 10:43*	*08/15/19 23:43*	*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)	**76**	**J**	120	30	mg/Kg	☼	08/12/19 12:08	08/14/19 17:59	1
Motor Oil (>C24-C36)	**280**		120	42	mg/Kg	☼	08/12/19 12:08	08/14/19 17:59	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*88*		*50 - 150*	*08/12/19 12:08*	*08/14/19 17:59*	*1*

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3,4,6,7,8-HpCDD	**1.1**		0.0078	0.0060	ug/Kg	☼	08/14/19 12:31	08/17/19 09:08	1
1,2,3,4,6,7,8-HpCDF	**0.13**	*****	0.0078	0.0019	ug/Kg	☼	08/14/19 12:31	08/17/19 09:08	1
1,2,3,4,7,8,9-HpCDF	**0.0060**	**J ***	0.0078	0.0023	ug/Kg	☼	08/14/19 12:31	08/17/19 09:08	1
1,2,3,4,7,8-HxCDD	**0.0038**	**J**	0.0078	0.00069	ug/Kg	☼	08/14/19 12:31	08/17/19 09:08	1
1,2,3,4,7,8-HxCDF	**0.0090**		0.0078	0.00066	ug/Kg	☼	08/14/19 12:31	08/17/19 09:08	1
1,2,3,6,7,8-HxCDD	**0.022**	*****	0.0078	0.00069	ug/Kg	☼	08/14/19 12:31	08/17/19 09:08	1
1,2,3,6,7,8-HxCDF	**0.0035**	**J**	0.0078	0.00073	ug/Kg	☼	08/14/19 12:31	08/17/19 09:08	1
1,2,3,7,8,9-HxCDD	**0.0086**		0.0078	0.00065	ug/Kg	☼	08/14/19 12:31	08/17/19 09:08	1
1,2,3,7,8,9-HxCDF	ND		0.0078	0.00067	ug/Kg	☼	08/14/19 12:31	08/17/19 09:08	1
1,2,3,7,8-PeCDD	**0.0018**	**J ***	0.0078	0.00059	ug/Kg	☼	08/14/19 12:31	08/17/19 09:08	1
1,2,3,7,8-PeCDF	**0.0014**	**J ***	0.0078	0.00038	ug/Kg	☼	08/14/19 12:31	08/17/19 09:08	1
2,3,4,6,7,8-HxCDF	**0.0018**	**J**	0.0078	0.00064	ug/Kg	☼	08/14/19 12:31	08/17/19 09:08	1
2,3,4,7,8-PeCDF	**0.0021**	**J ***	0.0078	0.00043	ug/Kg	☼	08/14/19 12:31	08/17/19 09:08	1
2,3,7,8-TCDD	**0.00058**	**J * q**	0.0016	0.00032	ug/Kg	☼	08/14/19 12:31	08/17/19 09:08	1
OCDD	**8.5**	**E B**	0.016	0.0036	ug/Kg	☼	08/14/19 12:31	08/17/19 09:08	1
OCDF	**0.58**		0.016	0.00062	ug/Kg	☼	08/14/19 12:31	08/17/19 09:08	1
Total HpCDD	**2.7**		0.0078	0.0060	ug/Kg	☼	08/14/19 12:31	08/17/19 09:08	1
Total HpCDF	**0.61**	*****	0.0078	0.0021	ug/Kg	☼	08/14/19 12:31	08/17/19 09:08	1
Total HxCDD	**0.20**		0.0078	0.00067	ug/Kg	☼	08/14/19 12:31	08/17/19 09:08	1
Total HxCDF	**0.15**		0.0078	0.00068	ug/Kg	☼	08/14/19 12:31	08/17/19 09:08	1
Total PeCDD	**0.0081**	*** q**	0.0078	0.00059	ug/Kg	☼	08/14/19 12:31	08/17/19 09:08	1
Total PeCDF	**0.017**		0.0078	0.00041	ug/Kg	☼	08/14/19 12:31	08/17/19 09:08	1
Total TCDD	**0.0079**	**q**	0.0016	0.00032	ug/Kg	☼	08/14/19 12:31	08/17/19 09:08	1
Total TCDF	**0.0080**	**q**	0.0016	0.00031	ug/Kg	☼	08/14/19 12:31	08/17/19 09:08	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*44*		*23 - 140*	*08/14/19 12:31*	*08/17/19 09:08*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*46*		*28 - 143*	*08/14/19 12:31*	*08/17/19 09:08*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*52*		*26 - 138*	*08/14/19 12:31*	*08/17/19 09:08*	*1*

Client Sample ID: A2-0to26-100818
Date Collected: 10/08/18 14:04
Date Received: 07/26/19 13:10

Lab Sample ID: 580-88125-2
Matrix: Solid
Percent Solids: 31.7

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,7,8-HxCDD	*60*		*32 - 141*	*08/14/19 12:31*	*08/17/19 09:08*	*1*
13C-1,2,3,4,7,8-HxCDF	*69*		*26 - 152*	*08/14/19 12:31*	*08/17/19 09:08*	*1*
13C-1,2,3,6,7,8-HxCDD	*55*		*28 - 130*	*08/14/19 12:31*	*08/17/19 09:08*	*1*
13C-1,2,3,6,7,8-HxCDF	*60*		*26 - 123*	*08/14/19 12:31*	*08/17/19 09:08*	*1*
13C-1,2,3,7,8,9-HxCDF	*65*		*29 - 147*	*08/14/19 12:31*	*08/17/19 09:08*	*1*
13C-1,2,3,7,8-PeCDD	*60*		*25 - 181*	*08/14/19 12:31*	*08/17/19 09:08*	*1*
13C-1,2,3,7,8-PeCDF	*62*		*24 - 185*	*08/14/19 12:31*	*08/17/19 09:08*	*1*
13C-2,3,4,6,7,8-HxCDF	*62*		*28 - 136*	*08/14/19 12:31*	*08/17/19 09:08*	*1*
13C-2,3,4,7,8-PeCDF	*62*		*21 - 178*	*08/14/19 12:31*	*08/17/19 09:08*	*1*
13C-2,3,7,8-TCDD	*61*		*25 - 164*	*08/14/19 12:31*	*08/17/19 09:08*	*1*
13C-2,3,7,8-TCDF	*71*		*24 - 169*	*08/14/19 12:31*	*08/17/19 09:08*	*1*
13C-OCDD	*43*		*17 - 157*	*08/14/19 12:31*	*08/17/19 09:08*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*105*		*35 - 197*	*08/14/19 12:31*	*08/17/19 09:08*	*1*

Method: 1613B - Dioxins and Furans (HRGC/HRMS) - RA

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDF	**0.0021**		0.0016	0.00025	ug/Kg	☼	08/14/19 12:31	08/21/19 00:35	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDF	*69*		*24 - 169*	*08/14/19 12:31*	*08/21/19 00:35*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*99*		*35 - 197*	*08/14/19 12:31*	*08/21/19 00:35*	*1*

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**7.7**		0.41	0.082	mg/Kg	☼	08/09/19 14:36	08/13/19 15:11	5
Cadmium	**0.34**		0.33	0.063	mg/Kg	☼	08/09/19 14:36	08/13/19 15:11	5
Copper	**95**		0.82	0.18	mg/Kg	☼	08/09/19 14:36	08/13/19 15:11	5
Lead	**26**		0.41	0.039	mg/Kg	☼	08/09/19 14:36	08/13/19 15:11	5
Zinc	**210**		4.1	1.3	mg/Kg	☼	08/09/19 14:36	08/13/19 15:11	5

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**0.14**	**H**	0.070	0.021	mg/Kg	☼	08/14/19 10:54	08/14/19 18:21	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	**35000**	**H B**	2000	97	mg/Kg			08/18/19 13:35	1
Total Solids	**31.7**	**H**	0.1	0.1	%			08/13/19 17:21	1
Percent Moisture	**66**	**H**	0.10	0.10	%			08/21/19 13:20	1
Percent Solids	**34**	**H**	0.10	0.10	%			08/21/19 13:20	1

Method: D7928/D6913 - ASTM D7928/D6913

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Clay	**20.7**	**H**			%			08/06/19 11:26	1
Coarse Sand	**0.1**	**H**			%			08/06/19 11:26	1
Fine Sand	**14.4**	**H**			%			08/06/19 11:26	1
Gravel	**0.0**	**H**			%			08/06/19 11:26	1
Medium Sand	**0.3**	**H**			%			08/06/19 11:26	1

Client: Pacific Groundwater Group
Job ID: 580-88125-1
Project/Site: Swan Island Lagoon Sediment Investigatio

Client Sample ID: A2-0to26-100818
Lab Sample ID: 580-88125-2
Date Collected: 10/08/18 14:04
Matrix: Solid
Date Received: 07/26/19 13:10
Percent Solids: 31.7

Method: D7928/D6913 - ASTM D7928/D6913 (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silt	64.5	H			%			08/06/19 11:26	1

Method: D854 - Specific Gravity

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Density	1.23		0.0100	0.0100	g/cm3			08/13/19 00:00	1
Specific Gravity	1.23		0.0100	0.0100	NONE			08/13/19 00:00	1

Client Sample ID: A3-0to31-100818
Lab Sample ID: 580-88125-3

Date Collected: 10/08/18 11:14
Matrix: Solid

Date Received: 07/26/19 13:10
Percent Solids: 33.3

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		5.8	2.1	ug/Kg	☼	08/13/19 10:43	08/16/19 00:00	1
PCB-1221	ND		5.8	2.8	ug/Kg	☼	08/13/19 10:43	08/16/19 00:00	1
PCB-1232	ND		5.8	2.8	ug/Kg	☼	08/13/19 10:43	08/16/19 00:00	1
PCB-1242	ND		5.8	1.4	ug/Kg	☼	08/13/19 10:43	08/16/19 00:00	1
PCB-1248	ND		5.8	1.0	ug/Kg	☼	08/13/19 10:43	08/16/19 00:00	1
PCB-1254	**44**		5.8	2.3	ug/Kg	☼	08/13/19 10:43	08/16/19 00:00	1
PCB-1260	ND		5.8	2.2	ug/Kg	☼	08/13/19 10:43	08/16/19 00:00	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl	*54*		*39 - 142*	*08/13/19 10:43*	*08/16/19 00:00*	*1*
Tetrachloro-m-xylene	*60*		*35 - 129*	*08/13/19 10:43*	*08/16/19 00:00*	*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)	**54**	**J**	120	30	mg/Kg	☼	08/12/19 12:08	08/14/19 18:21	1
Motor Oil (>C24-C36)	**290**		120	42	mg/Kg	☼	08/12/19 12:08	08/14/19 18:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*99*		*50 - 150*	*08/12/19 12:08*	*08/14/19 18:21*	*1*

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3,4,6,7,8-HpCDD	**1.0**		0.0074	0.0045	ug/Kg	☼	08/14/19 12:31	08/17/19 09:55	1
1,2,3,4,6,7,8-HpCDF	**0.17**	*	0.0074	0.0025	ug/Kg	☼	08/14/19 12:31	08/17/19 09:55	1
1,2,3,4,7,8,9-HpCDF	**0.0068**	**J ***	0.0074	0.0029	ug/Kg	☼	08/14/19 12:31	08/17/19 09:55	1
1,2,3,4,7,8-HxCDD	**0.0031**	**J**	0.0074	0.00060	ug/Kg	☼	08/14/19 12:31	08/17/19 09:55	1
1,2,3,4,7,8-HxCDF	**0.0084**		0.0074	0.00067	ug/Kg	☼	08/14/19 12:31	08/17/19 09:55	1
1,2,3,6,7,8-HxCDD	**0.022**	*	0.0074	0.00062	ug/Kg	☼	08/14/19 12:31	08/17/19 09:55	1
1,2,3,6,7,8-HxCDF	**0.0030**	**J**	0.0074	0.00073	ug/Kg	☼	08/14/19 12:31	08/17/19 09:55	1
1,2,3,7,8,9-HxCDD	**0.0068**	**J**	0.0074	0.00057	ug/Kg	☼	08/14/19 12:31	08/17/19 09:55	1
1,2,3,7,8,9-HxCDF	ND		0.0074	0.00072	ug/Kg	☼	08/14/19 12:31	08/17/19 09:55	1
1,2,3,7,8-PeCDD	**0.0015**	**J ***	0.0074	0.00063	ug/Kg	☼	08/14/19 12:31	08/17/19 09:55	1
1,2,3,7,8-PeCDF	ND	*	0.0074	0.00041	ug/Kg	☼	08/14/19 12:31	08/17/19 09:55	1
2,3,4,6,7,8-HxCDF	**0.00081**	**J**	0.0074	0.00072	ug/Kg	☼	08/14/19 12:31	08/17/19 09:55	1
2,3,4,7,8-PeCDF	**0.0018**	**J ***	0.0074	0.00045	ug/Kg	☼	08/14/19 12:31	08/17/19 09:55	1
2,3,7,8-TCDD	**0.00080**	**J ***	0.0015	0.00031	ug/Kg	☼	08/14/19 12:31	08/17/19 09:55	1
OCDD	**7.4**	**E B**	0.015	0.0025	ug/Kg	☼	08/14/19 12:31	08/17/19 09:55	1
OCDF	**0.92**		0.015	0.00073	ug/Kg	☼	08/14/19 12:31	08/17/19 09:55	1
Total HpCDD	**2.1**		0.0074	0.0045	ug/Kg	☼	08/14/19 12:31	08/17/19 09:55	1
Total HpCDF	**0.88**	*	0.0074	0.0027	ug/Kg	☼	08/14/19 12:31	08/17/19 09:55	1
Total HxCDD	**0.18**	**q**	0.0074	0.00060	ug/Kg	☼	08/14/19 12:31	08/17/19 09:55	1
Total HxCDF	**0.20**		0.0074	0.00071	ug/Kg	☼	08/14/19 12:31	08/17/19 09:55	1
Total PeCDD	**0.011**	*** q**	0.0074	0.00063	ug/Kg	☼	08/14/19 12:31	08/17/19 09:55	1
Total PeCDF	**0.020**	**q**	0.0074	0.00043	ug/Kg	☼	08/14/19 12:31	08/17/19 09:55	1
Total TCDD	**0.0094**	**q**	0.0015	0.00031	ug/Kg	☼	08/14/19 12:31	08/17/19 09:55	1
Total TCDF	**0.012**	**q**	0.0015	0.00034	ug/Kg	☼	08/14/19 12:31	08/17/19 09:55	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*46*		*23 - 140*	*08/14/19 12:31*	*08/17/19 09:55*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*49*		*28 - 143*	*08/14/19 12:31*	*08/17/19 09:55*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*54*		*26 - 138*	*08/14/19 12:31*	*08/17/19 09:55*	*1*

Client Sample ID: A3-0to31-100818
Lab Sample ID: 580-88125-3
Date Collected: 10/08/18 11:14
Matrix: Solid
Date Received: 07/26/19 13:10
Percent Solids: 33.3

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,7,8-HxCDD	*62*		*32 - 141*	*08/14/19 12:31*	*08/17/19 09:55*	*1*
13C-1,2,3,4,7,8-HxCDF	*73*		*26 - 152*	*08/14/19 12:31*	*08/17/19 09:55*	*1*
13C-1,2,3,6,7,8-HxCDD	*57*		*28 - 130*	*08/14/19 12:31*	*08/17/19 09:55*	*1*
13C-1,2,3,6,7,8-HxCDF	*65*		*26 - 123*	*08/14/19 12:31*	*08/17/19 09:55*	*1*
13C-1,2,3,7,8,9-HxCDF	*65*		*29 - 147*	*08/14/19 12:31*	*08/17/19 09:55*	*1*
13C-1,2,3,7,8-PeCDD	*58*		*25 - 181*	*08/14/19 12:31*	*08/17/19 09:55*	*1*
13C-1,2,3,7,8-PeCDF	*62*		*24 - 185*	*08/14/19 12:31*	*08/17/19 09:55*	*1*
13C-2,3,4,6,7,8-HxCDF	*63*		*28 - 136*	*08/14/19 12:31*	*08/17/19 09:55*	*1*
13C-2,3,4,7,8-PeCDF	*64*		*21 - 178*	*08/14/19 12:31*	*08/17/19 09:55*	*1*
13C-2,3,7,8-TCDD	*61*		*25 - 164*	*08/14/19 12:31*	*08/17/19 09:55*	*1*
13C-2,3,7,8-TCDF	*68*		*24 - 169*	*08/14/19 12:31*	*08/17/19 09:55*	*1*
13C-OCDD	*47*		*17 - 157*	*08/14/19 12:31*	*08/17/19 09:55*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*100*		*35 - 197*	*08/14/19 12:31*	*08/17/19 09:55*	*1*

Method: 1613B - Dioxins and Furans (HRGC/HRMS) - RA

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDF	0.0020		0.0015	0.00012	ug/Kg	☼	08/14/19 12:31	08/21/19 01:14	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDF	*72*		*24 - 169*	*08/14/19 12:31*	*08/21/19 01:14*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*97*		*35 - 197*	*08/14/19 12:31*	*08/21/19 01:14*	*1*

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	8.1		0.49	0.098	mg/Kg	☼	08/09/19 14:36	08/13/19 15:07	5
Cadmium	0.41		0.39	0.076	mg/Kg	☼	08/09/19 14:36	08/13/19 15:07	5
Copper	110		0.98	0.22	mg/Kg	☼	08/09/19 14:36	08/13/19 15:07	5
Lead	31		0.49	0.047	mg/Kg	☼	08/09/19 14:36	08/13/19 15:07	5
Zinc	220		4.9	1.6	mg/Kg	☼	08/09/19 14:36	08/13/19 15:07	5

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.16	H	0.055	0.017	mg/Kg	☼	08/14/19 10:54	08/14/19 18:23	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	40000	H B	2000	97	mg/Kg			08/18/19 13:40	1
Total Solids	33.3	H	0.1	0.1	%			08/13/19 17:21	1
Percent Moisture	66	H	0.10	0.10	%			08/21/19 13:20	1
Percent Solids	34	H	0.10	0.10	%			08/21/19 13:20	1

Method: D7928/D6913 - ASTM D7928/D6913

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Clay	23.5	H			%			08/06/19 11:26	1
Coarse Sand	0.1	H			%			08/06/19 11:26	1
Fine Sand	11.8	H			%			08/06/19 11:26	1
Gravel	0.0	H			%			08/06/19 11:26	1
Medium Sand	0.3	H			%			08/06/19 11:26	1

Client: Pacific Groundwater Group
Job ID: 580-88125-1
Project/Site: Swan Island Lagoon Sediment Investigatio

Client Sample ID: A3-0to31-100818
Lab Sample ID: 580-88125-3
Date Collected: 10/08/18 11:14
Matrix: Solid
Date Received: 07/26/19 13:10
Percent Solids: 33.3

Method: D7928/D6913 - ASTM D7928/D6913 (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silt	64.3	H			%			08/06/19 11:26	1

Method: D854 - Specific Gravity

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Density	1.25		0.0100	0.0100	g/cm3			08/13/19 00:00	1
Specific Gravity	1.25		0.0100	0.0100	NONE			08/13/19 00:00	1

Client Sample ID: A4-0to25-100818
Date Collected: 10/08/18 13:26
Date Received: 07/26/19 13:10

Lab Sample ID: 580-88125-4
Matrix: Solid
Percent Solids: 38.8

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		4.5	1.7	ug/Kg	☼	08/13/19 10:43	08/16/19 00:17	1
PCB-1221	ND		4.5	2.2	ug/Kg	☼	08/13/19 10:43	08/16/19 00:17	1
PCB-1232	ND		4.5	2.2	ug/Kg	☼	08/13/19 10:43	08/16/19 00:17	1
PCB-1242	ND		4.5	1.1	ug/Kg	☼	08/13/19 10:43	08/16/19 00:17	1
PCB-1248	ND		4.5	0.82	ug/Kg	☼	08/13/19 10:43	08/16/19 00:17	1
PCB-1260	ND		4.5	1.7	ug/Kg	☼	08/13/19 10:43	08/16/19 00:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl	*32*	*p X*	*39 - 142*	*08/13/19 10:43*	*08/16/19 00:17*	*1*
Tetrachloro-m-xylene	*51*		*35 - 129*	*08/13/19 10:43*	*08/16/19 00:17*	*1*

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1254	**85**	**p**	14	5.4	ug/Kg	☼	08/13/19 10:43	08/16/19 20:54	3

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl	*64*		*39 - 142*	*08/13/19 10:43*	*08/16/19 20:54*	*3*
Tetrachloro-m-xylene	*67*		*35 - 129*	*08/13/19 10:43*	*08/16/19 20:54*	*3*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	**110**	**J**	120	30	mg/Kg	☼	08/12/19 12:08	08/14/19 18:43	1
Motor Oil (>C24-C36)	**420**		120	43	mg/Kg	☼	08/12/19 12:08	08/14/19 18:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*97*		*50 - 150*	*08/12/19 12:08*	*08/14/19 18:43*	*1*

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3,4,6,7,8-HpCDD	**0.66**		0.0065	0.0022	ug/Kg	☼	08/14/19 12:31	08/17/19 10:43	1
1,2,3,4,6,7,8-HpCDF	**0.14**	*	0.0065	0.0019	ug/Kg	☼	08/14/19 12:31	08/17/19 10:43	1
1,2,3,4,7,8,9-HpCDF	**0.0094**	*	0.0065	0.0023	ug/Kg	☼	08/14/19 12:31	08/17/19 10:43	1
1,2,3,4,7,8-HxCDD	**0.0045**	**J**	0.0065	0.00062	ug/Kg	☼	08/14/19 12:31	08/17/19 10:43	1
1,2,3,4,7,8-HxCDF	**0.013**		0.0065	0.00069	ug/Kg	☼	08/14/19 12:31	08/17/19 10:43	1
1,2,3,6,7,8-HxCDD	**0.027**	*	0.0065	0.00064	ug/Kg	☼	08/14/19 12:31	08/17/19 10:43	1
1,2,3,6,7,8-HxCDF	**0.0054**	**J q**	0.0065	0.00075	ug/Kg	☼	08/14/19 12:31	08/17/19 10:43	1
1,2,3,7,8,9-HxCDD	**0.0095**		0.0065	0.00060	ug/Kg	☼	08/14/19 12:31	08/17/19 10:43	1
1,2,3,7,8,9-HxCDF	ND		0.0065	0.00080	ug/Kg	☼	08/14/19 12:31	08/17/19 10:43	1
1,2,3,7,8-PeCDD	**0.0017**	**J * q**	0.0065	0.00078	ug/Kg	☼	08/14/19 12:31	08/17/19 10:43	1
1,2,3,7,8-PeCDF	**0.0025**	**J ***	0.0065	0.00055	ug/Kg	☼	08/14/19 12:31	08/17/19 10:43	1
2,3,4,6,7,8-HxCDF	**0.0025**	**J q**	0.0065	0.00080	ug/Kg	☼	08/14/19 12:31	08/17/19 10:43	1
2,3,4,7,8-PeCDF	**0.0028**	**J ***	0.0065	0.00060	ug/Kg	☼	08/14/19 12:31	08/17/19 10:43	1
2,3,7,8-TCDD	**0.00086**	**J * q**	0.0013	0.00030	ug/Kg	☼	08/14/19 12:31	08/17/19 10:43	1
OCDD	**5.3**	**E B**	0.013	0.0019	ug/Kg	☼	08/14/19 12:31	08/17/19 10:43	1
OCDF	**0.58**		0.013	0.00064	ug/Kg	☼	08/14/19 12:31	08/17/19 10:43	1
Total HpCDD	**1.3**		0.0065	0.0022	ug/Kg	☼	08/14/19 12:31	08/17/19 10:43	1
Total HpCDF	**0.71**	*	0.0065	0.0021	ug/Kg	☼	08/14/19 12:31	08/17/19 10:43	1
Total HxCDD	**0.22**	**q**	0.0065	0.00062	ug/Kg	☼	08/14/19 12:31	08/17/19 10:43	1
Total HxCDF	**0.25**	**q**	0.0065	0.00076	ug/Kg	☼	08/14/19 12:31	08/17/19 10:43	1
Total PeCDD	**0.016**	*** q**	0.0065	0.00078	ug/Kg	☼	08/14/19 12:31	08/17/19 10:43	1
Total PeCDF	**0.033**		0.0065	0.00057	ug/Kg	☼	08/14/19 12:31	08/17/19 10:43	1

Client Sample ID: A4-0to25-100818
Lab Sample ID: 580-88125-4

Date Collected: 10/08/18 13:26
Matrix: Solid

Date Received: 07/26/19 13:10
Percent Solids: 38.8

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
Total TCDD	0.010	q	0.0013	0.00030	ug/Kg	☼	08/14/19 12:31	08/17/19 10:43	1
Total TCDF	0.023	q	0.0013	0.00036	ug/Kg	☼	08/14/19 12:31	08/17/19 10:43	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*58*		*23 - 140*	*08/14/19 12:31*	*08/17/19 10:43*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*57*		*28 - 143*	*08/14/19 12:31*	*08/17/19 10:43*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*59*		*26 - 138*	*08/14/19 12:31*	*08/17/19 10:43*	*1*
13C-1,2,3,4,7,8-HxCDD	*75*		*32 - 141*	*08/14/19 12:31*	*08/17/19 10:43*	*1*
13C-1,2,3,4,7,8-HxCDF	*96*		*26 - 152*	*08/14/19 12:31*	*08/17/19 10:43*	*1*
13C-1,2,3,6,7,8-HxCDD	*65*		*28 - 130*	*08/14/19 12:31*	*08/17/19 10:43*	*1*
13C-1,2,3,6,7,8-HxCDF	*82*		*26 - 123*	*08/14/19 12:31*	*08/17/19 10:43*	*1*
13C-1,2,3,7,8,9-HxCDF	*76*		*29 - 147*	*08/14/19 12:31*	*08/17/19 10:43*	*1*
13C-1,2,3,7,8-PeCDD	*75*		*25 - 181*	*08/14/19 12:31*	*08/17/19 10:43*	*1*
13C-1,2,3,7,8-PeCDF	*77*		*24 - 185*	*08/14/19 12:31*	*08/17/19 10:43*	*1*
13C-2,3,4,6,7,8-HxCDF	*75*		*28 - 136*	*08/14/19 12:31*	*08/17/19 10:43*	*1*
13C-2,3,4,7,8-PeCDF	*77*		*21 - 178*	*08/14/19 12:31*	*08/17/19 10:43*	*1*
13C-2,3,7,8-TCDD	*67*		*25 - 164*	*08/14/19 12:31*	*08/17/19 10:43*	*1*
13C-2,3,7,8-TCDF	*78*		*24 - 169*	*08/14/19 12:31*	*08/17/19 10:43*	*1*
13C-OCDD	*57*		*17 - 157*	*08/14/19 12:31*	*08/17/19 10:43*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*106*		*35 - 197*	*08/14/19 12:31*	*08/17/19 10:43*	*1*

Method: 1613B - Dioxins and Furans (HRGC/HRMS) - RA

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDF	0.0047		0.0013	0.00019	ug/Kg	☼	08/14/19 12:31	08/21/19 01:52	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDF	*92*		*24 - 169*	*08/14/19 12:31*	*08/21/19 01:52*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*103*		*35 - 197*	*08/14/19 12:31*	*08/21/19 01:52*	*1*

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	9.2		0.39	0.078	mg/Kg	☼	08/14/19 14:06	08/14/19 18:04	5
Cadmium	0.64		0.31	0.060	mg/Kg	☼	08/14/19 14:06	08/14/19 18:04	5
Copper	170		0.78	0.17	mg/Kg	☼	08/14/19 14:06	08/14/19 18:04	5
Lead	68	B	0.39	0.038	mg/Kg	☼	08/14/19 14:06	08/14/19 18:04	5
Zinc	360		3.9	1.3	mg/Kg	☼	08/14/19 14:06	08/14/19 18:04	5

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.28	H	0.055	0.016	mg/Kg	☼	08/14/19 10:54	08/14/19 18:25	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	29000	H B	2000	97	mg/Kg			08/18/19 13:49	1
Total Solids	38.8	H	0.1	0.1	%			08/13/19 17:21	1
Percent Moisture	61	H	0.10	0.10	%			08/21/19 13:20	1
Percent Solids	39	H	0.10	0.10	%			08/21/19 13:20	1

Client: Pacific Groundwater Group
Project/Site: Swan Island Lagoon Sediment Investigatio

Job ID: 580-88125-1

Client Sample ID: A4-0to25-100818
Date Collected: 10/08/18 13:26
Date Received: 07/26/19 13:10

Lab Sample ID: 580-88125-4
Matrix: Solid
Percent Solids: 38.8

Method: D7928/D6913 - ASTM D7928/D6913

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Clay	27.2	H			%			08/06/19 11:26	1
Coarse Sand	0.0	H			%			08/06/19 11:26	1
Fine Sand	12.0	H			%			08/06/19 11:26	1
Gravel	0.0	H			%			08/06/19 11:26	1
Medium Sand	0.3	H			%			08/06/19 11:26	1
Silt	60.6	H			%			08/06/19 11:26	1

Method: D854 - Specific Gravity

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Density	1.32		0.0100	0.0100	g/cm3			08/13/19 00:00	1
Specific Gravity	1.32		0.0100	0.0100	NONE			08/13/19 00:00	1

Client Sample ID: A5-0to25-100818
Date Collected: 10/08/18 14:38
Date Received: 07/26/19 13:10

Lab Sample ID: 580-88125-5
Matrix: Solid
Percent Solids: 33.3

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		5.8	2.1	ug/Kg	☼	08/13/19 10:43	08/16/19 21:10	1
PCB-1221	ND		5.8	2.8	ug/Kg	☼	08/13/19 10:43	08/16/19 21:10	1
PCB-1232	ND		5.8	2.8	ug/Kg	☼	08/13/19 10:43	08/16/19 21:10	1
PCB-1242	ND		5.8	1.4	ug/Kg	☼	08/13/19 10:43	08/16/19 21:10	1
PCB-1248	ND		5.8	1.0	ug/Kg	☼	08/13/19 10:43	08/16/19 21:10	1
PCB-1254	**45**		5.8	2.3	ug/Kg	☼	08/13/19 10:43	08/16/19 21:10	1
PCB-1260	ND		5.8	2.2	ug/Kg	☼	08/13/19 10:43	08/16/19 21:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl	*64*		*39 - 142*	*08/13/19 10:43*	*08/16/19 21:10*	*1*
Tetrachloro-m-xylene	*69*		*35 - 129*	*08/13/19 10:43*	*08/16/19 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)	**93**	**J**	140	34	mg/Kg	☼	08/12/19 12:08	08/14/19 19:05	1
Motor Oil (>C24-C36)	**450**		140	48	mg/Kg	☼	08/12/19 12:08	08/14/19 19:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*97*		*50 - 150*	*08/12/19 12:08*	*08/14/19 19:05*	*1*

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3,4,6,7,8-HpCDD	**0.93**		0.0073	0.0049	ug/Kg	☼	08/14/19 12:31	08/19/19 12:09	1
1,2,3,4,6,7,8-HpCDF	**0.18**	*	0.0073	0.0031	ug/Kg	☼	08/14/19 12:31	08/19/19 12:09	1
1,2,3,4,7,8,9-HpCDF	**0.011**		0.0073	0.0035	ug/Kg	☼	08/14/19 12:31	08/19/19 12:09	1
1,2,3,4,7,8-HxCDD	**0.0042**	**J**	0.0073	0.00072	ug/Kg	☼	08/14/19 12:31	08/19/19 12:09	1
1,2,3,4,7,8-HxCDF	**0.015**		0.0073	0.00089	ug/Kg	☼	08/14/19 12:31	08/19/19 12:09	1
1,2,3,6,7,8-HxCDD	**0.025**	*	0.0073	0.00077	ug/Kg	☼	08/14/19 12:31	08/19/19 12:09	1
1,2,3,6,7,8-HxCDF	**0.0053**	**J**	0.0073	0.00096	ug/Kg	☼	08/14/19 12:31	08/19/19 12:09	1
1,2,3,7,8,9-HxCDD	**0.0052**	**J q**	0.0073	0.00070	ug/Kg	☼	08/14/19 12:31	08/19/19 12:09	1
1,2,3,7,8,9-HxCDF	ND		0.0073	0.0010	ug/Kg	☼	08/14/19 12:31	08/19/19 12:09	1
1,2,3,7,8-PeCDD	ND	*	0.0073	0.00088	ug/Kg	☼	08/14/19 12:31	08/19/19 12:09	1
1,2,3,7,8-PeCDF	**0.0020**	**J ***	0.0073	0.00049	ug/Kg	☼	08/14/19 12:31	08/19/19 12:09	1
2,3,4,6,7,8-HxCDF	**0.0030**	**J**	0.0073	0.00092	ug/Kg	☼	08/14/19 12:31	08/19/19 12:09	1
2,3,4,7,8-PeCDF	**0.0031**	**J ***	0.0073	0.00052	ug/Kg	☼	08/14/19 12:31	08/19/19 12:09	1
2,3,7,8-TCDD	**0.00082**	**J ***	0.0015	0.00035	ug/Kg	☼	08/14/19 12:31	08/19/19 12:09	1
OCDD	**7.1**	**E B**	0.015	0.0027	ug/Kg	☼	08/14/19 12:31	08/19/19 12:09	1
OCDF	**0.82**		0.015	0.00081	ug/Kg	☼	08/14/19 12:31	08/19/19 12:09	1
Total HpCDD	**2.0**		0.0073	0.0049	ug/Kg	☼	08/14/19 12:31	08/19/19 12:09	1
Total HpCDF	**0.93**	*	0.0073	0.0033	ug/Kg	☼	08/14/19 12:31	08/19/19 12:09	1
Total HxCDD	**0.21**	**q**	0.0073	0.00073	ug/Kg	☼	08/14/19 12:31	08/19/19 12:09	1
Total HxCDF	**0.25**		0.0073	0.00095	ug/Kg	☼	08/14/19 12:31	08/19/19 12:09	1
Total PeCDD	**0.011**	*** q**	0.0073	0.00088	ug/Kg	☼	08/14/19 12:31	08/19/19 12:09	1
Total PeCDF	**0.028**	**q**	0.0073	0.00051	ug/Kg	☼	08/14/19 12:31	08/19/19 12:09	1
Total TCDD	**0.013**	**q**	0.0015	0.00035	ug/Kg	☼	08/14/19 12:31	08/19/19 12:09	1
Total TCDF	**0.022**	**q**	0.0015	0.00030	ug/Kg	☼	08/14/19 12:31	08/19/19 12:09	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*80*		*23 - 140*	*08/14/19 12:31*	*08/19/19 12:09*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*77*		*28 - 143*	*08/14/19 12:31*	*08/19/19 12:09*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*86*		*26 - 138*	*08/14/19 12:31*	*08/19/19 12:09*	*1*

Client Sample ID: A5-0to25-100818
Date Collected: 10/08/18 14:38
Date Received: 07/26/19 13:10

Lab Sample ID: 580-88125-5
Matrix: Solid
Percent Solids: 33.3

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-1,2,3,4,7,8-HxCDD	103		32 - 141	08/14/19 12:31	08/19/19 12:09	1
13C-1,2,3,4,7,8-HxCDF	120		26 - 152	08/14/19 12:31	08/19/19 12:09	1
13C-1,2,3,6,7,8-HxCDD	88		28 - 130	08/14/19 12:31	08/19/19 12:09	1
13C-1,2,3,6,7,8-HxCDF	110		26 - 123	08/14/19 12:31	08/19/19 12:09	1
13C-1,2,3,7,8,9-HxCDF	103		29 - 147	08/14/19 12:31	08/19/19 12:09	1
13C-1,2,3,7,8-PeCDD	67		25 - 181	08/14/19 12:31	08/19/19 12:09	1
13C-1,2,3,7,8-PeCDF	69		24 - 185	08/14/19 12:31	08/19/19 12:09	1
13C-2,3,4,6,7,8-HxCDF	106		28 - 136	08/14/19 12:31	08/19/19 12:09	1
13C-2,3,4,7,8-PeCDF	73		21 - 178	08/14/19 12:31	08/19/19 12:09	1
13C-2,3,7,8-TCDD	66		25 - 164	08/14/19 12:31	08/19/19 12:09	1
13C-2,3,7,8-TCDF	71		24 - 169	08/14/19 12:31	08/19/19 12:09	1
13C-OCDD	79		17 - 157	08/14/19 12:31	08/19/19 12:09	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	105		35 - 197	08/14/19 12:31	08/19/19 12:09	1

Method: 1613B - Dioxins and Furans (HRGC/HRMS) - RA

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDF	0.0035		0.0015	0.00020	ug/Kg	☼	08/14/19 12:31	08/21/19 02:30	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDF	73		24 - 169	08/14/19 12:31	08/21/19 02:30	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	101		35 - 197	08/14/19 12:31	08/21/19 02:30	1

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	9.7		0.49	0.099	mg/Kg	☼	08/14/19 14:06	08/14/19 18:08	5
Cadmium	0.48		0.40	0.076	mg/Kg	☼	08/14/19 14:06	08/14/19 18:08	5
Copper	130		0.99	0.22	mg/Kg	☼	08/14/19 14:06	08/14/19 18:08	5
Lead	38	B	0.49	0.047	mg/Kg	☼	08/14/19 14:06	08/14/19 18:08	5
Zinc	270		4.9	1.6	mg/Kg	☼	08/14/19 14:06	08/14/19 18:08	5

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.18	H	0.061	0.018	mg/Kg	☼	08/14/19 10:54	08/14/19 18:32	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	33000	H B	2000	97	mg/Kg			08/18/19 13:54	1
Total Solids	33.3	H	0.1	0.1	%			08/13/19 17:21	1
Percent Moisture	66	H	0.10	0.10	%			08/21/19 13:20	1
Percent Solids	34	H	0.10	0.10	%			08/21/19 13:20	1

Method: D7928/D6913 - ASTM D7928/D6913

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Clay	23.5	H			%			08/06/19 11:26	1
Coarse Sand	0.0	H			%			08/06/19 11:26	1
Fine Sand	10.0	H			%			08/06/19 11:26	1
Gravel	0.0	H			%			08/06/19 11:26	1
Medium Sand	0.4	H			%			08/06/19 11:26	1

Client: Pacific Groundwater Group
Job ID: 580-88125-1
Project/Site: Swan Island Lagoon Sediment Investigatio

Client Sample ID: A5-0to25-100818
Lab Sample ID: 580-88125-5
Date Collected: 10/08/18 14:38
Matrix: Solid
Date Received: 07/26/19 13:10
Percent Solids: 33.3

Method: D7928/D6913 - ASTM D7928/D6913 (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silt	66.0	H			%			08/06/19 11:26	1

Method: D854 - Specific Gravity

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Density	1.24		0.0100	0.0100	g/cm3			08/13/19 00:00	1
Specific Gravity	1.24		0.0100	0.0100	NONE			08/13/19 00:00	1

Client Sample ID: A6-0to23-100818
Date Collected: 10/08/18 16:08
Date Received: 07/26/19 13:10

Lab Sample ID: 580-88125-6
Matrix: Solid
Percent Solids: 39.3

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		4.5	1.7	ug/Kg	☼	08/13/19 10:43	08/16/19 00:50	1
PCB-1221	ND		4.5	2.1	ug/Kg	☼	08/13/19 10:43	08/16/19 00:50	1
PCB-1232	ND		4.5	2.1	ug/Kg	☼	08/13/19 10:43	08/16/19 00:50	1
PCB-1242	ND		4.5	1.1	ug/Kg	☼	08/13/19 10:43	08/16/19 00:50	1
PCB-1248	ND		4.5	0.81	ug/Kg	☼	08/13/19 10:43	08/16/19 00:50	1
PCB-1254	**52**		4.5	1.8	ug/Kg	☼	08/13/19 10:43	08/16/19 00:50	1
PCB-1260	ND		4.5	1.7	ug/Kg	☼	08/13/19 10:43	08/16/19 00:50	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl	*32*	*p X*	*39 - 142*	*08/13/19 10:43*	*08/16/19 00:50*	*1*
Tetrachloro-m-xylene	*56*		*35 - 129*	*08/13/19 10:43*	*08/16/19 00:50*	*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)	ND		89	22	mg/Kg	☼	08/12/19 12:08	08/14/19 19:27	1
Motor Oil (>C24-C36)	**51**	**J**	89	31	mg/Kg	☼	08/12/19 12:08	08/14/19 19:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*18*	*X*	*50 - 150*	*08/12/19 12:08*	*08/14/19 19:27*	*1*

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3,4,6,7,8-HpCDD	**0.65**		0.0064	0.0029	ug/Kg	☼	08/14/19 12:31	08/19/19 12:57	1
1,2,3,4,6,7,8-HpCDF	**0.12**	*****	0.0064	0.0023	ug/Kg	☼	08/14/19 12:31	08/19/19 12:57	1
1,2,3,4,7,8,9-HpCDF	**0.0056**	**J**	0.0064	0.0023	ug/Kg	☼	08/14/19 12:31	08/19/19 12:57	1
1,2,3,4,7,8-HxCDD	**0.0026**	**J**	0.0064	0.00047	ug/Kg	☼	08/14/19 12:31	08/19/19 12:57	1
1,2,3,4,7,8-HxCDF	**0.0076**		0.0064	0.00070	ug/Kg	☼	08/14/19 12:31	08/19/19 12:57	1
1,2,3,6,7,8-HxCDD	**0.018**	*****	0.0064	0.00050	ug/Kg	☼	08/14/19 12:31	08/19/19 12:57	1
1,2,3,6,7,8-HxCDF	**0.0030**	**J**	0.0064	0.00077	ug/Kg	☼	08/14/19 12:31	08/19/19 12:57	1
1,2,3,7,8,9-HxCDD	**0.0056**	**J**	0.0064	0.00046	ug/Kg	☼	08/14/19 12:31	08/19/19 12:57	1
1,2,3,7,8,9-HxCDF	ND		0.0064	0.00080	ug/Kg	☼	08/14/19 12:31	08/19/19 12:57	1
1,2,3,7,8-PeCDD	**0.00096**	**J * q**	0.0064	0.00050	ug/Kg	☼	08/14/19 12:31	08/19/19 12:57	1
1,2,3,7,8-PeCDF	**0.00098**	**J * q**	0.0064	0.00029	ug/Kg	☼	08/14/19 12:31	08/19/19 12:57	1
2,3,4,6,7,8-HxCDF	**0.0012**	**J**	0.0064	0.00074	ug/Kg	☼	08/14/19 12:31	08/19/19 12:57	1
2,3,4,7,8-PeCDF	**0.0016**	**J ***	0.0064	0.00032	ug/Kg	☼	08/14/19 12:31	08/19/19 12:57	1
2,3,7,8-TCDD	**0.00045**	**J * q**	0.0013	0.00029	ug/Kg	☼	08/14/19 12:31	08/19/19 12:57	1
OCDD	**5.2**	**E B**	0.013	0.0019	ug/Kg	☼	08/14/19 12:31	08/19/19 12:57	1
OCDF	**0.60**		0.013	0.00057	ug/Kg	☼	08/14/19 12:31	08/19/19 12:57	1
Total HpCDD	**1.4**		0.0064	0.0029	ug/Kg	☼	08/14/19 12:31	08/19/19 12:57	1
Total HpCDF	**0.67**	*****	0.0064	0.0023	ug/Kg	☼	08/14/19 12:31	08/19/19 12:57	1
Total HxCDD	**0.14**	**q**	0.0064	0.00048	ug/Kg	☼	08/14/19 12:31	08/19/19 12:57	1
Total HxCDF	**0.17**		0.0064	0.00075	ug/Kg	☼	08/14/19 12:31	08/19/19 12:57	1
Total PeCDD	**0.010**	*** q**	0.0064	0.00050	ug/Kg	☼	08/14/19 12:31	08/19/19 12:57	1
Total PeCDF	**0.019**	**q**	0.0064	0.00031	ug/Kg	☼	08/14/19 12:31	08/19/19 12:57	1
Total TCDD	**0.0078**	**q**	0.0013	0.00029	ug/Kg	☼	08/14/19 12:31	08/19/19 12:57	1
Total TCDF	**0.011**	**q**	0.0013	0.00022	ug/Kg	☼	08/14/19 12:31	08/19/19 12:57	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*55*		*23 - 140*	*08/14/19 12:31*	*08/19/19 12:57*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*49*		*28 - 143*	*08/14/19 12:31*	*08/19/19 12:57*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*61*		*26 - 138*	*08/14/19 12:31*	*08/19/19 12:57*	*1*

Client Sample ID: A6-0to23-100818
Date Collected: 10/08/18 16:08
Date Received: 07/26/19 13:10

Lab Sample ID: 580-88125-6
Matrix: Solid
Percent Solids: 39.3

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-1,2,3,4,7,8-HxCDD	70		32 - 141	08/14/19 12:31	08/19/19 12:57	1
13C-1,2,3,4,7,8-HxCDF	85		26 - 152	08/14/19 12:31	08/19/19 12:57	1
13C-1,2,3,6,7,8-HxCDD	59		28 - 130	08/14/19 12:31	08/19/19 12:57	1
13C-1,2,3,6,7,8-HxCDF	74		26 - 123	08/14/19 12:31	08/19/19 12:57	1
13C-1,2,3,7,8,9-HxCDF	72		29 - 147	08/14/19 12:31	08/19/19 12:57	1
13C-1,2,3,7,8-PeCDD	67		25 - 181	08/14/19 12:31	08/19/19 12:57	1
13C-1,2,3,7,8-PeCDF	70		24 - 185	08/14/19 12:31	08/19/19 12:57	1
13C-2,3,4,6,7,8-HxCDF	73		28 - 136	08/14/19 12:31	08/19/19 12:57	1
13C-2,3,4,7,8-PeCDF	71		21 - 178	08/14/19 12:31	08/19/19 12:57	1
13C-2,3,7,8-TCDD	67		25 - 164	08/14/19 12:31	08/19/19 12:57	1
13C-2,3,7,8-TCDF	74		24 - 169	08/14/19 12:31	08/19/19 12:57	1
13C-OCDD	55		17 - 157	08/14/19 12:31	08/19/19 12:57	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	103		35 - 197	08/14/19 12:31	08/19/19 12:57	1

Method: 1613B - Dioxins and Furans (HRGC/HRMS) - RA

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDF	0.0017		0.0013	0.00014	ug/Kg	☼	08/14/19 12:31	08/21/19 03:09	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDF	77		24 - 169	08/14/19 12:31	08/21/19 03:09	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	103		35 - 197	08/14/19 12:31	08/21/19 03:09	1

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	9.1		0.37	0.074	mg/Kg	☼	08/14/19 14:06	08/14/19 18:13	5
Cadmium	0.41		0.30	0.057	mg/Kg	☼	08/14/19 14:06	08/14/19 18:13	5
Copper	160		0.74	0.16	mg/Kg	☼	08/14/19 14:06	08/14/19 18:13	5
Lead	31	B	0.37	0.035	mg/Kg	☼	08/14/19 14:06	08/14/19 18:13	5
Zinc	240		3.7	1.2	mg/Kg	☼	08/14/19 14:06	08/14/19 18:13	5

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.16	H	0.052	0.015	mg/Kg	☼	08/14/19 10:54	08/14/19 18:35	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	27000	H B	2000	97	mg/Kg			08/18/19 13:59	1
Total Solids	39.3	H	0.1	0.1	%			08/13/19 17:21	1
Percent Moisture	60	H	0.10	0.10	%			08/21/19 13:20	1
Percent Solids	40	H	0.10	0.10	%			08/21/19 13:20	1

Method: D7928/D6913 - ASTM D7928/D6913

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Clay	20.3	H			%			08/06/19 11:26	1
Coarse Sand	0.5	H			%			08/06/19 11:26	1
Fine Sand	21.0	H			%			08/06/19 11:26	1
Gravel	0.0	H			%			08/06/19 11:26	1
Medium Sand	1.6	H			%			08/06/19 11:26	1

Client: Pacific Groundwater Group
Job ID: 580-88125-1
Project/Site: Swan Island Lagoon Sediment Investigatio

Client Sample ID: A6-0to23-100818
Lab Sample ID: 580-88125-6
Date Collected: 10/08/18 16:08
Matrix: Solid
Date Received: 07/26/19 13:10
Percent Solids: 39.3

Method: D7928/D6913 - ASTM D7928/D6913 (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silt	56.6	H			%			08/06/19 11:26	1

Method: D854 - Specific Gravity

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Density	1.30		0.0100	0.0100	g/cm3			08/13/19 00:00	1
Specific Gravity	1.30		0.0100	0.0100	NONE			08/13/19 00:00	1

Client Sample ID: A7-0to26-100918
Lab Sample ID: 580-88125-7

Date Collected: 10/09/18 13:23
Matrix: Solid

Date Received: 07/26/19 13:10
Percent Solids: 37.8

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		4.9	1.8	ug/Kg	☼	08/13/19 10:43	08/16/19 01:07	1
PCB-1221	ND		4.9	2.3	ug/Kg	☼	08/13/19 10:43	08/16/19 01:07	1
PCB-1232	ND		4.9	2.3	ug/Kg	☼	08/13/19 10:43	08/16/19 01:07	1
PCB-1242	ND		4.9	1.2	ug/Kg	☼	08/13/19 10:43	08/16/19 01:07	1
PCB-1248	ND		4.9	0.89	ug/Kg	☼	08/13/19 10:43	08/16/19 01:07	1
PCB-1254	**57**		4.9	1.9	ug/Kg	☼	08/13/19 10:43	08/16/19 01:07	1
PCB-1260	ND		4.9	1.9	ug/Kg	☼	08/13/19 10:43	08/16/19 01:07	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl	*31*	*p X*	*39 - 142*	*08/13/19 10:43*	*08/16/19 01:07*	*1*
Tetrachloro-m-xylene	*57*		*35 - 129*	*08/13/19 10:43*	*08/16/19 01:07*	*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)	**73**	**J**	120	29	mg/Kg	☼	08/12/19 12:08	08/14/19 19:49	1
Motor Oil (>C24-C36)	**350**		120	41	mg/Kg	☼	08/12/19 12:08	08/14/19 19:49	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*95*		*50 - 150*	*08/12/19 12:08*	*08/14/19 19:49*	*1*

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3,4,6,7,8-HpCDD	**0.81**		0.0065	0.0036	ug/Kg	☼	08/14/19 12:31	08/19/19 13:44	1
1,2,3,4,6,7,8-HpCDF	**0.20**	*	0.0065	0.0029	ug/Kg	☼	08/14/19 12:31	08/19/19 13:44	1
1,2,3,4,7,8,9-HpCDF	**0.011**		0.0065	0.0035	ug/Kg	☼	08/14/19 12:31	08/19/19 13:44	1
1,2,3,4,7,8-HxCDD	**0.0030**	**J**	0.0065	0.00066	ug/Kg	☼	08/14/19 12:31	08/19/19 13:44	1
1,2,3,4,7,8-HxCDF	**0.011**		0.0065	0.00095	ug/Kg	☼	08/14/19 12:31	08/19/19 13:44	1
1,2,3,6,7,8-HxCDD	**0.021**	*	0.0065	0.00074	ug/Kg	☼	08/14/19 12:31	08/19/19 13:44	1
1,2,3,6,7,8-HxCDF	**0.0042**	**J**	0.0065	0.0010	ug/Kg	☼	08/14/19 12:31	08/19/19 13:44	1
1,2,3,7,8,9-HxCDD	**0.0052**	**J**	0.0065	0.00066	ug/Kg	☼	08/14/19 12:31	08/19/19 13:44	1
1,2,3,7,8,9-HxCDF	ND		0.0065	0.0010	ug/Kg	☼	08/14/19 12:31	08/19/19 13:44	1
1,2,3,7,8-PeCDD	ND	*	0.0065	0.00093	ug/Kg	☼	08/14/19 12:31	08/19/19 13:44	1
1,2,3,7,8-PeCDF	**0.0020**	**J ***	0.0065	0.00045	ug/Kg	☼	08/14/19 12:31	08/19/19 13:44	1
2,3,4,6,7,8-HxCDF	**0.0024**	**J**	0.0065	0.00098	ug/Kg	☼	08/14/19 12:31	08/19/19 13:44	1
2,3,4,7,8-PeCDF	**0.0026**	**J ***	0.0065	0.00051	ug/Kg	☼	08/14/19 12:31	08/19/19 13:44	1
2,3,7,8-TCDD	**0.00047**	**J * q**	0.0013	0.00025	ug/Kg	☼	08/14/19 12:31	08/19/19 13:44	1
OCDD	**6.0**	**E B**	0.013	0.0025	ug/Kg	☼	08/14/19 12:31	08/19/19 13:44	1
OCDF	**1.1**		0.013	0.00081	ug/Kg	☼	08/14/19 12:31	08/19/19 13:44	1
Total HpCDD	**1.7**		0.0065	0.0036	ug/Kg	☼	08/14/19 12:31	08/19/19 13:44	1
Total HpCDF	**1.1**	*	0.0065	0.0032	ug/Kg	☼	08/14/19 12:31	08/19/19 13:44	1
Total HxCDD	**0.17**		0.0065	0.00069	ug/Kg	☼	08/14/19 12:31	08/19/19 13:44	1
Total HxCDF	**0.25**		0.0065	0.0010	ug/Kg	☼	08/14/19 12:31	08/19/19 13:44	1
Total PeCDD	**0.016**	*** q**	0.0065	0.00093	ug/Kg	☼	08/14/19 12:31	08/19/19 13:44	1
Total PeCDF	**0.031**	**q**	0.0065	0.00048	ug/Kg	☼	08/14/19 12:31	08/19/19 13:44	1
Total TCDD	**0.0085**	**q**	0.0013	0.00025	ug/Kg	☼	08/14/19 12:31	08/19/19 13:44	1
Total TCDF	**0.019**	**q**	0.0013	0.00033	ug/Kg	☼	08/14/19 12:31	08/19/19 13:44	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*57*		*23 - 140*	*08/14/19 12:31*	*08/19/19 13:44*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*56*		*28 - 143*	*08/14/19 12:31*	*08/19/19 13:44*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*63*		*26 - 138*	*08/14/19 12:31*	*08/19/19 13:44*	*1*

Client Sample ID: A7-0to26-100918
Date Collected: 10/09/18 13:23
Date Received: 07/26/19 13:10

Lab Sample ID: 580-88125-7
Matrix: Solid
Percent Solids: 37.8

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-1,2,3,4,7,8-HxCDD	68		32 - 141	08/14/19 12:31	08/19/19 13:44	1
13C-1,2,3,4,7,8-HxCDF	87		26 - 152	08/14/19 12:31	08/19/19 13:44	1
13C-1,2,3,6,7,8-HxCDD	64		28 - 130	08/14/19 12:31	08/19/19 13:44	1
13C-1,2,3,6,7,8-HxCDF	77		26 - 123	08/14/19 12:31	08/19/19 13:44	1
13C-1,2,3,7,8,9-HxCDF	76		29 - 147	08/14/19 12:31	08/19/19 13:44	1
13C-1,2,3,7,8-PeCDD	69		25 - 181	08/14/19 12:31	08/19/19 13:44	1
13C-1,2,3,7,8-PeCDF	73		24 - 185	08/14/19 12:31	08/19/19 13:44	1
13C-2,3,4,6,7,8-HxCDF	76		28 - 136	08/14/19 12:31	08/19/19 13:44	1
13C-2,3,4,7,8-PeCDF	72		21 - 178	08/14/19 12:31	08/19/19 13:44	1
13C-2,3,7,8-TCDD	69		25 - 164	08/14/19 12:31	08/19/19 13:44	1
13C-2,3,7,8-TCDF	76		24 - 169	08/14/19 12:31	08/19/19 13:44	1
13C-OCDD	50		17 - 157	08/14/19 12:31	08/19/19 13:44	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	104		35 - 197	08/14/19 12:31	08/19/19 13:44	1

Method: 1613B - Dioxins and Furans (HRGC/HRMS) - RA

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDF	0.0027		0.0013	0.00017	ug/Kg	☼	08/14/19 12:31	08/21/19 03:47	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDF	76		24 - 169	08/14/19 12:31	08/21/19 03:47	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	95		35 - 197	08/14/19 12:31	08/21/19 03:47	1

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	9.5		0.35	0.070	mg/Kg	☼	08/14/19 14:06	08/14/19 18:17	5
Cadmium	0.32		0.28	0.054	mg/Kg	☼	08/14/19 14:06	08/14/19 18:17	5
Copper	150		0.70	0.15	mg/Kg	☼	08/14/19 14:06	08/14/19 18:17	5
Lead	30	B	0.35	0.034	mg/Kg	☼	08/14/19 14:06	08/14/19 18:17	5
Zinc	240		3.5	1.1	mg/Kg	☼	08/14/19 14:06	08/14/19 18:17	5

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.14	H	0.063	0.019	mg/Kg	☼	08/14/19 10:54	08/14/19 18:37	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	32000	H B	2000	97	mg/Kg			08/18/19 14:03	1
Total Solids	37.8	H	0.1	0.1	%			08/13/19 17:21	1
Percent Moisture	61	H	0.10	0.10	%			08/21/19 13:20	1
Percent Solids	39	H	0.10	0.10	%			08/21/19 13:20	1

Method: D7928/D6913 - ASTM D7928/D6913

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Clay	15.3	H			%			08/06/19 11:26	1
Coarse Sand	0.3	H			%			08/06/19 11:26	1
Fine Sand	25.8	H			%			08/06/19 11:26	1
Gravel	0.9	H			%			08/06/19 11:26	1
Medium Sand	1.8	H			%			08/06/19 11:26	1

Client: Pacific Groundwater Group
Job ID: 580-88125-1
Project/Site: Swan Island Lagoon Sediment Investigatio

Client Sample ID: A7-0to26-100918
Lab Sample ID: 580-88125-7
Date Collected: 10/09/18 13:23
Matrix: Solid
Date Received: 07/26/19 13:10
Percent Solids: 37.8

Method: D7928/D6913 - ASTM D7928/D6913 (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silt	55.9	H			%			08/06/19 11:26	1

Method: D854 - Specific Gravity

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Density	1.26		0.0100	0.0100	g/cm3			08/13/19 00:00	1
Specific Gravity	1.26		0.0100	0.0100	NONE			08/13/19 00:00	1

Client Sample ID: C4-0to27-100918
Date Collected: 10/09/18 08:28
Date Received: 07/26/19 13:10

Lab Sample ID: 580-88125-8
Matrix: Solid
Percent Solids: 37.5

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		4.8	1.8	ug/Kg	☼	08/13/19 10:43	08/16/19 01:24	1
PCB-1221	ND		4.8	2.3	ug/Kg	☼	08/13/19 10:43	08/16/19 01:24	1
PCB-1232	ND		4.8	2.3	ug/Kg	☼	08/13/19 10:43	08/16/19 01:24	1
PCB-1242	ND		4.8	1.2	ug/Kg	☼	08/13/19 10:43	08/16/19 01:24	1
PCB-1248	ND		4.8	0.86	ug/Kg	☼	08/13/19 10:43	08/16/19 01:24	1
PCB-1254	**130**		4.8	1.9	ug/Kg	☼	08/13/19 10:43	08/16/19 01:24	1
PCB-1260	ND		4.8	1.8	ug/Kg	☼	08/13/19 10:43	08/16/19 01:24	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl	*36*	*p X*	*39 - 142*	*08/13/19 10:43*	*08/16/19 01:24*	*1*
Tetrachloro-m-xylene	*42*		*35 - 129*	*08/13/19 10:43*	*08/16/19 01:24*	*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)	**140**		120	29	mg/Kg	☼	08/12/19 12:08	08/14/19 20:35	1
Motor Oil (>C24-C36)	**870**		120	41	mg/Kg	☼	08/12/19 12:08	08/14/19 20:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*96*		*50 - 150*	*08/12/19 12:08*	*08/14/19 20:35*	*1*

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3,4,6,7,8-HpCDD	**0.73**		0.0065	0.0031	ug/Kg	☼	08/14/19 12:31	08/19/19 14:32	1
1,2,3,4,6,7,8-HpCDF	**0.14**	*	0.0065	0.0022	ug/Kg	☼	08/14/19 12:31	08/19/19 14:32	1
1,2,3,4,7,8,9-HpCDF	**0.0064**	J	0.0065	0.0027	ug/Kg	☼	08/14/19 12:31	08/19/19 14:32	1
1,2,3,4,7,8-HxCDD	**0.0028**	J	0.0065	0.00047	ug/Kg	☼	08/14/19 12:31	08/19/19 14:32	1
1,2,3,4,7,8-HxCDF	**0.0085**		0.0065	0.00065	ug/Kg	☼	08/14/19 12:31	08/19/19 14:32	1
1,2,3,6,7,8-HxCDD	**0.018**	*	0.0065	0.00050	ug/Kg	☼	08/14/19 12:31	08/19/19 14:32	1
1,2,3,6,7,8-HxCDF	**0.0036**	J	0.0065	0.00071	ug/Kg	☼	08/14/19 12:31	08/19/19 14:32	1
1,2,3,7,8,9-HxCDD	**0.0053**	J	0.0065	0.00046	ug/Kg	☼	08/14/19 12:31	08/19/19 14:32	1
1,2,3,7,8,9-HxCDF	ND		0.0065	0.00070	ug/Kg	☼	08/14/19 12:31	08/19/19 14:32	1
1,2,3,7,8-PeCDD	**0.0015**	J *	0.0065	0.00053	ug/Kg	☼	08/14/19 12:31	08/19/19 14:32	1
1,2,3,7,8-PeCDF	**0.0011**	J *	0.0065	0.00043	ug/Kg	☼	08/14/19 12:31	08/19/19 14:32	1
2,3,4,6,7,8-HxCDF	**0.0016**	J	0.0065	0.00065	ug/Kg	☼	08/14/19 12:31	08/19/19 14:32	1
2,3,4,7,8-PeCDF	**0.0016**	J *	0.0065	0.00047	ug/Kg	☼	08/14/19 12:31	08/19/19 14:32	1
2,3,7,8-TCDD	**0.00047**	J * q	0.0013	0.00027	ug/Kg	☼	08/14/19 12:31	08/19/19 14:32	1
OCDD	**5.4**	E B	0.013	0.0021	ug/Kg	☼	08/14/19 12:31	08/19/19 14:32	1
OCDF	**0.69**		0.013	0.00072	ug/Kg	☼	08/14/19 12:31	08/19/19 14:32	1
Total HpCDD	**1.6**		0.0065	0.0031	ug/Kg	☼	08/14/19 12:31	08/19/19 14:32	1
Total HpCDF	**0.73**	*	0.0065	0.0025	ug/Kg	☼	08/14/19 12:31	08/19/19 14:32	1
Total HxCDD	**0.15**		0.0065	0.00048	ug/Kg	☼	08/14/19 12:31	08/19/19 14:32	1
Total HxCDF	**0.19**		0.0065	0.00068	ug/Kg	☼	08/14/19 12:31	08/19/19 14:32	1
Total PeCDD	**0.0079**	* q	0.0065	0.00053	ug/Kg	☼	08/14/19 12:31	08/19/19 14:32	1
Total PeCDF	**0.021**		0.0065	0.00045	ug/Kg	☼	08/14/19 12:31	08/19/19 14:32	1
Total TCDD	**0.0081**	q	0.0013	0.00027	ug/Kg	☼	08/14/19 12:31	08/19/19 14:32	1
Total TCDF	**0.012**	q	0.0013	0.00025	ug/Kg	☼	08/14/19 12:31	08/19/19 14:32	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*47*		*23 - 140*	*08/14/19 12:31*	*08/19/19 14:32*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*48*		*28 - 143*	*08/14/19 12:31*	*08/19/19 14:32*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*52*		*26 - 138*	*08/14/19 12:31*	*08/19/19 14:32*	*1*

Client Sample ID: C4-0to27-100918
Lab Sample ID: 580-88125-8

Date Collected: 10/09/18 08:28
Matrix: Solid

Date Received: 07/26/19 13:10
Percent Solids: 37.5

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-1,2,3,4,7,8-HxCDD	58		32 - 141	08/14/19 12:31	08/19/19 14:32	1
13C-1,2,3,4,7,8-HxCDF	74		26 - 152	08/14/19 12:31	08/19/19 14:32	1
13C-1,2,3,6,7,8-HxCDD	53		28 - 130	08/14/19 12:31	08/19/19 14:32	1
13C-1,2,3,6,7,8-HxCDF	64		26 - 123	08/14/19 12:31	08/19/19 14:32	1
13C-1,2,3,7,8,9-HxCDF	63		29 - 147	08/14/19 12:31	08/19/19 14:32	1
13C-1,2,3,7,8-PeCDD	58		25 - 181	08/14/19 12:31	08/19/19 14:32	1
13C-1,2,3,7,8-PeCDF	62		24 - 185	08/14/19 12:31	08/19/19 14:32	1
13C-2,3,4,6,7,8-HxCDF	63		28 - 136	08/14/19 12:31	08/19/19 14:32	1
13C-2,3,4,7,8-PeCDF	64		21 - 178	08/14/19 12:31	08/19/19 14:32	1
13C-2,3,7,8-TCDD	59		25 - 164	08/14/19 12:31	08/19/19 14:32	1
13C-2,3,7,8-TCDF	65		24 - 169	08/14/19 12:31	08/19/19 14:32	1
13C-OCDD	49		17 - 157	08/14/19 12:31	08/19/19 14:32	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	100		35 - 197	08/14/19 12:31	08/19/19 14:32	1

Method: 1613B - Dioxins and Furans (HRGC/HRMS) - RA

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDF	0.0018		0.0013	0.00019	ug/Kg	☼	08/14/19 12:31	08/21/19 04:26	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDF	67		24 - 169	08/14/19 12:31	08/21/19 04:26	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	96		35 - 197	08/14/19 12:31	08/21/19 04:26	1

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	8.2		0.47	0.094	mg/Kg	☼	08/14/19 14:06	08/14/19 18:22	5
Cadmium	0.44		0.37	0.072	mg/Kg	☼	08/14/19 14:06	08/14/19 18:22	5
Copper	120		0.94	0.21	mg/Kg	☼	08/14/19 14:06	08/14/19 18:22	5
Lead	35	B	0.47	0.045	mg/Kg	☼	08/14/19 14:06	08/14/19 18:22	5
Zinc	240		4.7	1.5	mg/Kg	☼	08/14/19 14:06	08/14/19 18:22	5

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.23	H	0.063	0.019	mg/Kg	☼	08/14/19 10:54	08/14/19 18:39	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	30000	H B	2000	97	mg/Kg			08/18/19 14:07	1
Total Solids	37.5	H	0.1	0.1	%			08/13/19 17:21	1
Percent Moisture	64	H	0.10	0.10	%			08/21/19 13:20	1
Percent Solids	36	H	0.10	0.10	%			08/21/19 13:20	1

Method: D7928/D6913 - ASTM D7928/D6913

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Clay	18.0	H			%			08/06/19 11:26	1
Coarse Sand	0.1	H			%			08/06/19 11:26	1
Fine Sand	24.3	H			%			08/06/19 11:26	1
Gravel	0.6	H			%			08/06/19 11:26	1
Medium Sand	1.5	H			%			08/06/19 11:26	1

Client: Pacific Groundwater Group
Job ID: 580-88125-1
Project/Site: Swan Island Lagoon Sediment Investigatio

Client Sample ID: C4-0to27-100918
Lab Sample ID: 580-88125-8
Date Collected: 10/09/18 08:28
Matrix: Solid
Date Received: 07/26/19 13:10
Percent Solids: 37.5

Method: D7928/D6913 - ASTM D7928/D6913 (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silt	55.4	H			%			08/06/19 11:26	1

Method: D854 - Specific Gravity

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Density	1.25		0.0100	0.0100	g/cm3			08/13/19 00:00	1
Specific Gravity	1.25		0.0100	0.0100	NONE			08/13/19 00:00	1

Client Sample ID: D2-0to19-101018
Lab Sample ID: 580-88125-9

Date Collected: 10/10/18 15:21
Matrix: Solid

Date Received: 07/26/19 13:10
Percent Solids: 70.6

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		2.5	0.94	ug/Kg	☼	08/13/19 10:43	08/16/19 01:41	1
PCB-1221	ND		2.5	1.2	ug/Kg	☼	08/13/19 10:43	08/16/19 01:41	1
PCB-1232	ND		2.5	1.2	ug/Kg	☼	08/13/19 10:43	08/16/19 01:41	1
PCB-1242	ND		2.5	0.62	ug/Kg	☼	08/13/19 10:43	08/16/19 01:41	1
PCB-1248	ND		2.5	0.46	ug/Kg	☼	08/13/19 10:43	08/16/19 01:41	1
PCB-1254	ND		2.5	1.0	ug/Kg	☼	08/13/19 10:43	08/16/19 01:41	1
PCB-1260	**8.1**	**p**	2.5	0.98	ug/Kg	☼	08/13/19 10:43	08/16/19 01:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl	*37*	*p X*	*39 - 142*	*08/13/19 10:43*	*08/16/19 01:41*	*1*
Tetrachloro-m-xylene	*58*		*35 - 129*	*08/13/19 10:43*	*08/16/19 01:41*	*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)	**56**	**J**	57	14	mg/Kg	☼	08/12/19 12:08	08/14/19 20:58	1
Motor Oil (>C24-C36)	**360**		57	20	mg/Kg	☼	08/12/19 12:08	08/14/19 20:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*93*		*50 - 150*	*08/12/19 12:08*	*08/14/19 20:58*	*1*

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3,4,6,7,8-HpCDD	**0.14**		0.0036	0.0010	ug/Kg	☼	08/14/19 12:31	08/19/19 15:19	1
1,2,3,4,6,7,8-HpCDF	**0.034**	*****	0.0036	0.00049	ug/Kg	☼	08/14/19 12:31	08/19/19 15:19	1
1,2,3,4,7,8,9-HpCDF	**0.0015**	**J**	0.0036	0.00064	ug/Kg	☼	08/14/19 12:31	08/19/19 15:19	1
1,2,3,4,7,8-HxCDD	**0.00050**	**J q**	0.0036	0.00019	ug/Kg	☼	08/14/19 12:31	08/19/19 15:19	1
1,2,3,4,7,8-HxCDF	**0.0030**	**J**	0.0036	0.00021	ug/Kg	☼	08/14/19 12:31	08/19/19 15:19	1
1,2,3,6,7,8-HxCDD	**0.0034**	**J ***	0.0036	0.00020	ug/Kg	☼	08/14/19 12:31	08/19/19 15:19	1
1,2,3,6,7,8-HxCDF	**0.00085**	**J**	0.0036	0.00023	ug/Kg	☼	08/14/19 12:31	08/19/19 15:19	1
1,2,3,7,8,9-HxCDD	**0.0013**	**J**	0.0036	0.00019	ug/Kg	☼	08/14/19 12:31	08/19/19 15:19	1
1,2,3,7,8,9-HxCDF	ND		0.0036	0.00024	ug/Kg	☼	08/14/19 12:31	08/19/19 15:19	1
1,2,3,7,8-PeCDD	ND	*	0.0036	0.00020	ug/Kg	☼	08/14/19 12:31	08/19/19 15:19	1
1,2,3,7,8-PeCDF	**0.00023**	**J ***	0.0036	0.00014	ug/Kg	☼	08/14/19 12:31	08/19/19 15:19	1
2,3,4,6,7,8-HxCDF	**0.00049**	**J**	0.0036	0.00022	ug/Kg	☼	08/14/19 12:31	08/19/19 15:19	1
2,3,4,7,8-PeCDF	**0.00048**	**J ***	0.0036	0.00016	ug/Kg	☼	08/14/19 12:31	08/19/19 15:19	1
2,3,7,8-TCDD	ND	*	0.00071	0.00013	ug/Kg	☼	08/14/19 12:31	08/19/19 15:19	1
2,3,7,8-TCDF	**0.00045**	**J**	0.00071	0.00011	ug/Kg	☼	08/14/19 12:31	08/19/19 15:19	1
OCDD	**1.3**	**B**	0.0071	0.00058	ug/Kg	☼	08/14/19 12:31	08/19/19 15:19	1
OCDF	**0.16**		0.0071	0.00025	ug/Kg	☼	08/14/19 12:31	08/19/19 15:19	1
Total HpCDD	**0.35**		0.0036	0.0010	ug/Kg	☼	08/14/19 12:31	08/19/19 15:19	1
Total HpCDF	**0.16**	*****	0.0036	0.00056	ug/Kg	☼	08/14/19 12:31	08/19/19 15:19	1
Total HxCDD	**0.026**	**q**	0.0036	0.00019	ug/Kg	☼	08/14/19 12:31	08/19/19 15:19	1
Total HxCDF	**0.040**		0.0036	0.00022	ug/Kg	☼	08/14/19 12:31	08/19/19 15:19	1
Total PeCDD	**0.00087**	**J * q**	0.0036	0.00020	ug/Kg	☼	08/14/19 12:31	08/19/19 15:19	1
Total PeCDF	**0.0065**		0.0036	0.00015	ug/Kg	☼	08/14/19 12:31	08/19/19 15:19	1
Total TCDD	**0.00083**	**q**	0.00071	0.00013	ug/Kg	☼	08/14/19 12:31	08/19/19 15:19	1
Total TCDF	**0.0042**	**q**	0.00071	0.00011	ug/Kg	☼	08/14/19 12:31	08/19/19 15:19	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*55*		*23 - 140*	*08/14/19 12:31*	*08/19/19 15:19*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*56*		*28 - 143*	*08/14/19 12:31*	*08/19/19 15:19*	*1*

Client Sample ID: D2-0to19-101018
Lab Sample ID: 580-88125-9

Date Collected: 10/10/18 15:21
Matrix: Solid

Date Received: 07/26/19 13:10
Percent Solids: 70.6

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-1,2,3,4,7,8,9-HpCDF	58		26 - 138	08/14/19 12:31	08/19/19 15:19	1
13C-1,2,3,4,7,8-HxCDD	65		32 - 141	08/14/19 12:31	08/19/19 15:19	1
13C-1,2,3,4,7,8-HxCDF	81		26 - 152	08/14/19 12:31	08/19/19 15:19	1
13C-1,2,3,6,7,8-HxCDD	61		28 - 130	08/14/19 12:31	08/19/19 15:19	1
13C-1,2,3,6,7,8-HxCDF	71		26 - 123	08/14/19 12:31	08/19/19 15:19	1
13C-1,2,3,7,8,9-HxCDF	68		29 - 147	08/14/19 12:31	08/19/19 15:19	1
13C-1,2,3,7,8-PeCDD	62		25 - 181	08/14/19 12:31	08/19/19 15:19	1
13C-1,2,3,7,8-PeCDF	62		24 - 185	08/14/19 12:31	08/19/19 15:19	1
13C-2,3,4,6,7,8-HxCDF	68		28 - 136	08/14/19 12:31	08/19/19 15:19	1
13C-2,3,4,7,8-PeCDF	63		21 - 178	08/14/19 12:31	08/19/19 15:19	1
13C-2,3,7,8-TCDD	59		25 - 164	08/14/19 12:31	08/19/19 15:19	1
13C-2,3,7,8-TCDF	63		24 - 169	08/14/19 12:31	08/19/19 15:19	1
13C-OCDD	54		17 - 157	08/14/19 12:31	08/19/19 15:19	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	104		35 - 197	08/14/19 12:31	08/19/19 15:19	1

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	5.9		0.23	0.045	mg/Kg	☼	08/14/19 14:06	08/14/19 18:26	5
Cadmium	0.18		0.18	0.035	mg/Kg	☼	08/14/19 14:06	08/14/19 18:26	5
Copper	95		0.45	0.10	mg/Kg	☼	08/14/19 14:06	08/14/19 18:26	5
Lead	24	B	0.23	0.022	mg/Kg	☼	08/14/19 14:06	08/14/19 18:26	5
Zinc	150		2.3	0.73	mg/Kg	☼	08/14/19 14:06	08/14/19 18:26	5

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.028	H	0.027	0.0082	mg/Kg	☼	08/14/19 10:54	08/14/19 18:41	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	12000	H B	2000	97	mg/Kg			08/18/19 14:12	1
Total Solids	70.6	H	0.1	0.1	%			08/13/19 17:21	1
Percent Moisture	30	H	0.10	0.10	%			08/21/19 13:20	1
Percent Solids	70	H	0.10	0.10	%			08/21/19 13:20	1

Method: D7928/D6913 - ASTM D7928/D6913

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Clay	3.8	H			%			08/06/19 11:26	1
Coarse Sand	2.7	H			%			08/06/19 11:26	1
Fine Sand	50.1	H			%			08/06/19 11:26	1
Gravel	1.1	H			%			08/06/19 11:26	1
Medium Sand	39.2	H			%			08/06/19 11:26	1
Silt	3.1	H			%			08/06/19 11:26	1

Method: D854 - Specific Gravity

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Density	1.84		0.0100	0.0100	g/cm3			08/13/19 00:00	1
Specific Gravity	1.85		0.0100	0.0100	NONE			08/13/19 00:00	1

Client Sample ID: F2-0to19-101018
Date Collected: 10/10/18 16:36
Date Received: 07/26/19 13:10

Lab Sample ID: 580-88125-10
Matrix: Solid
Percent Solids: 69.3

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		2.6	0.98	ug/Kg	☼	08/13/19 10:43	08/16/19 01:57	1
PCB-1221	ND		2.6	1.3	ug/Kg	☼	08/13/19 10:43	08/16/19 01:57	1
PCB-1232	ND		2.6	1.3	ug/Kg	☼	08/13/19 10:43	08/16/19 01:57	1
PCB-1242	ND		2.6	0.65	ug/Kg	☼	08/13/19 10:43	08/16/19 01:57	1
PCB-1248	ND		2.6	0.48	ug/Kg	☼	08/13/19 10:43	08/16/19 01:57	1
PCB-1254	**18**	**p**	2.6	1.0	ug/Kg	☼	08/13/19 10:43	08/16/19 01:57	1
PCB-1260	ND		2.6	1.0	ug/Kg	☼	08/13/19 10:43	08/16/19 01:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl	*37*	*p X*	*39 - 142*	*08/13/19 10:43*	*08/16/19 01:57*	*1*
Tetrachloro-m-xylene	*60*		*35 - 129*	*08/13/19 10:43*	*08/16/19 01:57*	*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)	**54**		53	13	mg/Kg	☼	08/12/19 12:08	08/14/19 21:20	1
Motor Oil (>C24-C36)	**210**		53	18	mg/Kg	☼	08/12/19 12:08	08/14/19 21:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*92*		*50 - 150*	*08/12/19 12:08*	*08/14/19 21:20*	*1*

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3,4,6,7,8-HpCDD	**0.14**		0.0036	0.0010	ug/Kg	☼	08/14/19 12:31	08/19/19 16:07	1
1,2,3,4,6,7,8-HpCDF	**0.022**	*****	0.0036	0.00047	ug/Kg	☼	08/14/19 12:31	08/19/19 16:07	1
1,2,3,4,7,8,9-HpCDF	**0.0012**	**J**	0.0036	0.00059	ug/Kg	☼	08/14/19 12:31	08/19/19 16:07	1
1,2,3,4,7,8-HxCDD	**0.00049**	**J q**	0.0036	0.00021	ug/Kg	☼	08/14/19 12:31	08/19/19 16:07	1
1,2,3,4,7,8-HxCDF	**0.0016**	**J**	0.0036	0.00016	ug/Kg	☼	08/14/19 12:31	08/19/19 16:07	1
1,2,3,6,7,8-HxCDD	**0.0030**	**J ***	0.0036	0.00022	ug/Kg	☼	08/14/19 12:31	08/19/19 16:07	1
1,2,3,6,7,8-HxCDF	**0.00089**	**J**	0.0036	0.00016	ug/Kg	☼	08/14/19 12:31	08/19/19 16:07	1
1,2,3,7,8,9-HxCDD	**0.0012**	**J**	0.0036	0.00020	ug/Kg	☼	08/14/19 12:31	08/19/19 16:07	1
1,2,3,7,8,9-HxCDF	ND		0.0036	0.00017	ug/Kg	☼	08/14/19 12:31	08/19/19 16:07	1
1,2,3,7,8-PeCDD	ND	*	0.0036	0.00024	ug/Kg	☼	08/14/19 12:31	08/19/19 16:07	1
1,2,3,7,8-PeCDF	**0.00031**	**J * q**	0.0036	0.00014	ug/Kg	☼	08/14/19 12:31	08/19/19 16:07	1
2,3,4,6,7,8-HxCDF	**0.00044**	**J**	0.0036	0.00016	ug/Kg	☼	08/14/19 12:31	08/19/19 16:07	1
2,3,4,7,8-PeCDF	**0.00038**	**J ***	0.0036	0.00016	ug/Kg	☼	08/14/19 12:31	08/19/19 16:07	1
2,3,7,8-TCDD	**0.00039**	**J ***	0.00073	0.00012	ug/Kg	☼	08/14/19 12:31	08/19/19 16:07	1
2,3,7,8-TCDF	**0.00053**	**J**	0.00073	0.00015	ug/Kg	☼	08/14/19 12:31	08/19/19 16:07	1
OCDD	**1.2**	**B**	0.0073	0.00055	ug/Kg	☼	08/14/19 12:31	08/19/19 16:07	1
OCDF	**0.096**		0.0073	0.00026	ug/Kg	☼	08/14/19 12:31	08/19/19 16:07	1
Total HpCDD	**0.40**		0.0036	0.0010	ug/Kg	☼	08/14/19 12:31	08/19/19 16:07	1
Total HpCDF	**0.099**	*****	0.0036	0.00053	ug/Kg	☼	08/14/19 12:31	08/19/19 16:07	1
Total HxCDD	**0.037**	**q**	0.0036	0.00021	ug/Kg	☼	08/14/19 12:31	08/19/19 16:07	1
Total HxCDF	**0.027**		0.0036	0.00016	ug/Kg	☼	08/14/19 12:31	08/19/19 16:07	1
Total PeCDD	**0.0013**	**J * q**	0.0036	0.00024	ug/Kg	☼	08/14/19 12:31	08/19/19 16:07	1
Total PeCDF	**0.0066**	**q**	0.0036	0.00015	ug/Kg	☼	08/14/19 12:31	08/19/19 16:07	1
Total TCDD	**0.0022**	**q**	0.00073	0.00012	ug/Kg	☼	08/14/19 12:31	08/19/19 16:07	1
Total TCDF	**0.0037**		0.00073	0.00015	ug/Kg	☼	08/14/19 12:31	08/19/19 16:07	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*55*		*23 - 140*	*08/14/19 12:31*	*08/19/19 16:07*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*56*		*28 - 143*	*08/14/19 12:31*	*08/19/19 16:07*	*1*

Client Sample ID: F2-0to19-101018
Date Collected: 10/10/18 16:36
Date Received: 07/26/19 13:10

Lab Sample ID: 580-88125-10
Matrix: Solid
Percent Solids: 69.3

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-1,2,3,4,7,8,9-HpCDF	60		26 - 138	08/14/19 12:31	08/19/19 16:07	1
13C-1,2,3,4,7,8-HxCDD	65		32 - 141	08/14/19 12:31	08/19/19 16:07	1
13C-1,2,3,4,7,8-HxCDF	80		26 - 152	08/14/19 12:31	08/19/19 16:07	1
13C-1,2,3,6,7,8-HxCDD	62		28 - 130	08/14/19 12:31	08/19/19 16:07	1
13C-1,2,3,6,7,8-HxCDF	72		26 - 123	08/14/19 12:31	08/19/19 16:07	1
13C-1,2,3,7,8,9-HxCDF	70		29 - 147	08/14/19 12:31	08/19/19 16:07	1
13C-1,2,3,7,8-PeCDD	65		25 - 181	08/14/19 12:31	08/19/19 16:07	1
13C-1,2,3,7,8-PeCDF	68		24 - 185	08/14/19 12:31	08/19/19 16:07	1
13C-2,3,4,6,7,8-HxCDF	71		28 - 136	08/14/19 12:31	08/19/19 16:07	1
13C-2,3,4,7,8-PeCDF	68		21 - 178	08/14/19 12:31	08/19/19 16:07	1
13C-2,3,7,8-TCDD	64		25 - 164	08/14/19 12:31	08/19/19 16:07	1
13C-2,3,7,8-TCDF	69		24 - 169	08/14/19 12:31	08/19/19 16:07	1
13C-OCDD	54		17 - 157	08/14/19 12:31	08/19/19 16:07	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	106		35 - 197	08/14/19 12:31	08/19/19 16:07	1

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	3.6		0.24	0.049	mg/Kg	☼	08/14/19 14:06	08/14/19 18:31	5
Cadmium	0.17	J	0.20	0.038	mg/Kg	☼	08/14/19 14:06	08/14/19 18:31	5
Copper	46		0.49	0.11	mg/Kg	☼	08/14/19 14:06	08/14/19 18:31	5
Lead	12	B	0.24	0.024	mg/Kg	☼	08/14/19 14:06	08/14/19 18:31	5
Zinc	130		2.4	0.79	mg/Kg	☼	08/14/19 14:06	08/14/19 18:31	5

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.070	H	0.029	0.0086	mg/Kg	☼	08/14/19 10:54	08/14/19 18:44	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	38000	H B	2000	97	mg/Kg			08/18/19 14:17	1
Total Solids	69.3	H	0.1	0.1	%			08/13/19 17:21	1
Percent Moisture	31	H	0.10	0.10	%			08/21/19 13:20	1
Percent Solids	69	H	0.10	0.10	%			08/21/19 13:20	1

Method: D7928/D6913 - ASTM D7928/D6913

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Clay	2.0	H			%			08/06/19 11:26	1
Coarse Sand	1.8	H			%			08/06/19 11:26	1
Fine Sand	62.3	H			%			08/06/19 11:26	1
Gravel	2.2	H			%			08/06/19 11:26	1
Medium Sand	27.4	H			%			08/06/19 11:26	1
Silt	4.5	H			%			08/06/19 11:26	1

Method: D854 - Specific Gravity

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Density	1.73		0.0100	0.0100	g/cm3			08/13/19 00:00	1
Specific Gravity	1.74		0.0100	0.0100	NONE			08/13/19 00:00	1

Client Sample ID: G6-0to27-101818
Date Collected: 10/18/18 14:12
Date Received: 07/26/19 13:10

Lab Sample ID: 580-88125-11
Matrix: Solid
Percent Solids: 32.7

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		6.1	2.3	ug/Kg	☼	08/13/19 11:37	08/15/19 14:12	1
PCB-1221	ND		6.1	2.9	ug/Kg	☼	08/13/19 11:37	08/15/19 14:12	1
PCB-1232	ND		6.1	2.9	ug/Kg	☼	08/13/19 11:37	08/15/19 14:12	1
PCB-1242	ND		6.1	1.5	ug/Kg	☼	08/13/19 11:37	08/15/19 14:12	1
PCB-1248	ND		6.1	1.1	ug/Kg	☼	08/13/19 11:37	08/15/19 14:12	1
PCB-1254	ND		6.1	2.4	ug/Kg	☼	08/13/19 11:37	08/15/19 14:12	1
PCB-1260	**86**	**F2 F1 p**	6.1	2.3	ug/Kg	☼	08/13/19 11:37	08/15/19 14:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl	*56*		*39 - 142*	*08/13/19 11:37*	*08/15/19 14:12*	*1*
Tetrachloro-m-xylene	*59*		*35 - 129*	*08/13/19 11:37*	*08/15/19 14:12*	*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)	**140**		140	35	mg/Kg	☼	08/13/19 09:12	08/15/19 20:31	1
Motor Oil (>C24-C36)	**640**		140	50	mg/Kg	☼	08/13/19 09:12	08/15/19 20:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*106*		*50 - 150*	*08/13/19 09:12*	*08/15/19 20:31*	*1*

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3,4,6,7,8-HpCDD	**1.1**		0.0076	0.0043	ug/Kg	☼	08/14/19 12:31	08/19/19 16:54	1
1,2,3,4,6,7,8-HpCDF	**0.30**	*	0.0076	0.0038	ug/Kg	☼	08/14/19 12:31	08/19/19 16:54	1
1,2,3,4,7,8,9-HpCDF	**0.019**		0.0076	0.0046	ug/Kg	☼	08/14/19 12:31	08/19/19 16:54	1
1,2,3,4,7,8-HxCDD	**0.0044**	**J**	0.0076	0.00062	ug/Kg	☼	08/14/19 12:31	08/19/19 16:54	1
1,2,3,4,7,8-HxCDF	**0.030**		0.0076	0.0012	ug/Kg	☼	08/14/19 12:31	08/19/19 16:54	1
1,2,3,6,7,8-HxCDD	**0.036**	*	0.0076	0.00064	ug/Kg	☼	08/14/19 12:31	08/19/19 16:54	1
1,2,3,6,7,8-HxCDF	**0.0075**	**J**	0.0076	0.0013	ug/Kg	☼	08/14/19 12:31	08/19/19 16:54	1
1,2,3,7,8,9-HxCDD	**0.0083**		0.0076	0.00059	ug/Kg	☼	08/14/19 12:31	08/19/19 16:54	1
1,2,3,7,8,9-HxCDF	ND		0.0076	0.0013	ug/Kg	☼	08/14/19 12:31	08/19/19 16:54	1
1,2,3,7,8-PeCDD	ND	*	0.0076	0.00077	ug/Kg	☼	08/14/19 12:31	08/19/19 16:54	1
1,2,3,7,8-PeCDF	**0.0022**	**J ***	0.0076	0.00053	ug/Kg	☼	08/14/19 12:31	08/19/19 16:54	1
2,3,4,6,7,8-HxCDF	**0.0035**	**J**	0.0076	0.0012	ug/Kg	☼	08/14/19 12:31	08/19/19 16:54	1
2,3,4,7,8-PeCDF	**0.0039**	**J ***	0.0076	0.00058	ug/Kg	☼	08/14/19 12:31	08/19/19 16:54	1
2,3,7,8-TCDD	**0.00053**	**J * q**	0.0015	0.00032	ug/Kg	☼	08/14/19 12:31	08/19/19 16:54	1
OCDD	**9.2**	**E B**	0.015	0.0029	ug/Kg	☼	08/14/19 12:31	08/19/19 16:54	1
OCDF	**1.5**		0.015	0.00089	ug/Kg	☼	08/14/19 12:31	08/19/19 16:54	1
Total HpCDD	**2.4**		0.0076	0.0043	ug/Kg	☼	08/14/19 12:31	08/19/19 16:54	1
Total HpCDF	**1.6**	*	0.0076	0.0042	ug/Kg	☼	08/14/19 12:31	08/19/19 16:54	1
Total HxCDD	**0.24**	**q**	0.0076	0.00062	ug/Kg	☼	08/14/19 12:31	08/19/19 16:54	1
Total HxCDF	**0.40**		0.0076	0.0013	ug/Kg	☼	08/14/19 12:31	08/19/19 16:54	1
Total PeCDD	**0.010**	*** q**	0.0076	0.00077	ug/Kg	☼	08/14/19 12:31	08/19/19 16:54	1
Total PeCDF	**0.042**		0.0076	0.00056	ug/Kg	☼	08/14/19 12:31	08/19/19 16:54	1
Total TCDD	**0.012**	**q**	0.0015	0.00032	ug/Kg	☼	08/14/19 12:31	08/19/19 16:54	1
Total TCDF	**0.029**		0.0015	0.00031	ug/Kg	☼	08/14/19 12:31	08/19/19 16:54	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*46*		*23 - 140*	*08/14/19 12:31*	*08/19/19 16:54*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*50*		*28 - 143*	*08/14/19 12:31*	*08/19/19 16:54*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*51*		*26 - 138*	*08/14/19 12:31*	*08/19/19 16:54*	*1*

Client Sample ID: G6-0to27-101818
Date Collected: 10/18/18 14:12
Date Received: 07/26/19 13:10

Lab Sample ID: 580-88125-11
Matrix: Solid
Percent Solids: 32.7

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,7,8-HxCDD	*61*		*32 - 141*	*08/14/19 12:31*	*08/19/19 16:54*	*1*
13C-1,2,3,4,7,8-HxCDF	*74*		*26 - 152*	*08/14/19 12:31*	*08/19/19 16:54*	*1*
13C-1,2,3,6,7,8-HxCDD	*52*		*28 - 130*	*08/14/19 12:31*	*08/19/19 16:54*	*1*
13C-1,2,3,6,7,8-HxCDF	*67*		*26 - 123*	*08/14/19 12:31*	*08/19/19 16:54*	*1*
13C-1,2,3,7,8,9-HxCDF	*65*		*29 - 147*	*08/14/19 12:31*	*08/19/19 16:54*	*1*
13C-1,2,3,7,8-PeCDD	*60*		*25 - 181*	*08/14/19 12:31*	*08/19/19 16:54*	*1*
13C-1,2,3,7,8-PeCDF	*64*		*24 - 185*	*08/14/19 12:31*	*08/19/19 16:54*	*1*
13C-2,3,4,6,7,8-HxCDF	*64*		*28 - 136*	*08/14/19 12:31*	*08/19/19 16:54*	*1*
13C-2,3,4,7,8-PeCDF	*65*		*21 - 178*	*08/14/19 12:31*	*08/19/19 16:54*	*1*
13C-2,3,7,8-TCDD	*60*		*25 - 164*	*08/14/19 12:31*	*08/19/19 16:54*	*1*
13C-2,3,7,8-TCDF	*67*		*24 - 169*	*08/14/19 12:31*	*08/19/19 16:54*	*1*
13C-OCDD	*47*		*17 - 157*	*08/14/19 12:31*	*08/19/19 16:54*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*104*		*35 - 197*	*08/14/19 12:31*	*08/19/19 16:54*	*1*

Method: 1613B - Dioxins and Furans (HRGC/HRMS) - RA

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDF	0.0036		0.0015	0.00029	ug/Kg	☼	08/14/19 12:31	08/21/19 05:04	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDF	*71*		*24 - 169*	*08/14/19 12:31*	*08/21/19 05:04*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*104*		*35 - 197*	*08/14/19 12:31*	*08/21/19 05:04*	*1*

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	14		0.55	0.11	mg/Kg	☼	08/14/19 14:06	08/14/19 18:35	5
Cadmium	1.1		0.44	0.085	mg/Kg	☼	08/14/19 14:06	08/14/19 18:35	5
Copper	260		1.1	0.24	mg/Kg	☼	08/14/19 14:06	08/14/19 18:35	5
Lead	64	B	0.55	0.053	mg/Kg	☼	08/14/19 14:06	08/14/19 18:35	5
Zinc	570		5.5	1.8	mg/Kg	☼	08/14/19 14:06	08/14/19 18:35	5

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.30	H	0.059	0.018	mg/Kg	☼	08/14/19 10:54	08/14/19 18:46	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	35000	H B	2000	97	mg/Kg			08/18/19 14:21	1
Total Solids	32.7	H	0.1	0.1	%			08/13/19 17:21	1
Percent Moisture	68	H	0.10	0.10	%			08/21/19 13:20	1
Percent Solids	32	H	0.10	0.10	%			08/21/19 13:20	1

Method: D7928/D6913 - ASTM D7928/D6913

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Clay	25.1	H			%			08/06/19 11:30	1
Coarse Sand	0.1	H			%			08/06/19 11:30	1
Fine Sand	8.8	H			%			08/06/19 11:30	1
Gravel	0.0	H			%			08/06/19 11:30	1
Medium Sand	0.8	H			%			08/06/19 11:30	1

Client: Pacific Groundwater Group
Job ID: 580-88125-1
Project/Site: Swan Island Lagoon Sediment Investigatio

Client Sample ID: G6-0to27-101818
Lab Sample ID: 580-88125-11
Date Collected: 10/18/18 14:12
Matrix: Solid
Date Received: 07/26/19 13:10
Percent Solids: 32.7

Method: D7928/D6913 - ASTM D7928/D6913 (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silt	65.2	H			%			08/06/19 11:30	1

Method: D854 - Specific Gravity

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Density	1.25		0.0100	0.0100	g/cm3			08/13/19 00:00	1
Specific Gravity	1.26		0.0100	0.0100	NONE			08/13/19 00:00	1

Client Sample ID: H2-0to30-101218
Lab Sample ID: 580-88125-12

Date Collected: 10/12/18 10:28
Matrix: Solid
Date Received: 07/26/19 13:10
Percent Solids: 42.1

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		4.5	1.7	ug/Kg	☼	08/13/19 11:37	08/15/19 15:03	1
PCB-1221	ND		4.5	2.1	ug/Kg	☼	08/13/19 11:37	08/15/19 15:03	1
PCB-1232	ND		4.5	2.1	ug/Kg	☼	08/13/19 11:37	08/15/19 15:03	1
PCB-1242	ND		4.5	1.1	ug/Kg	☼	08/13/19 11:37	08/15/19 15:03	1
PCB-1248	ND		4.5	0.81	ug/Kg	☼	08/13/19 11:37	08/15/19 15:03	1
PCB-1254	ND		4.5	1.8	ug/Kg	☼	08/13/19 11:37	08/15/19 15:03	1
PCB-1260	**20**	**p**	4.5	1.7	ug/Kg	☼	08/13/19 11:37	08/15/19 15:03	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl	*62*		*39 - 142*	*08/13/19 11:37*	*08/15/19 15:03*	*1*
Tetrachloro-m-xylene	*65*		*35 - 129*	*08/13/19 11:37*	*08/15/19 15:03*	*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)	**80**	**J**	96	24	mg/Kg	☼	08/12/19 12:08	08/14/19 21:43	1
Motor Oil (>C24-C36)	**500**		96	34	mg/Kg	☼	08/12/19 12:08	08/14/19 21:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*95*		*50 - 150*	*08/12/19 12:08*	*08/14/19 21:43*	*1*

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3,4,6,7,8-HpCDD	**0.35**		0.0058	0.0016	ug/Kg	☼	08/14/19 12:31	08/19/19 17:42	1
1,2,3,4,6,7,8-HpCDF	**0.088**	*****	0.0058	0.0014	ug/Kg	☼	08/14/19 12:31	08/19/19 17:42	1
1,2,3,4,7,8,9-HpCDF	**0.0045**	**J**	0.0058	0.0017	ug/Kg	☼	08/14/19 12:31	08/19/19 17:42	1
1,2,3,4,7,8-HxCDD	**0.0020**	**J**	0.0058	0.00036	ug/Kg	☼	08/14/19 12:31	08/19/19 17:42	1
1,2,3,4,7,8-HxCDF	**0.0086**		0.0058	0.00050	ug/Kg	☼	08/14/19 12:31	08/19/19 17:42	1
1,2,3,6,7,8-HxCDD	**0.010**	*****	0.0058	0.00039	ug/Kg	☼	08/14/19 12:31	08/19/19 17:42	1
1,2,3,6,7,8-HxCDF	**0.0025**	**J**	0.0058	0.00055	ug/Kg	☼	08/14/19 12:31	08/19/19 17:42	1
1,2,3,7,8,9-HxCDD	**0.0031**	**J**	0.0058	0.00035	ug/Kg	☼	08/14/19 12:31	08/19/19 17:42	1
1,2,3,7,8,9-HxCDF	ND		0.0058	0.00054	ug/Kg	☼	08/14/19 12:31	08/19/19 17:42	1
1,2,3,7,8-PeCDD	**0.00071**	**J * q**	0.0058	0.00039	ug/Kg	☼	08/14/19 12:31	08/19/19 17:42	1
1,2,3,7,8-PeCDF	**0.00086**	**J ***	0.0058	0.00032	ug/Kg	☼	08/14/19 12:31	08/19/19 17:42	1
2,3,4,6,7,8-HxCDF	**0.0011**	**J**	0.0058	0.00050	ug/Kg	☼	08/14/19 12:31	08/19/19 17:42	1
2,3,4,7,8-PeCDF	**0.0014**	**J ***	0.0058	0.00035	ug/Kg	☼	08/14/19 12:31	08/19/19 17:42	1
2,3,7,8-TCDD	**0.00043**	**J * q**	0.0012	0.00019	ug/Kg	☼	08/14/19 12:31	08/19/19 17:42	1
OCDD	**2.7**	**B**	0.012	0.0011	ug/Kg	☼	08/14/19 12:31	08/19/19 17:42	1
OCDF	**0.38**		0.012	0.00050	ug/Kg	☼	08/14/19 12:31	08/19/19 17:42	1
Total HpCDD	**0.76**		0.0058	0.0016	ug/Kg	☼	08/14/19 12:31	08/19/19 17:42	1
Total HpCDF	**0.42**	*****	0.0058	0.0015	ug/Kg	☼	08/14/19 12:31	08/19/19 17:42	1
Total HxCDD	**0.084**	**q**	0.0058	0.00037	ug/Kg	☼	08/14/19 12:31	08/19/19 17:42	1
Total HxCDF	**0.13**		0.0058	0.00052	ug/Kg	☼	08/14/19 12:31	08/19/19 17:42	1
Total PeCDD	**0.0055**	**J * q**	0.0058	0.00039	ug/Kg	☼	08/14/19 12:31	08/19/19 17:42	1
Total PeCDF	**0.016**	**q**	0.0058	0.00033	ug/Kg	☼	08/14/19 12:31	08/19/19 17:42	1
Total TCDD	**0.0064**	**q**	0.0012	0.00019	ug/Kg	☼	08/14/19 12:31	08/19/19 17:42	1
Total TCDF	**0.011**	**q**	0.0012	0.00022	ug/Kg	☼	08/14/19 12:31	08/19/19 17:42	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*58*		*23 - 140*	*08/14/19 12:31*	*08/19/19 17:42*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*58*		*28 - 143*	*08/14/19 12:31*	*08/19/19 17:42*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*64*		*26 - 138*	*08/14/19 12:31*	*08/19/19 17:42*	*1*

Client Sample ID: H2-0to30-101218
Date Collected: 10/12/18 10:28
Date Received: 07/26/19 13:10

Lab Sample ID: 580-88125-12
Matrix: Solid
Percent Solids: 42.1

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-1,2,3,4,7,8-HxCDD	73		32 - 141	08/14/19 12:31	08/19/19 17:42	1
13C-1,2,3,4,7,8-HxCDF	91		26 - 152	08/14/19 12:31	08/19/19 17:42	1
13C-1,2,3,6,7,8-HxCDD	62		28 - 130	08/14/19 12:31	08/19/19 17:42	1
13C-1,2,3,6,7,8-HxCDF	80		26 - 123	08/14/19 12:31	08/19/19 17:42	1
13C-1,2,3,7,8,9-HxCDF	78		29 - 147	08/14/19 12:31	08/19/19 17:42	1
13C-1,2,3,7,8-PeCDD	71		25 - 181	08/14/19 12:31	08/19/19 17:42	1
13C-1,2,3,7,8-PeCDF	73		24 - 185	08/14/19 12:31	08/19/19 17:42	1
13C-2,3,4,6,7,8-HxCDF	78		28 - 136	08/14/19 12:31	08/19/19 17:42	1
13C-2,3,4,7,8-PeCDF	75		21 - 178	08/14/19 12:31	08/19/19 17:42	1
13C-2,3,7,8-TCDD	69		25 - 164	08/14/19 12:31	08/19/19 17:42	1
13C-2,3,7,8-TCDF	75		24 - 169	08/14/19 12:31	08/19/19 17:42	1
13C-OCDD	58		17 - 157	08/14/19 12:31	08/19/19 17:42	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	104		35 - 197	08/14/19 12:31	08/19/19 17:42	1

Method: 1613B - Dioxins and Furans (HRGC/HRMS) - RA

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDF	0.0013		0.0012	0.00015	ug/Kg	☼	08/14/19 12:31	08/21/19 05:42	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDF	78		24 - 169	08/14/19 12:31	08/21/19 05:42	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	97		35 - 197	08/14/19 12:31	08/21/19 05:42	1

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	7.9		0.34	0.067	mg/Kg	☼	08/14/19 14:06	08/14/19 18:40	5
Cadmium	0.62		0.27	0.052	mg/Kg	☼	08/14/19 14:06	08/14/19 18:40	5
Copper	100		0.67	0.15	mg/Kg	☼	08/14/19 14:06	08/14/19 18:40	5
Lead	32	B	0.34	0.032	mg/Kg	☼	08/14/19 14:06	08/14/19 18:40	5
Zinc	270		3.4	1.1	mg/Kg	☼	08/14/19 14:06	08/14/19 18:40	5

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.16	H	0.046	0.014	mg/Kg	☼	08/14/19 10:54	08/14/19 18:48	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	36000	H B	2000	97	mg/Kg			08/18/19 14:26	1
Total Solids	42.1	H	0.1	0.1	%			08/13/19 17:21	1
Percent Moisture	57	H	0.10	0.10	%			08/21/19 13:20	1
Percent Solids	43	H	0.10	0.10	%			08/21/19 13:20	1

Method: D7928/D6913 - ASTM D7928/D6913

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Clay	13.2	H			%			08/06/19 11:30	1
Coarse Sand	0.6	H			%			08/06/19 11:30	1
Fine Sand	42.2	H			%			08/06/19 11:30	1
Gravel	0.0	H			%			08/06/19 11:30	1
Medium Sand	3.5	H			%			08/06/19 11:30	1

Client: Pacific Groundwater Group
Project/Site: Swan Island Lagoon Sediment Investigatio

Job ID: 580-88125-1

Client Sample ID: H2-0to30-101218
Date Collected: 10/12/18 10:28
Date Received: 07/26/19 13:10

Lab Sample ID: 580-88125-12
Matrix: Solid
Percent Solids: 42.1

Method: D7928/D6913 - ASTM D7928/D6913 (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silt	40.5	H			%			08/06/19 11:30	1

Method: D854 - Specific Gravity

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Density	1.36		0.0100	0.0100	g/cm3			08/13/19 00:00	1
Specific Gravity	1.37		0.0100	0.0100	NONE			08/14/19 00:00	1

Client Sample ID: J2A3-0to18-101218
Lab Sample ID: 580-88125-13

Date Collected: 10/12/18 12:57
Matrix: Solid

Date Received: 07/26/19 13:10
Percent Solids: 80.8

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		2.4	0.90	ug/Kg	☼	08/13/19 11:37	08/15/19 15:19	1
PCB-1221	ND		2.4	1.2	ug/Kg	☼	08/13/19 11:37	08/15/19 15:19	1
PCB-1232	ND		2.4	1.2	ug/Kg	☼	08/13/19 11:37	08/15/19 15:19	1
PCB-1242	ND		2.4	0.60	ug/Kg	☼	08/13/19 11:37	08/15/19 15:19	1
PCB-1248	ND		2.4	0.44	ug/Kg	☼	08/13/19 11:37	08/15/19 15:19	1
PCB-1254	ND		2.4	0.97	ug/Kg	☼	08/13/19 11:37	08/15/19 15:19	1
PCB-1260	**16**		2.4	0.94	ug/Kg	☼	08/13/19 11:37	08/15/19 15:19	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl	*85*		*39 - 142*	*08/13/19 11:37*	*08/15/19 15:19*	*1*
Tetrachloro-m-xylene	*85*		*35 - 129*	*08/13/19 11:37*	*08/15/19 15:19*	*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)	**16**	**J**	38	9.3	mg/Kg	☼	08/12/19 12:08	08/14/19 22:05	1
Motor Oil (>C24-C36)	**130**		38	13	mg/Kg	☼	08/12/19 12:08	08/14/19 22:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*15*	*X*	*50 - 150*	*08/12/19 12:08*	*08/14/19 22:05*	*1*

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3,4,6,7,8-HpCDD	**0.038**		0.0031	0.00032	ug/Kg	☼	08/14/19 12:31	08/19/19 18:29	1
1,2,3,4,6,7,8-HpCDF	**0.0093**	*** q**	0.0031	0.00033	ug/Kg	☼	08/14/19 12:31	08/19/19 18:29	1
1,2,3,4,7,8,9-HpCDF	ND		0.0031	0.00039	ug/Kg	☼	08/14/19 12:31	08/19/19 18:29	1
1,2,3,4,7,8-HxCDD	**0.00051**	**J**	0.0031	0.00018	ug/Kg	☼	08/14/19 12:31	08/19/19 18:29	1
1,2,3,4,7,8-HxCDF	**0.0011**	**J q**	0.0031	0.00017	ug/Kg	☼	08/14/19 12:31	08/19/19 18:29	1
1,2,3,6,7,8-HxCDD	**0.0015**	**J * q**	0.0031	0.00020	ug/Kg	☼	08/14/19 12:31	08/19/19 18:29	1
1,2,3,6,7,8-HxCDF	**0.00042**	**J**	0.0031	0.00018	ug/Kg	☼	08/14/19 12:31	08/19/19 18:29	1
1,2,3,7,8,9-HxCDD	**0.00093**	**J**	0.0031	0.00018	ug/Kg	☼	08/14/19 12:31	08/19/19 18:29	1
1,2,3,7,8,9-HxCDF	ND		0.0031	0.00020	ug/Kg	☼	08/14/19 12:31	08/19/19 18:29	1
1,2,3,7,8-PeCDD	**0.00031**	**J * q**	0.0031	0.00018	ug/Kg	☼	08/14/19 12:31	08/19/19 18:29	1
1,2,3,7,8-PeCDF	**0.00017**	**J ***	0.0031	0.00010	ug/Kg	☼	08/14/19 12:31	08/19/19 18:29	1
2,3,4,6,7,8-HxCDF	**0.00022**	**J**	0.0031	0.00018	ug/Kg	☼	08/14/19 12:31	08/19/19 18:29	1
2,3,4,7,8-PeCDF	ND	*	0.0031	0.00011	ug/Kg	☼	08/14/19 12:31	08/19/19 18:29	1
2,3,7,8-TCDD	ND	*	0.00062	0.00011	ug/Kg	☼	08/14/19 12:31	08/19/19 18:29	1
2,3,7,8-TCDF	**0.00040**	**J**	0.00062	0.000078	ug/Kg	☼	08/14/19 12:31	08/19/19 18:29	1
OCDD	**0.32**	**B**	0.0062	0.00034	ug/Kg	☼	08/14/19 12:31	08/19/19 18:29	1
OCDF	**0.032**		0.0062	0.00029	ug/Kg	☼	08/14/19 12:31	08/19/19 18:29	1
Total HpCDD	**0.086**		0.0031	0.00032	ug/Kg	☼	08/14/19 12:31	08/19/19 18:29	1
Total HpCDF	**0.038**	*** q**	0.0031	0.00036	ug/Kg	☼	08/14/19 12:31	08/19/19 18:29	1
Total HxCDD	**0.013**	**q**	0.0031	0.00019	ug/Kg	☼	08/14/19 12:31	08/19/19 18:29	1
Total HxCDF	**0.016**	**q**	0.0031	0.00018	ug/Kg	☼	08/14/19 12:31	08/19/19 18:29	1
Total PeCDD	**0.0015**	**J q**	0.0031	0.00018	ug/Kg	☼	08/14/19 12:31	08/19/19 18:29	1
Total PeCDF	**0.0028**	**J q**	0.0031	0.00010	ug/Kg	☼	08/14/19 12:31	08/19/19 18:29	1
Total TCDD	**0.00078**	**q**	0.00062	0.00011	ug/Kg	☼	08/14/19 12:31	08/19/19 18:29	1
Total TCDF	**0.0027**	**q**	0.00062	0.000078	ug/Kg	☼	08/14/19 12:31	08/19/19 18:29	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*57*		*23 - 140*	*08/14/19 12:31*	*08/19/19 18:29*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*58*		*28 - 143*	*08/14/19 12:31*	*08/19/19 18:29*	*1*

Client Sample ID: J2A3-0to18-101218
Lab Sample ID: 580-88125-13

Date Collected: 10/12/18 12:57
Matrix: Solid
Date Received: 07/26/19 13:10
Percent Solids: 80.8

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-1,2,3,4,7,8,9-HpCDF	59		26 - 138	08/14/19 12:31	08/19/19 18:29	1
13C-1,2,3,4,7,8-HxCDD	77		32 - 141	08/14/19 12:31	08/19/19 18:29	1
13C-1,2,3,4,7,8-HxCDF	101		26 - 152	08/14/19 12:31	08/19/19 18:29	1
13C-1,2,3,6,7,8-HxCDD	62		28 - 130	08/14/19 12:31	08/19/19 18:29	1
13C-1,2,3,6,7,8-HxCDF	88		26 - 123	08/14/19 12:31	08/19/19 18:29	1
13C-1,2,3,7,8,9-HxCDF	75		29 - 147	08/14/19 12:31	08/19/19 18:29	1
13C-1,2,3,7,8-PeCDD	70		25 - 181	08/14/19 12:31	08/19/19 18:29	1
13C-1,2,3,7,8-PeCDF	71		24 - 185	08/14/19 12:31	08/19/19 18:29	1
13C-2,3,4,6,7,8-HxCDF	82		28 - 136	08/14/19 12:31	08/19/19 18:29	1
13C-2,3,4,7,8-PeCDF	71		21 - 178	08/14/19 12:31	08/19/19 18:29	1
13C-2,3,7,8-TCDD	66		25 - 164	08/14/19 12:31	08/19/19 18:29	1
13C-2,3,7,8-TCDF	76		24 - 169	08/14/19 12:31	08/19/19 18:29	1
13C-OCDD	54		17 - 157	08/14/19 12:31	08/19/19 18:29	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	103		35 - 197	08/14/19 12:31	08/19/19 18:29	1

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	4.1		0.18	0.037	mg/Kg	☼	08/14/19 14:06	08/14/19 19:03	5
Cadmium	0.73		0.15	0.028	mg/Kg	☼	08/14/19 14:06	08/14/19 19:03	5
Copper	34		0.37	0.081	mg/Kg	☼	08/14/19 14:06	08/14/19 19:03	5
Lead	19	B	0.18	0.018	mg/Kg	☼	08/14/19 14:06	08/14/19 19:03	5
Zinc	190		1.8	0.59	mg/Kg	☼	08/14/19 14:06	08/14/19 19:03	5

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.024	H	0.024	0.0071	mg/Kg	☼	08/14/19 10:54	08/14/19 18:51	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	13000	H B	2000	97	mg/Kg			08/18/19 14:31	1
Total Solids	80.8	H	0.1	0.1	%			08/13/19 17:21	1
Percent Moisture	22	H	0.10	0.10	%			08/21/19 13:20	1
Percent Solids	78	H	0.10	0.10	%			08/21/19 13:20	1

Method: D7928/D6913 - ASTM D7928/D6913

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Clay	0.0	H			%			08/06/19 11:30	1
Coarse Sand	10.3	H			%			08/06/19 11:30	1
Fine Sand	31.3	H			%			08/06/19 11:30	1
Gravel	11.0	H			%			08/06/19 11:30	1
Medium Sand	43.0	H			%			08/06/19 11:30	1
Silt	4.4	H			%			08/06/19 11:30	1

Method: D854 - Specific Gravity

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Density	1.91		0.0100	0.0100	g/cm3			08/13/19 00:00	1
Specific Gravity	1.91		0.0100	0.0100	NONE			08/14/19 00:00	1

Client Sample ID: M4-0to26-101918
Lab Sample ID: 580-88125-14

Date Collected: 10/19/18 13:11
Matrix: Solid

Date Received: 07/26/19 13:10
Percent Solids: 38.4

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		4.5	1.7	ug/Kg	☼	08/13/19 11:37	08/15/19 15:36	1
PCB-1221	ND		4.5	2.2	ug/Kg	☼	08/13/19 11:37	08/15/19 15:36	1
PCB-1232	ND		4.5	2.2	ug/Kg	☼	08/13/19 11:37	08/15/19 15:36	1
PCB-1242	ND		4.5	1.1	ug/Kg	☼	08/13/19 11:37	08/15/19 15:36	1
PCB-1248	ND		4.5	0.81	ug/Kg	☼	08/13/19 11:37	08/15/19 15:36	1
PCB-1254	ND		4.5	1.8	ug/Kg	☼	08/13/19 11:37	08/15/19 15:36	1
PCB-1260	**32**	**p**	4.5	1.7	ug/Kg	☼	08/13/19 11:37	08/15/19 15:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl	*68*		*39 - 142*	*08/13/19 11:37*	*08/15/19 15:36*	*1*
Tetrachloro-m-xylene	*63*		*35 - 129*	*08/13/19 11:37*	*08/15/19 15:36*	*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)	**160**		81	20	mg/Kg	☼	08/12/19 12:08	08/14/19 22:28	1
Motor Oil (>C24-C36)	**600**		81	28	mg/Kg	☼	08/12/19 12:08	08/14/19 22:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*73*		*50 - 150*	*08/12/19 12:08*	*08/14/19 22:28*	*1*

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3,4,6,7,8-HpCDD	**0.72**		0.0065	0.0023	ug/Kg	☼	08/14/19 12:34	08/19/19 19:16	1
1,2,3,4,6,7,8-HpCDF	**0.21**		0.0065	0.0026	ug/Kg	☼	08/14/19 12:34	08/19/19 19:16	1
1,2,3,4,7,8,9-HpCDF	**0.014**		0.0065	0.0031	ug/Kg	☼	08/14/19 12:34	08/19/19 19:16	1
1,2,3,4,7,8-HxCDD	**0.0042**	**J B**	0.0065	0.00065	ug/Kg	☼	08/14/19 12:34	08/19/19 19:16	1
1,2,3,4,7,8-HxCDF	**0.030**		0.0065	0.0012	ug/Kg	☼	08/14/19 12:34	08/19/19 19:16	1
1,2,3,6,7,8-HxCDD	**0.027**	*	0.0065	0.00068	ug/Kg	☼	08/14/19 12:34	08/19/19 19:16	1
1,2,3,6,7,8-HxCDF	**0.0075**		0.0065	0.0013	ug/Kg	☼	08/14/19 12:34	08/19/19 19:16	1
1,2,3,7,8,9-HxCDD	**0.0082**		0.0065	0.00063	ug/Kg	☼	08/14/19 12:34	08/19/19 19:16	1
1,2,3,7,8,9-HxCDF	ND		0.0065	0.0015	ug/Kg	☼	08/14/19 12:34	08/19/19 19:16	1
1,2,3,7,8-PeCDD	**0.0019**	**J**	0.0065	0.00068	ug/Kg	☼	08/14/19 12:34	08/19/19 19:16	1
1,2,3,7,8-PeCDF	ND		0.0065	0.00065	ug/Kg	☼	08/14/19 12:34	08/19/19 19:16	1
2,3,4,6,7,8-HxCDF	**0.0032**	**J**	0.0065	0.0013	ug/Kg	☼	08/14/19 12:34	08/19/19 19:16	1
2,3,4,7,8-PeCDF	**0.0037**	**J**	0.0065	0.00073	ug/Kg	☼	08/14/19 12:34	08/19/19 19:16	1
2,3,7,8-TCDD	**0.00077**	**J q**	0.0013	0.00034	ug/Kg	☼	08/14/19 12:34	08/19/19 19:16	1
OCDD	**6.3**	**E B**	0.013	0.0023	ug/Kg	☼	08/14/19 12:34	08/19/19 19:16	1
OCDF	**0.77**		0.013	0.0011	ug/Kg	☼	08/14/19 12:34	08/19/19 19:16	1
Total HpCDD	**1.5**		0.0065	0.0023	ug/Kg	☼	08/14/19 12:34	08/19/19 19:16	1
Total HpCDF	**0.93**		0.0065	0.0029	ug/Kg	☼	08/14/19 12:34	08/19/19 19:16	1
Total HxCDD	**0.22**	**B**	0.0065	0.00065	ug/Kg	☼	08/14/19 12:34	08/19/19 19:16	1
Total HxCDF	**0.38**		0.0065	0.0013	ug/Kg	☼	08/14/19 12:34	08/19/19 19:16	1
Total PeCDD	**0.015**	**q**	0.0065	0.00068	ug/Kg	☼	08/14/19 12:34	08/19/19 19:16	1
Total PeCDF	**0.040**		0.0065	0.00069	ug/Kg	☼	08/14/19 12:34	08/19/19 19:16	1
Total TCDD	**0.012**	**q**	0.0013	0.00034	ug/Kg	☼	08/14/19 12:34	08/19/19 19:16	1
Total TCDF	**0.024**		0.0013	0.00037	ug/Kg	☼	08/14/19 12:34	08/19/19 19:16	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*61*		*23 - 140*	*08/14/19 12:34*	*08/19/19 19:16*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*60*		*28 - 143*	*08/14/19 12:34*	*08/19/19 19:16*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*67*		*26 - 138*	*08/14/19 12:34*	*08/19/19 19:16*	*1*

Client Sample ID: M4-0to26-101918
Date Collected: 10/19/18 13:11
Date Received: 07/26/19 13:10

Lab Sample ID: 580-88125-14
Matrix: Solid
Percent Solids: 38.4

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,7,8-HxCDD	*80*		*32 - 141*	*08/14/19 12:34*	*08/19/19 19:16*	*1*
13C-1,2,3,4,7,8-HxCDF	*105*		*26 - 152*	*08/14/19 12:34*	*08/19/19 19:16*	*1*
13C-1,2,3,6,7,8-HxCDD	*65*		*28 - 130*	*08/14/19 12:34*	*08/19/19 19:16*	*1*
13C-1,2,3,6,7,8-HxCDF	*90*		*26 - 123*	*08/14/19 12:34*	*08/19/19 19:16*	*1*
13C-1,2,3,7,8,9-HxCDF	*77*		*29 - 147*	*08/14/19 12:34*	*08/19/19 19:16*	*1*
13C-1,2,3,7,8-PeCDD	*72*		*25 - 181*	*08/14/19 12:34*	*08/19/19 19:16*	*1*
13C-1,2,3,7,8-PeCDF	*72*		*24 - 185*	*08/14/19 12:34*	*08/19/19 19:16*	*1*
13C-2,3,4,6,7,8-HxCDF	*82*		*28 - 136*	*08/14/19 12:34*	*08/19/19 19:16*	*1*
13C-2,3,4,7,8-PeCDF	*72*		*21 - 178*	*08/14/19 12:34*	*08/19/19 19:16*	*1*
13C-2,3,7,8-TCDD	*66*		*25 - 164*	*08/14/19 12:34*	*08/19/19 19:16*	*1*
13C-2,3,7,8-TCDF	*71*		*24 - 169*	*08/14/19 12:34*	*08/19/19 19:16*	*1*
13C-OCDD	*66*		*17 - 157*	*08/14/19 12:34*	*08/19/19 19:16*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*97*		*35 - 197*	*08/14/19 12:34*	*08/19/19 19:16*	*1*

Method: 1613B - Dioxins and Furans (HRGC/HRMS) - RA

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDF	0.0039		0.0013	0.00025	ug/Kg	☼	08/14/19 12:34	08/21/19 06:21	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDF	*75*		*24 - 169*	*08/14/19 12:34*	*08/21/19 06:21*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*58*		*35 - 197*	*08/14/19 12:34*	*08/21/19 06:21*	*1*

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	11		0.36	0.072	mg/Kg	☼	08/14/19 14:06	08/14/19 19:07	5
Cadmium	0.68		0.29	0.056	mg/Kg	☼	08/14/19 14:06	08/14/19 19:07	5
Copper	160		0.72	0.16	mg/Kg	☼	08/14/19 14:06	08/14/19 19:07	5
Lead	57	B	0.36	0.035	mg/Kg	☼	08/14/19 14:06	08/14/19 19:07	5
Zinc	390		3.6	1.2	mg/Kg	☼	08/14/19 14:06	08/14/19 19:07	5

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.29	H	0.055	0.016	mg/Kg	☼	08/14/19 10:54	08/14/19 18:53	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	31000	H B	2000	97	mg/Kg			08/18/19 14:40	1
Total Solids	38.4	H	0.1	0.1	%			08/13/19 17:21	1
Percent Moisture	61	H	0.10	0.10	%			08/21/19 13:20	1
Percent Solids	39	H	0.10	0.10	%			08/21/19 13:20	1

Method: D7928/D6913 - ASTM D7928/D6913

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Clay	17.9	H			%			08/06/19 11:30	1
Coarse Sand	0.1	H			%			08/06/19 11:30	1
Fine Sand	23.4	H			%			08/06/19 11:30	1
Gravel	0.0	H			%			08/06/19 11:30	1
Medium Sand	2.3	H			%			08/06/19 11:30	1

Client: Pacific Groundwater Group
Job ID: 580-88125-1
Project/Site: Swan Island Lagoon Sediment Investigatio

Client Sample ID: M4-0to26-101918
Lab Sample ID: 580-88125-14
Date Collected: 10/19/18 13:11
Matrix: Solid
Date Received: 07/26/19 13:10
Percent Solids: 38.4

Method: D7928/D6913 - ASTM D7928/D6913 (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silt	56.3	H			%			08/06/19 11:30	1

Method: D854 - Specific Gravity

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Density	1.32		0.0100	0.0100	g/cm3			08/13/19 00:00	1
Specific Gravity	1.32		0.0100	0.0100	NONE			08/14/19 00:00	1

Client Sample ID: 515-0to26-101918
Lab Sample ID: 580-88125-15

Date Collected: 10/19/18 13:11
Matrix: Solid

Date Received: 07/26/19 13:10
Percent Solids: 38.4

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		5.0	1.9	ug/Kg	☼	08/13/19 11:37	08/15/19 15:53	1
PCB-1221	ND		5.0	2.4	ug/Kg	☼	08/13/19 11:37	08/15/19 15:53	1
PCB-1232	ND		5.0	2.4	ug/Kg	☼	08/13/19 11:37	08/15/19 15:53	1
PCB-1242	ND		5.0	1.2	ug/Kg	☼	08/13/19 11:37	08/15/19 15:53	1
PCB-1248	ND		5.0	0.91	ug/Kg	☼	08/13/19 11:37	08/15/19 15:53	1
PCB-1254	**74**		5.0	2.0	ug/Kg	☼	08/13/19 11:37	08/15/19 15:53	1
PCB-1260	ND		5.0	1.9	ug/Kg	☼	08/13/19 11:37	08/15/19 15:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl	*69*		*39 - 142*	*08/13/19 11:37*	*08/15/19 15:53*	*1*
Tetrachloro-m-xylene	*65*		*35 - 129*	*08/13/19 11:37*	*08/15/19 15:53*	*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)	**150**		90	22	mg/Kg	☼	08/12/19 12:08	08/14/19 22:50	1
Motor Oil (>C24-C36)	**540**		90	32	mg/Kg	☼	08/12/19 12:08	08/14/19 22:50	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*77*		*50 - 150*	*08/12/19 12:08*	*08/14/19 22:50*	*1*

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3,4,6,7,8-HpCDD	**0.71**		0.0063	0.0024	ug/Kg	☼	08/14/19 12:34	08/19/19 20:04	1
1,2,3,4,6,7,8-HpCDF	**0.22**		0.0063	0.0036	ug/Kg	☼	08/14/19 12:34	08/19/19 20:04	1
1,2,3,4,7,8,9-HpCDF	**0.016**		0.0063	0.0040	ug/Kg	☼	08/14/19 12:34	08/19/19 20:04	1
1,2,3,4,7,8-HxCDD	**0.0037**	**J B**	0.0063	0.00090	ug/Kg	☼	08/14/19 12:34	08/19/19 20:04	1
1,2,3,4,7,8-HxCDF	**0.030**		0.0063	0.0011	ug/Kg	☼	08/14/19 12:34	08/19/19 20:04	1
1,2,3,6,7,8-HxCDD	**0.026**	*	0.0063	0.00095	ug/Kg	☼	08/14/19 12:34	08/19/19 20:04	1
1,2,3,6,7,8-HxCDF	**0.0092**		0.0063	0.0012	ug/Kg	☼	08/14/19 12:34	08/19/19 20:04	1
1,2,3,7,8,9-HxCDD	**0.0063**		0.0063	0.00087	ug/Kg	☼	08/14/19 12:34	08/19/19 20:04	1
1,2,3,7,8,9-HxCDF	ND		0.0063	0.0014	ug/Kg	☼	08/14/19 12:34	08/19/19 20:04	1
1,2,3,7,8-PeCDD	ND		0.0063	0.0013	ug/Kg	☼	08/14/19 12:34	08/19/19 20:04	1
1,2,3,7,8-PeCDF	**0.0028**	**J**	0.0063	0.00076	ug/Kg	☼	08/14/19 12:34	08/19/19 20:04	1
2,3,4,6,7,8-HxCDF	**0.0032**	**J**	0.0063	0.0014	ug/Kg	☼	08/14/19 12:34	08/19/19 20:04	1
2,3,4,7,8-PeCDF	**0.0040**	**J**	0.0063	0.00082	ug/Kg	☼	08/14/19 12:34	08/19/19 20:04	1
2,3,7,8-TCDD	**0.00054**	**J q**	0.0013	0.00041	ug/Kg	☼	08/14/19 12:34	08/19/19 20:04	1
OCDD	**6.1**	**E B**	0.013	0.0027	ug/Kg	☼	08/14/19 12:34	08/19/19 20:04	1
OCDF	**0.78**		0.013	0.0015	ug/Kg	☼	08/14/19 12:34	08/19/19 20:04	1
Total HpCDD	**1.4**		0.0063	0.0024	ug/Kg	☼	08/14/19 12:34	08/19/19 20:04	1
Total HpCDF	**0.99**		0.0063	0.0038	ug/Kg	☼	08/14/19 12:34	08/19/19 20:04	1
Total HxCDD	**0.20**	**q B**	0.0063	0.00091	ug/Kg	☼	08/14/19 12:34	08/19/19 20:04	1
Total HxCDF	**0.37**		0.0063	0.0013	ug/Kg	☼	08/14/19 12:34	08/19/19 20:04	1
Total PeCDD	**0.011**	**q**	0.0063	0.0013	ug/Kg	☼	08/14/19 12:34	08/19/19 20:04	1
Total PeCDF	**0.049**	**q**	0.0063	0.00079	ug/Kg	☼	08/14/19 12:34	08/19/19 20:04	1
Total TCDD	**0.011**	**q**	0.0013	0.00041	ug/Kg	☼	08/14/19 12:34	08/19/19 20:04	1
Total TCDF	**0.024**		0.0013	0.00059	ug/Kg	☼	08/14/19 12:34	08/19/19 20:04	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*49*		*23 - 140*	*08/14/19 12:34*	*08/19/19 20:04*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*47*		*28 - 143*	*08/14/19 12:34*	*08/19/19 20:04*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*54*		*26 - 138*	*08/14/19 12:34*	*08/19/19 20:04*	*1*

Client Sample ID: 515-0to26-101918
Lab Sample ID: 580-88125-15

Date Collected: 10/19/18 13:11
Matrix: Solid

Date Received: 07/26/19 13:10
Percent Solids: 38.4

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-1,2,3,4,7,8-HxCDD	70		32 - 141	08/14/19 12:34	08/19/19 20:04	1
13C-1,2,3,4,7,8-HxCDF	95		26 - 152	08/14/19 12:34	08/19/19 20:04	1
13C-1,2,3,6,7,8-HxCDD	54		28 - 130	08/14/19 12:34	08/19/19 20:04	1
13C-1,2,3,6,7,8-HxCDF	80		26 - 123	08/14/19 12:34	08/19/19 20:04	1
13C-1,2,3,7,8,9-HxCDF	67		29 - 147	08/14/19 12:34	08/19/19 20:04	1
13C-1,2,3,7,8-PeCDD	62		25 - 181	08/14/19 12:34	08/19/19 20:04	1
13C-1,2,3,7,8-PeCDF	64		24 - 185	08/14/19 12:34	08/19/19 20:04	1
13C-2,3,4,6,7,8-HxCDF	69		28 - 136	08/14/19 12:34	08/19/19 20:04	1
13C-2,3,4,7,8-PeCDF	67		21 - 178	08/14/19 12:34	08/19/19 20:04	1
13C-2,3,7,8-TCDD	58		25 - 164	08/14/19 12:34	08/19/19 20:04	1
13C-2,3,7,8-TCDF	65		24 - 169	08/14/19 12:34	08/19/19 20:04	1
13C-OCDD	56		17 - 157	08/14/19 12:34	08/19/19 20:04	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	98		35 - 197	08/14/19 12:34	08/19/19 20:04	1

Method: 1613B - Dioxins and Furans (HRGC/HRMS) - RA

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDF	0.0041		0.0013	0.00038	ug/Kg	☼	08/14/19 12:34	08/21/19 06:59	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDF	77		24 - 169	08/14/19 12:34	08/21/19 06:59	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	101		35 - 197	08/14/19 12:34	08/21/19 06:59	1

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	14		0.35	0.069	mg/Kg	☼	08/14/19 14:06	08/14/19 19:12	5
Cadmium	0.78		0.28	0.053	mg/Kg	☼	08/14/19 14:06	08/14/19 19:12	5
Copper	170		0.69	0.15	mg/Kg	☼	08/14/19 14:06	08/14/19 19:12	5
Lead	66	B	0.35	0.033	mg/Kg	☼	08/14/19 14:06	08/14/19 19:12	5
Zinc	420		3.5	1.1	mg/Kg	☼	08/14/19 14:06	08/14/19 19:12	5

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.92	H	0.053	0.016	mg/Kg	☼	08/14/19 10:54	08/15/19 01:57	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	35000	H B	2000	97	mg/Kg			08/18/19 14:45	1
Total Solids	38.4	H	0.1	0.1	%			08/13/19 17:21	1
Percent Moisture	61	H	0.10	0.10	%			08/21/19 13:20	1
Percent Solids	39	H	0.10	0.10	%			08/21/19 13:20	1

Method: D7928/D6913 - ASTM D7928/D6913

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Clay	13.5	H			%			08/06/19 11:30	1
Coarse Sand	0.1	H			%			08/06/19 11:30	1
Fine Sand	24.6	H			%			08/06/19 11:30	1
Gravel	0.0	H			%			08/06/19 11:30	1
Medium Sand	2.5	H			%			08/06/19 11:30	1

Client: Pacific Groundwater Group
Job ID: 580-88125-1
Project/Site: Swan Island Lagoon Sediment Investigatio

Client Sample ID: 515-0to26-101918
Lab Sample ID: 580-88125-15
Date Collected: 10/19/18 13:11
Matrix: Solid
Date Received: 07/26/19 13:10
Percent Solids: 38.4

Method: D7928/D6913 - ASTM D7928/D6913 (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silt	59.2	H			%			08/06/19 11:30	1

Method: D854 - Specific Gravity

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Density	1.32		0.0100	0.0100	g/cm3			08/13/19 00:00	1
Specific Gravity	1.33		0.0100	0.0100	NONE			08/14/19 00:00	1

Client Sample ID: N5-0to28-101418
Lab Sample ID: 580-88125-16

Date Collected: 10/14/18 16:46
Matrix: Solid

Date Received: 07/26/19 13:10
Percent Solids: 31.4

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		6.3	2.3	ug/Kg	☼	08/13/19 11:37	08/15/19 16:10	1
PCB-1221	ND		6.3	3.0	ug/Kg	☼	08/13/19 11:37	08/15/19 16:10	1
PCB-1232	ND		6.3	3.0	ug/Kg	☼	08/13/19 11:37	08/15/19 16:10	1
PCB-1242	ND		6.3	1.6	ug/Kg	☼	08/13/19 11:37	08/15/19 16:10	1
PCB-1248	ND		6.3	1.1	ug/Kg	☼	08/13/19 11:37	08/15/19 16:10	1
PCB-1254	ND		6.3	2.5	ug/Kg	☼	08/13/19 11:37	08/15/19 16:10	1
PCB-1260	**24**		6.3	2.4	ug/Kg	☼	08/13/19 11:37	08/15/19 16:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl	*67*		*39 - 142*	*08/13/19 11:37*	*08/15/19 16:10*	*1*
Tetrachloro-m-xylene	*69*		*35 - 129*	*08/13/19 11:37*	*08/15/19 16:10*	*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)	**88**	**J**	120	28	mg/Kg	☼	08/12/19 12:08	08/14/19 23:13	1
Motor Oil (>C24-C36)	**360**		120	40	mg/Kg	☼	08/12/19 12:08	08/14/19 23:13	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*96*		*50 - 150*	*08/12/19 12:08*	*08/14/19 23:13*	*1*

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3,4,6,7,8-HpCDD	**0.53**		0.0078	0.0027	ug/Kg	☼	08/14/19 12:34	08/20/19 05:16	1
1,2,3,4,6,7,8-HpCDF	**0.18**		0.0078	0.0029	ug/Kg	☼	08/14/19 12:34	08/20/19 05:16	1
1,2,3,4,7,8,9-HpCDF	**0.0097**		0.0078	0.0035	ug/Kg	☼	08/14/19 12:34	08/20/19 05:16	1
1,2,3,4,7,8-HxCDD	**0.0025**	**J B**	0.0078	0.00048	ug/Kg	☼	08/14/19 12:34	08/20/19 05:16	1
1,2,3,4,7,8-HxCDF	**0.020**		0.0078	0.0011	ug/Kg	☼	08/14/19 12:34	08/20/19 05:16	1
1,2,3,6,7,8-HxCDD	**0.018**	*	0.0078	0.00048	ug/Kg	☼	08/14/19 12:34	08/20/19 05:16	1
1,2,3,6,7,8-HxCDF	**0.0049**	**J**	0.0078	0.0013	ug/Kg	☼	08/14/19 12:34	08/20/19 05:16	1
1,2,3,7,8,9-HxCDD	**0.0062**	**J**	0.0078	0.00045	ug/Kg	☼	08/14/19 12:34	08/20/19 05:16	1
1,2,3,7,8,9-HxCDF	ND		0.0078	0.0011	ug/Kg	☼	08/14/19 12:34	08/20/19 05:16	1
1,2,3,7,8-PeCDD	**0.00099**	**J q**	0.0078	0.00054	ug/Kg	☼	08/14/19 12:34	08/20/19 05:16	1
1,2,3,7,8-PeCDF	ND		0.0078	0.00058	ug/Kg	☼	08/14/19 12:34	08/20/19 05:16	1
2,3,4,6,7,8-HxCDF	**0.0018**	**J q**	0.0078	0.0011	ug/Kg	☼	08/14/19 12:34	08/20/19 05:16	1
2,3,4,7,8-PeCDF	**0.0021**	**J**	0.0078	0.00064	ug/Kg	☼	08/14/19 12:34	08/20/19 05:16	1
2,3,7,8-TCDD	**0.00056**	**J**	0.0016	0.00032	ug/Kg	☼	08/14/19 12:34	08/20/19 05:16	1
OCDD	**4.3**	**B**	0.016	0.0015	ug/Kg	☼	08/14/19 12:34	08/20/19 05:16	1
OCDF	**0.70**		0.016	0.00059	ug/Kg	☼	08/14/19 12:34	08/20/19 05:16	1
Total HpCDD	**1.0**		0.0078	0.0027	ug/Kg	☼	08/14/19 12:34	08/20/19 05:16	1
Total HpCDF	**0.82**		0.0078	0.0032	ug/Kg	☼	08/14/19 12:34	08/20/19 05:16	1
Total HxCDD	**0.098**	**q B**	0.0078	0.00047	ug/Kg	☼	08/14/19 12:34	08/20/19 05:16	1
Total HxCDF	**0.22**	**q**	0.0078	0.0012	ug/Kg	☼	08/14/19 12:34	08/20/19 05:16	1
Total PeCDD	**0.0067**	**J q**	0.0078	0.00054	ug/Kg	☼	08/14/19 12:34	08/20/19 05:16	1
Total PeCDF	**0.024**	**q**	0.0078	0.00061	ug/Kg	☼	08/14/19 12:34	08/20/19 05:16	1
Total TCDD	**0.0044**		0.0016	0.00032	ug/Kg	☼	08/14/19 12:34	08/20/19 05:16	1
Total TCDF	**0.0089**	**q**	0.0016	0.00036	ug/Kg	☼	08/14/19 12:34	08/20/19 05:16	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*63*		*23 - 140*	*08/14/19 12:34*	*08/20/19 05:16*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*63*		*28 - 143*	*08/14/19 12:34*	*08/20/19 05:16*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*71*		*26 - 138*	*08/14/19 12:34*	*08/20/19 05:16*	*1*

Client Sample ID: N5-0to28-101418
Date Collected: 10/14/18 16:46
Date Received: 07/26/19 13:10

Lab Sample ID: 580-88125-16
Matrix: Solid
Percent Solids: 31.4

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-1,2,3,4,7,8-HxCDD	69		32 - 141	08/14/19 12:34	08/20/19 05:16	1
13C-1,2,3,4,7,8-HxCDF	80		26 - 152	08/14/19 12:34	08/20/19 05:16	1
13C-1,2,3,6,7,8-HxCDD	64		28 - 130	08/14/19 12:34	08/20/19 05:16	1
13C-1,2,3,6,7,8-HxCDF	71		26 - 123	08/14/19 12:34	08/20/19 05:16	1
13C-1,2,3,7,8,9-HxCDF	75		29 - 147	08/14/19 12:34	08/20/19 05:16	1
13C-1,2,3,7,8-PeCDD	73		25 - 181	08/14/19 12:34	08/20/19 05:16	1
13C-1,2,3,7,8-PeCDF	72		24 - 185	08/14/19 12:34	08/20/19 05:16	1
13C-2,3,4,6,7,8-HxCDF	71		28 - 136	08/14/19 12:34	08/20/19 05:16	1
13C-2,3,4,7,8-PeCDF	74		21 - 178	08/14/19 12:34	08/20/19 05:16	1
13C-2,3,7,8-TCDD	67		25 - 164	08/14/19 12:34	08/20/19 05:16	1
13C-2,3,7,8-TCDF	70		24 - 169	08/14/19 12:34	08/20/19 05:16	1
13C-OCDD	64		17 - 157	08/14/19 12:34	08/20/19 05:16	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	96		35 - 197	08/14/19 12:34	08/20/19 05:16	1

Method: 1613B - Dioxins and Furans (HRGC/HRMS) - RA

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDF	0.0017		0.0016	0.00015	ug/Kg	☼	08/14/19 12:34	08/20/19 16:34	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDF	75		24 - 169	08/14/19 12:34	08/20/19 16:34	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	88		35 - 197	08/14/19 12:34	08/20/19 16:34	1

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	10		0.50	0.10	mg/Kg	☼	08/14/19 14:06	08/14/19 19:16	5
Cadmium	0.53		0.40	0.077	mg/Kg	☼	08/14/19 14:06	08/14/19 19:16	5
Copper	140		1.0	0.22	mg/Kg	☼	08/14/19 14:06	08/14/19 19:16	5
Lead	44	B	0.50	0.048	mg/Kg	☼	08/14/19 14:06	08/14/19 19:16	5
Zinc	310		5.0	1.6	mg/Kg	☼	08/14/19 14:06	08/14/19 19:16	5

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.22	H	0.070	0.021	mg/Kg	☼	08/14/19 10:54	08/15/19 01:59	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	35000	H B	2000	97	mg/Kg			08/18/19 14:49	1
Total Solids	31.4	H	0.1	0.1	%			08/13/19 17:21	1
Percent Moisture	67	H	0.10	0.10	%			08/21/19 13:20	1
Percent Solids	33	H	0.10	0.10	%			08/21/19 13:20	1

Method: D7928/D6913 - ASTM D7928/D6913

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Clay	19.4	H			%			08/06/19 11:30	1
Coarse Sand	0.0	H			%			08/06/19 11:30	1
Fine Sand	11.1	H			%			08/06/19 11:30	1
Gravel	0.0	H			%			08/06/19 11:30	1
Medium Sand	0.5	H			%			08/06/19 11:30	1

Client: Pacific Groundwater Group
Job ID: 580-88125-1
Project/Site: Swan Island Lagoon Sediment Investigatio

Client Sample ID: N5-0to28-101418
Lab Sample ID: 580-88125-16
Date Collected: 10/14/18 16:46
Matrix: Solid
Date Received: 07/26/19 13:10
Percent Solids: 31.4

Method: D7928/D6913 - ASTM D7928/D6913 (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silt	69.0	H			%			08/06/19 11:30	1

Method: D854 - Specific Gravity

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Density	1.24		0.0100	0.0100	g/cm3			08/13/19 00:00	1
Specific Gravity	1.24		0.0100	0.0100	NONE			08/14/19 00:00	1

Client Sample ID: N7-0to27-101418
Lab Sample ID: 580-88125-17

Date Collected: 10/14/18 15:10
Matrix: Solid

Date Received: 07/26/19 13:10
Percent Solids: 34.8

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		5.5	2.0	ug/Kg	☼	08/13/19 11:37	08/15/19 16:26	1
PCB-1221	ND		5.5	2.6	ug/Kg	☼	08/13/19 11:37	08/15/19 16:26	1
PCB-1232	ND		5.5	2.6	ug/Kg	☼	08/13/19 11:37	08/15/19 16:26	1
PCB-1242	ND		5.5	1.3	ug/Kg	☼	08/13/19 11:37	08/15/19 16:26	1
PCB-1248	ND		5.5	0.99	ug/Kg	☼	08/13/19 11:37	08/15/19 16:26	1
PCB-1254	ND		5.5	2.2	ug/Kg	☼	08/13/19 11:37	08/15/19 16:26	1
PCB-1260	**37**	**p**	5.5	2.1	ug/Kg	☼	08/13/19 11:37	08/15/19 16:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl	*57*		*39 - 142*	*08/13/19 11:37*	*08/15/19 16:26*	*1*
Tetrachloro-m-xylene	*59*		*35 - 129*	*08/13/19 11:37*	*08/15/19 16:26*	*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)	**120**		100	24	mg/Kg	☼	08/12/19 12:08	08/14/19 23:35	1
Motor Oil (>C24-C36)	**500**		100	35	mg/Kg	☼	08/12/19 12:08	08/14/19 23:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*60*		*50 - 150*	*08/12/19 12:08*	*08/14/19 23:35*	*1*

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3,4,6,7,8-HpCDD	**0.80**		0.0072	0.0037	ug/Kg	☼	08/14/19 12:34	08/20/19 06:04	1
1,2,3,4,6,7,8-HpCDF	**0.31**		0.0072	0.0048	ug/Kg	☼	08/14/19 12:34	08/20/19 06:04	1
1,2,3,4,7,8,9-HpCDF	**0.028**		0.0072	0.0055	ug/Kg	☼	08/14/19 12:34	08/20/19 06:04	1
1,2,3,4,7,8-HxCDD	**0.0029**	**J B**	0.0072	0.0014	ug/Kg	☼	08/14/19 12:34	08/20/19 06:04	1
1,2,3,4,7,8-HxCDF	**0.069**		0.0072	0.0011	ug/Kg	☼	08/14/19 12:34	08/20/19 06:04	1
1,2,3,6,7,8-HxCDD	**0.025**	*****	0.0072	0.0015	ug/Kg	☼	08/14/19 12:34	08/20/19 06:04	1
1,2,3,6,7,8-HxCDF	**0.013**		0.0072	0.0012	ug/Kg	☼	08/14/19 12:34	08/20/19 06:04	1
1,2,3,7,8,9-HxCDD	**0.0059**	**J**	0.0072	0.0014	ug/Kg	☼	08/14/19 12:34	08/20/19 06:04	1
1,2,3,7,8,9-HxCDF	ND		0.0072	0.0010	ug/Kg	☼	08/14/19 12:34	08/20/19 06:04	1
1,2,3,7,8-PeCDD	**0.0016**	**J**	0.0072	0.00055	ug/Kg	☼	08/14/19 12:34	08/20/19 06:04	1
1,2,3,7,8-PeCDF	**0.0020**	**J q**	0.0072	0.00099	ug/Kg	☼	08/14/19 12:34	08/20/19 06:04	1
2,3,4,6,7,8-HxCDF	**0.0058**	**J**	0.0072	0.0011	ug/Kg	☼	08/14/19 12:34	08/20/19 06:04	1
2,3,4,7,8-PeCDF	**0.0060**	**J**	0.0072	0.0011	ug/Kg	☼	08/14/19 12:34	08/20/19 06:04	1
2,3,7,8-TCDD	**0.00062**	**J**	0.0014	0.00030	ug/Kg	☼	08/14/19 12:34	08/20/19 06:04	1
OCDD	**7.0**	**E B**	0.014	0.0025	ug/Kg	☼	08/14/19 12:34	08/20/19 06:04	1
OCDF	**0.73**		0.014	0.00065	ug/Kg	☼	08/14/19 12:34	08/20/19 06:04	1
Total HpCDD	**1.7**		0.0072	0.0037	ug/Kg	☼	08/14/19 12:34	08/20/19 06:04	1
Total HpCDF	**1.3**		0.0072	0.0052	ug/Kg	☼	08/14/19 12:34	08/20/19 06:04	1
Total HxCDD	**0.17**	**q B**	0.0072	0.0014	ug/Kg	☼	08/14/19 12:34	08/20/19 06:04	1
Total HxCDF	**0.55**		0.0072	0.0011	ug/Kg	☼	08/14/19 12:34	08/20/19 06:04	1
Total PeCDD	**0.011**	**q**	0.0072	0.00055	ug/Kg	☼	08/14/19 12:34	08/20/19 06:04	1
Total PeCDF	**0.056**	**q**	0.0072	0.0010	ug/Kg	☼	08/14/19 12:34	08/20/19 06:04	1
Total TCDD	**0.0061**		0.0014	0.00030	ug/Kg	☼	08/14/19 12:34	08/20/19 06:04	1
Total TCDF	**0.0083**	**q**	0.0014	0.00032	ug/Kg	☼	08/14/19 12:34	08/20/19 06:04	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*57*		*23 - 140*	*08/14/19 12:34*	*08/20/19 06:04*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*54*		*28 - 143*	*08/14/19 12:34*	*08/20/19 06:04*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*64*		*26 - 138*	*08/14/19 12:34*	*08/20/19 06:04*	*1*

Client Sample ID: N7-0to27-101418
Date Collected: 10/14/18 15:10
Date Received: 07/26/19 13:10

Lab Sample ID: 580-88125-17
Matrix: Solid
Percent Solids: 34.8

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,7,8-HxCDD	*59*		*32 - 141*	*08/14/19 12:34*	*08/20/19 06:04*	*1*
13C-1,2,3,4,7,8-HxCDF	*69*		*26 - 152*	*08/14/19 12:34*	*08/20/19 06:04*	*1*
13C-1,2,3,6,7,8-HxCDD	*55*		*28 - 130*	*08/14/19 12:34*	*08/20/19 06:04*	*1*
13C-1,2,3,6,7,8-HxCDF	*63*		*26 - 123*	*08/14/19 12:34*	*08/20/19 06:04*	*1*
13C-1,2,3,7,8,9-HxCDF	*65*		*29 - 147*	*08/14/19 12:34*	*08/20/19 06:04*	*1*
13C-1,2,3,7,8-PeCDD	*60*		*25 - 181*	*08/14/19 12:34*	*08/20/19 06:04*	*1*
13C-1,2,3,7,8-PeCDF	*61*		*24 - 185*	*08/14/19 12:34*	*08/20/19 06:04*	*1*
13C-2,3,4,6,7,8-HxCDF	*61*		*28 - 136*	*08/14/19 12:34*	*08/20/19 06:04*	*1*
13C-2,3,4,7,8-PeCDF	*62*		*21 - 178*	*08/14/19 12:34*	*08/20/19 06:04*	*1*
13C-2,3,7,8-TCDD	*57*		*25 - 164*	*08/14/19 12:34*	*08/20/19 06:04*	*1*
13C-2,3,7,8-TCDF	*58*		*24 - 169*	*08/14/19 12:34*	*08/20/19 06:04*	*1*
13C-OCDD	*59*		*17 - 157*	*08/14/19 12:34*	*08/20/19 06:04*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*91*		*35 - 197*	*08/14/19 12:34*	*08/20/19 06:04*	*1*

Method: 1613B - Dioxins and Furans (HRGC/HRMS) - RA

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDF	0.0015		0.0014	0.00020	ug/Kg	☼	08/14/19 12:34	08/20/19 17:12	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDF	*62*		*24 - 169*	*08/14/19 12:34*	*08/20/19 17:12*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*82*		*35 - 197*	*08/14/19 12:34*	*08/20/19 17:12*	*1*

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	13		0.42	0.084	mg/Kg	☼	08/14/19 14:06	08/14/19 19:21	5
Cadmium	0.53		0.34	0.065	mg/Kg	☼	08/14/19 14:06	08/14/19 19:21	5
Copper	230		0.84	0.18	mg/Kg	☼	08/14/19 14:06	08/14/19 19:21	5
Lead	45	B	0.42	0.040	mg/Kg	☼	08/14/19 14:06	08/14/19 19:21	5
Zinc	360		4.2	1.3	mg/Kg	☼	08/14/19 14:06	08/14/19 19:21	5

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.18	H	0.059	0.018	mg/Kg	☼	08/14/19 10:54	08/15/19 02:02	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	35000	H B	2000	97	mg/Kg			08/18/19 14:54	1
Total Solids	34.8	H	0.1	0.1	%			08/13/19 17:21	1
Percent Moisture	62	H	0.10	0.10	%			08/21/19 13:20	1
Percent Solids	38	H	0.10	0.10	%			08/21/19 13:20	1

Method: D7928/D6913 - ASTM D7928/D6913

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Clay	17.6	H			%			08/06/19 11:30	1
Coarse Sand	0.5	H			%			08/06/19 11:30	1
Fine Sand	20.9	H			%			08/06/19 11:30	1
Gravel	0.0	H			%			08/06/19 11:30	1
Medium Sand	4.4	H			%			08/06/19 11:30	1

Client: Pacific Groundwater Group
Job ID: 580-88125-1
Project/Site: Swan Island Lagoon Sediment Investigatio

Client Sample ID: N7-0to27-101418
Lab Sample ID: 580-88125-17
Date Collected: 10/14/18 15:10
Matrix: Solid
Date Received: 07/26/19 13:10
Percent Solids: 34.8

Method: D7928/D6913 - ASTM D7928/D6913 (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silt	56.7	H			%			08/06/19 11:30	1

Method: D854 - Specific Gravity

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Density	1.26		0.0100	0.0100	g/cm3			08/13/19 00:00	1
Specific Gravity	1.27		0.0100	0.0100	NONE			08/14/19 00:00	1

Client Sample ID: O7-0to27-101918
Date Collected: 10/19/18 15:36
Date Received: 07/26/19 13:10

Lab Sample ID: 580-88125-18
Matrix: Solid
Percent Solids: 33.9

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		5.8	2.2	ug/Kg	☼	08/13/19 11:37	08/15/19 16:43	1
PCB-1221	ND		5.8	2.8	ug/Kg	☼	08/13/19 11:37	08/15/19 16:43	1
PCB-1232	ND		5.8	2.8	ug/Kg	☼	08/13/19 11:37	08/15/19 16:43	1
PCB-1242	ND		5.8	1.4	ug/Kg	☼	08/13/19 11:37	08/15/19 16:43	1
PCB-1248	ND		5.8	1.1	ug/Kg	☼	08/13/19 11:37	08/15/19 16:43	1
PCB-1254	**39**	**p**	5.8	2.3	ug/Kg	☼	08/13/19 11:37	08/15/19 16:43	1
PCB-1260	ND		5.8	2.2	ug/Kg	☼	08/13/19 11:37	08/15/19 16:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl	*54*		*39 - 142*	*08/13/19 11:37*	*08/15/19 16:43*	*1*
Tetrachloro-m-xylene	*54*		*35 - 129*	*08/13/19 11:37*	*08/15/19 16:43*	*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)	**95**	**J**	100	25	mg/Kg	☼	08/12/19 12:08	08/14/19 23:58	1
Motor Oil (>C24-C36)	**490**		100	35	mg/Kg	☼	08/12/19 12:08	08/14/19 23:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*96*		*50 - 150*	*08/12/19 12:08*	*08/14/19 23:58*	*1*

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3,4,6,7,8-HpCDD	**0.93**		0.0074	0.0047	ug/Kg	☼	08/14/19 12:34	08/20/19 06:51	1
1,2,3,4,6,7,8-HpCDF	**0.32**		0.0074	0.0055	ug/Kg	☼	08/14/19 12:34	08/20/19 06:51	1
1,2,3,4,7,8,9-HpCDF	**0.023**		0.0074	0.0066	ug/Kg	☼	08/14/19 12:34	08/20/19 06:51	1
1,2,3,4,7,8-HxCDD	**0.0039**	**J B**	0.0074	0.00063	ug/Kg	☼	08/14/19 12:34	08/20/19 06:51	1
1,2,3,4,7,8-HxCDF	**0.065**		0.0074	0.0032	ug/Kg	☼	08/14/19 12:34	08/20/19 06:51	1
1,2,3,6,7,8-HxCDD	**0.031**	*****	0.0074	0.00066	ug/Kg	☼	08/14/19 12:34	08/20/19 06:51	1
1,2,3,6,7,8-HxCDF	**0.014**		0.0074	0.0034	ug/Kg	☼	08/14/19 12:34	08/20/19 06:51	1
1,2,3,7,8,9-HxCDD	**0.0078**		0.0074	0.00061	ug/Kg	☼	08/14/19 12:34	08/20/19 06:51	1
1,2,3,7,8,9-HxCDF	ND		0.0074	0.0033	ug/Kg	☼	08/14/19 12:34	08/20/19 06:51	1
1,2,3,7,8-PeCDD	**0.0019**	**J**	0.0074	0.00091	ug/Kg	☼	08/14/19 12:34	08/20/19 06:51	1
1,2,3,7,8-PeCDF	**0.0020**	**J**	0.0074	0.0012	ug/Kg	☼	08/14/19 12:34	08/20/19 06:51	1
2,3,4,6,7,8-HxCDF	**0.0058**	**J**	0.0074	0.0031	ug/Kg	☼	08/14/19 12:34	08/20/19 06:51	1
2,3,4,7,8-PeCDF	**0.0062**	**J**	0.0074	0.0013	ug/Kg	☼	08/14/19 12:34	08/20/19 06:51	1
2,3,7,8-TCDD	**0.00066**	**J q**	0.0015	0.00036	ug/Kg	☼	08/14/19 12:34	08/20/19 06:51	1
OCDD	**7.6**	**E B**	0.015	0.0025	ug/Kg	☼	08/14/19 12:34	08/20/19 06:51	1
OCDF	**0.93**		0.015	0.00072	ug/Kg	☼	08/14/19 12:34	08/20/19 06:51	1
Total HpCDD	**2.0**		0.0074	0.0047	ug/Kg	☼	08/14/19 12:34	08/20/19 06:51	1
Total HpCDF	**1.4**		0.0074	0.0060	ug/Kg	☼	08/14/19 12:34	08/20/19 06:51	1
Total HxCDD	**0.20**	**q B**	0.0074	0.00064	ug/Kg	☼	08/14/19 12:34	08/20/19 06:51	1
Total HxCDF	**0.56**		0.0074	0.0033	ug/Kg	☼	08/14/19 12:34	08/20/19 06:51	1
Total PeCDD	**0.016**	**q**	0.0074	0.00091	ug/Kg	☼	08/14/19 12:34	08/20/19 06:51	1
Total PeCDF	**0.072**		0.0074	0.0012	ug/Kg	☼	08/14/19 12:34	08/20/19 06:51	1
Total TCDD	**0.0099**	**q**	0.0015	0.00036	ug/Kg	☼	08/14/19 12:34	08/20/19 06:51	1
Total TCDF	**0.012**		0.0015	0.00063	ug/Kg	☼	08/14/19 12:34	08/20/19 06:51	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*60*		*23 - 140*	*08/14/19 12:34*	*08/20/19 06:51*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*57*		*28 - 143*	*08/14/19 12:34*	*08/20/19 06:51*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*66*		*26 - 138*	*08/14/19 12:34*	*08/20/19 06:51*	*1*

Client Sample ID: O7-0to27-101918
Date Collected: 10/19/18 15:36
Date Received: 07/26/19 13:10

Lab Sample ID: 580-88125-18
Matrix: Solid
Percent Solids: 33.9

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-1,2,3,4,7,8-HxCDD	63		32 - 141	08/14/19 12:34	08/20/19 06:51	1
13C-1,2,3,4,7,8-HxCDF	72		26 - 152	08/14/19 12:34	08/20/19 06:51	1
13C-1,2,3,6,7,8-HxCDD	58		28 - 130	08/14/19 12:34	08/20/19 06:51	1
13C-1,2,3,6,7,8-HxCDF	66		26 - 123	08/14/19 12:34	08/20/19 06:51	1
13C-1,2,3,7,8,9-HxCDF	68		29 - 147	08/14/19 12:34	08/20/19 06:51	1
13C-1,2,3,7,8-PeCDD	63		25 - 181	08/14/19 12:34	08/20/19 06:51	1
13C-1,2,3,7,8-PeCDF	63		24 - 185	08/14/19 12:34	08/20/19 06:51	1
13C-2,3,4,6,7,8-HxCDF	65		28 - 136	08/14/19 12:34	08/20/19 06:51	1
13C-2,3,4,7,8-PeCDF	65		21 - 178	08/14/19 12:34	08/20/19 06:51	1
13C-2,3,7,8-TCDD	59		25 - 164	08/14/19 12:34	08/20/19 06:51	1
13C-2,3,7,8-TCDF	60		24 - 169	08/14/19 12:34	08/20/19 06:51	1
13C-OCDD	60		17 - 157	08/14/19 12:34	08/20/19 06:51	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	91		35 - 197	08/14/19 12:34	08/20/19 06:51	1

Method: 1613B - Dioxins and Furans (HRGC/HRMS) - RA

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDF	0.0023		0.0015	0.00024	ug/Kg	☼	08/14/19 12:34	08/20/19 17:50	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDF	67		24 - 169	08/14/19 12:34	08/20/19 17:50	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	82		35 - 197	08/14/19 12:34	08/20/19 17:50	1

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	12		0.53	0.11	mg/Kg	☼	08/14/19 14:06	08/14/19 19:25	5
Cadmium	0.44		0.42	0.081	mg/Kg	☼	08/14/19 14:06	08/14/19 19:25	5
Copper	150		1.1	0.23	mg/Kg	☼	08/14/19 14:06	08/14/19 19:25	5
Lead	42	B	0.53	0.051	mg/Kg	☼	08/14/19 14:06	08/14/19 19:25	5
Zinc	300		5.3	1.7	mg/Kg	☼	08/14/19 14:06	08/14/19 19:25	5

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.20	H	0.061	0.018	mg/Kg	☼	08/14/19 10:54	08/15/19 02:04	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	35000	H B	2000	97	mg/Kg			08/18/19 14:58	1
Total Solids	33.9	H	0.1	0.1	%			08/13/19 17:21	1
Percent Moisture	65	H	0.10	0.10	%			08/21/19 13:20	1
Percent Solids	35	H	0.10	0.10	%			08/21/19 13:20	1

Method: D7928/D6913 - ASTM D7928/D6913

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Clay	20.1	H			%			08/06/19 11:30	1
Coarse Sand	0.2	H			%			08/06/19 11:30	1
Fine Sand	20.7	H			%			08/06/19 11:30	1
Gravel	0.0	H			%			08/06/19 11:30	1
Medium Sand	3.0	H			%			08/06/19 11:30	1

Client: Pacific Groundwater Group
Job ID: 580-88125-1
Project/Site: Swan Island Lagoon Sediment Investigatio

Client Sample ID: O7-0to27-101918
Lab Sample ID: 580-88125-18
Date Collected: 10/19/18 15:36
Matrix: Solid
Date Received: 07/26/19 13:10
Percent Solids: 33.9

Method: D7928/D6913 - ASTM D7928/D6913 (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silt	56.0	H			%			08/06/19 11:30	1

Method: D854 - Specific Gravity

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Density	1.27		0.0100	0.0100	g/cm3			08/13/19 00:00	1
Specific Gravity	1.27		0.0100	0.0100	NONE			08/14/19 00:00	1

Client Sample ID: Q2-0to13-101818
Date Collected: 10/18/18 09:39
Date Received: 07/26/19 13:10

Lab Sample ID: 580-88125-19
Matrix: Solid
Percent Solids: 68.4

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		2.6	0.96	ug/Kg	☼	08/13/19 11:37	08/15/19 17:00	1
PCB-1221	ND		2.6	1.2	ug/Kg	☼	08/13/19 11:37	08/15/19 17:00	1
PCB-1232	ND		2.6	1.2	ug/Kg	☼	08/13/19 11:37	08/15/19 17:00	1
PCB-1242	ND		2.6	0.64	ug/Kg	☼	08/13/19 11:37	08/15/19 17:00	1
PCB-1248	ND		2.6	0.47	ug/Kg	☼	08/13/19 11:37	08/15/19 17:00	1
PCB-1254	**1.4**	**J**	2.6	1.0	ug/Kg	☼	08/13/19 11:37	08/15/19 17:00	1
PCB-1260	ND		2.6	1.0	ug/Kg	☼	08/13/19 11:37	08/15/19 17:00	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl	*60*		*39 - 142*	*08/13/19 11:37*	*08/15/19 17:00*	*1*
Tetrachloro-m-xylene	*61*		*35 - 129*	*08/13/19 11:37*	*08/15/19 17:00*	*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)	**16**	**J**	41	10	mg/Kg	☼	08/12/19 12:08	08/15/19 00:43	1
Motor Oil (>C24-C36)	**60**		41	14	mg/Kg	☼	08/12/19 12:08	08/15/19 00:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*95*		*50 - 150*	*08/12/19 12:08*	*08/15/19 00:43*	*1*

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3,4,6,7,8-HpCDD	**0.0066**		0.0037	0.00027	ug/Kg	☼	08/14/19 12:34	08/20/19 07:39	1
1,2,3,4,6,7,8-HpCDF	**0.0015**	**J q**	0.0037	0.00024	ug/Kg	☼	08/14/19 12:34	08/20/19 07:39	1
1,2,3,4,7,8,9-HpCDF	ND		0.0037	0.00027	ug/Kg	☼	08/14/19 12:34	08/20/19 07:39	1
1,2,3,4,7,8-HxCDD	ND		0.0037	0.00017	ug/Kg	☼	08/14/19 12:34	08/20/19 07:39	1
1,2,3,4,7,8-HxCDF	**0.00014**	**J q**	0.0037	0.00012	ug/Kg	☼	08/14/19 12:34	08/20/19 07:39	1
1,2,3,6,7,8-HxCDD	**0.00025**	**J q ***	0.0037	0.00017	ug/Kg	☼	08/14/19 12:34	08/20/19 07:39	1
1,2,3,6,7,8-HxCDF	ND		0.0037	0.00013	ug/Kg	☼	08/14/19 12:34	08/20/19 07:39	1
1,2,3,7,8,9-HxCDD	ND		0.0037	0.00016	ug/Kg	☼	08/14/19 12:34	08/20/19 07:39	1
1,2,3,7,8,9-HxCDF	ND		0.0037	0.00012	ug/Kg	☼	08/14/19 12:34	08/20/19 07:39	1
1,2,3,7,8-PeCDD	ND		0.0037	0.00025	ug/Kg	☼	08/14/19 12:34	08/20/19 07:39	1
1,2,3,7,8-PeCDF	ND		0.0037	0.00014	ug/Kg	☼	08/14/19 12:34	08/20/19 07:39	1
2,3,4,6,7,8-HxCDF	ND		0.0037	0.00011	ug/Kg	☼	08/14/19 12:34	08/20/19 07:39	1
2,3,4,7,8-PeCDF	ND		0.0037	0.00015	ug/Kg	☼	08/14/19 12:34	08/20/19 07:39	1
2,3,7,8-TCDD	ND		0.00073	0.00015	ug/Kg	☼	08/14/19 12:34	08/20/19 07:39	1
2,3,7,8-TCDF	ND		0.00073	0.00012	ug/Kg	☼	08/14/19 12:34	08/20/19 07:39	1
OCDD	**0.060**	**B**	0.0073	0.00033	ug/Kg	☼	08/14/19 12:34	08/20/19 07:39	1
OCDF	**0.0063**	**J**	0.0073	0.00030	ug/Kg	☼	08/14/19 12:34	08/20/19 07:39	1
Total HpCDD	**0.014**		0.0037	0.00027	ug/Kg	☼	08/14/19 12:34	08/20/19 07:39	1
Total HpCDF	**0.0063**	**q**	0.0037	0.00025	ug/Kg	☼	08/14/19 12:34	08/20/19 07:39	1
Total HxCDD	**0.0018**	**J q B**	0.0037	0.00016	ug/Kg	☼	08/14/19 12:34	08/20/19 07:39	1
Total HxCDF	**0.0019**	**J q**	0.0037	0.00012	ug/Kg	☼	08/14/19 12:34	08/20/19 07:39	1
Total PeCDD	ND		0.0037	0.00025	ug/Kg	☼	08/14/19 12:34	08/20/19 07:39	1
Total PeCDF	**0.00032**	**J q**	0.0037	0.00014	ug/Kg	☼	08/14/19 12:34	08/20/19 07:39	1
Total TCDD	ND		0.00073	0.00015	ug/Kg	☼	08/14/19 12:34	08/20/19 07:39	1
Total TCDF	ND		0.00073	0.00012	ug/Kg	☼	08/14/19 12:34	08/20/19 07:39	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*41*		*23 - 140*	*08/14/19 12:34*	*08/20/19 07:39*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*40*		*28 - 143*	*08/14/19 12:34*	*08/20/19 07:39*	*1*

Client Sample ID: Q2-0to13-101818
Date Collected: 10/18/18 09:39
Date Received: 07/26/19 13:10

Lab Sample ID: 580-88125-19
Matrix: Solid
Percent Solids: 68.4

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-1,2,3,4,7,8,9-HpCDF	49		26 - 138	08/14/19 12:34	08/20/19 07:39	1
13C-1,2,3,4,7,8-HxCDD	51		32 - 141	08/14/19 12:34	08/20/19 07:39	1
13C-1,2,3,4,7,8-HxCDF	57		26 - 152	08/14/19 12:34	08/20/19 07:39	1
13C-1,2,3,6,7,8-HxCDD	48		28 - 130	08/14/19 12:34	08/20/19 07:39	1
13C-1,2,3,6,7,8-HxCDF	52		26 - 123	08/14/19 12:34	08/20/19 07:39	1
13C-1,2,3,7,8,9-HxCDF	55		29 - 147	08/14/19 12:34	08/20/19 07:39	1
13C-1,2,3,7,8-PeCDD	53		25 - 181	08/14/19 12:34	08/20/19 07:39	1
13C-1,2,3,7,8-PeCDF	54		24 - 185	08/14/19 12:34	08/20/19 07:39	1
13C-2,3,4,6,7,8-HxCDF	54		28 - 136	08/14/19 12:34	08/20/19 07:39	1
13C-2,3,4,7,8-PeCDF	58		21 - 178	08/14/19 12:34	08/20/19 07:39	1
13C-2,3,7,8-TCDD	55		25 - 164	08/14/19 12:34	08/20/19 07:39	1
13C-2,3,7,8-TCDF	58		24 - 169	08/14/19 12:34	08/20/19 07:39	1
13C-OCDD	35		17 - 157	08/14/19 12:34	08/20/19 07:39	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	89		35 - 197	08/14/19 12:34	08/20/19 07:39	1

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	4.7		0.26	0.052	mg/Kg	☼	08/14/19 14:06	08/14/19 19:30	5
Cadmium	0.12	J	0.21	0.040	mg/Kg	☼	08/14/19 14:06	08/14/19 19:30	5
Copper	33		0.52	0.11	mg/Kg	☼	08/14/19 14:06	08/14/19 19:30	5
Lead	14	B	0.26	0.025	mg/Kg	☼	08/14/19 14:06	08/14/19 19:30	5
Zinc	110		2.6	0.84	mg/Kg	☼	08/14/19 14:06	08/14/19 19:30	5

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.043	H	0.037	0.011	mg/Kg	☼	08/14/19 10:54	08/14/19 17:24	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	7400	H B	2000	97	mg/Kg			08/18/19 15:02	1
Total Solids	68.4	H	0.1	0.1	%			08/13/19 17:21	1
Percent Moisture	30	H	0.10	0.10	%			08/21/19 13:20	1
Percent Solids	70	H	0.10	0.10	%			08/21/19 13:20	1

Method: D7928/D6913 - ASTM D7928/D6913

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Clay	6.9	H			%			08/06/19 11:30	1
Coarse Sand	2.4	H			%			08/06/19 11:30	1
Fine Sand	31.8	H			%			08/06/19 11:30	1
Gravel	2.0	H			%			08/06/19 11:30	1
Medium Sand	16.0	H			%			08/06/19 11:30	1
Silt	40.9	H			%			08/06/19 11:30	1

Method: D854 - Specific Gravity

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Density	1.76		0.0100	0.0100	g/cm3			08/13/19 00:00	1
Specific Gravity	1.76		0.0100	0.0100	NONE			08/14/19 00:00	1

Client Sample ID: Q6-0to27-102018
Date Collected: 10/20/18 09:19
Date Received: 07/26/19 13:10

Lab Sample ID: 580-88125-20
Matrix: Solid
Percent Solids: 30.5

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		6.2	2.3	ug/Kg	☼	08/13/19 11:37	08/15/19 17:17	1
PCB-1221	ND		6.2	3.0	ug/Kg	☼	08/13/19 11:37	08/15/19 17:17	1
PCB-1232	ND		6.2	3.0	ug/Kg	☼	08/13/19 11:37	08/15/19 17:17	1
PCB-1242	ND		6.2	1.5	ug/Kg	☼	08/13/19 11:37	08/15/19 17:17	1
PCB-1248	ND		6.2	1.1	ug/Kg	☼	08/13/19 11:37	08/15/19 17:17	1
PCB-1254	ND		6.2	2.5	ug/Kg	☼	08/13/19 11:37	08/15/19 17:17	1
PCB-1260	**9.9**		6.2	2.4	ug/Kg	☼	08/13/19 11:37	08/15/19 17:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl	*53*		*39 - 142*	*08/13/19 11:37*	*08/15/19 17:17*	*1*
Tetrachloro-m-xylene	*58*		*35 - 129*	*08/13/19 11:37*	*08/15/19 17:17*	*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)	**120**		87	21	mg/Kg	☼	08/12/19 12:08	08/15/19 01:05	1
Motor Oil (>C24-C36)	**570**		87	30	mg/Kg	☼	08/12/19 12:08	08/15/19 01:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*72*		*50 - 150*	*08/12/19 12:08*	*08/15/19 01:05*	*1*

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3,4,6,7,8-HpCDD	**1.1**		0.0082	0.0061	ug/Kg	☼	08/14/19 12:34	08/20/19 08:26	1
1,2,3,4,6,7,8-HpCDF	**0.31**		0.0082	0.0063	ug/Kg	☼	08/14/19 12:34	08/20/19 08:26	1
1,2,3,4,7,8,9-HpCDF	**0.018**		0.0082	0.0074	ug/Kg	☼	08/14/19 12:34	08/20/19 08:26	1
1,2,3,4,7,8-HxCDD	**0.0052**	**J q B**	0.0082	0.00097	ug/Kg	☼	08/14/19 12:34	08/20/19 08:26	1
1,2,3,4,7,8-HxCDF	**0.043**		0.0082	0.0019	ug/Kg	☼	08/14/19 12:34	08/20/19 08:26	1
1,2,3,6,7,8-HxCDD	**0.033**	*	0.0082	0.0010	ug/Kg	☼	08/14/19 12:34	08/20/19 08:26	1
1,2,3,6,7,8-HxCDF	**0.012**		0.0082	0.0021	ug/Kg	☼	08/14/19 12:34	08/20/19 08:26	1
1,2,3,7,8,9-HxCDD	**0.0088**		0.0082	0.00094	ug/Kg	☼	08/14/19 12:34	08/20/19 08:26	1
1,2,3,7,8,9-HxCDF	ND		0.0082	0.0020	ug/Kg	☼	08/14/19 12:34	08/20/19 08:26	1
1,2,3,7,8-PeCDD	ND		0.0082	0.0011	ug/Kg	☼	08/14/19 12:34	08/20/19 08:26	1
1,2,3,7,8-PeCDF	**0.0016**	**J q**	0.0082	0.0011	ug/Kg	☼	08/14/19 12:34	08/20/19 08:26	1
2,3,4,6,7,8-HxCDF	**0.0046**	**J**	0.0082	0.0019	ug/Kg	☼	08/14/19 12:34	08/20/19 08:26	1
2,3,4,7,8-PeCDF	**0.0047**	**J**	0.0082	0.0012	ug/Kg	☼	08/14/19 12:34	08/20/19 08:26	1
2,3,7,8-TCDD	**0.0010**	**J q**	0.0016	0.00037	ug/Kg	☼	08/14/19 12:34	08/20/19 08:26	1
OCDD	**7.9**	**E B**	0.016	0.0028	ug/Kg	☼	08/14/19 12:34	08/20/19 08:26	1
OCDF	**1.2**		0.016	0.00084	ug/Kg	☼	08/14/19 12:34	08/20/19 08:26	1
Total HpCDD	**2.5**		0.0082	0.0061	ug/Kg	☼	08/14/19 12:34	08/20/19 08:26	1
Total HpCDF	**1.5**		0.0082	0.0068	ug/Kg	☼	08/14/19 12:34	08/20/19 08:26	1
Total HxCDD	**0.25**	**q B**	0.0082	0.00098	ug/Kg	☼	08/14/19 12:34	08/20/19 08:26	1
Total HxCDF	**0.45**		0.0082	0.0020	ug/Kg	☼	08/14/19 12:34	08/20/19 08:26	1
Total PeCDD	**0.012**	**q**	0.0082	0.0011	ug/Kg	☼	08/14/19 12:34	08/20/19 08:26	1
Total PeCDF	**0.059**	**q**	0.0082	0.0011	ug/Kg	☼	08/14/19 12:34	08/20/19 08:26	1
Total TCDD	**0.012**	**q**	0.0016	0.00037	ug/Kg	☼	08/14/19 12:34	08/20/19 08:26	1
Total TCDF	**0.015**	**q**	0.0016	0.00055	ug/Kg	☼	08/14/19 12:34	08/20/19 08:26	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*57*		*23 - 140*	*08/14/19 12:34*	*08/20/19 08:26*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*54*		*28 - 143*	*08/14/19 12:34*	*08/20/19 08:26*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*63*		*26 - 138*	*08/14/19 12:34*	*08/20/19 08:26*	*1*

Client Sample ID: Q6-0to27-102018
Date Collected: 10/20/18 09:19
Date Received: 07/26/19 13:10

Lab Sample ID: 580-88125-20
Matrix: Solid
Percent Solids: 30.5

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-1,2,3,4,7,8-HxCDD	58		32 - 141	08/14/19 12:34	08/20/19 08:26	1
13C-1,2,3,4,7,8-HxCDF	70		26 - 152	08/14/19 12:34	08/20/19 08:26	1
13C-1,2,3,6,7,8-HxCDD	58		28 - 130	08/14/19 12:34	08/20/19 08:26	1
13C-1,2,3,6,7,8-HxCDF	63		26 - 123	08/14/19 12:34	08/20/19 08:26	1
13C-1,2,3,7,8,9-HxCDF	64		29 - 147	08/14/19 12:34	08/20/19 08:26	1
13C-1,2,3,7,8-PeCDD	61		25 - 181	08/14/19 12:34	08/20/19 08:26	1
13C-1,2,3,7,8-PeCDF	62		24 - 185	08/14/19 12:34	08/20/19 08:26	1
13C-2,3,4,6,7,8-HxCDF	62		28 - 136	08/14/19 12:34	08/20/19 08:26	1
13C-2,3,4,7,8-PeCDF	64		21 - 178	08/14/19 12:34	08/20/19 08:26	1
13C-2,3,7,8-TCDD	59		25 - 164	08/14/19 12:34	08/20/19 08:26	1
13C-2,3,7,8-TCDF	62		24 - 169	08/14/19 12:34	08/20/19 08:26	1
13C-OCDD	58		17 - 157	08/14/19 12:34	08/20/19 08:26	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	96		35 - 197	08/14/19 12:34	08/20/19 08:26	1

Method: 1613B - Dioxins and Furans (HRGC/HRMS) - RA

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDF	0.0024		0.0016	0.00024	ug/Kg	☼	08/14/19 12:34	08/20/19 18:29	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDF	72		24 - 169	08/14/19 12:34	08/20/19 18:29	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	92		35 - 197	08/14/19 12:34	08/20/19 18:29	1

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	9.4		0.55	0.11	mg/Kg	☼	08/14/19 14:06	08/14/19 19:34	5
Cadmium	0.44		0.44	0.085	mg/Kg	☼	08/14/19 14:06	08/14/19 19:34	5
Copper	120		1.1	0.24	mg/Kg	☼	08/14/19 14:06	08/14/19 19:34	5
Lead	36	B	0.55	0.053	mg/Kg	☼	08/14/19 14:06	08/14/19 19:34	5
Zinc	280		5.5	1.8	mg/Kg	☼	08/14/19 14:06	08/14/19 19:34	5

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.16	H	0.060	0.018	mg/Kg	☼	08/14/19 10:54	08/14/19 17:26	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	39000	H B	2000	97	mg/Kg			08/18/19 15:07	1
Total Solids	30.5	H	0.1	0.1	%			08/13/19 17:21	1
Percent Moisture	69	H	0.10	0.10	%			08/21/19 13:20	1
Percent Solids	31	H	0.10	0.10	%			08/21/19 13:20	1

Method: D7928/D6913 - ASTM D7928/D6913

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Clay	19.4	H			%			08/06/19 11:30	1
Coarse Sand	0.2	H			%			08/06/19 11:30	1
Fine Sand	10.1	H			%			08/06/19 11:30	1
Gravel	0.0	H			%			08/06/19 11:30	1
Medium Sand	0.3	H			%			08/06/19 11:30	1

Client: Pacific Groundwater Group
Job ID: 580-88125-1
Project/Site: Swan Island Lagoon Sediment Investigatio

Client Sample ID: Q6-0to27-102018
Lab Sample ID: 580-88125-20
Date Collected: 10/20/18 09:19
Matrix: Solid
Date Received: 07/26/19 13:10
Percent Solids: 30.5

Method: D7928/D6913 - ASTM D7928/D6913 (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silt	70.0	H			%			08/06/19 11:30	1

Method: D854 - Specific Gravity

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Density	1.24		0.0100	0.0100	g/cm3			08/13/19 00:00	1
Specific Gravity	1.24		0.0100	0.0100	NONE			08/14/19 00:00	1

Client Sample ID: T6-0to29-101618
Lab Sample ID: 580-88125-21

Date Collected: 10/16/18 14:38
Matrix: Solid

Date Received: 07/26/19 13:10
Percent Solids: 32.5

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		5.8	2.1	ug/Kg	☼	08/13/19 11:37	08/15/19 17:33	1
PCB-1221	ND		5.8	2.7	ug/Kg	☼	08/13/19 11:37	08/15/19 17:33	1
PCB-1232	ND		5.8	2.7	ug/Kg	☼	08/13/19 11:37	08/15/19 17:33	1
PCB-1242	ND		5.8	1.4	ug/Kg	☼	08/13/19 11:37	08/15/19 17:33	1
PCB-1248	ND		5.8	1.0	ug/Kg	☼	08/13/19 11:37	08/15/19 17:33	1
PCB-1254	ND		5.8	2.3	ug/Kg	☼	08/13/19 11:37	08/15/19 17:33	1
PCB-1260	**17**		5.8	2.2	ug/Kg	☼	08/13/19 11:37	08/15/19 17:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl	*53*		*39 - 142*	*08/13/19 11:37*	*08/15/19 17:33*	*1*
Tetrachloro-m-xylene	*54*		*35 - 129*	*08/13/19 11:37*	*08/15/19 17:33*	*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)	**140**		91	22	mg/Kg	☼	08/12/19 12:08	08/15/19 01:28	1
Motor Oil (>C24-C36)	**660**		91	32	mg/Kg	☼	08/12/19 12:08	08/15/19 01:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*86*		*50 - 150*	*08/12/19 12:08*	*08/15/19 01:28*	*1*

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3,4,6,7,8-HpCDD	**0.39**		0.0076	0.0024	ug/Kg	☼	08/14/19 12:34	08/20/19 09:14	1
1,2,3,4,6,7,8-HpCDF	**0.10**		0.0076	0.0022	ug/Kg	☼	08/14/19 12:34	08/20/19 09:14	1
1,2,3,4,7,8,9-HpCDF	**0.0071**	**J**	0.0076	0.0026	ug/Kg	☼	08/14/19 12:34	08/20/19 09:14	1
1,2,3,4,7,8-HxCDD	**0.0028**	**J B**	0.0076	0.00052	ug/Kg	☼	08/14/19 12:34	08/20/19 09:14	1
1,2,3,4,7,8-HxCDF	**0.017**		0.0076	0.00084	ug/Kg	☼	08/14/19 12:34	08/20/19 09:14	1
1,2,3,6,7,8-HxCDD	**0.013**	*****	0.0076	0.00058	ug/Kg	☼	08/14/19 12:34	08/20/19 09:14	1
1,2,3,6,7,8-HxCDF	**0.0050**	**J**	0.0076	0.00088	ug/Kg	☼	08/14/19 12:34	08/20/19 09:14	1
1,2,3,7,8,9-HxCDD	**0.0063**	**J**	0.0076	0.00052	ug/Kg	☼	08/14/19 12:34	08/20/19 09:14	1
1,2,3,7,8,9-HxCDF	ND		0.0076	0.00082	ug/Kg	☼	08/14/19 12:34	08/20/19 09:14	1
1,2,3,7,8-PeCDD	**0.0014**	**J**	0.0076	0.00053	ug/Kg	☼	08/14/19 12:34	08/20/19 09:14	1
1,2,3,7,8-PeCDF	ND		0.0076	0.00073	ug/Kg	☼	08/14/19 12:34	08/20/19 09:14	1
2,3,4,6,7,8-HxCDF	**0.0024**	**J**	0.0076	0.00079	ug/Kg	☼	08/14/19 12:34	08/20/19 09:14	1
2,3,4,7,8-PeCDF	**0.0025**	**J**	0.0076	0.00078	ug/Kg	☼	08/14/19 12:34	08/20/19 09:14	1
2,3,7,8-TCDD	**0.00040**	**J q**	0.0015	0.00032	ug/Kg	☼	08/14/19 12:34	08/20/19 09:14	1
OCDD	**3.2**	**B**	0.015	0.0014	ug/Kg	☼	08/14/19 12:34	08/20/19 09:14	1
OCDF	**0.33**		0.015	0.00052	ug/Kg	☼	08/14/19 12:34	08/20/19 09:14	1
Total HpCDD	**0.86**		0.0076	0.0024	ug/Kg	☼	08/14/19 12:34	08/20/19 09:14	1
Total HpCDF	**0.45**		0.0076	0.0024	ug/Kg	☼	08/14/19 12:34	08/20/19 09:14	1
Total HxCDD	**0.10**	**B**	0.0076	0.00054	ug/Kg	☼	08/14/19 12:34	08/20/19 09:14	1
Total HxCDF	**0.17**	**q**	0.0076	0.00083	ug/Kg	☼	08/14/19 12:34	08/20/19 09:14	1
Total PeCDD	**0.011**	**q**	0.0076	0.00053	ug/Kg	☼	08/14/19 12:34	08/20/19 09:14	1
Total PeCDF	**0.030**		0.0076	0.00075	ug/Kg	☼	08/14/19 12:34	08/20/19 09:14	1
Total TCDD	**0.0072**	**q**	0.0015	0.00032	ug/Kg	☼	08/14/19 12:34	08/20/19 09:14	1
Total TCDF	**0.014**	**q**	0.0015	0.00028	ug/Kg	☼	08/14/19 12:34	08/20/19 09:14	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*54*		*23 - 140*	*08/14/19 12:34*	*08/20/19 09:14*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*52*		*28 - 143*	*08/14/19 12:34*	*08/20/19 09:14*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*62*		*26 - 138*	*08/14/19 12:34*	*08/20/19 09:14*	*1*

Client Sample ID: T6-0to29-101618
Date Collected: 10/16/18 14:38
Date Received: 07/26/19 13:10

Lab Sample ID: 580-88125-21
Matrix: Solid
Percent Solids: 32.5

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-1,2,3,4,7,8-HxCDD	59		32 - 141	08/14/19 12:34	08/20/19 09:14	1
13C-1,2,3,4,7,8-HxCDF	70		26 - 152	08/14/19 12:34	08/20/19 09:14	1
13C-1,2,3,6,7,8-HxCDD	58		28 - 130	08/14/19 12:34	08/20/19 09:14	1
13C-1,2,3,6,7,8-HxCDF	63		26 - 123	08/14/19 12:34	08/20/19 09:14	1
13C-1,2,3,7,8,9-HxCDF	66		29 - 147	08/14/19 12:34	08/20/19 09:14	1
13C-1,2,3,7,8-PeCDD	62		25 - 181	08/14/19 12:34	08/20/19 09:14	1
13C-1,2,3,7,8-PeCDF	63		24 - 185	08/14/19 12:34	08/20/19 09:14	1
13C-2,3,4,6,7,8-HxCDF	63		28 - 136	08/14/19 12:34	08/20/19 09:14	1
13C-2,3,4,7,8-PeCDF	65		21 - 178	08/14/19 12:34	08/20/19 09:14	1
13C-2,3,7,8-TCDD	61		25 - 164	08/14/19 12:34	08/20/19 09:14	1
13C-2,3,7,8-TCDF	63		24 - 169	08/14/19 12:34	08/20/19 09:14	1
13C-OCDD	52		17 - 157	08/14/19 12:34	08/20/19 09:14	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	93		35 - 197	08/14/19 12:34	08/20/19 09:14	1

Method: 1613B - Dioxins and Furans (HRGC/HRMS) - RA

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDF	0.0020		0.0015	0.00019	ug/Kg	☼	08/14/19 12:34	08/20/19 19:07	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDF	66		24 - 169	08/14/19 12:34	08/20/19 19:07	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	84		35 - 197	08/14/19 12:34	08/20/19 19:07	1

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	10		0.51	0.10	mg/Kg	☼	08/14/19 14:13	08/14/19 19:39	5
Cadmium	0.46		0.41	0.078	mg/Kg	☼	08/14/19 14:13	08/14/19 19:39	5
Copper	150		1.0	0.22	mg/Kg	☼	08/14/19 14:13	08/14/19 19:39	5
Lead	39	B	0.51	0.049	mg/Kg	☼	08/14/19 14:13	08/14/19 19:39	5
Zinc	310		5.1	1.6	mg/Kg	☼	08/14/19 14:13	08/14/19 19:39	5

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.25	H	0.071	0.021	mg/Kg	☼	08/14/19 10:54	08/14/19 17:28	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	36000	H	2000	97	mg/Kg			08/18/19 15:23	1
Total Solids	32.5	H	0.1	0.1	%			08/13/19 17:21	1
Percent Moisture	67	H	0.10	0.10	%			08/21/19 13:20	1
Percent Solids	33	H	0.10	0.10	%			08/21/19 13:20	1

Method: D7928/D6913 - ASTM D7928/D6913

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Clay	16.3	H			%			08/06/19 11:30	1
Coarse Sand	0.5	H			%			08/06/19 11:30	1
Fine Sand	9.2	H			%			08/06/19 11:30	1
Gravel	0.0	H			%			08/06/19 11:30	1
Medium Sand	1.6	H			%			08/06/19 11:30	1

Client: Pacific Groundwater Group
Job ID: 580-88125-1
Project/Site: Swan Island Lagoon Sediment Investigatio

Client Sample ID: T6-0to29-101618
Lab Sample ID: 580-88125-21
Date Collected: 10/16/18 14:38
Matrix: Solid
Date Received: 07/26/19 13:10
Percent Solids: 32.5

Method: D7928/D6913 - ASTM D7928/D6913 (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silt	72.4	H			%			08/06/19 11:30	1

Method: D854 - Specific Gravity

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Density	1.25		0.0100	0.0100	g/cm3			08/13/19 00:00	1
Specific Gravity	1.25		0.0100	0.0100	NONE			08/14/19 00:00	1

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Lab Sample ID: MB 580-308204/1-A
Matrix: Solid
Analysis Batch: 308462

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 308204

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		2.0	0.74	ug/Kg		08/13/19 10:43	08/15/19 22:19	1
PCB-1221	ND		2.0	0.95	ug/Kg		08/13/19 10:43	08/15/19 22:19	1
PCB-1232	ND		2.0	0.95	ug/Kg		08/13/19 10:43	08/15/19 22:19	1
PCB-1242	ND		2.0	0.49	ug/Kg		08/13/19 10:43	08/15/19 22:19	1
PCB-1248	ND		2.0	0.36	ug/Kg		08/13/19 10:43	08/15/19 22:19	1
PCB-1254	ND		2.0	0.79	ug/Kg		08/13/19 10:43	08/15/19 22:19	1
PCB-1260	ND		2.0	0.77	ug/Kg		08/13/19 10:43	08/15/19 22:19	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl	*81*		*39 - 142*	*08/13/19 10:43*	*08/15/19 22:19*	*1*
Tetrachloro-m-xylene	*69*		*35 - 129*	*08/13/19 10:43*	*08/15/19 22:19*	*1*

Lab Sample ID: LCS 580-308204/2-A
Matrix: Solid
Analysis Batch: 308462

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 308204

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
PCB-1016			50.0	41.5		ug/Kg		83	41 - 138		
PCB-1260			50.0	42.9		ug/Kg		86	47 - 142		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
DCB Decachlorobiphenyl	*78*		*39 - 142*
Tetrachloro-m-xylene	*73*		*35 - 129*

Lab Sample ID: 580-88125-1 MS
Matrix: Solid
Analysis Batch: 308462

Client Sample ID: A1-0to30-102018
Prep Type: Total/NA
Prep Batch: 308204

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
PCB-1016	ND		81.9	58.9		ug/Kg	☼	72	41 - 138		
PCB-1260	ND		81.9	60.2		ug/Kg	☼	73	47 - 142		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
DCB Decachlorobiphenyl	*63*		*39 - 142*
Tetrachloro-m-xylene	*59*		*35 - 129*

Lab Sample ID: 580-88125-1 MSD
Matrix: Solid
Analysis Batch: 308462

Client Sample ID: A1-0to30-102018
Prep Type: Total/NA
Prep Batch: 308204

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
PCB-1016	ND		83.7	63.9		ug/Kg	☼	76	41 - 138	8	21
PCB-1260	ND		83.7	60.4		ug/Kg	☼	72	47 - 142	0	19

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
DCB Decachlorobiphenyl	*63*		*39 - 142*
Tetrachloro-m-xylene	*62*		*35 - 129*

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography (Continued)

Lab Sample ID: MB 580-308212/1-A
Matrix: Solid
Analysis Batch: 308439

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 308212

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		2.0	0.74	ug/Kg		08/13/19 11:37	08/15/19 13:39	1
PCB-1221	ND		2.0	0.95	ug/Kg		08/13/19 11:37	08/15/19 13:39	1
PCB-1232	ND		2.0	0.95	ug/Kg		08/13/19 11:37	08/15/19 13:39	1
PCB-1242	ND		2.0	0.49	ug/Kg		08/13/19 11:37	08/15/19 13:39	1
PCB-1248	ND		2.0	0.36	ug/Kg		08/13/19 11:37	08/15/19 13:39	1
PCB-1254	ND		2.0	0.79	ug/Kg		08/13/19 11:37	08/15/19 13:39	1
PCB-1260	ND		2.0	0.77	ug/Kg		08/13/19 11:37	08/15/19 13:39	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl	*79*		*39 - 142*	*08/13/19 11:37*	*08/15/19 13:39*	*1*
Tetrachloro-m-xylene	*70*		*35 - 129*	*08/13/19 11:37*	*08/15/19 13:39*	*1*

Lab Sample ID: LCS 580-308212/2-A
Matrix: Solid
Analysis Batch: 308439

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 308212

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
PCB-1016			50.0	40.9		ug/Kg		82	41 - 138		
PCB-1260			50.0	44.2		ug/Kg		88	47 - 142		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
DCB Decachlorobiphenyl	*76*		*39 - 142*
Tetrachloro-m-xylene	*67*		*35 - 129*

Lab Sample ID: 580-88125-11 MS
Matrix: Solid
Analysis Batch: 308439

Client Sample ID: G6-0to27-101818
Prep Type: Total/NA
Prep Batch: 308212

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
PCB-1016	ND	F2	151	96.5		ug/Kg	☼	64	41 - 138		
PCB-1260	86	F2 F1 p	151	529	E F1 p	ug/Kg	☼	293	47 - 142		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
DCB Decachlorobiphenyl	*63*		*39 - 142*
Tetrachloro-m-xylene	*63*		*35 - 129*

Lab Sample ID: 580-88125-11 MSD
Matrix: Solid
Analysis Batch: 308439

Client Sample ID: G6-0to27-101818
Prep Type: Total/NA
Prep Batch: 308212

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
PCB-1016	ND		150	120		ug/Kg	☼	80	41 - 138	3	21
PCB-1260	86	F2 F1 p	150	91.2	p F2 F1	ug/Kg	☼	3	47 - 142	141	19

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
DCB Decachlorobiphenyl	*61*		*39 - 142*
Tetrachloro-m-xylene	*65*		*35 - 129*

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

Lab Sample ID: MB 580-308116/1-A
Matrix: Solid
Analysis Batch: 308360

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 308116

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		50	12	mg/Kg		08/12/19 12:08	08/14/19 16:29	1
Motor Oil (>C24-C36)	ND		50	18	mg/Kg		08/12/19 12:08	08/14/19 16:29	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*102*		*50 - 150*	*08/12/19 12:08*	*08/14/19 16:29*	*1*

Lab Sample ID: LCS 580-308116/2-A
Matrix: Solid
Analysis Batch: 308360

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 308116

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
#2 Diesel (C10-C24)	500	516		mg/Kg		103	70 - 125
Motor Oil (>C24-C36)	500	509		mg/Kg		102	70 - 129

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl	*116*		*50 - 150*

Lab Sample ID: LCSD 580-308116/3-A
Matrix: Solid
Analysis Batch: 308360

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 308116

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
#2 Diesel (C10-C24)	500	507		mg/Kg		101	70 - 125	2	16
Motor Oil (>C24-C36)	500	504		mg/Kg		101	70 - 129	1	16

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

Lab Sample ID: 580-88125-10 MS
Matrix: Solid
Analysis Batch: 308360

Client Sample ID: F2-0to19-101018
Prep Type: Total/NA
Prep Batch: 308116

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
#2 Diesel (C10-C24)	54		439	461		mg/Kg	☼	93	70 - 125
Motor Oil (>C24-C36)	210		439	661		mg/Kg	☼	102	70 - 129

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
o-Terphenyl	*100*		*50 - 150*

Lab Sample ID: 580-88125-10 MSD
Matrix: Solid
Analysis Batch: 308360

Client Sample ID: F2-0to19-101018
Prep Type: Total/NA
Prep Batch: 308116

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
#2 Diesel (C10-C24)	54		448	488		mg/Kg	☼	97	70 - 125	6	16
Motor Oil (>C24-C36)	210		448	766		mg/Kg	☼	123	70 - 129	15	16

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

Lab Sample ID: 580-88125-10 MSD
Matrix: Solid
Analysis Batch: 308360

Client Sample ID: F2-0to19-101018
Prep Type: Total/NA
Prep Batch: 308116

Surrogate	MSD %Recovery	MSD Qualifier	Limits
o-Terphenyl	121		50 - 150

Lab Sample ID: MB 580-308184/1-A
Matrix: Solid
Analysis Batch: 308457

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 308184

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		50	12	mg/Kg		08/13/19 09:11	08/15/19 13:11	1
Motor Oil (>C24-C36)	ND		50	18	mg/Kg		08/13/19 09:11	08/15/19 13:11	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	114		50 - 150	08/13/19 09:11	08/15/19 13:11	1

Lab Sample ID: LCS 580-308184/2-A
Matrix: Solid
Analysis Batch: 308457

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 308184

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
#2 Diesel (C10-C24)	500	522		mg/Kg		104	70 - 125
Motor Oil (>C24-C36)	500	530		mg/Kg		106	70 - 129

Surrogate	LCS %Recovery	LCS Qualifier	Limits
o-Terphenyl	107		50 - 150

Lab Sample ID: LCSD 580-308184/3-A
Matrix: Solid
Analysis Batch: 308457

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 308184

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
#2 Diesel (C10-C24)	500	570		mg/Kg		114	70 - 125	9	16
Motor Oil (>C24-C36)	500	577		mg/Kg		115	70 - 129	9	16

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
o-Terphenyl	92		50 - 150

Lab Sample ID: 580-88125-11 DU
Matrix: Solid
Analysis Batch: 308457

Client Sample ID: G6-0to27-101818
Prep Type: Total/NA
Prep Batch: 308184

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
#2 Diesel (C10-C24)	140		137	J	mg/Kg	☼	4	35
Motor Oil (>C24-C36)	640		615		mg/Kg	☼	3	35

Surrogate	DU %Recovery	DU Qualifier	Limits
o-Terphenyl	105		50 - 150

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Lab Sample ID: MB 320-315077/1-A
Matrix: Solid
Analysis Batch: 316206

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 315077

Analyte	MB Result	MB Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3,4,6,7,8-HpCDD	ND		0.0050	0.00015	ug/Kg		08/14/19 12:31	08/17/19 03:36	1
1,2,3,4,6,7,8-HpCDF	ND		0.0050	0.00015	ug/Kg		08/14/19 12:31	08/17/19 03:36	1
1,2,3,4,7,8,9-HpCDF	ND		0.0050	0.00020	ug/Kg		08/14/19 12:31	08/17/19 03:36	1
1,2,3,4,7,8-HxCDD	ND		0.0050	0.00013	ug/Kg		08/14/19 12:31	08/17/19 03:36	1
1,2,3,4,7,8-HxCDF	ND		0.0050	0.000071	ug/Kg		08/14/19 12:31	08/17/19 03:36	1
1,2,3,6,7,8-HxCDD	ND		0.0050	0.00014	ug/Kg		08/14/19 12:31	08/17/19 03:36	1
1,2,3,6,7,8-HxCDF	ND		0.0050	0.000080	ug/Kg		08/14/19 12:31	08/17/19 03:36	1
1,2,3,7,8,9-HxCDD	ND		0.0050	0.00013	ug/Kg		08/14/19 12:31	08/17/19 03:36	1
1,2,3,7,8,9-HxCDF	ND		0.0050	0.000085	ug/Kg		08/14/19 12:31	08/17/19 03:36	1
1,2,3,7,8-PeCDD	ND		0.0050	0.00022	ug/Kg		08/14/19 12:31	08/17/19 03:36	1
1,2,3,7,8-PeCDF	ND		0.0050	0.00016	ug/Kg		08/14/19 12:31	08/17/19 03:36	1
2,3,4,6,7,8-HxCDF	ND		0.0050	0.000071	ug/Kg		08/14/19 12:31	08/17/19 03:36	1
2,3,4,7,8-PeCDF	ND		0.0050	0.00018	ug/Kg		08/14/19 12:31	08/17/19 03:36	1
2,3,7,8-TCDD	ND		0.0010	0.00019	ug/Kg		08/14/19 12:31	08/17/19 03:36	1
2,3,7,8-TCDF	ND		0.0010	0.00014	ug/Kg		08/14/19 12:31	08/17/19 03:36	1
OCDD	0.000897	J	0.010	0.00016	ug/Kg		08/14/19 12:31	08/17/19 03:36	1
OCDF	ND		0.010	0.00024	ug/Kg		08/14/19 12:31	08/17/19 03:36	1
Total HpCDD	ND		0.0050	0.00018	ug/Kg		08/14/19 12:31	08/17/19 03:36	1
Total HpCDF	ND		0.0050	0.00020	ug/Kg		08/14/19 12:31	08/17/19 03:36	1
Total HxCDD	ND		0.0050	0.00014	ug/Kg		08/14/19 12:31	08/17/19 03:36	1
Total HxCDF	ND		0.0050	0.000085	ug/Kg		08/14/19 12:31	08/17/19 03:36	1
Total PeCDD	ND		0.0050	0.00022	ug/Kg		08/14/19 12:31	08/17/19 03:36	1
Total PeCDF	ND		0.0050	0.00021	ug/Kg		08/14/19 12:31	08/17/19 03:36	1
Total TCDD	ND		0.0010	0.00019	ug/Kg		08/14/19 12:31	08/17/19 03:36	1
Total TCDF	ND		0.0010	0.00014	ug/Kg		08/14/19 12:31	08/17/19 03:36	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*76*		*23 - 140*	*08/14/19 12:31*	*08/17/19 03:36*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*85*		*28 - 143*	*08/14/19 12:31*	*08/17/19 03:36*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*83*		*26 - 138*	*08/14/19 12:31*	*08/17/19 03:36*	*1*
13C-1,2,3,4,7,8-HxCDD	*94*		*32 - 141*	*08/14/19 12:31*	*08/17/19 03:36*	*1*
13C-1,2,3,4,7,8-HxCDF	*108*		*26 - 152*	*08/14/19 12:31*	*08/17/19 03:36*	*1*
13C-1,2,3,6,7,8-HxCDD	*85*		*28 - 130*	*08/14/19 12:31*	*08/17/19 03:36*	*1*
13C-1,2,3,6,7,8-HxCDF	*99*		*26 - 123*	*08/14/19 12:31*	*08/17/19 03:36*	*1*
13C-1,2,3,7,8,9-HxCDF	*92*		*29 - 147*	*08/14/19 12:31*	*08/17/19 03:36*	*1*
13C-1,2,3,7,8-PeCDD	*70*		*25 - 181*	*08/14/19 12:31*	*08/17/19 03:36*	*1*
13C-1,2,3,7,8-PeCDF	*71*		*24 - 185*	*08/14/19 12:31*	*08/17/19 03:36*	*1*
13C-2,3,4,6,7,8-HxCDF	*98*		*28 - 136*	*08/14/19 12:31*	*08/17/19 03:36*	*1*
13C-2,3,4,7,8-PeCDF	*68*		*21 - 178*	*08/14/19 12:31*	*08/17/19 03:36*	*1*
13C-2,3,7,8-TCDD	*64*		*25 - 164*	*08/14/19 12:31*	*08/17/19 03:36*	*1*
13C-2,3,7,8-TCDF	*73*		*24 - 169*	*08/14/19 12:31*	*08/17/19 03:36*	*1*
13C-OCDD	*71*		*17 - 157*	*08/14/19 12:31*	*08/17/19 03:36*	*1*

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*93*		*35 - 197*	*08/14/19 12:31*	*08/17/19 03:36*	*1*

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: LCS 320-315077/2-A
Matrix: Solid
Analysis Batch: 316206

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 315077

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
1,2,3,4,6,7,8-HpCDD			0.100	0.108		ug/Kg		108	70 - 140		
1,2,3,4,6,7,8-HpCDF			0.100	0.108		ug/Kg		108	82 - 122		
1,2,3,4,7,8,9-HpCDF			0.100	0.107		ug/Kg		107	78 - 138		
1,2,3,4,7,8-HxCDD			0.100	0.105		ug/Kg		105	70 - 164		
1,2,3,4,7,8-HxCDF			0.100	0.0990		ug/Kg		99	72 - 134		
1,2,3,6,7,8-HxCDD			0.100	0.111		ug/Kg		111	76 - 134		
1,2,3,6,7,8-HxCDF			0.100	0.108		ug/Kg		108	84 - 130		
1,2,3,7,8,9-HxCDD			0.100	0.110		ug/Kg		110	64 - 162		
1,2,3,7,8,9-HxCDF			0.100	0.110		ug/Kg		110	78 - 130		
1,2,3,7,8-PeCDD			0.100	0.107		ug/Kg		107	70 - 142		
1,2,3,7,8-PeCDF			0.100	0.113		ug/Kg		113	80 - 134		
2,3,4,6,7,8-HxCDF			0.100	0.107		ug/Kg		107	70 - 156		
2,3,4,7,8-PeCDF			0.100	0.111		ug/Kg		111	68 - 160		
2,3,7,8-TCDD			0.0200	0.0210		ug/Kg		105	67 - 158		
2,3,7,8-TCDF			0.0200	0.0205		ug/Kg		102	75 - 158		
OCDD			0.200	0.211		ug/Kg		106	78 - 144		
OCDF			0.200	0.204		ug/Kg		102	63 - 170		

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C-1,2,3,4,6,7,8-HpCDD	*53*		*26 - 166*
13C-1,2,3,4,6,7,8-HpCDF	*59*		*21 - 158*
13C-1,2,3,4,7,8,9-HpCDF	*60*		*20 - 186*
13C-1,2,3,4,7,8-HxCDD	*66*		*21 - 193*
13C-1,2,3,4,7,8-HxCDF	*75*		*19 - 202*
13C-1,2,3,6,7,8-HxCDD	*64*		*25 - 163*
13C-1,2,3,6,7,8-HxCDF	*69*		*21 - 159*
13C-1,2,3,7,8,9-HxCDF	*70*		*17 - 205*
13C-1,2,3,7,8-PeCDD	*64*		*21 - 227*
13C-1,2,3,7,8-PeCDF	*66*		*21 - 192*
13C-2,3,4,6,7,8-HxCDF	*69*		*22 - 176*
13C-2,3,4,7,8-PeCDF	*67*		*13 - 328*
13C-2,3,7,8-TCDD	*66*		*20 - 175*
13C-2,3,7,8-TCDF	*69*		*22 - 152*
13C-OCDD	*49*		*13 - 199*

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
37Cl4-2,3,7,8-TCDD	*96*		*31 - 191*

Lab Sample ID: LCSD 320-315077/3-A
Matrix: Solid
Analysis Batch: 316206

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 315077

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2,3,4,6,7,8-HpCDD			0.100	0.111		ug/Kg		111	70 - 140	2	50
1,2,3,4,6,7,8-HpCDF			0.100	0.106		ug/Kg		106	82 - 122	2	50
1,2,3,4,7,8,9-HpCDF			0.100	0.100		ug/Kg		100	78 - 138	6	50
1,2,3,4,7,8-HxCDD			0.100	0.102		ug/Kg		102	70 - 164	4	50
1,2,3,4,7,8-HxCDF			0.100	0.0985		ug/Kg		98	72 - 134	1	50

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: LCSD 320-315077/3-A
Matrix: Solid
Analysis Batch: 316206

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 315077

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2,3,6,7,8-HxCDD			0.100	0.107		ug/Kg		107	76 - 134	4	50
1,2,3,6,7,8-HxCDF			0.100	0.109		ug/Kg		109	84 - 130	1	50
1,2,3,7,8,9-HxCDD			0.100	0.106		ug/Kg		106	64 - 162	4	50
1,2,3,7,8,9-HxCDF			0.100	0.105		ug/Kg		105	78 - 130	5	50
1,2,3,7,8-PeCDD			0.100	0.105		ug/Kg		105	70 - 142	2	50
1,2,3,7,8-PeCDF			0.100	0.111		ug/Kg		111	80 - 134	2	50
2,3,4,6,7,8-HxCDF			0.100	0.106		ug/Kg		106	70 - 156	1	50
2,3,4,7,8-PeCDF			0.100	0.110		ug/Kg		110	68 - 160	1	50
2,3,7,8-TCDD			0.0200	0.0212		ug/Kg		106	67 - 158	1	50
2,3,7,8-TCDF			0.0200	0.0210		ug/Kg		105	75 - 158	3	50
OCDD			0.200	0.210		ug/Kg		105	78 - 144	1	50
OCDF			0.200	0.208		ug/Kg		104	63 - 170	2	50

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C-1,2,3,4,6,7,8-HpCDD	*54*		*26 - 166*
13C-1,2,3,4,6,7,8-HpCDF	*63*		*21 - 158*
13C-1,2,3,4,7,8,9-HpCDF	*63*		*20 - 186*
13C-1,2,3,4,7,8-HxCDD	*69*		*21 - 193*
13C-1,2,3,4,7,8-HxCDF	*78*		*19 - 202*
13C-1,2,3,6,7,8-HxCDD	*68*		*25 - 163*
13C-1,2,3,6,7,8-HxCDF	*71*		*21 - 159*
13C-1,2,3,7,8,9-HxCDF	*74*		*17 - 205*
13C-1,2,3,7,8-PeCDD	*65*		*21 - 227*
13C-1,2,3,7,8-PeCDF	*64*		*21 - 192*
13C-2,3,4,6,7,8-HxCDF	*72*		*22 - 176*
13C-2,3,4,7,8-PeCDF	*64*		*13 - 328*
13C-2,3,7,8-TCDD	*65*		*20 - 175*
13C-2,3,7,8-TCDF	*70*		*22 - 152*
13C-OCDD	*50*		*13 - 199*

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
37Cl4-2,3,7,8-TCDD	*95*		*31 - 191*

Lab Sample ID: LCSSRM 320-315077/4-A
Matrix: Solid
Analysis Batch: 316206

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 315077

Analyte			Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec. Limits
1,2,3,4,6,7,8-HpCDD			0.153	0.133		ug/Kg		86.8	62.6 - 137.4
1,2,3,4,6,7,8-HpCDF			0.0139	0.00985	*	ug/Kg		70.9	73.5 - 126.5
1,2,3,4,7,8,9-HpCDF			0.00125	0.000832	J q	ug/Kg		66.6	50.4 - 149.6
1,2,3,4,7,8-HxCDD			0.00112	0.00109	J	ug/Kg		97.6	53.6 - 146.4
1,2,3,4,7,8-HxCDF			0.000860	0.000637	J	ug/Kg		74.1	48.8 - 151.2
1,2,3,6,7,8-HxCDD			0.00439	0.00291	J *	ug/Kg		66.3	80.0 - 120.0

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: LCSSRM 320-315077/4-A
Matrix: Solid
Analysis Batch: 316206

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 315077

Analyte	Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec. Limits
1,2,3,6,7,8-HxCDF	0.000580	0.000568	J	ug/Kg		98.0	55.2 - 144.8
1,2,3,7,8,9-HxCDD	0.00200	0.00220	J	ug/Kg		109.9	40.0 - 160.0
1,2,3,7,8,9-HxCDF	0.000120	0.000275	J	ug/Kg		229.0	0.0 - 233.3
1,2,3,7,8-PeCDD	0.000390	ND	*	ug/Kg		0	17.9 - 182.1
1,2,3,7,8-PeCDF	0.000230	ND	*	ug/Kg		0	4.3 - 195.7
2,3,4,6,7,8-HxCDF	0.000720	0.000396	J	ug/Kg		55.0	0.0 - 227.8
2,3,4,7,8-PeCDF	0.000340	ND	*	ug/Kg		0	58.8 - 141.2
2,3,7,8-TCDD	0.000110	ND		ug/Kg		0	0.0 - 227.3
2,3,7,8-TCDF	0.000700	0.000611	J	ug/Kg		87.3	51.4 - 148.6
OCDD	7.87	7.21	E	ug/Kg		91.6	79.0 - 121.0
OCDF	0.0582	0.0500		ug/Kg		85.9	44.3 - 155.7

Isotope Dilution	*LCSSRM %Recovery*	*LCSSRM Qualifier*	*Limits*
13C-1,2,3,4,6,7,8-HpCDD	*57*		*23 - 140*
13C-1,2,3,4,6,7,8-HpCDF	*64*		*28 - 143*
13C-1,2,3,4,7,8,9-HpCDF	*66*		*26 - 138*
13C-1,2,3,4,7,8-HxCDD	*67*		*32 - 141*
13C-1,2,3,4,7,8-HxCDF	*76*		*26 - 152*
13C-1,2,3,6,7,8-HxCDD	*64*		*28 - 130*
13C-1,2,3,6,7,8-HxCDF	*70*		*26 - 123*
13C-1,2,3,7,8,9-HxCDF	*71*		*29 - 147*
13C-1,2,3,7,8-PeCDD	*65*		*25 - 181*
13C-1,2,3,7,8-PeCDF	*64*		*24 - 185*
13C-2,3,4,6,7,8-HxCDF	*69*		*28 - 136*
13C-2,3,4,7,8-PeCDF	*66*		*21 - 178*
13C-2,3,7,8-TCDD	*65*		*25 - 164*
13C-2,3,7,8-TCDF	*67*		*24 - 169*
13C-OCDD	*57*		*17 - 157*

Surrogate	*LCSSRM %Recovery*	*LCSSRM Qualifier*	*Limits*
37Cl4-2,3,7,8-TCDD	*96*		*35 - 197*

Lab Sample ID: LCSSRM 320-315077/5-A
Matrix: Solid
Analysis Batch: 316206

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 315077

Analyte	Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec. Limits
1,2,3,4,6,7,8-HpCDD	0.153	0.134		ug/Kg		87.7	62.6 - 137.4
1,2,3,4,6,7,8-HpCDF	0.0139	0.0107		ug/Kg		77.2	73.5 - 126.5

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: LCSSRM 320-315077/5-A
Matrix: Solid
Analysis Batch: 316206

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 315077

Analyte	Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec. Limits
1,2,3,4,7,8,9-HpCDF	0.00125	0.000710	J q	ug/Kg		56.8	50.4 - 149.6
1,2,3,4,7,8-HxCDD	0.00112	0.00106	J	ug/Kg		94.2	53.6 - 146.4
1,2,3,4,7,8-HxCDF	0.000860	0.000528	J	ug/Kg		61.4	48.8 - 151.2
1,2,3,6,7,8-HxCDD	0.00439	0.00300	J *	ug/Kg		68.3	80.0 - 120.0
1,2,3,6,7,8-HxCDF	0.000580	0.000330	J q	ug/Kg		56.9	55.2 - 144.8
1,2,3,7,8,9-HxCDD	0.00200	0.00195	J	ug/Kg		97.7	40.0 - 160.0
1,2,3,7,8,9-HxCDF	0.000120	0.000164	J q	ug/Kg		136.6	0.0 - 233.3
1,2,3,7,8-PeCDD	0.000390	ND	*	ug/Kg		0	17.9 - 182.1
1,2,3,7,8-PeCDF	0.000230	ND	*	ug/Kg		0	4.3 - 195.7
2,3,4,6,7,8-HxCDF	0.000720	0.000340	J	ug/Kg		47.3	0.0 - 227.8
2,3,4,7,8-PeCDF	0.000340	ND	*	ug/Kg		0	58.8 - 141.2
2,3,7,8-TCDD	0.000110	0.000297	J *	ug/Kg		270.2	0.0 - 227.3
2,3,7,8-TCDF	0.000700	0.000569	J	ug/Kg		81.4	51.4 - 148.6
OCDD	7.87	7.16	E	ug/Kg		91.0	79.0 - 121.0
OCDF	0.0582	0.0521		ug/Kg		89.6	44.3 - 155.7

Isotope Dilution	*LCSSRM %Recovery*	*LCSSRM Qualifier*	*Limits*
13C-1,2,3,4,6,7,8-HpCDD	*56*		*23 - 140*
13C-1,2,3,4,6,7,8-HpCDF	*62*		*28 - 143*
13C-1,2,3,4,7,8,9-HpCDF	*65*		*26 - 138*
13C-1,2,3,4,7,8-HxCDD	*69*		*32 - 141*
13C-1,2,3,4,7,8-HxCDF	*82*		*26 - 152*
13C-1,2,3,6,7,8-HxCDD	*67*		*28 - 130*
13C-1,2,3,6,7,8-HxCDF	*71*		*26 - 123*
13C-1,2,3,7,8,9-HxCDF	*71*		*29 - 147*
13C-1,2,3,7,8-PeCDD	*66*		*25 - 181*
13C-1,2,3,7,8-PeCDF	*68*		*24 - 185*
13C-2,3,4,6,7,8-HxCDF	*74*		*28 - 136*
13C-2,3,4,7,8-PeCDF	*66*		*21 - 178*
13C-2,3,7,8-TCDD	*67*		*25 - 164*
13C-2,3,7,8-TCDF	*68*		*24 - 169*
13C-OCDD	*55*		*17 - 157*

Surrogate	*LCSSRM %Recovery*	*LCSSRM Qualifier*	*Limits*
37Cl4-2,3,7,8-TCDD	*103*		*35 - 197*

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: MB 320-315080/1-A
Matrix: Solid
Analysis Batch: 316531

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 315080

Analyte	MB Result	MB Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3,4,6,7,8-HpCDD	ND		0.0050	0.00017	ug/Kg		08/14/19 12:34	08/20/19 02:06	1
1,2,3,4,6,7,8-HpCDF	ND		0.0050	0.00016	ug/Kg		08/14/19 12:34	08/20/19 02:06	1
1,2,3,4,7,8,9-HpCDF	ND		0.0050	0.00021	ug/Kg		08/14/19 12:34	08/20/19 02:06	1
1,2,3,4,7,8-HxCDD	0.000147	J q	0.0050	0.000097	ug/Kg		08/14/19 12:34	08/20/19 02:06	1
1,2,3,4,7,8-HxCDF	ND		0.0050	0.000089	ug/Kg		08/14/19 12:34	08/20/19 02:06	1
1,2,3,6,7,8-HxCDD	ND		0.0050	0.000097	ug/Kg		08/14/19 12:34	08/20/19 02:06	1
1,2,3,6,7,8-HxCDF	ND		0.0050	0.000097	ug/Kg		08/14/19 12:34	08/20/19 02:06	1
1,2,3,7,8,9-HxCDD	ND		0.0050	0.000092	ug/Kg		08/14/19 12:34	08/20/19 02:06	1
1,2,3,7,8,9-HxCDF	ND		0.0050	0.000097	ug/Kg		08/14/19 12:34	08/20/19 02:06	1
1,2,3,7,8-PeCDD	ND		0.0050	0.00028	ug/Kg		08/14/19 12:34	08/20/19 02:06	1
1,2,3,7,8-PeCDF	ND		0.0050	0.00016	ug/Kg		08/14/19 12:34	08/20/19 02:06	1
2,3,4,6,7,8-HxCDF	ND		0.0050	0.000088	ug/Kg		08/14/19 12:34	08/20/19 02:06	1
2,3,4,7,8-PeCDF	ND		0.0050	0.00018	ug/Kg		08/14/19 12:34	08/20/19 02:06	1
2,3,7,8-TCDD	ND		0.0010	0.00015	ug/Kg		08/14/19 12:34	08/20/19 02:06	1
2,3,7,8-TCDF	ND		0.0010	0.00014	ug/Kg		08/14/19 12:34	08/20/19 02:06	1
OCDD	0.00103	J	0.010	0.00018	ug/Kg		08/14/19 12:34	08/20/19 02:06	1
OCDF	ND		0.010	0.00025	ug/Kg		08/14/19 12:34	08/20/19 02:06	1
Total HpCDD	ND		0.0050	0.00017	ug/Kg		08/14/19 12:34	08/20/19 02:06	1
Total HpCDF	ND		0.0050	0.00021	ug/Kg		08/14/19 12:34	08/20/19 02:06	1
Total HxCDD	0.000461	J q	0.0050	0.000095	ug/Kg		08/14/19 12:34	08/20/19 02:06	1
Total HxCDF	ND		0.0050	0.000097	ug/Kg		08/14/19 12:34	08/20/19 02:06	1
Total PeCDD	ND		0.0050	0.00028	ug/Kg		08/14/19 12:34	08/20/19 02:06	1
Total PeCDF	ND		0.0050	0.00018	ug/Kg		08/14/19 12:34	08/20/19 02:06	1
Total TCDD	ND		0.0010	0.00015	ug/Kg		08/14/19 12:34	08/20/19 02:06	1
Total TCDF	ND		0.0010	0.00014	ug/Kg		08/14/19 12:34	08/20/19 02:06	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*75*		*23 - 140*	*08/14/19 12:34*	*08/20/19 02:06*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*76*		*28 - 143*	*08/14/19 12:34*	*08/20/19 02:06*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*79*		*26 - 138*	*08/14/19 12:34*	*08/20/19 02:06*	*1*
13C-1,2,3,4,7,8-HxCDD	*79*		*32 - 141*	*08/14/19 12:34*	*08/20/19 02:06*	*1*
13C-1,2,3,4,7,8-HxCDF	*89*		*26 - 152*	*08/14/19 12:34*	*08/20/19 02:06*	*1*
13C-1,2,3,6,7,8-HxCDD	*77*		*28 - 130*	*08/14/19 12:34*	*08/20/19 02:06*	*1*
13C-1,2,3,6,7,8-HxCDF	*82*		*26 - 123*	*08/14/19 12:34*	*08/20/19 02:06*	*1*
13C-1,2,3,7,8,9-HxCDF	*83*		*29 - 147*	*08/14/19 12:34*	*08/20/19 02:06*	*1*
13C-1,2,3,7,8-PeCDD	*65*		*25 - 181*	*08/14/19 12:34*	*08/20/19 02:06*	*1*
13C-1,2,3,7,8-PeCDF	*63*		*24 - 185*	*08/14/19 12:34*	*08/20/19 02:06*	*1*
13C-2,3,4,6,7,8-HxCDF	*83*		*28 - 136*	*08/14/19 12:34*	*08/20/19 02:06*	*1*
13C-2,3,4,7,8-PeCDF	*64*		*21 - 178*	*08/14/19 12:34*	*08/20/19 02:06*	*1*
13C-2,3,7,8-TCDD	*61*		*25 - 164*	*08/14/19 12:34*	*08/20/19 02:06*	*1*
13C-2,3,7,8-TCDF	*60*		*24 - 169*	*08/14/19 12:34*	*08/20/19 02:06*	*1*
13C-OCDD	*69*		*17 - 157*	*08/14/19 12:34*	*08/20/19 02:06*	*1*

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*88*		*35 - 197*	*08/14/19 12:34*	*08/20/19 02:06*	*1*

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: LCS 320-315080/2-A
Matrix: Solid
Analysis Batch: 316531

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 315080

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
1,2,3,4,6,7,8-HpCDD			0.100	0.110		ug/Kg		110	70 - 140		
1,2,3,4,6,7,8-HpCDF			0.100	0.106		ug/Kg		106	82 - 122		
1,2,3,4,7,8,9-HpCDF			0.100	0.102		ug/Kg		102	78 - 138		
1,2,3,4,7,8-HxCDD			0.100	0.106		ug/Kg		106	70 - 164		
1,2,3,4,7,8-HxCDF			0.100	0.0992		ug/Kg		99	72 - 134		
1,2,3,6,7,8-HxCDD			0.100	0.114		ug/Kg		114	76 - 134		
1,2,3,6,7,8-HxCDF			0.100	0.106		ug/Kg		106	84 - 130		
1,2,3,7,8,9-HxCDD			0.100	0.111		ug/Kg		111	64 - 162		
1,2,3,7,8,9-HxCDF			0.100	0.107		ug/Kg		107	78 - 130		
1,2,3,7,8-PeCDD			0.100	0.103		ug/Kg		103	70 - 142		
1,2,3,7,8-PeCDF			0.100	0.104		ug/Kg		104	80 - 134		
2,3,4,6,7,8-HxCDF			0.100	0.106		ug/Kg		106	70 - 156		
2,3,4,7,8-PeCDF			0.100	0.110		ug/Kg		110	68 - 160		
2,3,7,8-TCDD			0.0200	0.0202		ug/Kg		101	67 - 158		
2,3,7,8-TCDF			0.0200	0.0209		ug/Kg		104	75 - 158		
OCDD			0.200	0.211		ug/Kg		105	78 - 144		
OCDF			0.200	0.205		ug/Kg		102	63 - 170		

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C-1,2,3,4,6,7,8-HpCDD	*67*		*26 - 166*
13C-1,2,3,4,6,7,8-HpCDF	*66*		*21 - 158*
13C-1,2,3,4,7,8,9-HpCDF	*73*		*20 - 186*
13C-1,2,3,4,7,8-HxCDD	*71*		*21 - 193*
13C-1,2,3,4,7,8-HxCDF	*83*		*19 - 202*
13C-1,2,3,6,7,8-HxCDD	*70*		*25 - 163*
13C-1,2,3,6,7,8-HxCDF	*76*		*21 - 159*
13C-1,2,3,7,8,9-HxCDF	*78*		*17 - 205*
13C-1,2,3,7,8-PeCDD	*75*		*21 - 227*
13C-1,2,3,7,8-PeCDF	*72*		*21 - 192*
13C-2,3,4,6,7,8-HxCDF	*77*		*22 - 176*
13C-2,3,4,7,8-PeCDF	*73*		*13 - 328*
13C-2,3,7,8-TCDD	*69*		*20 - 175*
13C-2,3,7,8-TCDF	*69*		*22 - 152*
13C-OCDD	*66*		*13 - 199*

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
37Cl4-2,3,7,8-TCDD	*101*		*31 - 191*

Lab Sample ID: LCSD 320-315080/3-A
Matrix: Solid
Analysis Batch: 316531

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 315080

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2,3,4,6,7,8-HpCDD			0.100	0.106		ug/Kg		106	70 - 140	4	50
1,2,3,4,6,7,8-HpCDF			0.100	0.108		ug/Kg		108	82 - 122	2	50
1,2,3,4,7,8,9-HpCDF			0.100	0.102		ug/Kg		102	78 - 138	0	50
1,2,3,4,7,8-HxCDD			0.100	0.106		ug/Kg		106	70 - 164	1	50
1,2,3,4,7,8-HxCDF			0.100	0.0996		ug/Kg		100	72 - 134	0	50

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: LCSD 320-315080/3-A
Matrix: Solid
Analysis Batch: 316531

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 315080

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2,3,6,7,8-HxCDD			0.100	0.112		ug/Kg		112	76 - 134	2	50
1,2,3,6,7,8-HxCDF			0.100	0.107		ug/Kg		107	84 - 130	1	50
1,2,3,7,8,9-HxCDD			0.100	0.110		ug/Kg		110	64 - 162	2	50
1,2,3,7,8,9-HxCDF			0.100	0.103		ug/Kg		103	78 - 130	4	50
1,2,3,7,8-PeCDD			0.100	0.103		ug/Kg		103	70 - 142	0	50
1,2,3,7,8-PeCDF			0.100	0.110		ug/Kg		110	80 - 134	6	50
2,3,4,6,7,8-HxCDF			0.100	0.108		ug/Kg		108	70 - 156	2	50
2,3,4,7,8-PeCDF			0.100	0.110		ug/Kg		110	68 - 160	1	50
2,3,7,8-TCDD			0.0200	0.0210		ug/Kg		105	67 - 158	4	50
2,3,7,8-TCDF			0.0200	0.0210		ug/Kg		105	75 - 158	1	50
OCDD			0.200	0.208		ug/Kg		104	78 - 144	1	50
OCDF			0.200	0.205		ug/Kg		102	63 - 170	0	50

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C-1,2,3,4,6,7,8-HpCDD	*67*		*26 - 166*
13C-1,2,3,4,6,7,8-HpCDF	*68*		*21 - 158*
13C-1,2,3,4,7,8,9-HpCDF	*72*		*20 - 186*
13C-1,2,3,4,7,8-HxCDD	*71*		*21 - 193*
13C-1,2,3,4,7,8-HxCDF	*80*		*19 - 202*
13C-1,2,3,6,7,8-HxCDD	*67*		*25 - 163*
13C-1,2,3,6,7,8-HxCDF	*74*		*21 - 159*
13C-1,2,3,7,8,9-HxCDF	*77*		*17 - 205*
13C-1,2,3,7,8-PeCDD	*73*		*21 - 227*
13C-1,2,3,7,8-PeCDF	*72*		*21 - 192*
13C-2,3,4,6,7,8-HxCDF	*75*		*22 - 176*
13C-2,3,4,7,8-PeCDF	*73*		*13 - 328*
13C-2,3,7,8-TCDD	*67*		*20 - 175*
13C-2,3,7,8-TCDF	*67*		*22 - 152*
13C-OCDD	*64*		*13 - 199*

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
37Cl4-2,3,7,8-TCDD	*93*		*31 - 191*

Lab Sample ID: LCSSRM 320-315080/4-A
Matrix: Solid
Analysis Batch: 316531

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 315080

Analyte			Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec. Limits
1,2,3,4,6,7,8-HpCDD			0.153	0.142		ug/Kg		92.8	62.6 - 137.4
1,2,3,4,6,7,8-HpCDF			0.0139	0.0118		ug/Kg		84.6	73.5 - 126.5
1,2,3,4,7,8,9-HpCDF			0.00125	0.000887	J q	ug/Kg		70.9	50.4 - 149.6
1,2,3,4,7,8-HxCDD			0.00112	0.00106	J	ug/Kg		94.9	53.6 - 146.4
1,2,3,4,7,8-HxCDF			0.000860	0.000589	J	ug/Kg		68.5	48.8 - 151.2
1,2,3,6,7,8-HxCDD			0.00439	0.00316	J *	ug/Kg		71.9	80.0 - 120.0

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: LCSSRM 320-315080/4-A
Matrix: Solid
Analysis Batch: 316531

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 315080

Analyte	Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec. Limits
1,2,3,6,7,8-HxCDF	0.000580	0.000655	J	ug/Kg		112.9	55.2 - 144.8
1,2,3,7,8,9-HxCDD	0.00200	0.00226	J	ug/Kg		113.1	40.0 - 160.0
1,2,3,7,8,9-HxCDF	0.000120	0.000258	J	ug/Kg		214.7	0.0 - 233.3
1,2,3,7,8-PeCDD	0.000390	0.000356	J	ug/Kg		91.3	17.9 - 182.1
1,2,3,7,8-PeCDF	0.000230	0.000250	J q	ug/Kg		108.6	4.3 - 195.7
2,3,4,6,7,8-HxCDF	0.000720	0.000407	J q	ug/Kg		56.5	0.0 - 227.8
2,3,4,7,8-PeCDF	0.000340	0.000309	J	ug/Kg		90.9	58.8 - 141.2
2,3,7,8-TCDD	0.000110	0.000233	J q	ug/Kg		211.4	0.0 - 227.3
2,3,7,8-TCDF	0.000700	0.000542	J	ug/Kg		77.4	51.4 - 148.6
OCDD	7.87	7.33	E	ug/Kg		93.2	79.0 - 121.0
OCDF	0.0582	0.0561		ug/Kg		96.5	44.3 - 155.7

Isotope Dilution	*LCSSRM %Recovery*	*LCSSRM Qualifier*	*Limits*
13C-1,2,3,4,6,7,8-HpCDD	*66*		*23 - 140*
13C-1,2,3,4,6,7,8-HpCDF	*67*		*28 - 143*
13C-1,2,3,4,7,8,9-HpCDF	*72*		*26 - 138*
13C-1,2,3,4,7,8-HxCDD	*68*		*32 - 141*
13C-1,2,3,4,7,8-HxCDF	*78*		*26 - 152*
13C-1,2,3,6,7,8-HxCDD	*68*		*28 - 130*
13C-1,2,3,6,7,8-HxCDF	*72*		*26 - 123*
13C-1,2,3,7,8,9-HxCDF	*73*		*29 - 147*
13C-1,2,3,7,8-PeCDD	*72*		*25 - 181*
13C-1,2,3,7,8-PeCDF	*70*		*24 - 185*
13C-2,3,4,6,7,8-HxCDF	*73*		*28 - 136*
13C-2,3,4,7,8-PeCDF	*71*		*21 - 178*
13C-2,3,7,8-TCDD	*67*		*25 - 164*
13C-2,3,7,8-TCDF	*68*		*24 - 169*
13C-OCDD	*68*		*17 - 157*

Surrogate	*LCSSRM %Recovery*	*LCSSRM Qualifier*	*Limits*
37Cl4-2,3,7,8-TCDD	*99*		*35 - 197*

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 580-307998/5-A
Matrix: Solid
Analysis Batch: 308295

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 307998

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.25	0.050	mg/Kg		08/09/19 14:36	08/13/19 12:47	5

Method: 6020B - Metals (ICP/MS) (Continued)

Lab Sample ID: MB 580-307998/5-A
Matrix: Solid
Analysis Batch: 308295

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 307998

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		0.20	0.039	mg/Kg		08/09/19 14:36	08/13/19 12:47	5
Copper	ND		0.50	0.11	mg/Kg		08/09/19 14:36	08/13/19 12:47	5
Lead	ND		0.25	0.024	mg/Kg		08/09/19 14:36	08/13/19 12:47	5
Zinc	ND		2.5	0.81	mg/Kg		08/09/19 14:36	08/13/19 12:47	5

Lab Sample ID: LCS 580-307998/6-A
Matrix: Solid
Analysis Batch: 308295

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 307998

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	50.0	49.7		mg/Kg		99	80 - 120
Cadmium	50.0	51.6		mg/Kg		103	80 - 120
Copper	50.0	49.1		mg/Kg		98	80 - 120
Lead	50.0	51.7		mg/Kg		103	80 - 120
Zinc	50.0	49.3		mg/Kg		99	80 - 120

Lab Sample ID: LCSD 580-307998/7-A
Matrix: Solid
Analysis Batch: 308295

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 307998

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	50.0	50.0		mg/Kg		100	80 - 120	1	20
Cadmium	50.0	51.6		mg/Kg		103	80 - 120	0	20
Copper	50.0	49.7		mg/Kg		99	80 - 120	1	20
Lead	50.0	51.5		mg/Kg		103	80 - 120	0	20
Zinc	50.0	47.8		mg/Kg		96	80 - 120	3	20

Lab Sample ID: MB 580-308354/6-A
Matrix: Solid
Analysis Batch: 308408

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 308354

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.25	0.050	mg/Kg		08/14/19 14:06	08/14/19 17:04	5
Cadmium	ND		0.20	0.039	mg/Kg		08/14/19 14:06	08/14/19 17:04	5
Copper	ND		0.50	0.11	mg/Kg		08/14/19 14:06	08/14/19 17:04	5
Lead	0.0330	J	0.25	0.024	mg/Kg		08/14/19 14:06	08/14/19 17:04	5
Zinc	ND		2.5	0.81	mg/Kg		08/14/19 14:06	08/14/19 17:04	5

Lab Sample ID: LCS 580-308354/7-A
Matrix: Solid
Analysis Batch: 308408

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 308354

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	50.0	50.8		mg/Kg		102	80 - 120
Cadmium	50.0	50.1		mg/Kg		100	80 - 120
Copper	50.0	50.9		mg/Kg		102	80 - 120
Lead	50.0	50.3		mg/Kg		101	80 - 120
Zinc	50.0	48.6		mg/Kg		97	80 - 120

Method: 6020B - Metals (ICP/MS) (Continued)

Lab Sample ID: LCSD 580-308354/8-A
Matrix: Solid
Analysis Batch: 308408

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 308354

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	50.0	50.8		mg/Kg		102	80 - 120	0	20
Cadmium	50.0	50.2		mg/Kg		100	80 - 120	0	20
Copper	50.0	50.7		mg/Kg		101	80 - 120	0	20
Lead	50.0	50.1		mg/Kg		100	80 - 120	0	20
Zinc	50.0	49.5		mg/Kg		99	80 - 120	2	20

Method: 7471A - Mercury (CVAA)

Lab Sample ID: MB 580-308326/6-A
Matrix: Solid
Analysis Batch: 308412

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 308326

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.030	0.0090	mg/Kg		08/14/19 10:54	08/14/19 18:05	1

Lab Sample ID: LCS 580-308326/7-A
Matrix: Solid
Analysis Batch: 308412

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 308326

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.167	0.177		mg/Kg		106	80 - 120

Lab Sample ID: LCSD 580-308326/8-A
Matrix: Solid
Analysis Batch: 308412

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 308326

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	0.167	0.178		mg/Kg		107	80 - 120	1	20

Lab Sample ID: 580-88125-1 MS
Matrix: Solid
Analysis Batch: 308412

Client Sample ID: A1-0to30-102018
Prep Type: Total/NA
Prep Batch: 308326

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.059	H F1	0.242	0.358	F1	mg/Kg	☼	124	80 - 120

Lab Sample ID: 580-88125-1 MSD
Matrix: Solid
Analysis Batch: 308412

Client Sample ID: A1-0to30-102018
Prep Type: Total/NA
Prep Batch: 308326

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	0.059	H F1	0.233	0.341	F1	mg/Kg	☼	121	80 - 120	5	20

Lab Sample ID: 580-88125-1 DU
Matrix: Solid
Analysis Batch: 308412

Client Sample ID: A1-0to30-102018
Prep Type: Total/NA
Prep Batch: 308326

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Mercury	0.059	H F1	0.0455	F5	mg/Kg	☼	26	20

Method: 9060_PSEP - TOC (Puget Sound)

Lab Sample ID: MB 580-308680/3
Matrix: Solid
Analysis Batch: 308680

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	207	J	2000	97	mg/Kg			08/18/19 13:09	1

Lab Sample ID: MB 580-308680/36
Matrix: Solid
Analysis Batch: 308680

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	97	mg/Kg			08/18/19 15:16	1

Lab Sample ID: LCS 580-308680/37
Matrix: Solid
Analysis Batch: 308680

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	5080	5860		mg/Kg		115	40 - 180

Lab Sample ID: LCS 580-308680/4
Matrix: Solid
Analysis Batch: 308680

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	5080	6440		mg/Kg		127	40 - 180

Lab Sample ID: LCSD 580-308680/38
Matrix: Solid
Analysis Batch: 308680

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	5080	5560		mg/Kg		109	40 - 180	5	32

Lab Sample ID: LCSD 580-308680/5
Matrix: Solid
Analysis Batch: 308680

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	5080	5630		mg/Kg		111	40 - 180	13	32

Lab Sample ID: 580-88125-1 MS
Matrix: Solid
Analysis Batch: 308680

Client Sample ID: A1-0to30-102018
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon - Duplicates	2900	H B	120000	130000		mg/Kg		106	68 - 149

Method: 9060_PSEP - TOC (Puget Sound) (Continued)

Lab Sample ID: 580-88125-1 MSD
Matrix: Solid
Analysis Batch: 308680

Client Sample ID: A1-0to30-102018
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	2900	H B	120000	133000		mg/Kg		109	68 - 149	2	32

Lab Sample ID: 580-88125-21 MS
Matrix: Solid
Analysis Batch: 308680

Client Sample ID: T6-0to29-101618
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Organic Carbon - Duplicates	36000	H	120000	179000		mg/Kg		119	68 - 149		

Lab Sample ID: 580-88125-21 MSD
Matrix: Solid
Analysis Batch: 308680

Client Sample ID: T6-0to29-101618
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	36000	H	120000	131000		mg/Kg		79	68 - 149	31	32

Lab Sample ID: 580-88125-1 DU
Matrix: Solid
Analysis Batch: 308680

Client Sample ID: A1-0to30-102018
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Organic Carbon - Duplicates	2900	H B	2940		mg/Kg		2	50

Lab Sample ID: 580-88125-21 DU
Matrix: Solid
Analysis Batch: 308680

Client Sample ID: T6-0to29-101618
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Organic Carbon - Duplicates	36000	H	35800		mg/Kg		1	50

Lab Sample ID: 580-88125-1 TRL
Matrix: Solid
Analysis Batch: 308680

Client Sample ID: A1-0to30-102018
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	TRL Result	TRL Qualifier	Unit	D	RSD	RSD Limit
Total Organic Carbon - Duplicates	2900	H B	2930		mg/Kg		1	20

Lab Sample ID: 580-88125-21 TRL
Matrix: Solid
Analysis Batch: 308680

Client Sample ID: T6-0to29-101618
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	TRL Result	TRL Qualifier	Unit	D	RSD	RSD Limit
Total Organic Carbon - Duplicates	36000	H	35400		mg/Kg		1	20

Method: D 2216 - Percent Moisture

Lab Sample ID: 580-88125-8 DU
Matrix: Solid
Analysis Batch: 308264

Client Sample ID: C4-0to27-100918
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Solids	37.5	H	37.7		%		0.5	20

Lab Sample ID: 580-88125-21 DU
Matrix: Solid
Analysis Batch: 308264

Client Sample ID: T6-0to29-101618
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Solids	32.5	H	32.7		%		0.6	20

Method: Moisture 70C - Percent Moisture, 70 C

Lab Sample ID: 580-88125-1 DU
Matrix: Solid
Analysis Batch: 308996

Client Sample ID: A1-0to30-102018
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Percent Moisture	44	H	44		%		1	20
Percent Solids	56	H	56		%		0.9	20

Method: D7928/D6913 - ASTM D7928/D6913

Lab Sample ID: 580-88125-1 DU
Matrix: Solid
Analysis Batch: 307634

Client Sample ID: A1-0to30-102018
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Clay	19.5	H	20.5		%		5	20
Coarse Sand	1.6	H	0.7	F3	%		78	20
Fine Sand	18.7	H	19.5		%		4	20
Gravel	0.0	H	0.0		%		NC	20
Medium Sand	0.3	H	0.3		%		0	20
Silt	59.9	H	59.0		%		2	20

Lab Sample ID: 580-88125-11 DU
Matrix: Solid
Analysis Batch: 307638

Client Sample ID: G6-0to27-101818
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Clay	25.1	H	26.1		%		4	20
Coarse Sand	0.1	H	0.0	F3	%		200	20
Fine Sand	8.8	H	9.3		%		6	20
Gravel	0.0	H	0.0		%		NC	20
Medium Sand	0.8	H	0.6	F3	%		29	20
Silt	65.2	H	64.0		%		2	20

Method: D854 - Specific Gravity

Lab Sample ID: LCS 140-32648/1
Matrix: Solid
Analysis Batch: 32648

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Specific Gravity			1.00	1.000		NONE		100	99 - 101		

Lab Sample ID: 580-88125-2 DU
Matrix: Solid
Analysis Batch: 32648

Client Sample ID: A2-0to26-100818
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Specific Gravity	1.23			1.231		NONE				0	10

Lab Sample ID: 580-88125-11 DU
Matrix: Solid
Analysis Batch: 32648

Client Sample ID: G6-0to27-101818
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Specific Gravity	1.26			1.263		NONE				0.4	10

Lab Sample ID: LCS 140-32679/1
Matrix: Solid
Analysis Batch: 32679

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Specific Gravity			1.00	1.000		NONE		100	99 - 101		

Lab Sample ID: 580-88125-12 DU
Matrix: Solid
Analysis Batch: 32679

Client Sample ID: H2-0to30-101218
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Specific Gravity	1.37			1.373		NONE				0.4	10

Lab Sample ID: LCS 140-32736/1
Matrix: Solid
Analysis Batch: 32736

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Density			0.997	0.9971		g/cm3		100	99 - 101		

Lab Sample ID: 580-88125-2 DU
Matrix: Solid
Analysis Batch: 32736

Client Sample ID: A2-0to26-100818
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Density	1.23			1.227		g/cm3				0	10

Lab Sample ID: 580-88125-11 DU
Matrix: Solid
Analysis Batch: 32736

Client Sample ID: G6-0to27-101818
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Density	1.25			1.259		g/cm3				0.4	10

Method: D854 - Specific Gravity

Lab Sample ID: LCS 140-32737/1
Matrix: Solid
Analysis Batch: 32737

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Density			0.997	0.9971		g/cm3		100	99 - 101		

Lab Sample ID: 580-88125-12 DU
Matrix: Solid
Analysis Batch: 32737

Client Sample ID: H2-0to30-101218
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Density	1.36			1.369		g/cm3				0.4	10

Lab Chronicle

Client: Pacific Groundwater Group
Job ID: 580-88125-1
Project/Site: Swan Island Lagoon Sediment Investigatio

Client Sample ID: A1-0to30-102018
Lab Sample ID: 580-88125-1
Date Collected: 10/20/18 12:05
Matrix: Solid
Date Received: 07/26/19 13:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	308680	08/18/19 13:17	JKM	TAL SEA
Total/NA	Analysis	D 2216		1	308264	08/13/19 17:21	JCM	TAL SEA
Total/NA	Analysis	Moisture 70C		1	308996	08/21/19 13:20	JKM	TAL SEA
Total/NA	Analysis	D7928/D6913		1	307634	08/06/19 11:26	AAC	TAL SEA
Total/NA	Analysis	D854		1	32648	08/13/19 00:00	AKL	TAL KNX
Total/NA	Analysis	D854		1	32736	08/13/19 00:00	AKL	TAL KNX

Client Sample ID: A1-0to30-102018
Lab Sample ID: 580-88125-1
Date Collected: 10/20/18 12:05
Matrix: Solid
Date Received: 07/26/19 13:10
Percent Solids: 55.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550B			308204	08/13/19 10:43	FCG	TAL SEA
Total/NA	Analysis	8082A		1	308462	08/15/19 22:52	CJB	TAL SEA
Total/NA	Prep	3546			308116	08/12/19 12:08	MWW	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	308360	08/14/19 17:36	CJ	TAL SEA
Total/NA	Prep	HRMS-Sox			315077	08/14/19 12:31	SR1	TAL SAC
Total/NA	Analysis	1613B		1	316206	08/17/19 08:20	SMA	TAL SAC
Total/NA	Prep	3050B			307998	08/09/19 14:36	ART	TAL SEA
Total/NA	Analysis	6020B		5	308295	08/13/19 15:02	FCW	TAL SEA
Total/NA	Prep	7471A			308326	08/14/19 10:54	ART	TAL SEA
Total/NA	Analysis	7471A		1	308412	08/14/19 18:11	T1H	TAL SEA

Client Sample ID: A2-0to26-100818
Lab Sample ID: 580-88125-2
Date Collected: 10/08/18 14:04
Matrix: Solid
Date Received: 07/26/19 13:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	308680	08/18/19 13:35	JKM	TAL SEA
Total/NA	Analysis	D 2216		1	308264	08/13/19 17:21	JCM	TAL SEA
Total/NA	Analysis	Moisture 70C		1	308996	08/21/19 13:20	JKM	TAL SEA
Total/NA	Analysis	D7928/D6913		1	307634	08/06/19 11:26	AAC	TAL SEA
Total/NA	Analysis	D854		1	32648	08/13/19 00:00	AKL	TAL KNX
Total/NA	Analysis	D854		1	32736	08/13/19 00:00	AKL	TAL KNX

Client Sample ID: A2-0to26-100818
Lab Sample ID: 580-88125-2
Date Collected: 10/08/18 14:04
Matrix: Solid
Date Received: 07/26/19 13:10
Percent Solids: 31.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550B			308204	08/13/19 10:43	FCG	TAL SEA
Total/NA	Analysis	8082A		1	308462	08/15/19 23:43	CJB	TAL SEA
Total/NA	Prep	3546			308116	08/12/19 12:08	MWW	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	308360	08/14/19 17:59	CJ	TAL SEA

Lab Chronicle

Client: Pacific Groundwater Group
Job ID: 580-88125-1
Project/Site: Swan Island Lagoon Sediment Investigatio

Client Sample ID: A2-0to26-100818
Lab Sample ID: 580-88125-2
Date Collected: 10/08/18 14:04
Matrix: Solid
Date Received: 07/26/19 13:10
Percent Solids: 31.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox	RA		315077	08/14/19 12:31	SR1	TAL SAC
Total/NA	Analysis	1613B	RA	1	316854	08/21/19 00:35	SMA	TAL SAC
Total/NA	Prep	HRMS-Sox			315077	08/14/19 12:31	SR1	TAL SAC
Total/NA	Analysis	1613B		1	316206	08/17/19 09:08	SMA	TAL SAC
Total/NA	Prep	3050B			307998	08/09/19 14:36	ART	TAL SEA
Total/NA	Analysis	6020B		5	308295	08/13/19 15:11	FCW	TAL SEA
Total/NA	Prep	7471A			308326	08/14/19 10:54	ART	TAL SEA
Total/NA	Analysis	7471A		1	308412	08/14/19 18:21	T1H	TAL SEA

Client Sample ID: A3-0to31-100818
Lab Sample ID: 580-88125-3
Date Collected: 10/08/18 11:14
Matrix: Solid
Date Received: 07/26/19 13:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	308680	08/18/19 13:40	JKM	TAL SEA
Total/NA	Analysis	D 2216		1	308264	08/13/19 17:21	JCM	TAL SEA
Total/NA	Analysis	Moisture 70C		1	308996	08/21/19 13:20	JKM	TAL SEA
Total/NA	Analysis	D7928/D6913		1	307634	08/06/19 11:26	AAC	TAL SEA
Total/NA	Analysis	D854		1	32648	08/13/19 00:00	AKL	TAL KNX
Total/NA	Analysis	D854		1	32736	08/13/19 00:00	AKL	TAL KNX

Client Sample ID: A3-0to31-100818
Lab Sample ID: 580-88125-3
Date Collected: 10/08/18 11:14
Matrix: Solid
Date Received: 07/26/19 13:10
Percent Solids: 33.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550B			308204	08/13/19 10:43	FCG	TAL SEA
Total/NA	Analysis	8082A		1	308462	08/16/19 00:00	CJB	TAL SEA
Total/NA	Prep	3546			308116	08/12/19 12:08	MWW	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	308360	08/14/19 18:21	CJ	TAL SEA
Total/NA	Prep	HRMS-Sox	RA		315077	08/14/19 12:31	SR1	TAL SAC
Total/NA	Analysis	1613B	RA	1	316854	08/21/19 01:14	SMA	TAL SAC
Total/NA	Prep	HRMS-Sox			315077	08/14/19 12:31	SR1	TAL SAC
Total/NA	Analysis	1613B		1	316206	08/17/19 09:55	SMA	TAL SAC
Total/NA	Prep	3050B			307998	08/09/19 14:36	ART	TAL SEA
Total/NA	Analysis	6020B		5	308295	08/13/19 15:07	FCW	TAL SEA
Total/NA	Prep	7471A			308326	08/14/19 10:54	ART	TAL SEA
Total/NA	Analysis	7471A		1	308412	08/14/19 18:23	T1H	TAL SEA

Client Sample ID: A4-0to25-100818
Lab Sample ID: 580-88125-4
Date Collected: 10/08/18 13:26
Matrix: Solid
Date Received: 07/26/19 13:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	308680	08/18/19 13:49	JKM	TAL SEA

Lab Chronicle

Client: Pacific Groundwater Group
Job ID: 580-88125-1
Project/Site: Swan Island Lagoon Sediment Investigatio

Client Sample ID: A4-0to25-100818
Lab Sample ID: 580-88125-4
Date Collected: 10/08/18 13:26
Matrix: Solid
Date Received: 07/26/19 13:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	308264	08/13/19 17:21	JCM	TAL SEA
Total/NA	Analysis	Moisture 70C		1	308996	08/21/19 13:20	JKM	TAL SEA
Total/NA	Analysis	D7928/D6913		1	307634	08/06/19 11:26	AAC	TAL SEA
Total/NA	Analysis	D854		1	32648	08/13/19 00:00	AKL	TAL KNX
Total/NA	Analysis	D854		1	32736	08/13/19 00:00	AKL	TAL KNX

Client Sample ID: A4-0to25-100818
Lab Sample ID: 580-88125-4
Date Collected: 10/08/18 13:26
Matrix: Solid
Date Received: 07/26/19 13:10
Percent Solids: 38.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550B			308204	08/13/19 10:43	FCG	TAL SEA
Total/NA	Analysis	8082A		1	308462	08/16/19 00:17	CJB	TAL SEA
Total/NA	Prep	3550B	DL		308204	08/13/19 10:43	FCG	TAL SEA
Total/NA	Analysis	8082A	DL	3	308552	08/16/19 20:54	W1T	TAL SEA
Total/NA	Prep	3546			308116	08/12/19 12:08	MWW	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	308360	08/14/19 18:43	CJ	TAL SEA
Total/NA	Prep	HRMS-Sox	RA		315077	08/14/19 12:31	SR1	TAL SAC
Total/NA	Analysis	1613B	RA	1	316854	08/21/19 01:52	SMA	TAL SAC
Total/NA	Prep	HRMS-Sox			315077	08/14/19 12:31	SR1	TAL SAC
Total/NA	Analysis	1613B		1	316206	08/17/19 10:43	SMA	TAL SAC
Total/NA	Prep	3050B			308354	08/14/19 14:06	ART	TAL SEA
Total/NA	Analysis	6020B		5	308408	08/14/19 18:04	FCW	TAL SEA
Total/NA	Prep	7471A			308326	08/14/19 10:54	ART	TAL SEA
Total/NA	Analysis	7471A		1	308412	08/14/19 18:25	T1H	TAL SEA

Client Sample ID: A5-0to25-100818
Lab Sample ID: 580-88125-5
Date Collected: 10/08/18 14:38
Matrix: Solid
Date Received: 07/26/19 13:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	308680	08/18/19 13:54	JKM	TAL SEA
Total/NA	Analysis	D 2216		1	308264	08/13/19 17:21	JCM	TAL SEA
Total/NA	Analysis	Moisture 70C		1	308996	08/21/19 13:20	JKM	TAL SEA
Total/NA	Analysis	D7928/D6913		1	307634	08/06/19 11:26	AAC	TAL SEA
Total/NA	Analysis	D854		1	32648	08/13/19 00:00	AKL	TAL KNX
Total/NA	Analysis	D854		1	32736	08/13/19 00:00	AKL	TAL KNX

Lab Chronicle

Client: Pacific Groundwater Group
Project/Site: Swan Island Lagoon Sediment Investigatio

Job ID: 580-88125-1

Client Sample ID: A5-0to25-100818

Lab Sample ID: 580-88125-5
Date Collected: 10/08/18 14:38
Matrix: Solid
Date Received: 07/26/19 13:10
Percent Solids: 33.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550B			308204	08/13/19 10:43	FCG	TAL SEA
Total/NA	Analysis	8082A		1	308552	08/16/19 21:10	W1T	TAL SEA
Total/NA	Prep	3546			308116	08/12/19 12:08	MWW	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	308360	08/14/19 19:05	CJ	TAL SEA
Total/NA	Prep	HRMS-Sox	RA		315077	08/14/19 12:31	SR1	TAL SAC
Total/NA	Analysis	1613B	RA	1	316854	08/21/19 02:30	SMA	TAL SAC
Total/NA	Prep	HRMS-Sox			315077	08/14/19 12:31	SR1	TAL SAC
Total/NA	Analysis	1613B		1	316404	08/19/19 12:09	ALM	TAL SAC
Total/NA	Prep	3050B			308354	08/14/19 14:06	ART	TAL SEA
Total/NA	Analysis	6020B		5	308408	08/14/19 18:08	FCW	TAL SEA
Total/NA	Prep	7471A			308326	08/14/19 10:54	ART	TAL SEA
Total/NA	Analysis	7471A		1	308412	08/14/19 18:32	T1H	TAL SEA

Client Sample ID: A6-0to23-100818

Lab Sample ID: 580-88125-6
Date Collected: 10/08/18 16:08
Matrix: Solid
Date Received: 07/26/19 13:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	308680	08/18/19 13:59	JKM	TAL SEA
Total/NA	Analysis	D 2216		1	308264	08/13/19 17:21	JCM	TAL SEA
Total/NA	Analysis	Moisture 70C		1	308996	08/21/19 13:20	JKM	TAL SEA
Total/NA	Analysis	D7928/D6913		1	307634	08/06/19 11:26	AAC	TAL SEA
Total/NA	Analysis	D854		1	32648	08/13/19 00:00	AKL	TAL KNX
Total/NA	Analysis	D854		1	32736	08/13/19 00:00	AKL	TAL KNX

Client Sample ID: A6-0to23-100818

Lab Sample ID: 580-88125-6
Date Collected: 10/08/18 16:08
Matrix: Solid
Date Received: 07/26/19 13:10
Percent Solids: 39.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550B			308204	08/13/19 10:43	FCG	TAL SEA
Total/NA	Analysis	8082A		1	308462	08/16/19 00:50	CJB	TAL SEA
Total/NA	Prep	3546			308116	08/12/19 12:08	MWW	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	308360	08/14/19 19:27	CJ	TAL SEA
Total/NA	Prep	HRMS-Sox	RA		315077	08/14/19 12:31	SR1	TAL SAC
Total/NA	Analysis	1613B	RA	1	316854	08/21/19 03:09	SMA	TAL SAC
Total/NA	Prep	HRMS-Sox			315077	08/14/19 12:31	SR1	TAL SAC
Total/NA	Analysis	1613B		1	316404	08/19/19 12:57	ALM	TAL SAC
Total/NA	Prep	3050B			308354	08/14/19 14:06	ART	TAL SEA
Total/NA	Analysis	6020B		5	308408	08/14/19 18:13	FCW	TAL SEA
Total/NA	Prep	7471A			308326	08/14/19 10:54	ART	TAL SEA
Total/NA	Analysis	7471A		1	308412	08/14/19 18:35	T1H	TAL SEA

Lab Chronicle

Client: Pacific Groundwater Group
Job ID: 580-88125-1
Project/Site: Swan Island Lagoon Sediment Investigatio

Client Sample ID: A7-0to26-100918
Lab Sample ID: 580-88125-7
Date Collected: 10/09/18 13:23
Matrix: Solid
Date Received: 07/26/19 13:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	308680	08/18/19 14:03	JKM	TAL SEA
Total/NA	Analysis	D 2216		1	308264	08/13/19 17:21	JCM	TAL SEA
Total/NA	Analysis	Moisture 70C		1	308996	08/21/19 13:20	JKM	TAL SEA
Total/NA	Analysis	D7928/D6913		1	307634	08/06/19 11:26	AAC	TAL SEA
Total/NA	Analysis	D854		1	32648	08/13/19 00:00	AKL	TAL KNX
Total/NA	Analysis	D854		1	32736	08/13/19 00:00	AKL	TAL KNX

Client Sample ID: A7-0to26-100918
Lab Sample ID: 580-88125-7
Date Collected: 10/09/18 13:23
Matrix: Solid
Date Received: 07/26/19 13:10
Percent Solids: 37.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550B			308204	08/13/19 10:43	FCG	TAL SEA
Total/NA	Analysis	8082A		1	308462	08/16/19 01:07	CJB	TAL SEA
Total/NA	Prep	3546			308116	08/12/19 12:08	MWW	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	308360	08/14/19 19:49	CJ	TAL SEA
Total/NA	Prep	HRMS-Sox	RA		315077	08/14/19 12:31	SR1	TAL SAC
Total/NA	Analysis	1613B	RA	1	316854	08/21/19 03:47	SMA	TAL SAC
Total/NA	Prep	HRMS-Sox			315077	08/14/19 12:31	SR1	TAL SAC
Total/NA	Analysis	1613B		1	316404	08/19/19 13:44	ALM	TAL SAC
Total/NA	Prep	3050B			308354	08/14/19 14:06	ART	TAL SEA
Total/NA	Analysis	6020B		5	308408	08/14/19 18:17	FCW	TAL SEA
Total/NA	Prep	7471A			308326	08/14/19 10:54	ART	TAL SEA
Total/NA	Analysis	7471A		1	308412	08/14/19 18:37	T1H	TAL SEA

Client Sample ID: C4-0to27-100918
Lab Sample ID: 580-88125-8
Date Collected: 10/09/18 08:28
Matrix: Solid
Date Received: 07/26/19 13:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	308680	08/18/19 14:07	JKM	TAL SEA
Total/NA	Analysis	D 2216		1	308264	08/13/19 17:21	JCM	TAL SEA
Total/NA	Analysis	Moisture 70C		1	308996	08/21/19 13:20	JKM	TAL SEA
Total/NA	Analysis	D7928/D6913		1	307634	08/06/19 11:26	AAC	TAL SEA
Total/NA	Analysis	D854		1	32648	08/13/19 00:00	AKL	TAL KNX
Total/NA	Analysis	D854		1	32736	08/13/19 00:00	AKL	TAL KNX

Client Sample ID: C4-0to27-100918
Lab Sample ID: 580-88125-8
Date Collected: 10/09/18 08:28
Matrix: Solid
Date Received: 07/26/19 13:10
Percent Solids: 37.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550B			308204	08/13/19 10:43	FCG	TAL SEA
Total/NA	Analysis	8082A		1	308462	08/16/19 01:24	CJB	TAL SEA

Client Sample ID: C4-0to27-100918
Lab Sample ID: 580-88125-8
Date Collected: 10/09/18 08:28
Matrix: Solid
Date Received: 07/26/19 13:10
Percent Solids: 37.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			308116	08/12/19 12:08	MWW	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	308360	08/14/19 20:35	CJ	TAL SEA
Total/NA	Prep	HRMS-Sox	RA		315077	08/14/19 12:31	SR1	TAL SAC
Total/NA	Analysis	1613B	RA	1	316854	08/21/19 04:26	SMA	TAL SAC
Total/NA	Prep	HRMS-Sox			315077	08/14/19 12:31	SR1	TAL SAC
Total/NA	Analysis	1613B		1	316404	08/19/19 14:32	ALM	TAL SAC
Total/NA	Prep	3050B			308354	08/14/19 14:06	ART	TAL SEA
Total/NA	Analysis	6020B		5	308408	08/14/19 18:22	FCW	TAL SEA
Total/NA	Prep	7471A			308326	08/14/19 10:54	ART	TAL SEA
Total/NA	Analysis	7471A		1	308412	08/14/19 18:39	T1H	TAL SEA

Client Sample ID: D2-0to19-101018
Lab Sample ID: 580-88125-9
Date Collected: 10/10/18 15:21
Matrix: Solid
Date Received: 07/26/19 13:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	308680	08/18/19 14:12	JKM	TAL SEA
Total/NA	Analysis	D 2216		1	308264	08/13/19 17:21	JCM	TAL SEA
Total/NA	Analysis	Moisture 70C		1	308996	08/21/19 13:20	JKM	TAL SEA
Total/NA	Analysis	D7928/D6913		1	307634	08/06/19 11:26	AAC	TAL SEA
Total/NA	Analysis	D854		1	32648	08/13/19 00:00	AKL	TAL KNX
Total/NA	Analysis	D854		1	32736	08/13/19 00:00	AKL	TAL KNX

Client Sample ID: D2-0to19-101018
Lab Sample ID: 580-88125-9
Date Collected: 10/10/18 15:21
Matrix: Solid
Date Received: 07/26/19 13:10
Percent Solids: 70.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550B			308204	08/13/19 10:43	FCG	TAL SEA
Total/NA	Analysis	8082A		1	308462	08/16/19 01:41	CJB	TAL SEA
Total/NA	Prep	3546			308116	08/12/19 12:08	MWW	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	308360	08/14/19 20:58	CJ	TAL SEA
Total/NA	Prep	HRMS-Sox			315077	08/14/19 12:31	SR1	TAL SAC
Total/NA	Analysis	1613B		1	316404	08/19/19 15:19	ALM	TAL SAC
Total/NA	Prep	3050B			308354	08/14/19 14:06	ART	TAL SEA
Total/NA	Analysis	6020B		5	308408	08/14/19 18:26	FCW	TAL SEA
Total/NA	Prep	7471A			308326	08/14/19 10:54	ART	TAL SEA
Total/NA	Analysis	7471A		1	308412	08/14/19 18:41	T1H	TAL SEA

Client Sample ID: F2-0to19-101018
Lab Sample ID: 580-88125-10
Date Collected: 10/10/18 16:36
Matrix: Solid
Date Received: 07/26/19 13:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	308680	08/18/19 14:17	JKM	TAL SEA

Lab Chronicle

Client: Pacific Groundwater Group
Job ID: 580-88125-1
Project/Site: Swan Island Lagoon Sediment Investigatio

Client Sample ID: F2-0to19-101018
Lab Sample ID: 580-88125-10
Date Collected: 10/10/18 16:36
Matrix: Solid
Date Received: 07/26/19 13:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	308264	08/13/19 17:21	JCM	TAL SEA
Total/NA	Analysis	Moisture 70C		1	308996	08/21/19 13:20	JKM	TAL SEA
Total/NA	Analysis	D7928/D6913		1	307634	08/06/19 11:26	AAC	TAL SEA
Total/NA	Analysis	D854		1	32648	08/13/19 00:00	AKL	TAL KNX
Total/NA	Analysis	D854		1	32736	08/13/19 00:00	AKL	TAL KNX

Client Sample ID: F2-0to19-101018
Lab Sample ID: 580-88125-10
Date Collected: 10/10/18 16:36
Matrix: Solid
Date Received: 07/26/19 13:10
Percent Solids: 69.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550B			308204	08/13/19 10:43	FCG	TAL SEA
Total/NA	Analysis	8082A		1	308462	08/16/19 01:57	CJB	TAL SEA
Total/NA	Prep	3546			308116	08/12/19 12:08	MWW	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	308360	08/14/19 21:20	CJ	TAL SEA
Total/NA	Prep	HRMS-Sox			315077	08/14/19 12:31	SR1	TAL SAC
Total/NA	Analysis	1613B		1	316404	08/19/19 16:07	ALM	TAL SAC
Total/NA	Prep	3050B			308354	08/14/19 14:06	ART	TAL SEA
Total/NA	Analysis	6020B		5	308408	08/14/19 18:31	FCW	TAL SEA
Total/NA	Prep	7471A			308326	08/14/19 10:54	ART	TAL SEA
Total/NA	Analysis	7471A		1	308412	08/14/19 18:44	T1H	TAL SEA

Client Sample ID: G6-0to27-101818
Lab Sample ID: 580-88125-11
Date Collected: 10/18/18 14:12
Matrix: Solid
Date Received: 07/26/19 13:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	308680	08/18/19 14:21	JKM	TAL SEA
Total/NA	Analysis	D 2216		1	308264	08/13/19 17:21	JCM	TAL SEA
Total/NA	Analysis	Moisture 70C		1	308996	08/21/19 13:20	JKM	TAL SEA
Total/NA	Analysis	D7928/D6913		1	307638	08/06/19 11:30	AAC	TAL SEA
Total/NA	Analysis	D854		1	32648	08/13/19 00:00	AKL	TAL KNX
Total/NA	Analysis	D854		1	32736	08/13/19 00:00	AKL	TAL KNX

Client Sample ID: G6-0to27-101818
Lab Sample ID: 580-88125-11
Date Collected: 10/18/18 14:12
Matrix: Solid
Date Received: 07/26/19 13:10
Percent Solids: 32.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550B			308212	08/13/19 11:37	FCG	TAL SEA
Total/NA	Analysis	8082A		1	308439	08/15/19 14:12	TL1	TAL SEA
Total/NA	Prep	3546			308184	08/13/19 09:12	FCG	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	308457	08/15/19 20:31	T1W	TAL SEA

Lab Chronicle

Client: Pacific Groundwater Group
Job ID: 580-88125-1
Project/Site: Swan Island Lagoon Sediment Investigatio

Client Sample ID: G6-0to27-101818
Lab Sample ID: 580-88125-11
Date Collected: 10/18/18 14:12
Matrix: Solid
Date Received: 07/26/19 13:10
Percent Solids: 32.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox	RA		315077	08/14/19 12:31	SR1	TAL SAC
Total/NA	Analysis	1613B	RA	1	316854	08/21/19 05:04	SMA	TAL SAC
Total/NA	Prep	HRMS-Sox			315077	08/14/19 12:31	SR1	TAL SAC
Total/NA	Analysis	1613B		1	316404	08/19/19 16:54	ALM	TAL SAC
Total/NA	Prep	3050B			308354	08/14/19 14:06	ART	TAL SEA
Total/NA	Analysis	6020B		5	308408	08/14/19 18:35	FCW	TAL SEA
Total/NA	Prep	7471A			308326	08/14/19 10:54	ART	TAL SEA
Total/NA	Analysis	7471A		1	308412	08/14/19 18:46	T1H	TAL SEA

Client Sample ID: H2-0to30-101218
Lab Sample ID: 580-88125-12
Date Collected: 10/12/18 10:28
Matrix: Solid
Date Received: 07/26/19 13:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	308680	08/18/19 14:26	JKM	TAL SEA
Total/NA	Analysis	D 2216		1	308264	08/13/19 17:21	JCM	TAL SEA
Total/NA	Analysis	Moisture 70C		1	308996	08/21/19 13:20	JKM	TAL SEA
Total/NA	Analysis	D7928/D6913		1	307638	08/06/19 11:30	AAC	TAL SEA
Total/NA	Analysis	D854		1	32737	08/13/19 00:00	AKL	TAL KNX
Total/NA	Analysis	D854		1	32679	08/14/19 00:00	AKL	TAL KNX

Client Sample ID: H2-0to30-101218
Lab Sample ID: 580-88125-12
Date Collected: 10/12/18 10:28
Matrix: Solid
Date Received: 07/26/19 13:10
Percent Solids: 42.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550B			308212	08/13/19 11:37	FCG	TAL SEA
Total/NA	Analysis	8082A		1	308439	08/15/19 15:03	TL1	TAL SEA
Total/NA	Prep	3546			308116	08/12/19 12:08	MWW	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	308360	08/14/19 21:43	CJ	TAL SEA
Total/NA	Prep	HRMS-Sox	RA		315077	08/14/19 12:31	SR1	TAL SAC
Total/NA	Analysis	1613B	RA	1	316854	08/21/19 05:42	SMA	TAL SAC
Total/NA	Prep	HRMS-Sox			315077	08/14/19 12:31	SR1	TAL SAC
Total/NA	Analysis	1613B		1	316404	08/19/19 17:42	ALM	TAL SAC
Total/NA	Prep	3050B			308354	08/14/19 14:06	ART	TAL SEA
Total/NA	Analysis	6020B		5	308408	08/14/19 18:40	FCW	TAL SEA
Total/NA	Prep	7471A			308326	08/14/19 10:54	ART	TAL SEA
Total/NA	Analysis	7471A		1	308412	08/14/19 18:48	T1H	TAL SEA

Client Sample ID: J2A3-0to18-101218
Lab Sample ID: 580-88125-13
Date Collected: 10/12/18 12:57
Matrix: Solid
Date Received: 07/26/19 13:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	308680	08/18/19 14:31	JKM	TAL SEA

Lab Chronicle

Client: Pacific Groundwater Group
Job ID: 580-88125-1
Project/Site: Swan Island Lagoon Sediment Investigatio

Client Sample ID: J2A3-0to18-101218
Lab Sample ID: 580-88125-13
Date Collected: 10/12/18 12:57
Matrix: Solid
Date Received: 07/26/19 13:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	308264	08/13/19 17:21	JCM	TAL SEA
Total/NA	Analysis	Moisture 70C		1	308996	08/21/19 13:20	JKM	TAL SEA
Total/NA	Analysis	D7928/D6913		1	307638	08/06/19 11:30	AAC	TAL SEA
Total/NA	Analysis	D854		1	32737	08/13/19 00:00	AKL	TAL KNX
Total/NA	Analysis	D854		1	32679	08/14/19 00:00	AKL	TAL KNX

Client Sample ID: J2A3-0to18-101218
Lab Sample ID: 580-88125-13
Date Collected: 10/12/18 12:57
Matrix: Solid
Date Received: 07/26/19 13:10
Percent Solids: 80.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550B			308212	08/13/19 11:37	FCG	TAL SEA
Total/NA	Analysis	8082A		1	308439	08/15/19 15:19	TL1	TAL SEA
Total/NA	Prep	3546			308116	08/12/19 12:08	MWW	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	308360	08/14/19 22:05	CJ	TAL SEA
Total/NA	Prep	HRMS-Sox			315077	08/14/19 12:31	SR1	TAL SAC
Total/NA	Analysis	1613B		1	316404	08/19/19 18:29	ALM	TAL SAC
Total/NA	Prep	3050B			308354	08/14/19 14:06	ART	TAL SEA
Total/NA	Analysis	6020B		5	308408	08/14/19 19:03	FCW	TAL SEA
Total/NA	Prep	7471A			308326	08/14/19 10:54	ART	TAL SEA
Total/NA	Analysis	7471A		1	308412	08/14/19 18:51	T1H	TAL SEA

Client Sample ID: M4-0to26-101918
Lab Sample ID: 580-88125-14
Date Collected: 10/19/18 13:11
Matrix: Solid
Date Received: 07/26/19 13:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	308680	08/18/19 14:40	JKM	TAL SEA
Total/NA	Analysis	D 2216		1	308264	08/13/19 17:21	JCM	TAL SEA
Total/NA	Analysis	Moisture 70C		1	308996	08/21/19 13:20	JKM	TAL SEA
Total/NA	Analysis	D7928/D6913		1	307638	08/06/19 11:30	AAC	TAL SEA
Total/NA	Analysis	D854		1	32737	08/13/19 00:00	AKL	TAL KNX
Total/NA	Analysis	D854		1	32679	08/14/19 00:00	AKL	TAL KNX

Client Sample ID: M4-0to26-101918
Lab Sample ID: 580-88125-14
Date Collected: 10/19/18 13:11
Matrix: Solid
Date Received: 07/26/19 13:10
Percent Solids: 38.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550B			308212	08/13/19 11:37	FCG	TAL SEA
Total/NA	Analysis	8082A		1	308439	08/15/19 15:36	TL1	TAL SEA
Total/NA	Prep	3546			308116	08/12/19 12:08	MWW	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	308360	08/14/19 22:28	CJ	TAL SEA

Lab Chronicle

Client: Pacific Groundwater Group
Job ID: 580-88125-1
Project/Site: Swan Island Lagoon Sediment Investigatio

Client Sample ID: M4-0to26-101918
Lab Sample ID: 580-88125-14
Date Collected: 10/19/18 13:11
Matrix: Solid
Date Received: 07/26/19 13:10
Percent Solids: 38.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox	RA		315080	08/14/19 12:34	SR1	TAL SAC
Total/NA	Analysis	1613B	RA	1	316854	08/21/19 06:21	SMA	TAL SAC
Total/NA	Prep	HRMS-Sox			315080	08/14/19 12:34	SR1	TAL SAC
Total/NA	Analysis	1613B		1	316404	08/19/19 19:16	ALM	TAL SAC
Total/NA	Prep	3050B			308354	08/14/19 14:06	ART	TAL SEA
Total/NA	Analysis	6020B		5	308408	08/14/19 19:07	FCW	TAL SEA
Total/NA	Prep	7471A			308326	08/14/19 10:54	ART	TAL SEA
Total/NA	Analysis	7471A		1	308412	08/14/19 18:53	T1H	TAL SEA

Client Sample ID: 515-0to26-101918
Lab Sample ID: 580-88125-15
Date Collected: 10/19/18 13:11
Matrix: Solid
Date Received: 07/26/19 13:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	308680	08/18/19 14:45	JKM	TAL SEA
Total/NA	Analysis	D 2216		1	308264	08/13/19 17:21	JCM	TAL SEA
Total/NA	Analysis	Moisture 70C		1	308996	08/21/19 13:20	JKM	TAL SEA
Total/NA	Analysis	D7928/D6913		1	307638	08/06/19 11:30	AAC	TAL SEA
Total/NA	Analysis	D854		1	32737	08/13/19 00:00	AKL	TAL KNX
Total/NA	Analysis	D854		1	32679	08/14/19 00:00	AKL	TAL KNX

Client Sample ID: 515-0to26-101918
Lab Sample ID: 580-88125-15
Date Collected: 10/19/18 13:11
Matrix: Solid
Date Received: 07/26/19 13:10
Percent Solids: 38.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550B			308212	08/13/19 11:37	FCG	TAL SEA
Total/NA	Analysis	8082A		1	308439	08/15/19 15:53	TL1	TAL SEA
Total/NA	Prep	3546			308116	08/12/19 12:08	MWW	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	308360	08/14/19 22:50	CJ	TAL SEA
Total/NA	Prep	HRMS-Sox	RA		315080	08/14/19 12:34	SR1	TAL SAC
Total/NA	Analysis	1613B	RA	1	316854	08/21/19 06:59	SMA	TAL SAC
Total/NA	Prep	HRMS-Sox			315080	08/14/19 12:34	SR1	TAL SAC
Total/NA	Analysis	1613B		1	316404	08/19/19 20:04	ALM	TAL SAC
Total/NA	Prep	3050B			308354	08/14/19 14:06	ART	TAL SEA
Total/NA	Analysis	6020B		5	308408	08/14/19 19:12	FCW	TAL SEA
Total/NA	Prep	7471A			308326	08/14/19 10:54	ART	TAL SEA
Total/NA	Analysis	7471A		1	308412	08/15/19 01:57	T1H	TAL SEA

Client Sample ID: N5-0to28-101418
Lab Sample ID: 580-88125-16
Date Collected: 10/14/18 16:46
Matrix: Solid
Date Received: 07/26/19 13:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	308680	08/18/19 14:49	JKM	TAL SEA

Lab Chronicle

Client: Pacific Groundwater Group
Job ID: 580-88125-1
Project/Site: Swan Island Lagoon Sediment Investigatio

Client Sample ID: N5-0to28-101418
Lab Sample ID: 580-88125-16
Date Collected: 10/14/18 16:46
Matrix: Solid
Date Received: 07/26/19 13:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	308264	08/13/19 17:21	JCM	TAL SEA
Total/NA	Analysis	Moisture 70C		1	308996	08/21/19 13:20	JKM	TAL SEA
Total/NA	Analysis	D7928/D6913		1	307638	08/06/19 11:30	AAC	TAL SEA
Total/NA	Analysis	D854		1	32737	08/13/19 00:00	AKL	TAL KNX
Total/NA	Analysis	D854		1	32679	08/14/19 00:00	AKL	TAL KNX

Client Sample ID: N5-0to28-101418
Lab Sample ID: 580-88125-16
Date Collected: 10/14/18 16:46
Matrix: Solid
Date Received: 07/26/19 13:10
Percent Solids: 31.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550B			308212	08/13/19 11:37	FCG	TAL SEA
Total/NA	Analysis	8082A		1	308439	08/15/19 16:10	TL1	TAL SEA
Total/NA	Prep	3546			308116	08/12/19 12:08	MWW	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	308360	08/14/19 23:13	CJ	TAL SEA
Total/NA	Prep	HRMS-Sox	RA		315080	08/14/19 12:34	SR1	TAL SAC
Total/NA	Analysis	1613B	RA	1	316846	08/20/19 16:34	ALM	TAL SAC
Total/NA	Prep	HRMS-Sox			315080	08/14/19 12:34	SR1	TAL SAC
Total/NA	Analysis	1613B		1	316531	08/20/19 05:16	SMA	TAL SAC
Total/NA	Prep	3050B			308354	08/14/19 14:06	ART	TAL SEA
Total/NA	Analysis	6020B		5	308408	08/14/19 19:16	FCW	TAL SEA
Total/NA	Prep	7471A			308326	08/14/19 10:54	ART	TAL SEA
Total/NA	Analysis	7471A		1	308412	08/15/19 01:59	T1H	TAL SEA

Client Sample ID: N7-0to27-101418
Lab Sample ID: 580-88125-17
Date Collected: 10/14/18 15:10
Matrix: Solid
Date Received: 07/26/19 13:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	308680	08/18/19 14:54	JKM	TAL SEA
Total/NA	Analysis	D 2216		1	308264	08/13/19 17:21	JCM	TAL SEA
Total/NA	Analysis	Moisture 70C		1	308996	08/21/19 13:20	JKM	TAL SEA
Total/NA	Analysis	D7928/D6913		1	307638	08/06/19 11:30	AAC	TAL SEA
Total/NA	Analysis	D854		1	32737	08/13/19 00:00	AKL	TAL KNX
Total/NA	Analysis	D854		1	32679	08/14/19 00:00	AKL	TAL KNX

Client Sample ID: N7-0to27-101418
Lab Sample ID: 580-88125-17
Date Collected: 10/14/18 15:10
Matrix: Solid
Date Received: 07/26/19 13:10
Percent Solids: 34.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550B			308212	08/13/19 11:37	FCG	TAL SEA
Total/NA	Analysis	8082A		1	308439	08/15/19 16:26	TL1	TAL SEA

Lab Chronicle

Client: Pacific Groundwater Group
Job ID: 580-88125-1
Project/Site: Swan Island Lagoon Sediment Investigatio

Client Sample ID: N7-0to27-101418
Lab Sample ID: 580-88125-17
Date Collected: 10/14/18 15:10
Matrix: Solid
Date Received: 07/26/19 13:10
Percent Solids: 34.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			308116	08/12/19 12:08	MWW	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	308360	08/14/19 23:35	CJ	TAL SEA
Total/NA	Prep	HRMS-Sox	RA		315080	08/14/19 12:34	SR1	TAL SAC
Total/NA	Analysis	1613B	RA	1	316846	08/20/19 17:12	ALM	TAL SAC
Total/NA	Prep	HRMS-Sox			315080	08/14/19 12:34	SR1	TAL SAC
Total/NA	Analysis	1613B		1	316531	08/20/19 06:04	SMA	TAL SAC
Total/NA	Prep	3050B			308354	08/14/19 14:06	ART	TAL SEA
Total/NA	Analysis	6020B		5	308408	08/14/19 19:21	FCW	TAL SEA
Total/NA	Prep	7471A			308326	08/14/19 10:54	ART	TAL SEA
Total/NA	Analysis	7471A		1	308412	08/15/19 02:02	T1H	TAL SEA

Client Sample ID: O7-0to27-101918
Lab Sample ID: 580-88125-18
Date Collected: 10/19/18 15:36
Matrix: Solid
Date Received: 07/26/19 13:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	308680	08/18/19 14:58	JKM	TAL SEA
Total/NA	Analysis	D 2216		1	308264	08/13/19 17:21	JCM	TAL SEA
Total/NA	Analysis	Moisture 70C		1	308996	08/21/19 13:20	JKM	TAL SEA
Total/NA	Analysis	D7928/D6913		1	307638	08/06/19 11:30	AAC	TAL SEA
Total/NA	Analysis	D854		1	32737	08/13/19 00:00	AKL	TAL KNX
Total/NA	Analysis	D854		1	32679	08/14/19 00:00	AKL	TAL KNX

Client Sample ID: O7-0to27-101918
Lab Sample ID: 580-88125-18
Date Collected: 10/19/18 15:36
Matrix: Solid
Date Received: 07/26/19 13:10
Percent Solids: 33.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550B			308212	08/13/19 11:37	FCG	TAL SEA
Total/NA	Analysis	8082A		1	308439	08/15/19 16:43	TL1	TAL SEA
Total/NA	Prep	3546			308116	08/12/19 12:08	MWW	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	308360	08/14/19 23:58	CJ	TAL SEA
Total/NA	Prep	HRMS-Sox	RA		315080	08/14/19 12:34	SR1	TAL SAC
Total/NA	Analysis	1613B	RA	1	316846	08/20/19 17:50	ALM	TAL SAC
Total/NA	Prep	HRMS-Sox			315080	08/14/19 12:34	SR1	TAL SAC
Total/NA	Analysis	1613B		1	316531	08/20/19 06:51	SMA	TAL SAC
Total/NA	Prep	3050B			308354	08/14/19 14:06	ART	TAL SEA
Total/NA	Analysis	6020B		5	308408	08/14/19 19:25	FCW	TAL SEA
Total/NA	Prep	7471A			308326	08/14/19 10:54	ART	TAL SEA
Total/NA	Analysis	7471A		1	308412	08/15/19 02:04	T1H	TAL SEA

Lab Chronicle

Client: Pacific Groundwater Group
Job ID: 580-88125-1
Project/Site: Swan Island Lagoon Sediment Investigatio

Client Sample ID: Q2-0to13-101818
Lab Sample ID: 580-88125-19
Date Collected: 10/18/18 09:39
Matrix: Solid
Date Received: 07/26/19 13:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	308680	08/18/19 15:02	JKM	TAL SEA
Total/NA	Analysis	D 2216		1	308264	08/13/19 17:21	JCM	TAL SEA
Total/NA	Analysis	Moisture 70C		1	308996	08/21/19 13:20	JKM	TAL SEA
Total/NA	Analysis	D7928/D6913		1	307638	08/06/19 11:30	AAC	TAL SEA
Total/NA	Analysis	D854		1	32737	08/13/19 00:00	AKL	TAL KNX
Total/NA	Analysis	D854		1	32679	08/14/19 00:00	AKL	TAL KNX

Client Sample ID: Q2-0to13-101818
Lab Sample ID: 580-88125-19
Date Collected: 10/18/18 09:39
Matrix: Solid
Date Received: 07/26/19 13:10
Percent Solids: 68.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550B			308212	08/13/19 11:37	FCG	TAL SEA
Total/NA	Analysis	8082A		1	308439	08/15/19 17:00	TL1	TAL SEA
Total/NA	Prep	3546			308116	08/12/19 12:08	MWW	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	308360	08/15/19 00:43	CJ	TAL SEA
Total/NA	Prep	HRMS-Sox			315080	08/14/19 12:34	SR1	TAL SAC
Total/NA	Analysis	1613B		1	316531	08/20/19 07:39	SMA	TAL SAC
Total/NA	Prep	3050B			308354	08/14/19 14:06	ART	TAL SEA
Total/NA	Analysis	6020B		5	308408	08/14/19 19:30	FCW	TAL SEA
Total/NA	Prep	7471A			308326	08/14/19 10:54	ART	TAL SEA
Total/NA	Analysis	7471A		1	308412	08/14/19 17:24	T1H	TAL SEA

Client Sample ID: Q6-0to27-102018
Lab Sample ID: 580-88125-20
Date Collected: 10/20/18 09:19
Matrix: Solid
Date Received: 07/26/19 13:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	308680	08/18/19 15:07	JKM	TAL SEA
Total/NA	Analysis	D 2216		1	308264	08/13/19 17:21	JCM	TAL SEA
Total/NA	Analysis	Moisture 70C		1	308996	08/21/19 13:20	JKM	TAL SEA
Total/NA	Analysis	D7928/D6913		1	307638	08/06/19 11:30	AAC	TAL SEA
Total/NA	Analysis	D854		1	32737	08/13/19 00:00	AKL	TAL KNX
Total/NA	Analysis	D854		1	32679	08/14/19 00:00	AKL	TAL KNX

Client Sample ID: Q6-0to27-102018
Lab Sample ID: 580-88125-20
Date Collected: 10/20/18 09:19
Matrix: Solid
Date Received: 07/26/19 13:10
Percent Solids: 30.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550B			308212	08/13/19 11:37	FCG	TAL SEA
Total/NA	Analysis	8082A		1	308439	08/15/19 17:17	TL1	TAL SEA
Total/NA	Prep	3546			308116	08/12/19 12:08	MWW	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	308360	08/15/19 01:05	CJ	TAL SEA

Lab Chronicle

Client: Pacific Groundwater Group
Job ID: 580-88125-1
Project/Site: Swan Island Lagoon Sediment Investigatio

Client Sample ID: Q6-0to27-102018
Lab Sample ID: 580-88125-20
Date Collected: 10/20/18 09:19
Matrix: Solid
Date Received: 07/26/19 13:10
Percent Solids: 30.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox	RA		315080	08/14/19 12:34	SR1	TAL SAC
Total/NA	Analysis	1613B	RA	1	316846	08/20/19 18:29	ALM	TAL SAC
Total/NA	Prep	HRMS-Sox			315080	08/14/19 12:34	SR1	TAL SAC
Total/NA	Analysis	1613B		1	316531	08/20/19 08:26	SMA	TAL SAC
Total/NA	Prep	3050B			308354	08/14/19 14:06	ART	TAL SEA
Total/NA	Analysis	6020B		5	308408	08/14/19 19:34	FCW	TAL SEA
Total/NA	Prep	7471A			308326	08/14/19 10:54	ART	TAL SEA
Total/NA	Analysis	7471A		1	308412	08/14/19 17:26	T1H	TAL SEA

Client Sample ID: T6-0to29-101618
Lab Sample ID: 580-88125-21
Date Collected: 10/16/18 14:38
Matrix: Solid
Date Received: 07/26/19 13:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	308680	08/18/19 15:23	JKM	TAL SEA
Total/NA	Analysis	D 2216		1	308264	08/13/19 17:21	JCM	TAL SEA
Total/NA	Analysis	Moisture 70C		1	308996	08/21/19 13:20	JKM	TAL SEA
Total/NA	Analysis	D7928/D6913		1	307638	08/06/19 11:30	AAC	TAL SEA
Total/NA	Analysis	D854		1	32737	08/13/19 00:00	AKL	TAL KNX
Total/NA	Analysis	D854		1	32679	08/14/19 00:00	AKL	TAL KNX

Client Sample ID: T6-0to29-101618
Lab Sample ID: 580-88125-21
Date Collected: 10/16/18 14:38
Matrix: Solid
Date Received: 07/26/19 13:10
Percent Solids: 32.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550B			308212	08/13/19 11:37	FCG	TAL SEA
Total/NA	Analysis	8082A		1	308439	08/15/19 17:33	TL1	TAL SEA
Total/NA	Prep	3546			308116	08/12/19 12:08	MWW	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	308360	08/15/19 01:28	CJ	TAL SEA
Total/NA	Prep	HRMS-Sox	RA		315080	08/14/19 12:34	SR1	TAL SAC
Total/NA	Analysis	1613B	RA	1	316846	08/20/19 19:07	ALM	TAL SAC
Total/NA	Prep	HRMS-Sox			315080	08/14/19 12:34	SR1	TAL SAC
Total/NA	Analysis	1613B		1	316531	08/20/19 09:14	SMA	TAL SAC
Total/NA	Prep	3050B			308354	08/14/19 14:13	ART	TAL SEA
Total/NA	Analysis	6020B		5	308408	08/14/19 19:39	FCW	TAL SEA
Total/NA	Prep	7471A			308326	08/14/19 10:54	ART	TAL SEA
Total/NA	Analysis	7471A		1	308412	08/14/19 17:28	T1H	TAL SEA

Laboratory References:

TAL KNX = Eurofins TestAmerica, Knoxville, 5815 Middlebrook Pike, Knoxville, TN 37921, TEL (865)291-3000

TAL SAC = Eurofins TestAmerica, Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

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

Accreditation/Certification Summary

Client: Pacific Groundwater Group
Job ID: 580-88125-1
Project/Site: Swan Island Lagoon Sediment Investigatio

Laboratory: Eurofins TestAmerica, Seattle

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

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	17-024	01-19-22
Alaska (UST)	State Program	17-024	01-19-20
ANAB	Dept. of Defense ELAP	L2236	01-19-22
ANAB	DoD	L2236	01-19-22
ANAB	ISO/IEC 17025	L2236	01-19-22
ANAB	ISO/IEC 17025	L2236	01-19-22
California	State	2901	11-05-19
California	State Program	2901	11-05-19
Montana (UST)	State	NA	04-13-21
Montana (UST)	State Program	N/A	04-30-20
Oregon	NELAP	WA100007	11-05-19
Oregon	NELAP	WA100007	11-05-19
US Fish & Wildlife	Federal	LE058448-0	07-31-20
US Fish & Wildlife	US Federal Programs	058448	07-31-20
USDA	Federal	P330-14-00126	02-10-20
USDA	US Federal Programs	P330-17-00039	02-10-20
Washington	State	C553	02-17-20
Washington	State Program	C553	02-17-20

Laboratory: Eurofins TestAmerica, Knoxville

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

Authority	Program	Identification Number	Expiration Date
	AFCEE	N/A	
ANAB	Dept. of Defense ELAP	L2311	02-14-22
ANAB	Dept. of Energy	L2311.01	02-14-22
ANAB	DoD	L2311	02-13-22
ANAB	DOE	L2311.01	02-13-22
ANAB	ISO/IEC 17025	L2311	02-13-22
Arkansas DEQ	State	2423	06-16-20
Arkansas DEQ	State Program	88-0688	06-16-20
California	State	2423	06-30-20
California	State Program	2423	06-30-20
Colorado	State	TN00009	02-29-20
Colorado	State Program	TN00009	02-28-20
Connecticut	State	PH-0223	09-30-19
Connecticut	State Program	PH-0223	09-30-19
Florida	NELAP	E87177	06-30-20
Florida	NELAP	E87177	06-30-20
Georgia	State Program	906	04-13-20
Georgia (DW)	State	906	04-13-20
Hawaii	State	NA	04-13-20
Hawaii	State Program	N/A	04-13-20
Kansas	NELAP	E-10349	10-31-19
Kansas	NELAP	E-10349	10-31-19
Kentucky (DW)	State	90101	12-31-19
Kentucky (DW)	State Program	90101	12-31-19
Louisiana	NELAP	83979	06-30-20
Louisiana (DW)	NELAP	LA160005	12-31-19
Louisiana (DW)	State	LA019	12-31-19

Accreditation/Certification Summary

Client: Pacific Groundwater Group
Job ID: 580-88125-1
Project/Site: Swan Island Lagoon Sediment Investigatio

Laboratory: Eurofins TestAmerica, Knoxville (Continued)

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

Authority	Program	Identification Number	Expiration Date
Maryland	State	277	03-31-20
Maryland	State Program	277	03-31-20
Michigan	State	9933	04-13-20
Michigan	State Program	9933	04-13-20
Nevada	State	TN00009	07-31-20
Nevada	State Program	TN00009	07-31-20
New Hampshire	NELAP	2999	01-17-20
New Jersey	NELAP	TN001	06-30-20
New Jersey	NELAP	TN001	06-30-20
New York	NELAP	10781	03-31-20
New York	NELAP	10781	03-31-20
North Carolina (DW)	State	21705	07-31-20
North Carolina (DW)	State Program	21705	07-31-20
North Carolina (WW/SW)	State Program	64	12-31-19
Ohio VAP	State	CL0059	08-28-20
Ohio VAP	State Program	CL0059	08-28-20
Oklahoma	State	9415	08-31-19
Oklahoma	State Program	9415	08-31-20
Oregon	NELAP	TNI0189	01-01-20
Oregon	NELAP	TNI0189	01-01-20
Pennsylvania	NELAP	68-00576	12-31-19
Pennsylvania	NELAP	68-00576	12-31-19
Tennessee	State	02014	04-13-20
Tennessee	State Program	2014	04-13-20
Texas	NELAP	T104704380-16-9	08-31-20
Texas	NELAP	T104704380-18-12	08-31-19
US Fish & Wildlife	Federal	LE-058448-0	07-31-20
US Fish & Wildlife	US Federal Programs	058448	07-31-20
USDA	Federal	P330-16-00262	08-20-22
Utah	NELAP	TN00009	07-31-20
Virginia	NELAP	460176	09-14-19
Virginia	NELAP	460176	09-14-19
Washington	State	C593	01-19-20
Washington	State Program	C593	01-19-20
West Virginia (DW)	State	9955C	12-31-19
West Virginia (DW)	State Program	9955C	12-31-19
West Virginia DEP	State	345	04-30-20
West Virginia DEP	State Program	345	04-30-20
Wisconsin	State Program	998044300	08-31-20

Accreditation/Certification Summary

Client: Pacific Groundwater Group
Job ID: 580-88125-1
Project/Site: Swan Island Lagoon Sediment Investigatio

Laboratory: Eurofins TestAmerica, Sacramento

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

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State Program	17-020	01-20-21
ANAB	Dept. of Defense ELAP	L2468	01-20-21
ANAB	DoD	L2468	01-20-21
ANAB	DOE	L2468.01	01-20-21
ANAB	ISO/IEC 17025	L2468	08-09-21
Arizona	State	AZ0708	08-11-20
Arizona	State Program	AZ0708	08-11-20
Arkansas DEQ	State Program	88-0691	06-17-20
California	State	2897	01-31-20
California	State Program	2897	01-31-20
Colorado	State Program	CA00044	08-31-19
Connecticut	State	PH-0691	06-30-21
Connecticut	State Program	PH-0691	06-30-21
Florida	NELAP	E87570	06-30-20
Florida	NELAP	E87570	06-30-20
Hawaii	State	<cert No.>	01-29-20
Hawaii	State Program	N/A	01-29-20
Illinois	NELAP	200060	03-17-20 *
Illinois	NELAP	200060	03-17-20
Kansas	NELAP	E-10375	10-31-19
Louisiana	NELAP	30612	06-30-20
Maine	State Program	CA0004	04-14-20
Michigan	State	9947	01-29-20
Michigan	State Program	9947	01-31-20
New Hampshire	NELAP	2997	04-20-20
New York	NELAP	11666	04-01-20
Oregon	NELAP	4040	01-29-20
Oregon	NELAP	4040	01-29-20
Pennsylvania	NELAP	68-01272	03-31-20
Pennsylvania	NELAP	68-01272	03-31-20
Texas	NELAP	T104704399	05-31-20
Texas	NELAP	T104704399-19-13	05-31-20
US Fish & Wildlife	Federal	LE148388-0	07-31-20
US Fish & Wildlife	US Federal Programs	58448	07-31-20
USDA	Federal	P330-18-00239	01-17-21
USEPA UCMR	Federal	CA00044	12-31-20
Utah	NELAP	CA00044	02-29-20
Vermont	State Program	VT-4040	04-16-20
Virginia	NELAP	460278	03-14-20
Virginia	NELAP	460278	03-14-20
Washington	State	C581	05-05-20
Washington	State Program	C581	05-05-20
West Virginia (DW)	State	9930C	12-31-19
West Virginia (DW)	State Program	9930C	12-31-19
Wyoming	State Program	8TMS-L	01-28-19 *

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Sample Summary

Client: Pacific Groundwater Group
Job ID: 580-88125-1
Project/Site: Swan Island Lagoon Sediment Investigatio

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
580-88125-1	A1-0to30-102018	Solid	10/20/18 12:05	07/26/19 13:10	
580-88125-2	A2-0to26-100818	Solid	10/08/18 14:04	07/26/19 13:10	
580-88125-3	A3-0to31-100818	Solid	10/08/18 11:14	07/26/19 13:10	
580-88125-4	A4-0to25-100818	Solid	10/08/18 13:26	07/26/19 13:10	
580-88125-5	A5-0to25-100818	Solid	10/08/18 14:38	07/26/19 13:10	
580-88125-6	A6-0to23-100818	Solid	10/08/18 16:08	07/26/19 13:10	
580-88125-7	A7-0to26-100918	Solid	10/09/18 13:23	07/26/19 13:10	
580-88125-8	C4-0to27-100918	Solid	10/09/18 08:28	07/26/19 13:10	
580-88125-9	D2-0to19-101018	Solid	10/10/18 15:21	07/26/19 13:10	
580-88125-10	F2-0to19-101018	Solid	10/10/18 16:36	07/26/19 13:10	
580-88125-11	G6-0to27-101818	Solid	10/18/18 14:12	07/26/19 13:10	
580-88125-12	H2-0to30-101218	Solid	10/12/18 10:28	07/26/19 13:10	
580-88125-13	J2A3-0to18-101218	Solid	10/12/18 12:57	07/26/19 13:10	
580-88125-14	M4-0to26-101918	Solid	10/19/18 13:11	07/26/19 13:10	
580-88125-15	515-0to26-101918	Solid	10/19/18 13:11	07/26/19 13:10	
580-88125-16	N5-0to28-101418	Solid	10/14/18 16:46	07/26/19 13:10	
580-88125-17	N7-0to27-101418	Solid	10/14/18 15:10	07/26/19 13:10	
580-88125-18	O7-0to27-101918	Solid	10/19/18 15:36	07/26/19 13:10	
580-88125-19	Q2-0to13-101818	Solid	10/18/18 09:39	07/26/19 13:10	
580-88125-20	Q6-0to27-102018	Solid	10/20/18 09:19	07/26/19 13:10	
580-88125-21	T6-0to29-101618	Solid	10/16/18 14:38	07/26/19 13:10	

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Client Contact	Project Manager: Janet Know	Site Contact/Sampler: Jeff Parker	Date:7/25/2019	COC No:
Jeff Parker & Janet Knox	Tel/Fax:	Lab Contact:Elaine Walker	Carrier:	1 of 2 COCs
Pacific Groundwater Group	Analysis Turnaround Time			Job No. 2006-00115
2377 Eastlake Ave E, Seattle WA 98102	standard			88125
206 329 0141 Phone	TAT if different from Below			SDG No.
206 329 6968 FAX	[X] standard			
Swan Island Lagoon Sediment Investigation	[ ] 1 week			
Site:	[ ] 2 days			
P O #	[ ] 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	# of Cont.	1668A - PCB Congeners	8082A - PCB Aroclors	1613B - Dioxin/Furans	6020B Metals - As, Cd, Cu, Pb, Zn	7471A - Mercury	ASTM D7928/D6913 - Grain Size	D854 - Specific Gravity	NWTPH-Diesel Extended	SM9060 - TOC	Total Solids	Moisture @70 C	Sample Specific Notes:
A1-0to30-102018	10/20/2018	12:05:00 PM		S		x	x	x	x	x	x	x	x	x	x	x	580-81257-5
-2 A2-0to26-100818	10/8/2018	2:04:00 PM		S		x	x	x	x	x	x	x	x	x	x	x	580-81041-5
A3-0to31-100818	10/8/2018	11:14:00 AM		S		x	x	x	x	x	x	x	x	x	x	x	580-81041-2
-4 A4-0to25-100818	10/8/2018	1:26:00 PM		S		x	x	x	x	x	x	x	x	x	x	x	580-81041-3
A5-0to25-100818	10/8/2018	2:38:00 PM		S		x	x	x	x	x	x	x	x	x	x	x	580-81041-4
-6 A6-0to23-100818	10/8/2018	4:08:00 PM		S		x	x	x	x	x	x	x	x	x	x	x	580-81041-6
A7-0to26-100918	10/9/2018	1:23:00 PM		S		x	x	x	x	x	x	x	x	x	x	x	580-81041-10
-8 C4-0to27-100918	10/9/2018	8:28:00 AM		S		x	x	x	x	x	x	x	x	x	x	x	580-81041-12
D2-0to19-101018	10/10/2018	3:21:00 PM		S		x	x	x	x	x	x	x	x	x	x	x	580-81041-28
-10 F2-0to19-101018	10/10/2018	4:36:00 PM		S		x	x	x	x	x	x	x	x	x	x	x	580-81041-29
G6-0to27-101818	10/18/2018	2:12:00 PM		S		x	x	x	x	x	x	x	x	x	x	x	580-81213-8
-12 H2-0to30-101218	10/12/2018	10:28:00 AM		S		x	x	x	x	x	x	x	x	x	x	x	580-81081-32

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

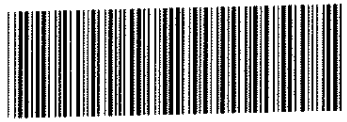
Possible Hazard Identification

[ ] *Non-Hazard* [ ] *Flammable* [ ] *Skin Irritant* *Poison B* [ ] *Unknown* [ ]

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

[ ] *Return To Client* _____ *Months*

Archive remaining samples



580-88125 Chain of Custody

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
	PGG	7/26/19 1310	M. Elaine Walker	Eurofins TestAmerica	07/26/2019 @ 1310
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

Form No. CA-C-WI-002, dated 04/07/2011

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Client Contact	Project Manager: Janet Know	Site Contact/Sampler: Jeff Parker	Date:7/25/2019	COC No:
Jeff Parker & Janet Knox	Tel/Fax:	Lab Contact:Elaine Walker	Carrier:	2 of 2 COCs
Pacific Groundwater Group	Analysis Turnaround Time			Job No. 2006-00115 98125
2377 Eastlake Ave E, Seattle WA 98102	standard			SDG No.
206 329 0141 Phone	TAT if different from Below ____			
206 329 6968 FAX	[X] standard			
Swan Island Lagoon Sediment Investigation	[ ] 1 week			
Site:	[ ] 2 days			
P O #	[ ] 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	# of Cont.	1668A - PCB Congeners	8082A - PCB Aroclors	1613B - Dioxin/Furans	6020B Metals - As, Cd, Cu, Pb, Zn	7471A - Mercury	ASTM D7928/D6913 - Grain Size	D854 - Specific Gravity	NWTPH-Diesel Extended	SM9060 - TOC	Total Solids	Moisture @70 C	Sample Specific Notes:
J2A3-0to18-101218	10/12/2018	12:57:00 PM		S		x	x	x	x	x	x	x	x	x	x	x	580-81081-29
-14 M4-0to26-101918	10/19/2018	1:11:00 PM		S		x	x	x	x	x	x	x	x	x	x	x	580-81257-42
515-0to26-101918	10/19/2018	1:11:00 PM		S		x	x	x	x	x	x	x	x	x	x	x	580-81257-44
-16 N5-0to28-101418	10/14/2018	4:46:00 PM		S		x	x	x	x	x	x	x	x	x	x	x	580-81081-10
N7-0to27-101418	10/14/2018	3:10:00 PM		S		x	x	x	x	x	x	x	x	x	x	x	580-81081-8
-18 O7-0to27-101918	10/19/2018	3:36:00 PM		S		x	x	x	x	x	x	x	x	x	x	x	580-81257-39
Q2-0to13-101818	10/18/2018	9:39:00 AM		S		x	x	x	x	x	x	x	x	x	x	x	580-81213-4
-20 Q6-0to27-102018	10/20/2018	9:19:00 AM		S		x	x	x	x	x	x	x	x	x	x	x	580-81257-23
T6-0to29-101618	10/16/2018	2:38:00 PM		S		x	x	x	x	x	x	x	x	x	x	x	580-81156-24

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification
[ ] Non-Hazard [ ] Flammable [ ] Skin Irritant Poison B [ ] Unknown [ ]

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
[ ] Return To Client [ ] Disposal By Lab [X] Archive For _____ Months

Archive remaining samples

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Jeff Parker	PGG	7/26/19 1310	M. Elaine Walker	Eurofins TestAmerica	07/26/2019 @ 1310
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

Form No. CA-C-WI-002, dated 04/07/2011

Eurofins TestAmerica, Seattle
5755 8th Street East
Tacoma, WA 98424
Phone: 253-922-2310 Fax: 253-922-5047

Chain of Custody Record

eurofins | Environment Testing TestAmerica

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Walker, Elaine M	Carrier Tracking No(s):	COC No: 580-68736.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: elaine.walker@testamericainc.com	State of Origin: Oregon	Page: Page 1 of 3
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note):		Job #: 580-88125-1
Address: 5815 Middlebrook Pike, ,	Due Date Requested: 8/14/2019	Analysis Requested		Preservation Codes:
City: Knoxville	TAT Requested (days):			A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Z - other (specify)
State, Zip: TN, 37921				
Phone: 865-291-3000(Tel) 865-584-4315(Fax)	PO #:			
Email:	WO #:			
Project Name: Swan Island Lagoon Sediment Investigatio	Project #: 58013007			
Site:	SSOW#:			Other:

Sample Identification - Client ID	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Preservation Code	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	D854/ Specific Gravity	1668B/1668_P_Sox 209 PCBs plus Totals	Screen_1668/Screen_PCB_P_S	Total Number of containers	Special Instructions/Note:
A1-0to30-102018	10/20/18	12:05 Pacific		Solid				X	X	X	1	580-81257-5
A2-0to26-100818	10/8/18	14:04 Pacific		Solid				X	X	X	1	580-81041-5
A3-0to31-100818	10/8/18	11:14 Pacific		Solid				X	X	X	1	580-81041-2
A4-0to25-100818	10/8/18	13:26 Pacific		Solid				X	X	X	1	580-81041-3
A5-0to25-100818	10/8/18	14:38 Pacific		Solid				X	X	X	1	580-81041-4
A6-0to23-100818	10/8/18	16:08 Pacific		Solid				X	X	X	1	580-81041-6
A7-0to26-100918	10/9/18	13:23 Pacific		Solid				X	X	X	1	580-81041-10
C4-0to27-100918	10/9/18	08:28 Pacific		Solid				X	X	X	1	580-81041-12
D2-0to19-101018	10/10/18	15:21 Pacific		Solid				X	X	X	1	580-81041-28

580-88125 Chain of Custody

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to TestAmerica Laboratories, Inc.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For ____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
K Presley	8/8/19 1045	TA Env		8-8-19 1530	TA KNX
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks

Ver: 01/16/2019

Eurofins TestAmerica, Seattle
5755 8th Street East
Tacoma, WA 98424
Phone: 253-922-2310 Fax: 253-922-5047

Chain of Custody Record

eurofins | Environment Testing TestAmerica

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Walker, Elaine M	Carrier Tracking No(s):	COC No: 580-68736.2
Client Contact: Shipping/Receiving	Phone:	E-Mail: elaine.walker@testamericainc.com	State of Origin: Oregon	Page: Page 2 of 3
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note):		Job #: 580-88125-1
Address: 5815 Middlebrook Pike,	Due Date Requested: 8/14/2019			
City: Knoxville	TAT Requested (days):			
State, Zip: TN, 37921				
Phone: 865-291-3000(Tel) 865-584-4315(Fax)	PO #:			
Email:	WO #:			
Project Name: Swan Island Lagoon Sediment Investigatio	Project #: 58013007			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)

Other:

Sample Identification - Client ID	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	D654/ Specific Gravity	1668B/1668_P_Sox 209 PCBs plus Totals	Screen_1668/Screen_PCB_P_S	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
F2-0to19-101018	10/10/18	16:36 Pacific		Solid			X	X	X	1	580-81041-29
G6-0to27-101818	10/18/18	14:12 Pacific		Solid			X	X	X	1	580-81213-8
H2-0to30-101218	10/12/18	10:28 Pacific		Solid			X	X	X	1	580-81081-32
J2A3-0to18-101218	10/12/18	12:57 Pacific		Solid			X	X	X	1	580-81081-29
M4-0to26-101918	10/19/18	13:11 Pacific		Solid			X	X	X	1	580-81257-42
515-0to26-101918	10/19/18	13:11 Pacific		Solid			X	X	X	1	580-81257-44
N5-0to28-101418	10/14/18	16:46 Pacific		Solid			X	X	X	1	580-81081-10
N7-0to27-101418	10/14/18	15:10 Pacific		Solid			X	X	X	1	580-81081-8
O7-0to27-101918	10/19/18	15:36 Pacific		Solid			X	X	X	1	580-81257-39

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to TestAmerica Laboratories, Inc.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	K Brede	8/8/19 1045	TA		8-8-19 1530	BTA FW X
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Ver: 01/16/2019

Eurofins TestAmerica, Seattle
5755 8th Street East
Tacoma, WA 98424
Phone: 253-922-2310 Fax: 253-922-5047

Chain of Custody Record

eurofins | Environment Testing TestAmerica

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Walker, Elaine M	Carrier Tracking No(s):	COC No: 580-68736.3
Client Contact: Shipping/Receiving	Phone:	E-Mail: elaine.walker@testamericainc.com	State of Origin: Oregon	Page: Page 3 of 3
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note):		Job #: 580-88125-1
Address: 5815 Middlebrook Pike, ,	Due Date Requested: 8/14/2019			
City: Knoxville	TAT Requested (days):			
State, Zip: TN, 37921				
Phone: 865-291-3000(Tel) 865-584-4315(Fax)	PO #:			
Email:	WO #:			
Project Name: Swan Island Lagoon Sediment Investigatio	Project #: 58013007			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)

Other:

Sample Identification - Client ID	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	D854/ Specific Gravity	1668B/1668_P_Sox 209 PCBs plus Totals	Screen_1668/Screen_PCB_P_S	Total Number of containers	Special Instructions/Note:
			Preservation Code:		X	X				X	
Q2-0to13-101818	10/18/18	09:39 Pacific		Solid			X	X	X	1	580-81213-4
Q6-0to27-102018	10/20/18	09:19 Pacific		Solid			X	X	X	1	580-81257-23
T6-0to29-101618	10/16/18	14:38 Pacific		Solid			X	X	X	1	580-81156-24

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to TestAmerica Laboratories, Inc.

Possible Hazard Identification	*Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*
Unconfirmed	☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* ____ *Months*
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	[signature]	8/8/19 1045	EA	[signature]	8-8-19 10:30	EA KNX
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Ver: 01/16/2019

Isotope Dilution Summary

Client: Pacific Groundwater Group
Job ID: 580-88125-1
Project/Site: Swan Island Lagoon Sediment Investigatio

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Solid **Prep Type: Total/NA**

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	HpCDD (23-140)	HpCDF (28-143)	HpCDF2 (26-138)	HxCDD (32-141)	HxCDF (26-152)	HxDD (28-130)	HxDF (26-123)	HxCF (29-147)
580-88125-1	A1-0to30-102018	42	45	51	57	66	59	61	64
580-88125-2	A2-0to26-100818	44	46	52	60	69	55	60	65
580-88125-2 - RA	A2-0to26-100818								
580-88125-3	A3-0to31-100818	46	49	54	62	73	57	65	65
580-88125-3 - RA	A3-0to31-100818								
580-88125-4	A4-0to25-100818	58	57	59	75	96	65	82	76
580-88125-4 - RA	A4-0to25-100818								
580-88125-5	A5-0to25-100818	80	77	86	103	120	88	110	103
580-88125-5 - RA	A5-0to25-100818								
580-88125-6	A6-0to23-100818	55	49	61	70	85	59	74	72
580-88125-6 - RA	A6-0to23-100818								
580-88125-7	A7-0to26-100918	57	56	63	68	87	64	77	76
580-88125-7 - RA	A7-0to26-100918								
580-88125-8	C4-0to27-100918	47	48	52	58	74	53	64	63
580-88125-8 - RA	C4-0to27-100918								
580-88125-9	D2-0to19-101018	55	56	58	65	81	61	71	68
580-88125-10	F2-0to19-101018	55	56	60	65	80	62	72	70
580-88125-11	G6-0to27-101818	46	50	51	61	74	52	67	65
580-88125-11 - RA	G6-0to27-101818								
580-88125-12	H2-0to30-101218	58	58	64	73	91	62	80	78
580-88125-12 - RA	H2-0to30-101218								
580-88125-13	J2A3-0to18-101218	57	58	59	77	101	62	88	75
580-88125-14	M4-0to26-101918	61	60	67	80	105	65	90	77
580-88125-14 - RA	M4-0to26-101918								
580-88125-15	515-0to26-101918	49	47	54	70	95	54	80	67
580-88125-15 - RA	515-0to26-101918								
580-88125-16	N5-0to28-101418	63	63	71	69	80	64	71	75
580-88125-16 - RA	N5-0to28-101418								
580-88125-17	N7-0to27-101418	57	54	64	59	69	55	63	65
580-88125-17 - RA	N7-0to27-101418								
580-88125-18	O7-0to27-101918	60	57	66	63	72	58	66	68
580-88125-18 - RA	O7-0to27-101918								
580-88125-19	Q2-0to13-101818	41	40	49	51	57	48	52	55
580-88125-20	Q6-0to27-102018	57	54	63	58	70	58	63	64
580-88125-20 - RA	Q6-0to27-102018								
580-88125-21	T6-0to29-101618	54	52	62	59	70	58	63	66
580-88125-21 - RA	T6-0to29-101618								
LCSSRM 320-315077/4-A	Lab Control Sample	57	64	66	67	76	64	70	71
LCSSRM 320-315077/5-A	Lab Control Sample	56	62	65	69	82	67	71	71
LCSSRM 320-315080/4-A	Lab Control Sample	66	67	72	68	78	68	72	73
MB 320-315077/1-A	Method Blank	76	85	83	94	108	85	99	92
MB 320-315080/1-A	Method Blank	75	76	79	79	89	77	82	83

		Percent Isotope Dilution Recovery (Acceptance Limits)						
Lab Sample ID	Client Sample ID	PeCDD (25-181)	PeCDF (24-185)	13CHxCF (28-136)	PeCF (21-178)	TCDD (25-164)	TCDF (24-169)	OCDD (17-157)
580-88125-1	A1-0to30-102018	61	62	62	64	65	71	35
580-88125-2	A2-0to26-100818	60	62	62	62	61	71	43
580-88125-2 - RA	A2-0to26-100818						69	
580-88125-3	A3-0to31-100818	58	62	63	64	61	68	47

Isotope Dilution Summary

Client: Pacific Groundwater Group
Job ID: 580-88125-1
Project/Site: Swan Island Lagoon Sediment Investigatio

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Matrix: Solid
Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)						
Lab Sample ID	Client Sample ID	PeCDD (25-181)	PeCDF (24-185)	13CHxCF (28-136)	PeCF (21-178)	TCDD (25-164)	TCDF (24-169)	OCDD (17-157)
580-88125-3 - RA	A3-0to31-100818						72	
580-88125-4	A4-0to25-100818	75	77	75	77	67	78	57
580-88125-4 - RA	A4-0to25-100818						92	
580-88125-5	A5-0to25-100818	67	69	106	73	66	71	79
580-88125-5 - RA	A5-0to25-100818						73	
580-88125-6	A6-0to23-100818	67	70	73	71	67	74	55
580-88125-6 - RA	A6-0to23-100818						77	
580-88125-7	A7-0to26-100918	69	73	76	72	69	76	50
580-88125-7 - RA	A7-0to26-100918						76	
580-88125-8	C4-0to27-100918	58	62	63	64	59	65	49
580-88125-8 - RA	C4-0to27-100918						67	
580-88125-9	D2-0to19-101018	62	62	68	63	59	63	54
580-88125-10	F2-0to19-101018	65	68	71	68	64	69	54
580-88125-11	G6-0to27-101818	60	64	64	65	60	67	47
580-88125-11 - RA	G6-0to27-101818						71	
580-88125-12	H2-0to30-101218	71	73	78	75	69	75	58
580-88125-12 - RA	H2-0to30-101218						78	
580-88125-13	J2A3-0to18-101218	70	71	82	71	66	76	54
580-88125-14	M4-0to26-101918	72	72	82	72	66	71	66
580-88125-14 - RA	M4-0to26-101918						75	
580-88125-15	515-0to26-101918	62	64	69	67	58	65	56
580-88125-15 - RA	515-0to26-101918						77	
580-88125-16	N5-0to28-101418	73	72	71	74	67	70	64
580-88125-16 - RA	N5-0to28-101418						75	
580-88125-17	N7-0to27-101418	60	61	61	62	57	58	59
580-88125-17 - RA	N7-0to27-101418						62	
580-88125-18	O7-0to27-101918	63	63	65	65	59	60	60
580-88125-18 - RA	O7-0to27-101918						67	
580-88125-19	Q2-0to13-101818	53	54	54	58	55	58	35
580-88125-20	Q6-0to27-102018	61	62	62	64	59	62	58
580-88125-20 - RA	Q6-0to27-102018						72	
580-88125-21	T6-0to29-101618	62	63	63	65	61	63	52
580-88125-21 - RA	T6-0to29-101618						66	
LCSSRM 320-315077/4-A	Lab Control Sample	65	64	69	66	65	67	57
LCSSRM 320-315077/5-A	Lab Control Sample	66	68	74	66	67	68	55
LCSSRM 320-315080/4-A	Lab Control Sample	72	70	73	71	67	68	68
MB 320-315077/1-A	Method Blank	70	71	98	68	64	73	71
MB 320-315080/1-A	Method Blank	65	63	83	64	61	60	69

Surrogate Legend

HpCDD = 13C-1,2,3,4,6,7,8-HpCDD
HpCDF = 13C-1,2,3,4,6,7,8-HpCDF
HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF
HxCDD = 13C-1,2,3,4,7,8-HxCDD
HxCDF = 13C-1,2,3,4,7,8-HxCDF
HxDD = 13C-1,2,3,6,7,8-HxCDD
HxDF = 13C-1,2,3,6,7,8-HxCDF
HxCF = 13C-1,2,3,7,8,9-HxCDF
PeCDD = 13C-1,2,3,7,8-PeCDD
PeCDF = 13C-1,2,3,7,8-PeCDF

13CHxCF = 13C-2,3,4,6,7,8-HxCDF
PeCF = 13C-2,3,4,7,8-PeCDF
TCDD = 13C-2,3,7,8-TCDD
TCDF = 13C-2,3,7,8-TCDF
OCDD = 13C-OCDD

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Solid **Prep Type: Total/NA**

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	HpCDD (26-166)	HpCDF (21-158)	HpCDF2 (20-186)	HxCDD (21-193)	HxCDF (19-202)	HxDD (25-163)	HxDF (21-159)	HxCF (17-205)
LCS 320-315077/2-A	Lab Control Sample	53	59	60	66	75	64	69	70
LCS 320-315080/2-A	Lab Control Sample	67	66	73	71	83	70	76	78
LCSD 320-315077/3-A	Lab Control Sample Dup	54	63	63	69	78	68	71	74
LCSD 320-315080/3-A	Lab Control Sample Dup	67	68	72	71	80	67	74	77

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PeCDD (21-227)	PeCDF (21-192)	13CHxCF (22-176)	PeCF (13-328)	TCDD (20-175)	TCDF (22-152)	OCDD (13-199)	
LCS 320-315077/2-A	Lab Control Sample	64	66	69	67	66	69	49	
LCS 320-315080/2-A	Lab Control Sample	75	72	77	73	69	69	66	
LCSD 320-315077/3-A	Lab Control Sample Dup	65	64	72	64	65	70	50	
LCSD 320-315080/3-A	Lab Control Sample Dup	73	72	75	73	67	67	64	

Surrogate Legend

HpCDD = 13C-1,2,3,4,6,7,8-HpCDD
HpCDF = 13C-1,2,3,4,6,7,8-HpCDF
HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF
HxCDD = 13C-1,2,3,4,7,8-HxCDD
HxCDF = 13C-1,2,3,4,7,8-HxCDF
HxDD = 13C-1,2,3,6,7,8-HxCDD
HxDF = 13C-1,2,3,6,7,8-HxCDF
HxCF = 13C-1,2,3,7,8,9-HxCDF
PeCDD = 13C-1,2,3,7,8-PeCDD
PeCDF = 13C-1,2,3,7,8-PeCDF
13CHxCF = 13C-2,3,4,6,7,8-HxCDF
PeCF = 13C-2,3,4,7,8-PeCDF
TCDD = 13C-2,3,7,8-TCDD
TCDF = 13C-2,3,7,8-TCDF
OCDD = 13C-OCDD