

ANCHOR QEA

September 2018
Shelton Harbor Sediment Cleanup Unit
Oakland Bay and Shelton Harbor Sediments Cleanup Site (Cleanup Site ID: 13007)

Shelton Harbor Interim Action Basis of Design Report

APPENDIX A: Pre-Remedial Design Investigation Report*

Prepared for Simpson Timber Company

*This appendix was extracted from the main document to allow for smaller electronic file size

Appendix A Pre-Design Investigation Data Report

September 2018
Shelton Harbor Sediment Cleanup Unit
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Appendix A: Pre-Remedial Design Investigation Data Report

Prepared for

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ATTACHMENT

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1 Introduction

In accordance with Agreed Order DE 14091 and under oversight by the Washington State Department of Ecology (Ecology), in early 2018 Simpson Timber Company performed a Pre-Remedial Design Investigation (PDI) within the Shelton Harbor Sediment Cleanup Unit (SCU; Figure A-1) in accordance with the Ecology-approved Pre-Remedial Design Work Plan (PDI Work Plan; Anchor QEA 2018a). This Data Report summarizes field sample collection activities and analytical results, consistent with the methods summarized in the Sampling and Quality Assurance Project Plan (SQAPP; Appendix A of Anchor QEA 2017) and SQAPP Addendum (Appendix A of Anchor QEA 2018a). Also included in this Data Report are surface sediment dioxin/furan retesting results of archived sediments initially reported in Appendix A of the Shelton Harbor Interim Action Plan (2017 Retest Results; Anchor QEA 2018b).

1.1 Document Organization

This 2018 Data Report is organized as follows:

- Section 2 Analytical Data Quality
- Section 3 Chemical Testing Sample Acquisition and Results
- Section 4 Base Map Development
- Section 5 References

2 Analytical Data Quality

This section describes the quality and management aspects of the data acquired.

2.1 Analytical Data Quality

The 2017 Retest Result and PDI data quality objectives and quality assurance procedures are provided in the SQAPP (Anchor QEA 2017). Additional quality assurance procedures not addressed in the scope of the SQAPP are presented in the SQAPP Addendum (Anchor QEA 2018a). Chemical analyses were performed by AXYS Analytical Services Ltd. in Sidney, British Columbia, Canada, and Analytical Resources, Inc., in Tukwila, Washington. Stage 2B and/or Stage 4 (dioxin/furan) data validation was performed on all data (EPA 2009). During the validation process, analytical data were evaluated for method quality control and laboratory quality control compliance, and their validity and applicability for program purposes was determined. Based on the findings of the validation process, data validation qualifiers were assigned.

The data package was validated by Laboratory Data Consultants and Anchor QEA, LLC. Laboratory data reports are on file at Ecology and available upon request, and data validation reports are provided in Attachment A-1. All qualifiers applied to the data during final validation have been incorporated into the database for this project. Data qualifiers assigned during data validation included the following:

- "J" indicates that the result is an estimated concentration.
- "U" indicates a method detection limit below which the analyte was not detected.
- "UJ" indicates an estimated method detection limit below which the analyte was not detected.

The validation process resulted in some J-qualified data (estimated values) based on a specified protocol or technical advisory, as discussed in the attached data validation reports (Attachment A-1). Overall, all reporting limits were acceptable and met the SQAPP objectives (Appendix A of Anchor QEA 2017). All data are considered useable for site characterization as reported or as qualified. For the purpose of the remedial design, the 2017 Retest Results superseded averaged collocated results previously reported in the *Shelton Harbor Interim Action Plan* (IAP; Anchor QEA 2018b).

Geotechnical data were collected concurrent with the chemical testing mobilization and is reported in Appendix B of the Basis of Design Report.

2.2 Data Management

The validated project data, including qualifiers, were entered into the project database, enabling this information to be retained or retrieved, as needed. Validated data have also been submitted to Ecology's Environmental Information Management database (EIM).

3 Chemical Testing Sample Acquisition and Results

As identified in the PDI Work Plan (Anchor QEA 2018a), additional data were collected to delineate the footprint of each Sediment Management Area (SMA). Delineation sampling was conducted from April 25 to May 1, 2018, collecting 55 grab samples (Figure A-1). Surface sediment grab samples were collected in each of the three SMAs described in the PDI Work Plan. Samples were analyzed immediately upon receipt by the laboratory. No archive sample analyses were analyzed following review of the preliminary data because all needed results were obtained to inform the design. However, the samples will remain on archive for use in the remedial investigation/feasibility study, where necessary. Table A-1 presents the collected coordinates of the tested and archived locations. A sediment matrix and observation summary are presented in Table A-2 and field sample collection forms are provided in as Attachment A-2.

3.1 SMA-1

Surface (0- to 10-centimeter) sediment samples were collected from SMA-1 at 20 gridded target locations and submitted for dioxin/furan testing. Validated sediment dioxin/furan concentrations ranged from 1.2 to 202 nanograms per kilogram toxicity equivalence (ng/kg TEQ), both above and below the remedial action level (RAL) of 42 ng/kg TEQ. To assess the variability of the processed sample homogenate, two duplicate tests were conducted at locations SMA1-SG08 and SMA1-SG11 and resulted in relative percent differences (RPD) of 8% and 5%, respectively. Small-scale bedded sediment variability was assessed by collecting three replicate grabs from location SMA1-SG07 (replicate IDs of SG1007 and SD2007). The replicate testing resulted in an average of 1.54 ng/kg TEQ with a standard error of ± 0.20 ng/kg TEQ, corresponding to an RPD of approximately 13%. SMA-1 dioxin/furan results are presented in Table A-3 and Figure A-2.

3.2 SMA-2

Surface sediment samples were collected from SMA-2 at eight gridded target locations and were analyzed for tributyltin (TBT), copper, and total organic carbon. Dioxin/furan testing was conducted at five of the offshore locations in SMA-2. Samples were archived for testing in the future at seven locations for a full suite and three locations for dioxin/furans, as necessary (Table A-1).

Validated copper concentrations ranged from 34 to 119 milligrams per kilograms (mg/kg), well below the RAL of 390 mg/kg. Similarly, total organic carbon normalized (OC) TBT concentrations ranged from 0.01 to 4.6 mg/kg-OC, well below the RAL of 7.5 mg/kg-OC. Dioxin/furan concentrations ranged from 29 to 86 ng/kg TEQ, again both above and below the RAL of 42 ng/kg TEQ. A single homogenization duplicate was tested at location SG-06 that resulted in RPDs of 2% for copper, 84% for TBT, and 11% for dioxin/furans. SMA-2 dioxin/furan results are presented in Table A-4 and Figure A-2.

3.3 SMA-3

In accordance with the SQAPP, Surface sediment samples were collected from SMA-3 at six gridded target locations and submitted for dioxin/furan testing. Fourteen additional samples were collected and archived (Table A-1). Validated dioxin/furan concentrations ranged from 60.8 to 137 ng/kg TEQ, all above the RAL of 42 ng/kg TEQ. Sample homogenate duplicate tests were conducted at location SMA1-SG01 and resulted in a RPD of 6%. Small-scale bedded sediment variability was assessed by collecting three replicate grabs from location SMA3-SG04 (replicate IDs of SG4007 and SD4007). The replicate testing resulted in an average of 117 ng/kg TEQ with a standard error of ±14 ng/kg TEQ, corresponding to an RPD of approximately 12%. SMA-3 dioxin/furan results are presented in Table A-5 and Figure A-3.

In addition to the sediment testing in the SQAPP, opportunistic outfall grab (OG) sediment sample SMA3-OG1 was collected at the terminus of a historical 36-inch concrete outfall pipe, as shown in Figure A-3. The sediment at the terminus largely composed gravel and cobble, which required sieving to remove material greater than 2 millimeters to produce the final extraction mass. The SMA3-OG1 dioxin/furan TEQ result is 9.4 ng/kg TEQ, as reported in Table A-5.

Free hydrogen sulfide porewater concentrations were measured by ex situ diffusive gradient thin film (DGT) passive sampling methodology at 15 locations in SMA-3, in accordance with the SQAPP Addendum. Of the 15 stations tested, 6 resulted in detections that ranged from 0.005 to 0.032 milligrams per liter (mg/L), which are all below ecological risk-based benchmark of 0.072 mg/L (Podger [date unknown]). Similar to the dioxin/furan sampling, two predefined porewater sulfide locations (PDI-SMA3-DGT02 and PDI-SMA3-DGT05) were sampled in triplicate to characterize small-scale variability. In addition, field duplicates were collected in which two DGT membranes were deployed in the same bag to assess the sampler variability. All replicate and duplicate results were not detected above the method detection limit of 0.004 mg/L. SMA-3 DGT data are presented in Table A-6.

3.4 2017 Retest Results

To evaluate the accuracy of the dioxin/furan testing results previously reported in the IAP (Anchor QEA 2018b), split sampling was originally conducted at three locations within the Sediment Cleanup Unit dataset. In consultation with Ecology and the analytical laboratory, all surface sediment locations that were collected and analyzed in 2017 were retested. The 2017 Retest Results ranged from 7.2 to 413 ng/kg TEQ and are presented in Table A-7. For the purpose of remedial design, the 2017 Retest Results superseded averaged collocated results previously reported in the IAP. The 2017 Retest Results are included in Figures A-1 through A-4. A summary table showing both the initial and 2017 Dioxin/Furan TEQ are presented in Table A-8.

Base Map Development 4

On April 2 and 3, 2018, a marine surveying team from eTrac Inc. collected bathymetric data from each of the three SMAs. The survey results were integrated into the existing bathymetry to inform the remedial design.

5 References

- Anchor QEA (Anchor QEA, LLC), 2017. Shelton Harbor Sediment Cleanup Unit Remedial Investigation/Feasibility Study Work Plan. Prepared for Simpson Timber Company and the Washington State Department of Ecology. June 2017.
- Anchor QEA, 2018a. *Shelton Harbor Pre-Remedial Design Work Plan*. Oakland Bay and Shelton Harbor Sediments Cleanup Site. April 2018.
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- EPA (U.S. Environmental Protection Agency), 2009. Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use. U.S. Environmental Protection Agency Office of Solid Waste and Emergency Response. EPA 540-R-08-005. January 2009.
- Podger, D., [date unknown]. Sulfide Effects on Aquatic Organisms: Literature Review. [Date Unknown].

Tables

Table A-1 **As-Collected PDI Stations and Testing Parameters**

| PDI-SMA1-SG03 | 4/25/2018 4/27/2018 4/27/2018 4/27/2018 4/27/2018 4/24/2018 4/24/2018 4/24/2018 | 996619.831 996755.765 996890.457 996950.435 997018.1 996882.773 996747.999 996742.677 996682.919 996687.215 997025.861 997089.167 997155.176 997082.534 996953.062 996812.058 996812.058 996812.058 996410.112 996551.123 996483.007 996553.491 996419.366 997351.751 997437.526 997503.611 997342.032 997330.903 | 695940.295 696003.341 696066.43 695936.733 695801.31 695731.551 695666.032 695668.032 695672.149 695804.413 696136.97 696138.619 695996.649 695861.281 695668.426 695600.299 695534.377 695606.699 695741.231 695875.454 696078.109 696007.097 | -1.9 2.2 2.3 3.1 3.9 1.9 -0.4 -0.5 -0.3 -1.2 3.9 0.2 0.6 2.2 1.3 0.3 1.4 1.2 -1.4 -4.0 -0.6 -1.0 | | X X X X X X X X X X X X X X X X X X X | | | |
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| PDI-SMA1-SG07 4, PDI-SMA1-SG1007 4, PDI-SMA1-SG2007 4, PDI-SMA1-SG08 4, PDI-SMA1-SG08 4, PDI-SMA1-SG09 4, PDI-SMA1-SG10 4, PDI-SMA1-SG11 4, PDI-SMA1-SG12 4, PDI-SMA1-SG13 4, PDI-SMA1-SG15 4, PDI-SMA1-SG16 4, PDI-SMA1-SG16 4, PDI-SMA1-SG17 4, PDI-SMA1-SG19 4, PDI-SMA1-SG19 4, PDI-SMA1-SG00 4, PDI-SMA2-SG01 4, PDI-SMA2-SG01 4, PDI-SMA2-SG04 4, PDI-SMA2-SG04 4, PDI-SMA2-SG04 4, PDI-SMA2-SG04-C1 4, PDI-SMA2-SG04-C2 4, PDI-SMA2-SG04-C3 4, PDI-SMA2-SG04-C5 4, PDI-SMA2-SG04-C6 4, PDI-SMA2-SG06 4, PDI-SMA2-SG07 4, PDI-SMA2-SG09 4, PDI-SMA2-SG01 4, PDI-SMA2-SG09 4, PDI-SMA2-SG01 4, PDI-SMA2-SG09 4, PDI-SMA2-SG01 4, PDI- | 4/25/2018 4/25/2018 4/25/2018 4/25/2018 4/25/2018 4/25/2018 4/25/2018 4/25/2018 4/25/2018 4/25/2018 4/25/2018 4/25/2018 4/25/2018 4/25/2018 4/25/2018 4/25/2018 4/25/2018 4/25/2018 4/27/2018 4/27/2018 4/27/2018 4/27/2018 4/27/2018 4/24/2018 4/24/2018 4/24/2018 | 996747.999 996742.677 996746.957 996682.919 996687.215 997025.861 997082.534 996953.062 996812.058 996610.112 996551.123 996483.007 996553.491 996419.366 997351.751 997437.526 997503.611 | 695666.032 695668.032 695672.149 695804.413 696136.97 696138.619 695996.649 695861.281 695668.426 695600.299 695534.377 695606.699 695741.231 695875.454 696077.097 | -0.4 -0.5 -0.3 -1.2 3.9 0.2 0.6 2.2 1.3 0.3 1.4 1.2 -1.4 -4.0 -0.6 -1.0 | | X X X X X X X X X X X X X X X X X X X | | | |
| PDI-SMA1-SG1007 PDI-SMA1-SG2007 PDI-SMA1-SG08 PDI-SMA1-SG08 PDI-SMA1-SG09 PDI-SMA1-SG10 PDI-SMA1-SG11 PDI-SMA1-SG12 PDI-SMA1-SG13 PDI-SMA1-SG14 PDI-SMA1-SG15 PDI-SMA1-SG16 PDI-SMA1-SG17 PDI-SMA1-SG17 PDI-SMA1-SG18 PDI-SMA1-SG19 PDI-SMA1-SG19 PDI-SMA1-SG00 PDI-SMA2-SG01 PDI-SMA2-SG01 PDI-SMA2-SG04 PDI-SMA2-SG04 PDI-SMA2-SG04 PDI-SMA2-SG04-C1 PDI-SMA2-SG04-C3 PDI-SMA2-SG04-C4 PDI-SMA2-SG04-C5 PDI-SMA2-SG04-C6 PDI-SMA2-SG06 PDI-SMA2-SG07 PDI-SMA2-SG07 PDI-SMA2-SG08 PDI-SMA2-SG09 PDI-SMA2-SG01 PDI-SMA2-SG09 PDI-SMA2-SG01 PDI-SMA2-SG09 PDI-SMA2-SG11 PDI-SMA2-SG11 PDI-SMA2-SG11 PDI-SMA2-SG13 PDI-SMA2-SG14 PDI-SMA2-SG14 | 4/25/2018 4/25/2018 4/25/2018 4/25/2018 4/25/2018 4/25/2018 4/25/2018 4/25/2018 4/25/2018 4/25/2018 4/25/2018 4/25/2018 4/25/2018 4/25/2018 4/25/2018 4/25/2018 4/25/2018 4/25/2018 4/25/2018 4/27/2018 4/27/2018 4/27/2018 4/27/2018 4/24/2018 4/24/2018 | 996742.677 996746.957 996682.919 996687.215 997025.861 997089.167 997155.176 997082.534 996953.062 996812.058 996610.112 996551.123 996483.007 996553.491 996419.366 997351.751 997437.526 997503.611 997342.032 | 695668.032 695672.149 695804.413 696136.97 696138.619 695996.649 695861.281 695668.426 695600.299 695534.377 695606.699 695741.231 695875.454 696078.109 696303.863 696294.191 | -0.5 -0.3 -1.2 3.9 0.2 0.6 2.2 1.3 0.3 1.4 1.2 -1.4 -4.0 -0.6 -1.0 | | X X X X X X X X X | | | |
| PDI-SMA1-SG2007 PDI-SMA1-SG08 PDI-SMA1-SG09 PDI-SMA1-SG10 PDI-SMA1-SG11 PDI-SMA1-SG11 PDI-SMA1-SG12 PDI-SMA1-SG13 PDI-SMA1-SG14 PDI-SMA1-SG15 PDI-SMA1-SG16 PDI-SMA1-SG16 PDI-SMA1-SG17 PDI-SMA1-SG18 PDI-SMA1-SG18 PDI-SMA1-SG19 PDI-SMA1-SG19 PDI-SMA1-SG20 SMA2 PDI-SMA2-SG01 PDI-SMA2-SG01 PDI-SMA2-SG04 PDI-SMA2-SG04 PDI-SMA2-SG04-C1 PDI-SMA2-SG04-C2 PDI-SMA2-SG04-C3 PDI-SMA2-SG04-C4 PDI-SMA2-SG04-C5 PDI-SMA2-SG04-C6 PDI-SMA2-SG06 PDI-SMA2-SG07 PDI-SMA2-SG09 PDI-SMA2-SG01 | 4/25/2018 4/25/2018 4/25/2018 4/25/2018 4/25/2018 4/25/2018 4/25/2018 4/25/2018 4/25/2018 4/25/2018 4/25/2018 4/25/2018 4/25/2018 4/25/2018 4/25/2018 4/25/2018 4/25/2018 4/25/2018 4/27/2018 4/27/2018 4/27/2018 4/27/2018 4/24/2018 4/24/2018 | 996746.957 996682.919 996687.215 997025.861 997089.167 997155.176 997082.534 996953.062 996812.058 996610.112 996551.123 996483.007 996553.491 996419.366 997351.751 997437.526 997503.611 997342.032 | 695672.149 695804.413 696136.97 696138.619 695996.649 695861.281 695668.426 695600.299 695534.377 695606.699 695741.231 695875.454 696078.109 696303.863 696294.191 | -0.3 -1.2 3.9 0.2 0.6 2.2 1.3 0.3 1.4 1.2 -1.4 -4.0 -0.6 -1.0 | | X X X X X X X X X | | | |
| PDI-SMA1-SG08 PDI-SMA1-SG09 PDI-SMA1-SG10 PDI-SMA1-SG11 PDI-SMA1-SG11 PDI-SMA1-SG12 PDI-SMA1-SG13 PDI-SMA1-SG14 PDI-SMA1-SG15 PDI-SMA1-SG15 PDI-SMA1-SG16 PDI-SMA1-SG17 PDI-SMA1-SG17 PDI-SMA1-SG19 PDI-SMA1-SG19 PDI-SMA1-SG20 SMA2 PDI-SMA2-SG01 PDI-SMA2-SG01 PDI-SMA2-SG02 PDI-SMA2-SG04 PDI-SMA2-SG04 PDI-SMA2-SG04 PDI-SMA2-SG04 PDI-SMA2-SG04-C3 PDI-SMA2-SG04-C3 PDI-SMA2-SG04-C6 PDI-SMA2-SG04-C6 PDI-SMA2-SG05 PDI-SMA2-SG06 PDI-SMA2-SG07 PDI-SMA2-SG09 PDI-SMA2-SG09 PDI-SMA2-SG09 PDI-SMA2-SG09 PDI-SMA2-SG09 PDI-SMA2-SG09 PDI-SMA2-SG09 PDI-SMA2-SG09 PDI-SMA2-SG09 PDI-SMA2-SG01 PDI-SMA2-SG09 PDI-SMA2-SG01 | 4/25/2018 4/25/2018 4/25/2018 4/25/2018 4/25/2018 4/25/2018 4/25/2018 4/25/2018 4/25/2018 4/25/2018 4/25/2018 4/25/2018 4/25/2018 4/25/2018 4/25/2018 4/27/2018 4/27/2018 4/27/2018 4/27/2018 4/27/2018 4/24/2018 4/24/2018 | 996682.919 996687.215 997025.861 997089.167 997155.176 997082.534 996953.062 996812.058 996610.112 996551.123 996483.007 996553.491 996419.366 997351.751 997437.526 997503.611 997342.032 | 695804.413 696136.97 696138.619 695996.649 695861.281 695668.426 695600.299 695534.377 695606.699 695741.231 695875.454 696078.109 696007.097 | -1.2 3.9 0.2 0.6 2.2 1.3 0.3 1.4 1.2 -1.4 -4.0 -0.6 -1.0 | | X X X X X X X X | | | |
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| PDI-SMA1-SG13 4, PDI-SMA1-SG14 4, PDI-SMA1-SG15 4, PDI-SMA1-SG15 4, PDI-SMA1-SG16 4, PDI-SMA1-SG17 4, PDI-SMA1-SG18 4, PDI-SMA1-SG19 4, PDI-SMA1-SG20 4, PDI-SMA2-SG01 4, PDI-SMA2-SG02 4, PDI-SMA2-SG02 4, PDI-SMA2-SG03 4, PDI-SMA2-SG04 4, PDI-SMA2-SG04 4, PDI-SMA2-SG04-C1 4, PDI-SMA2-SG04-C2 4, PDI-SMA2-SG04-C3 4, PDI-SMA2-SG04-C4 4, PDI-SMA2-SG04-C5 4, PDI-SMA2-SG04-C6 4, PDI-SMA2-SG04-C6 4, PDI-SMA2-SG04-C6 4, PDI-SMA2-SG05 4, PDI-SMA2-SG06 4, PDI-SMA2-SG07 4, PDI-SMA2-SG09 4, PDI-SMA2-SG09 4, PDI-SMA2-SG11 4, PDI-SMA2-SG11 4, PDI-SMA2-SG12 4, PDI-SMA2-SG13 4, PDI-SMA2-SG13 4, PDI-SMA2-SG14 4, PDI-SMA2-SG14 4, | 4/25/2018 4/25/2018 4/25/2018 4/25/2018 4/25/2018 4/25/2018 4/25/2018 4/25/2018 4/25/2018 4/27/2018 4/30/2018 4/27/2018 4/27/2018 4/24/2018 4/24/2018 4/24/2018 | 997082.534 996953.062 996812.058 996610.112 996551.123 996483.007 996553.491 996419.366 997351.751 997437.526 997503.611 997342.032 | 695668.426 695600.299 695534.377 695606.699 695741.231 695875.454 696078.109 696007.097 | 1.3 0.3 1.4 1.2 -1.4 -4.0 -0.6 -1.0 | | X X X X X | | | |
| PDI-SMA1-SG14 4, PDI-SMA1-SG15 4, PDI-SMA1-SG15 4, PDI-SMA1-SG16 4, PDI-SMA1-SG17 4, PDI-SMA1-SG18 4, PDI-SMA1-SG19 4, PDI-SMA1-SG20 4, PDI-SMA2-SG01 4, PDI-SMA2-SG02 4, PDI-SMA2-SG02 4, PDI-SMA2-SG03 4, PDI-SMA2-SG04 4, PDI-SMA2-SG04-C1 4, PDI-SMA2-SG04-C2 4, PDI-SMA2-SG04-C3 4, PDI-SMA2-SG04-C4 4, PDI-SMA2-SG04-C5 4, PDI-SMA2-SG04-C6 4, PDI-SMA2-SG04-C6 4, PDI-SMA2-SG05 4, PDI-SMA2-SG06 4, PDI-SMA2-SG07 4, PDI-SMA2-SG09 4, PDI-SMA2-SG09 4, PDI-SMA2-SG01 4, PDI-SMA2-SG01 4, PDI-SMA2-SG01 4, PDI-SMA2-SG01 4, PDI-SMA2-SG01 4, PDI-SMA2-SG01 4, PDI-SMA2-SG11 4, PDI-SMA2-SG11 4, PDI-SMA2-SG13 4, PDI-SMA2-SG13 4, PDI-SMA2-SG14 4, PDI-SMA2-SG14 4, | 4/25/2018 4/25/2018 4/25/2018 4/25/2018 4/25/2018 4/25/2018 4/25/2018 4/27/2018 4/30/2018 4/27/2018 4/27/2018 4/27/2018 4/24/2018 4/24/2018 4/24/2018 | 996953.062 996812.058 996610.112 996551.123 996483.007 996553.491 996419.366 997351.751 997437.526 997503.611 997342.032 | 695600.299 695534.377 695606.699 695741.231 695875.454 696078.109 696007.097 | 0.3 1.4 1.2 -1.4 -4.0 -0.6 -1.0 | | X X X X | | | |
| PDI-SMA1-SG15 4,/ PDI-SMA1-SG16 4,/ PDI-SMA1-SG16 4,/ PDI-SMA1-SG17 4,/ PDI-SMA1-SG18 4,/ PDI-SMA1-SG19 4,/ PDI-SMA1-SG20 4,/ SMA2 PDI-SMA2-SG01 4,/ PDI-SMA2-SG02 4,/ PDI-SMA2-SG03 4,/ PDI-SMA2-SG04-C1 4,/ PDI-SMA2-SG04-C2 4,/ PDI-SMA2-SG04-C3 4,/ PDI-SMA2-SG04-C4 4,/ PDI-SMA2-SG04-C5 4,/ PDI-SMA2-SG04-C6 4,/ PDI-SMA2-SG04-C6 4,/ PDI-SMA2-SG06 4,/ PDI-SMA2-SG07 4,/ PDI-SMA2-SG08 4,/ PDI-SMA2-SG09 4,/ PDI-SMA2-SG01 4,/ PDI-SMA2-SG01 4,/ PDI-SMA2-SG01 4,/ PDI-SMA2-SG01 4,/ PDI-SMA2-SG01 4,/ PDI-SMA2-SG11 4,/ PDI-SMA2-SG11 4,/ PDI-SMA2-SG13 4,/ PDI-SMA2-SG13 4,/ PDI-SMA2-SG14 4,/ PDI-SMA2-SG14 4,/ PDI-SMA2-SG14 4,/ | 4/25/2018 4/25/2018 4/25/2018 4/25/2018 4/25/2018 4/25/2018 4/25/2018 4/27/2018 4/30/2018 4/27/2018 4/27/2018 4/24/2018 4/24/2018 4/24/2018 | 996812.058 996610.112 996551.123 996483.007 996553.491 996419.366 997351.751 997437.526 997503.611 997342.032 | 695534.377 695606.699 695741.231 695875.454 696078.109 696007.097 | 1.4 1.2 -1.4 -4.0 -0.6 -1.0 | | X X X X | | | |
| PDI-SMA1-SG16 PDI-SMA1-SG17 PDI-SMA1-SG18 PDI-SMA1-SG19 PDI-SMA1-SG19 PDI-SMA1-SG20 SMA2 PDI-SMA2-SG01 PDI-SMA2-SG02 PDI-SMA2-SG03 PDI-SMA2-SG04 PDI-SMA2-SG04 PDI-SMA2-SG04 PDI-SMA2-SG04-C1 PDI-SMA2-SG04-C2 PDI-SMA2-SG04-C3 PDI-SMA2-SG04-C3 PDI-SMA2-SG04-C4 PDI-SMA2-SG04-C5 PDI-SMA2-SG04-C6 PDI-SMA2-SG04-C6 PDI-SMA2-SG04-C6 PDI-SMA2-SG04-C6 PDI-SMA2-SG04-C6 PDI-SMA2-SG04-C6 PDI-SMA2-SG04-C6 PDI-SMA2-SG04-C6 PDI-SMA2-SG04-C6 PDI-SMA2-SG05 PDI-SMA2-SG06 PDI-SMA2-SG07 PDI-SMA2-SG07 PDI-SMA2-SG09 PDI-SMA2-SG09 PDI-SMA2-SG01 PDI-SMA2-SG11 PDI-SMA2-SG11 PDI-SMA2-SG11 PDI-SMA2-SG13 PDI-SMA2-SG14 PDI-SMA2-SG14 | 4/25/2018 4/25/2018 4/25/2018 4/25/2018 4/25/2018 4/27/2018 4/27/2018 4/27/2018 4/27/2018 4/24/2018 4/24/2018 4/24/2018 | 996610.112 996551.123 996483.007 996553.491 996419.366 997351.751 997437.526 997503.611 997342.032 | 695606.699 695741.231 695875.454 696078.109 696007.097 696303.863 696294.191 | 1.2 -1.4 -4.0 -0.6 -1.0 | | X X X | | | |
| PDI-SMA1-SG17 PDI-SMA1-SG18 PDI-SMA1-SG19 PDI-SMA1-SG20 A/ PDI-SMA2-SG01 PDI-SMA2-SG02 PDI-SMA2-SG03 PDI-SMA2-SG04 PDI-SMA2-SG04 PDI-SMA2-SG04-C1 PDI-SMA2-SG04-C2 PDI-SMA2-SG04-C3 PDI-SMA2-SG04-C3 PDI-SMA2-SG04-C4 PDI-SMA2-SG04-C5 PDI-SMA2-SG04-C6 PDI-SMA2-SG04-C6 PDI-SMA2-SG04-C6 PDI-SMA2-SG04-C6 PDI-SMA2-SG04-C6 PDI-SMA2-SG04-C6 PDI-SMA2-SG04-C6 PDI-SMA2-SG04-C6 PDI-SMA2-SG05 PDI-SMA2-SG05 PDI-SMA2-SG05 PDI-SMA2-SG06 PDI-SMA2-SG07 PDI-SMA2-SG07 PDI-SMA2-SG08 PDI-SMA2-SG09 PDI-SMA2-SG09 PDI-SMA2-SG10 PDI-SMA2-SG11 PDI-SMA2-SG11 PDI-SMA2-SG11 PDI-SMA2-SG13 PDI-SMA2-SG14 | 4/25/2018 4/25/2018 4/25/2018 4/25/2018 4/27/2018 4/27/2018 4/27/2018 4/27/2018 4/24/2018 4/24/2018 4/24/2018 | 996551.123 996483.007 996553.491 996419.366 997351.751 997437.526 997503.611 997342.032 | 695741.231 695875.454 696078.109 696007.097 696303.863 696294.191 | -1.4 -4.0 -0.6 -1.0 | | X X | | | |
| PDI-SMA1-SG18 4, PDI-SMA1-SG19 4, PDI-SMA1-SG20 4, SMA2 PDI-SMA2-SG01 4, PDI-SMA2-SG02 4, PDI-SMA2-SG03 4, PDI-SMA2-SG04-C1 4, PDI-SMA2-SG04-C1 4, PDI-SMA2-SG04-C2 4, PDI-SMA2-SG04-C3 4, PDI-SMA2-SG04-C4 4, PDI-SMA2-SG04-C6 4, PDI-SMA2-SG05 4, PDI-SMA2-SG05 4, PDI-SMA2-SG05 4, PDI-SMA2-SG05 4, PDI-SMA2-SG05 4, PDI-SMA2-SG05 4, PDI-SMA2-SG06 4, PDI-SMA2-SG07 4, PDI-SMA2-SG08 4, PDI-SMA2-SG09 4, PDI-SMA2-SG09 4, PDI-SMA2-SG10 4, PDI-SMA2-SG11 4, PDI-SMA2-SG11 4, PDI-SMA2-SG11 4, PDI-SMA2-SG13 4, PDI-SMA2-SG13 4, PDI-SMA2-SG14 4, | 4/25/2018 4/25/2018 4/25/2018 4/27/2018 4/30/2018 4/27/2018 4/27/2018 4/24/2018 4/24/2018 4/24/2018 | 996483.007 996553.491 996419.366 997351.751 997437.526 997503.611 997342.032 | 695875.454 696078.109 696007.097 696303.863 696294.191 | -4.0 -0.6 -1.0 | | X | | | |
| PDI-SMA1-SG19 PDI-SMA1-SG20 4/ PDI-SMA2 PDI-SMA2-SG01 PDI-SMA2-SG02 PDI-SMA2-SG03 PDI-SMA2-SG04 PDI-SMA2-SG04-C1 PDI-SMA2-SG04-C2 PDI-SMA2-SG04-C3 PDI-SMA2-SG04-C3 PDI-SMA2-SG04-C4 PDI-SMA2-SG04-C5 PDI-SMA2-SG04-C6 PDI-SMA2-SG05 PDI-SMA2-SG05 PDI-SMA2-SG05 PDI-SMA2-SG06 PDI-SMA2-SG06 PDI-SMA2-SG07 PDI-SMA2-SG09 PDI-SMA2-SG09 PDI-SMA2-SG09 PDI-SMA2-SG01 PDI-SMA2-SG10 PDI-SMA2-SG11 PDI-SMA2-SG11 PDI-SMA2-SG13 PDI-SMA2-SG13 PDI-SMA2-SG14 | 4/25/2018 4/25/2018 4/27/2018 4/30/2018 4/27/2018 4/27/2018 4/24/2018 4/24/2018 4/24/2018 | 996553.491 996419.366 997351.751 997437.526 997503.611 997342.032 | 696078.109 696007.097 696303.863 696294.191 | -0.6 -1.0 | | | | | |
| PDI-SMA1-SG20 4/SMA2 PDI-SMA2-SG01 4/PDI-SMA2-SG02 4/PDI-SMA2-SG03 4/PDI-SMA2-SG04 4/PDI-SMA2-SG04-C1 4/PDI-SMA2-SG04-C3 4/PDI-SMA2-SG04-C4 4/PDI-SMA2-SG04-C5 4/PDI-SMA2-SG04-C6 4/PDI-SMA2-SG04-C6 4/PDI-SMA2-SG05 4/PDI-SMA2-SG05 4/PDI-SMA2-SG06 4/PDI-SMA2-SG07 4/PDI-SMA2-SG09 4/PDI-SMA2-SG09 4/PDI-SMA2-SG09 4/PDI-SMA2-SG01 4/PDI-SMA2-SG11 4/PDI-SMA2-SG11 4/PDI-SMA2-SG11 4/PDI-SMA2-SG13 4/PDI-SMA2-SG13 4/PDI-SMA2-SG13 4/PDI-SMA2-SG14 4/PDI-SMA2-SG14 4/PDI-SMA2-SG14 4/PDI-SMA2-SG14 4/PDI-SMA2-SG13 4/PDI-SMA2-SG14 4/PDI-SM | 4/25/2018 4/27/2018 4/30/2018 4/27/2018 4/27/2018 4/24/2018 4/24/2018 4/24/2018 | 996419.366 997351.751 997437.526 997503.611 997342.032 | 696007.097 696303.863 696294.191 | -1.0 8.2 | | | | | 4 |
| SMA2 PDI-SMA2-SG01 4/ PDI-SMA2-SG02 4/ PDI-SMA2-SG03 4/ PDI-SMA2-SG04° 4/ PDI-SMA2-SG04-C1 4/ PDI-SMA2-SG04-C2 4/ PDI-SMA2-SG04-C3 4/ PDI-SMA2-SG04-C4 4/ PDI-SMA2-SG04-C5 4/ PDI-SMA2-SG04-C6 4/ PDI-SMA2-SG05 4/ PDI-SMA2-SG06 4/ PDI-SMA2-SG07 4/ PDI-SMA2-SG08 4/ PDI-SMA2-SG09 4/ PDI-SMA2-SG10 4/ PDI-SMA2-SG11 4/ PDI-SMA2-SG12 4/ PDI-SMA2-SG13 4/ PDI-SMA2-SG14 4/ | 4/27/2018 4/30/2018 4/27/2018 4/27/2018 4/24/2018 4/24/2018 4/24/2018 | 997351.751 997437.526 997503.611 997342.032 | 696303.863 696294.191 | 8.2 | | X | | | |
| PDI-SMA2-SG01 4,/ PDI-SMA2-SG02 4,/ PDI-SMA2-SG03 4,/ PDI-SMA2-SG03 4,/ PDI-SMA2-SG04 ^a 4,/ PDI-SMA2-SG04-C1 4,/ PDI-SMA2-SG04-C2 4,/ PDI-SMA2-SG04-C4 4,/ PDI-SMA2-SG04-C5 4,/ PDI-SMA2-SG04-C6 4,/ PDI-SMA2-SG05 4,/ PDI-SMA2-SG06 4,/ PDI-SMA2-SG07 4,/ PDI-SMA2-SG08 4,/ PDI-SMA2-SG09 4,/ PDI-SMA2-SG10 4,/ PDI-SMA2-SG11 4,/ PDI-SMA2-SG11 4,/ PDI-SMA2-SG13 4,/ PDI-SMA2-SG13 4,/ PDI-SMA2-SG14 4,/ PDI-SMA2-SG14 4,/ | 4/30/2018 4/27/2018 4/27/2018 4/24/2018 4/24/2018 4/24/2018 | 997437.526 997503.611 997342.032 | 696294.191 | | <u> </u> | X | | | |
| PDI-SMA2-SG02 4, PDI-SMA2-SG03 4, PDI-SMA2-SG04 4, PDI-SMA2-SG04-C1 4, PDI-SMA2-SG04-C2 4, PDI-SMA2-SG04-C3 4, PDI-SMA2-SG04-C5 4, PDI-SMA2-SG04-C6 4, PDI-SMA2-SG04-C6 4, PDI-SMA2-SG05 4, PDI-SMA2-SG06 4, PDI-SMA2-SG06 4, PDI-SMA2-SG07 4, PDI-SMA2-SG08 4, PDI-SMA2-SG09 4, PDI-SMA2-SG10 4, PDI-SMA2-SG11 4, PDI-SMA2-SG11 4, PDI-SMA2-SG12 4, PDI-SMA2-SG13 4, PDI-SMA2-SG13 4, PDI-SMA2-SG14 4, | 4/30/2018 4/27/2018 4/27/2018 4/24/2018 4/24/2018 4/24/2018 | 997437.526 997503.611 997342.032 | 696294.191 | | 1 | | | - | |
| PDI-SMA2-SG03 4, PDI-SMA2-SG04a 4, PDI-SMA2-SG04a 4, PDI-SMA2-SG04-C1 4, PDI-SMA2-SG04-C2 4, PDI-SMA2-SG04-C3 4, PDI-SMA2-SG04-C5 4, PDI-SMA2-SG04-C6 4, PDI-SMA2-SG05 4, PDI-SMA2-SG05 4, PDI-SMA2-SG06 4, PDI-SMA2-SG07 4, PDI-SMA2-SG08 4, PDI-SMA2-SG09 4, PDI-SMA2-SG09 4, PDI-SMA2-SG10 4, PDI-SMA2-SG11 4, PDI-SMA2-SG11 4, PDI-SMA2-SG12 4, PDI-SMA2-SG13 4, PDI-SMA2-SG13 4, PDI-SMA2-SG14 4, | 4/27/2018 4/27/2018 4/24/2018 4/24/2018 4/24/2018 | 997503.611 997342.032 | | - | | | X | | Х |
| PDI-SMA2-SG04 ^a 4,/ PDI-SMA2-SG04-C1 4,/ PDI-SMA2-SG04-C2 4,/ PDI-SMA2-SG04-C3 4,/ PDI-SMA2-SG04-C4 4,/ PDI-SMA2-SG04-C6 4,/ PDI-SMA2-SG05 4,/ PDI-SMA2-SG05 4,/ PDI-SMA2-SG06 4,/ PDI-SMA2-SG07 4,/ PDI-SMA2-SG08 4,/ PDI-SMA2-SG09 4,/ PDI-SMA2-SG10 4,/ PDI-SMA2-SG10 4,/ PDI-SMA2-SG11 4,/ PDI-SMA2-SG11 4,/ PDI-SMA2-SG13 4,/ PDI-SMA2-SG13 4,/ PDI-SMA2-SG14 4,/ | 4/27/2018 4/24/2018 4/24/2018 4/24/2018 | 997342.032 | 696266.504 | 3.2 | | X | X | | |
| PDI-SMA2-SG04-C1 4/ PDI-SMA2-SG04-C2 4/ PDI-SMA2-SG04-C3 4/ PDI-SMA2-SG04-C4 4/ PDI-SMA2-SG04-C5 4/ PDI-SMA2-SG04-C6 4/ PDI-SMA2-SG05 4/ PDI-SMA2-SG06 4/ PDI-SMA2-SG07 4/ PDI-SMA2-SG08 4/ PDI-SMA2-SG09 4/ PDI-SMA2-SG10 4/ PDI-SMA2-SG11 4/ PDI-SMA2-SG12 4/ PDI-SMA2-SG13 4/ PDI-SMA2-SG14 4/ | 4/24/2018 4/24/2018 4/24/2018 | | | 3.0 | | X | Х | | |
| PDI-SMA2-SG04-C2 4, PDI-SMA2-SG04-C3 4, PDI-SMA2-SG04-C3 4, PDI-SMA2-SG04-C5 4, PDI-SMA2-SG04-C6 4, PDI-SMA2-SG05 4, PDI-SMA2-SG05 4, PDI-SMA2-SG06 4, PDI-SMA2-SG07 4, PDI-SMA2-SG08 4, PDI-SMA2-SG08 4, PDI-SMA2-SG09 4, PDI-SMA2-SG10 4, PDI-SMA2-SG10 4, PDI-SMA2-SG11 4, PDI-SMA2-SG11 4, PDI-SMA2-SG11 4, PDI-SMA2-SG11 4, PDI-SMA2-SG13 4, PDI-SMA2-SG14 4, | 4/24/2018 4/24/2018 | 997330.903 | 696271.649 | 7.1 | | | X | | Х |
| PDI-SMA2-SG04-C3 4,7 PDI-SMA2-SG04-C4 4,7 PDI-SMA2-SG04-C5 4,7 PDI-SMA2-SG04-C6 4,7 PDI-SMA2-SG05 4,7 PDI-SMA2-SG06 4,7 PDI-SMA2-SG07 4,7 PDI-SMA2-SG08 4,7 PDI-SMA2-SG09 4,7 PDI-SMA2-SG10 4,7 PDI-SMA2-SG11 4,7 PDI-SMA2-SG12 4,7 PDI-SMA2-SG13 4,7 PDI-SMA2-SG14 4,7 | 4/24/2018 | | 696280.175 | 8.4 | | | | | |
| PDI-SMA2-SG04-C4 4/ PDI-SMA2-SG04-C5 4/ PDI-SMA2-SG04-C6 4/ PDI-SMA2-SG05 4/ PDI-SMA2-SG06 4/ PDI-SMA2-SG07 4/ PDI-SMA2-SG08 4/ PDI-SMA2-SG09 4/ PDI-SMA2-SG10 4/ PDI-SMA2-SG11 4/ PDI-SMA2-SG12 4/ PDI-SMA2-SG13 4/ PDI-SMA2-SG14 4/ | | 997348.776 | 696275.198 | 6.7 | | | | | |
| PDI-SMA2-SG04-C5 4/ PDI-SMA2-SG04-C6 4/ PDI-SMA2-SG05 4/ PDI-SMA2-SG06 4/ PDI-SMA2-SG07 4/ PDI-SMA2-SG08 4/ PDI-SMA2-SG09 4/ PDI-SMA2-SG10 4/ PDI-SMA2-SG11 4/ PDI-SMA2-SG12 4/ PDI-SMA2-SG13 4/ PDI-SMA2-SG14 4/ | 1/21/2010 | 997360.871 | 696275.418 | 5.8 | na | na | na | na | na |
| PDI-SMA2-SG04-C6 4/ PDI-SMA2-SG05 4/ PDI-SMA2-SG06 4/ PDI-SMA2-SG07 4/ PDI-SMA2-SG08 4/ PDI-SMA2-SG09 4/ PDI-SMA2-SG10 4/ PDI-SMA2-SG11 4/ PDI-SMA2-SG12 4/ PDI-SMA2-SG13 4/ PDI-SMA2-SG14 4/ | 4/24/2018 | 997328.973 | 696268.056 | 7.9 | Ha | Ha | Ha | Ha | IIa |
| PDI-SMA2-SG05 4, PDI-SMA2-SG06 4, PDI-SMA2-SG07 4, PDI-SMA2-SG08 4, PDI-SMA2-SG09 4, PDI-SMA2-SG10 4, PDI-SMA2-SG11 4, PDI-SMA2-SG11 4, PDI-SMA2-SG12 4, PDI-SMA2-SG13 4, PDI-SMA2-SG14 4, | 4/24/2018 | 997343.391 | 696263.272 | 6.4 | | | | | |
| PDI-SMA2-SG06 4, PDI-SMA2-SG07 4, PDI-SMA2-SG08 4, PDI-SMA2-SG09 4, PDI-SMA2-SG10 4, PDI-SMA2-SG11 4, PDI-SMA2-SG11 4, PDI-SMA2-SG12 4, PDI-SMA2-SG13 4, PDI-SMA2-SG14 4, | 4/24/2018 | 997355.884 | 696261.824 | 5.3 | | | | | |
| PDI-SMA2-SG06 4, PDI-SMA2-SG07 4, PDI-SMA2-SG08 4, PDI-SMA2-SG09 4, PDI-SMA2-SG10 4, PDI-SMA2-SG11 4, PDI-SMA2-SG11 4, PDI-SMA2-SG12 4, PDI-SMA2-SG13 4, PDI-SMA2-SG14 4, | 4/24/2018 | 997335.904 | 696251.542 | 5.5 | | | X | | Х |
| PDI-SMA2-SG07 4, PDI-SMA2-SG08 4, PDI-SMA2-SG09 4, PDI-SMA2-SG10 4, PDI-SMA2-SG11 4, PDI-SMA2-SG12 4, PDI-SMA2-SG13 4, PDI-SMA2-SG14 4, | 4/30/2018 | 997405.082 | 696219.846 | 2.6 | | Х | Х | | |
| PDI-SMA2-SG08 4, PDI-SMA2-SG09 4, PDI-SMA2-SG10 4, PDI-SMA2-SG11 4, PDI-SMA2-SG12 4, PDI-SMA2-SG13 4, PDI-SMA2-SG14 4, | 4/30/2018 | 997487.7 | 696194.012 | 1.2 | | Х | Х | | |
| PDI-SMA2-SG09 4, PDI-SMA2-SG10 4, PDI-SMA2-SG11 4, PDI-SMA2-SG12 4, PDI-SMA2-SG13 4, PDI-SMA2-SG14 4, | 4/27/2018 | 997444.248 | 696333.293 | 4.6 | | | | | Х |
| PDI-SMA2-SG10 4, PDI-SMA2-SG11 4, PDI-SMA2-SG12 4, PDI-SMA2-SG13 4, PDI-SMA2-SG14 4, | 4/27/2018 | 997516.486 | 696324.236 | 1.5 | | | | | Х |
| PDI-SMA2-SG11 4, PDI-SMA2-SG12 4, PDI-SMA2-SG13 4, PDI-SMA2-SG14 4, | 4/30/2018 | 997591.469 | 696236.832 | 2.2 | | | | | Х |
| PDI-SMA2-SG12 4, PDI-SMA2-SG13 4, PDI-SMA2-SG14 4, | 4/30/2018 | 997575.394 | 696214.247 | 1.1 | | | | | Х |
| PDI-SMA2-SG13 4, PDI-SMA2-SG14 4, | 4/30/2018 | 997557.979 | 696138.182 | 0.0 | | | | | X |
| PDI-SMA2-SG14 4, | 4/30/2018 | 997475.68 | 696156.088 | 1.0 | | Х | Х | | |
| | 4/30/2018 | 997402.883 | 696173.075 | 1.8 | | | | | Х |
| | 4/27/2018 | 997322.776 | 696194.002 | 4.3 | | | | | X |
| SMA3 | 4/21/2010 | 991322.110 | 090194.002 | 4.3 | | | | | |
| <u> </u> | 5/2/2018 | 995842.972 | 693659.884 | 8.7 | | Х | | | |
| | | | | | | X | | | |
| | 4/26/2018 | 995703.931 | 694164.595 | -9.1 | | | | | |
| | 4/26/2018 | 995910.095 | 694106.722 | -5.3 | | X | | V | |
| | 4/26/2018 | 996110.857 | 694048.42 | -4.2 | | X | | Х | |
| | 4/26/2018 | 996185.782 | 693919.446 | -1.9 | V | V | | | |
| | 4/26/2018 | 996184.854 | 693916.436 | -1.9 | Х | Х | | | |
| | 4/26/2018 | 996188.995 | 693916.3 | -1.9 | | ., | | V | |
| | 4/26/2018 | 996258.992 | 693788.704 | -5.9 | | X | | Х | |
| · | 4/26/2018 | 996332.697 | 693660.38 | 10.8 | | Х | | | |
| | 4/26/2018 | 995776.783 | 694035.687 | 0.2 | | | | X | X |
| | 4/26/2018 | 995978.848 | 693979.166 | 1.2 | | | | Х | X |
| | 4/26/2018 | 996054.755 | 693842.253 | 4.7 | | | | | X |
| | 4/26/2018 | 996126.702 | 693710.944 | -0.3 | | | | Х | X |
| | 4/26/2018 | 996463.525 | 693731.499 | -6.9 | | | | | X |
| | 4/26/2018 | 996392.264 | 693858.527 | -6.1 | | | | X | Х |
| | 4/26/2018 | 996317.023 | 693990.551 | -4.5 | | | | | Х |
| | 4/26/2018 | 996243.814 | 694121.293 | -6.8 | | | | X | Х |
| PDI-SMA3-SG15 4, | 4/26/2018 | 996169.917 | 694256.315 | -7.6 | | | | | Х |
| PDI-SMA3-SG16 4, | 4/26/2018 | 996039.465 | 694183.969 | -8.4 | | | | | Х |
| PDI-SMA3-SG17 4, | 4/26/2018 | 995968.603 | 694310.377 | -8.7 | | | | | Х |
| | 4/26/2018 | 995836.08 | 694238.1 | -10.3 | | | | X | Х |
| PDI-SMA3-SG19 4, | 4/26/2018 | 995894.983 | 694441.133 | -7.8 | | | | Х | Х |
| | 4/26/2018 | 995632.856 | 694297.093 | -6.0 | | | | | Х |
| · · | | 995749.471 | 693938.622 | 6.2 | | | | Х | |
| | 4/30/2018 | 995755.822 | 693967.201 | 2.9 | | | | Х | |
| | | 995922.007 | 693934.388 | 12.6 | | | | X | |
| | 4/30/2018 | 995949.529 | | 5.6 | | | | X | |
| | 4/30/2018 4/26/2018 4/26/2018 | シンシンサンコイツ | 693691.99 | 8.1 | | | | X | |
| PDI-SMA3-DGT06 4/ | 4/30/2018 4/26/2018 | 996082.104 | 693703.613 | 4.6 | | | | X | |

Horizontal datum is Washington State Plane South North American Datum 1983 US feet

Elevation is mean lower low water (feet)

a. centroid of six point composite (C1 to C6)

Cu: copper

na: not applicable

PDI: pre-remedial design investigation

SMA: sediment management area

TOC: total organic carbon

TBT: tributyl tin

Table A-2
Summary of Sediment Matrix and Observations

| | Sediment | H ₂ S Odor | Wood | |
|------------|--------------|-----------------------|----------|--|
| Station ID | Matrix | Present? | Present? | Comments |
| SMA1 | | | | |
| SMA1-SG01 | sandy silt | No | Yes | Trace organic material – stick and twigs |
| SMA1-SG02 | sandy silt | No | Yes | Trace wood |
| SMA1-SG03 | sandy silt | No | Yes | Abundant organic material – wood and leaves |
| SMA1-SG04 | sandy silt | Yes | Yes | Substantial wood |
| SMA1-SG05 | sandy silt | Yes | Yes | Abundant wood |
| SMA1-SG06 | sandy silt | No | Yes | Trace wood |
| SMA1-SG07 | sandy silt | No | Yes | Trace wood |
| SMA1-SG08 | sandy silt | No | Yes | Trace wood |
| SMA1-SG09 | silty sand | No | No | |
| SMA1-SG10 | sandy silt | No | No | |
| SMA1-SG11 | sandy silt | No | Yes | Trace organic material – leaves and twigs |
| SMA1-SG12 | sandy silt | No | Yes | Moderate wood |
| SMA1-SG13 | silt | Yes | Yes | Abundant wood |
| SMA1-SG14 | sandy silt | Yes | Yes | Abundant wood |
| SMA1-SG15 | sandy silt | No | Yes | Trace wood |
| SMA1-SG16 | sandy silt | No | Yes | Moderate woody |
| SMA1-SG17 | sandy silt | No | Yes | Trace woody |
| SMA1-SG18 | sandy silt | No | Yes | Trace organic material – leaves and twigs |
| SMA1-SG19 | sandy silt | No | No | Trace organic material – leaves |
| SMA1-SG20 | sandy silt | No | Yes | Trace organic material – sticks, leaves, and twigs |
| SMA2 | | | | |
| SMA2-SG01 | gravely sand | No | No | |
| SMA2-SG02 | silt | No | No | |
| SMA2-SG03 | silt | No | No | |
| SMA2-SG04 | sand | No | No | |
| SMA2-SG05 | sandy silt | No | No | |
| SMA2-SG06 | silt | No | No | |
| SMA2-SG07 | silt | No | No | |
| SMA2-SG08 | silt | No | No | |
| SMA2-SG09 | silt | No | No | |
| SMA2-SG10 | silt | No | No | |
| SMA2-SG11 | silt | No | No | |
| SMA2-SG12 | sandy silt | No | No | |
| SMA2-SG13 | silt | No | No | |
| SMA2-SG14 | silt | No | No | |
| SMA2-SG15 | silt | No | No | Trace organic material |

Table A-2
Summary of Sediment Matrix and Observations

| | Sediment | H ₂ S Odor | Wood | |
|------------|------------|-----------------------|----------|---|
| Station ID | Matrix | Present? | Present? | Comments |
| SMA3 | | | | |
| SMA3-0G01 | silty sand | No | No | |
| SMA3-SG01 | sandy silt | No | No | |
| SMA3-SG02 | silt | No | No | |
| SMA3-SG03 | silt | No | No | |
| SMA3-SG04 | sandy silt | No | No | |
| SMA3-SG05 | silt | No | No | |
| SMA3-SG06 | sandy silt | No | Yes | Trace wood |
| SMA3-SG07 | sandy silt | No | No | |
| SMA3-SG08 | sandy silt | No | No | |
| SMA3-SG09 | silty sand | No | No | |
| SMA3-SG10 | silt | No | No | |
| SMA3-SG11 | sandy silt | No | Yes | Trace wood |
| SMA3-SG12 | sandy silt | No | No | |
| SMA3-SG13 | sandy silt | No | No | |
| SMA3-SG14 | sandy silt | No | No | |
| SMA3-SG15 | silt | No | Yes | Trace organic material – roots and sticks |
| SMA3-SG16 | sandy silt | No | No | |
| SMA3-SG17 | sandy silt | No | No | |
| SMA3-SG18 | sandy silt | No | Yes | Trace wood |
| SMA3-SG19 | sandy silt | No | No | |
| SMA3-SG20 | sandy silt | No | No | |

H₂S: hydrogen sulfide

Table A-3 **SMA-1 PDI Sediment Results**

| | Task | SheltonRI_FS_2018 | SheltonRI_FS_2018 |
|---|-------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|------------------------|------------------------|
| | Location ID | PDI-SMA1-SG01-180425 | PDI-SMA1-SG02-180425 | PDI-SMA1-SG03-180425 | PDI-SMA1-SG04-180425 | PDI-SMA1-SG05-180425 | PDI-SMA1-SG06-180425 | PDI-SMA1-SG07-180425 | PDI-SMA1-SG1007-1804 | PDI-SMA1-SG2007-1804 |
| | Sample ID | PDI-SMA1-SG01-180425 | PDI-SMA1-SG02-180425 | PDI-SMA1-SG03-180425 | PDI-SMA1-SG04-180425 | PDI-SMA1-SG05-180425 | PDI-SMA1-SG06-180425 | PDI-SMA1-SG07-180425 | PDI-SMA1-SG1007-180425 | PDI-SMA1-SG2007-180425 |
| | Sample Date | 4/25/2018 | 4/25/2018 | 4/25/2018 | 4/25/2018 | 4/25/2018 | 4/25/2018 | 4/25/2018 | 4/25/2018 | 4/25/2018 |
| | Depth | 0–10 cm | 0–10 cm |
| | Sample Type | N | N | N | N | N | N | N | N | N |
| | Matrix | SE | SE |
| | х | 996619.831 | 996755.765 | 996890.457 | 996950.435 | 997018.1 | 996882.773 | 996747.999 | 996742.677 | 996746.957 |
| | Y | 695940.295 | 696003.341 | 696066.43 | 695936.733 | 695801.31 | 695731.551 | 695666.032 | 695668.032 | 695672.149 |
| | RAL | | | | | | | | | |
| Dioxin Furans (ng/kg) | | | | | | | | | | |
| 2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD) | | 1.57 J | 1.92 J | 3.38 J | 6.24 | 5.11 | 2.46 J | 0.273 U | 0.317 J | 0.309 J |
| 1,2,3,7,8-Pentachlorodibenzo-p-dioxin (PeCDD) | | 8.84 J | 8.43 J | 20.1 J | 30.4 | 25.4 | 10.6 J | 0.269 J | 0.441 J | 0.333 U |
| 1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD) | | 16.2 J | 15.8 J | 33.9 | 53.9 | 48.2 | 16.9 J | 0.517 J | 0.612 J | 0.6 J |
| 1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (HxCDD) | | 54.3 | 62.2 | 122 | 233 | 132 | 59.1 | 1.33 J | 1.63 J | 1.31 J |
| 1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (HxCDD) | | 28.9 | 27.2 | 54.3 | 100 | 80.1 | 32.7 | 0.792 U | 1.22 U | 0.945 U |
| 1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD) | | 1250 | 1150 | 2220 | 5720 | 1760 | 891 | 26.2 | 37.7 | 29.9 |
| 1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD) | | 13400 | 10100 | 18400 | 48200 | 12100 | 7090 | 217 | 321 | 274 |
| Total Tetrachlorodibenzo-p-dioxin (TCDD) | | 604 J | 514 J | 1370 J | 2750 J | 2210 J | 754 J | 12.5 J | 9.9 J | 13.8 J |
| Total Pentachlorodibenzo-p-dioxin (PeCDD) | | 591 J | 612 J | 1370 J | 2180 J | 2550 J | 771 J | 10.9 J | 14.5 J | 11.9 J |
| Total Hexachlorodibenzo-p-dioxin (HxCDD) | | 1050 | 1020 | 2140 | 2740 | 3420 | 1350 J | 25.8 J | 32.6 J | 25.8 J |
| Total Heptachlorodibenzo-p-dioxin (HpCDD) | | 3200 | 2930 | 5480 | 12500 | 4310 | 2140 | 62.8 J | 89.6 | 74.1 |
| 2,3,7,8-Tetrachlorodibenzofuran (TCDF) | | 4.33 J | 4.3 J | 8.26 | 11.3 | 13.3 | 6 | 0.252 U | 0.255 U | 0.256 U |
| 1,2,3,7,8-Pentachlorodibenzofuran (PeCDF) | | 4.03 J | 4.66 J | 8.63 J | 12.8 J | 11.8 J | 4.76 J | 0.252 U | 0.255 U | 0.346 U |
| 2,3,4,7,8-Pentachlorodibenzofuran (PeCDF) | | 6.65 J | 6.25 J | 14.3 J | 31.9 | 15.9 J | 7.54 J | 0.252 U | 0.288 J | 0.346 U |
| 1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF) | | 28.8 | 30 | 51.7 | 155 | 42.4 | 21.2 J | 0.874 J | 0.782 J | 0.741 J |
| 1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF) | | 10.8 J | 11.8 J | 20.4 J | 46.8 | 21.7 J | 10.4 J | 0.349 J | 0.356 J | 0.419 J |
| 1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF) | | 1.08 J | 0.96 J | 1.71 J | 2.72 J | 2.03 J | 1.44 J | 0.252 U | 0.347 U | 0.256 U |
| 2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF) | | 8.22 J | 9.38 J | 17.2 J | 33.3 | 16.7 J | 7.62 J | 0.268 J | 0.347 U | 0.256 U |
| 1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF) | | 367 | 352 | 660 | 1800 | 433 | 238 | 8.18 J | 15.2 J | 9.82 J |
| 1,2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF) | | 22.7 J | 22.5 J | 31 | 72.2 | 24 J | 13.8 J | 0.49 J | 0.677 J | 0.804 J |
| 1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF) | | 1360 | 1070 | 1670 | 5590 | 1060 | 724 | 22.3 J | 40.2 J | 29.5 J |
| Total Tetrachlorodibenzofuran (TCDF) | | 101 J | 108 J | 223 J | 313 J | 309 J | 140 J | 2.28 J | 1.83 J | 3.61 J |
| Total Pentachlorodibenzofuran (PeCDF) | | 143 J | 157 J | 324 J | 658 J | 317 J | 159 J | 2.31 J | 4.36 J | 3.24 J |
| Total Hexachlorodibenzofuran (HxCDF) | | 497 J | 562 J | 1000 J | 2310 J | 670 J | 377 J | 9.73 J | 15.5 J | 12.8 J |
| Total Heptachlorodibenzofuran (HpCDF) | | 1490 J | 1360 J | 2390 | 6760 | 1480 | 934 | 26.3 J | 52 J | 34.7 |
| Dioxin Furans (ng/kg) | | | | | | | | | | |
| Total Dioxin/Furan TEQ 2005 (Mammal) (U = 0) | | 48.6139 J | 47.1248 J | 94.1069 J | 202.255 J | 97.395 J | 44.773 J | 1.02329 J | 1.82653 J | 1.11229 J |
| Total Dioxin/Furan TEQ 2005 (Mammal) (U = 1/2) | * | 48.6139 J | 47.1248 J | 94.1069 J | 202.255 J | 97.395 J | 44.773 J | 1.26617 J | 1.938805 J | 1.42153 J |

Bold: detected result

*Surface-weighted average concentration RAL (42 ng/kg TEQ)

cm: centimeter

FD: field duplicate

J: estimated value

N: normal sample

ng/kg: nanograms per kilogram

PDI: pre-remedial design investigation

RAL: Remedial Action Level

SE: sediment matrix

SMA: sediment management area

TEQ: toxicity equivalence

Table A-3
SMA-1 PDI Sediment Results

| Lacation to Pois-Mart Some Pois Pois-Mart Some Pois Pois Mart Some Pois Pois | | Task | SheltonRI_FS_2018 | SheltonRI_FS_2018 | SheltonRI_FS_2018 | SheltonRI_FS_2018 | SheltonRI_FS_2018 | SheltonRI_FS_2018 | SheltonRI_FS_2018 | SheltonRI_FS_2018 | SheltonRI_FS_2018 |
|--|---|-------------|----------------------|-----------------------|----------------------|----------------------|-----------------------|----------------------|----------------------|----------------------|----------------------|
| Sample Date A75,7018 A75,70 | | Location ID | PDI-SMA1-SG08-180425 | PDI-SMA1-SG08-180425 | PDI-SMA1-SG09-180425 | PDI-SMA1-SG10-180425 | PDI-SMA1-SG11-180425 | PDI-SMA1-SG11-180425 | PDI-SMA1-SG12-180425 | PDI-SMA1-SG13-180425 | PDI-SMA1-SG14-180425 |
| Depth 0-10 cm 0-10 c | | Sample ID | PDI-SMA1-SG08-180425 | PDI-SMA1-SG108-180425 | PDI-SMA1-SG09-180425 | PDI-SMA1-SG10-180425 | PDI-SMA1-SG111-180425 | PDI-SMA1-SG11-180425 | PDI-SMA1-SG12-180425 | PDI-SMA1-SG13-180425 | PDI-SMA1-SG14-180425 |
| Sample Type | | Sample Date | 4/25/2018 | 4/25/2018 | 4/25/2018 | 4/25/2018 | 4/25/2018 | 4/25/2018 | 4/25/2018 | 4/25/2018 | 4/25/2018 |
| Matrix SE SE SE SE SE SE SE S | | Depth | 0–10 cm | 0–10 cm | 0–10 cm | 0–10 cm | 0–10 cm | 0–10 cm | 0–10 cm | 0–10 cm | 0–10 cm |
| Part | | Sample Type | N | FD | N | N | FD | N | N | N | N |
| PAIL | | Matrix | SE | SE | SE | SE | SE | SE | SE | SE | SE |
| Desire Furnate (op/fix) | | х | 996682.919 | 996682.919 | 996687.215 | 997025.861 | 997089.167 | 997089.167 | 997155.177 | 997082.534 | 996953.062 |
| Double Trainer (ICDD) 1.84 1.85 0.539 2.77 1.85 1.54 1.55 2.87 0.531 1.2.3.78-Free (Incombines to p-dison) (ICDD) 8.72 7.5 J 1.177 11.41 11.5 J 12.4 J 6.77 J 8.33 2.79 1.2.3.78-Free (Incombines to p-dison) (ICDD) 16.5 J 14.4 J 2.94 1.2.2 J 12.2 J | | Y | 695804.413 | 695804.413 | 696136.97 | 696138.619 | 695996.649 | 695996.649 | 695861.281 | 695668.426 | 695600.299 |
| 2.27 1.85 2.46 1.58 2.87 0.581 1.237 8.32 2.87 0.581 1.237 8.32 2.87 0.581 1.237 1.237 8.32 2.87 1.237 | | RAL | | | | | | | | | |
| 12.31.6.Pemachiorodheuro-p-disoin (PCCD) 18.72 7.5 1.17 11.41 11.5 12.41 6.77 8.33 2.79 12.34.7.6.Pemachiorodheuro-p-disoin (HCCD) 16.5 14.41 2.041 22.91 24.1 22.41 13.71 7.18 8.1 12.34.7.6.Pemachiorodheuro-p-disoin (HCCD) 16.8 51.9 5.86 66.8 69.1 71.2 45.5 21.71 19.1 12.34.6.7.6.Pemachiorodheuro-p-disoin (HCCD) 17.3 18.3 12.3 12.3 12.3 12.3 12.3 12.3 12.3 12.3 12.3 12.34.6.7.6.Pemachiorodheuro-p-disoin (HCCD) 17.0 17.0 17.0 17.0 17.0 17.0 17.0 17.0 17.0 12.34.6.7.6.Pemachiorodheuro-p-disoin (HCCD) 17.0 17.0 | Dioxin Furans (ng/kg) | | | | | | | | | | |
| 12.3.4.7.8 Hexachlorodiberory p dixini (HsCDD) 16.5 14.4 2.04 22.9 24.1 22.4 13.7 7.18 8.1 12.3.6.7.8 Hexachlorodiberory p dixini (HsCDD) 61.8 51.9 5.86 66.8 66.8 69.1 71.2 45.5 21.7 181 12.3.7.8 Hexachlorodiberory p-dixini (HsCDD) 37.3 28.8 3.12 36.5 44.9 39.4 22.3 12.3 17.8 17.8 12.3.4.7.8 Hexachlorodiberory p-dixini (HsCDD) 1130 1100 112 1170 1160 1270 930 283 5730 12.3.4.7.8 Hexachlorodiberory p-dixini (HsCDD) 1130 1100 112 1170 1160 1270 930 283 5730 12.3.4.6.7.8 Hexachlorodiberory p-dixini (HsCDD) 1100 1600 896 9460 9140 9660 7200 1970 44600 700 | 2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD) | | 1.84 J | 1.85 J | 0.539 J | 2.27 J | 1.85 J | 2.46 J | 1.58 J | 2.87 J | 0.581 J |
| 12.33,7.8 Hexachlorodibenza p-dioxin (HxCDD) | 1,2,3,7,8-Pentachlorodibenzo-p-dioxin (PeCDD) | | 8.72 J | 7.5 J | 1.17 J | 11.4 J | 11.5 J | 12.4 J | 6.77 J | 8.33 J | 2.79 J |
| 12.33.69-Heachlorodibenzo-p-dioxin (PK-CD) 37.3 26.8 3.12 36.5 43.9 39.4 22.3 12.3 17.8 17.8 12.34 (6.7 18.4 pc) - dioxin (PCCD) 1100 1100 1100 1100 112 1170 1160 1270 930 283 5730 12.34 6.7 8.9 12.34 6.7 8.9 14.0 12.0 14.0 1 | | | 16.5 J | 14.4 J | 2.04 J | 22.9 J | 24.1 | 22.4 J | 13.7 J | 7.18 J | 8.1 J |
| 1.23.46.78.4-Expanding of the PLCDD 1130 1100 112 1170 1160 1270 930 283 5730 1.23.46.78.4-Expanding of the PLCDD 1130 1100 112 1170 1160 1270 930 283 5730 1.23.46.78.4-Expanding of the PLCDD 1100 1120 1100 1120 1100 1120 1100 1120 1 | · | | 61.8 | 51.9 | 5.86 J | 66.8 | 69.1 | 71.2 | 45.5 | 21.7 J | 181 |
| 1,2,3,46,7,8,9 Octachlorodibenzo p dioxin (OCDD) 11000 10600 896 9460 9140 9660 7200 1970 42600 | 1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (HxCDD) | | 37.3 J | 26.8 | 3.12 J | 36.5 | 43.9 | 39.4 | 22.3 J | 12.3 J | 17.8 J |
| Total Tetrachlorodibenzo-p-dioxin (TCDD) 678 J 521 J 44.6 J 921 J 1090 J 1490 J 542 J 313 J 135 J | 1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD) | | 1130 | 1100 | 112 | 1170 | 1160 | 1270 | 930 | 283 | 5730 |
| Total Pentachlorodibenzo-p-dioxin (PECDD) 703 J 535 J 50 J 915 J 1020 J 1260 528 J 298 J 126 J Total Hepachlorod-podioxin (HECDD) 1340 976 88.8 1410 1580 1560 971 411 675 Total Hepachlorodibenzo-p-dioxin (HECDD) 2750 2810 223 2900 22660 3160 3210 650 9580 2.37.8-Tetrachlorodibenzo-furan (TCDF) 4.1 J 4.66 J 0.711 J 5.07 6.93 6.14 3.91 J 9.31 5.22 2.34.78-Pentachlorodibenzo-furan (PECDF) 3.77 J 3.77 J 0.773 J 4.85 J 6.93 J 6.39 J 4.4 J 6.52 J 12.2 J 2.24.78-Pentachlorodibenzo-furan (PECDF) 5.47 J 5.46 J 0.808 J 6.8 J 8.73 J 9.29 J 5.78 J 9.99 J 35.5 1.2.34.78-Hetachlorodibenzo-furan (PECDF) 25.3 25 3.01 J 29.8 30.5 31.1 21.1 J 11.3 J 210 1.2.34.78-Hetachlorodibenzo-furan (HACDF) 10.4 J 9.71 J 1.35 J 12.8 J 13.1 J 14.1 J 8.7 J 7.9 J 40.1 1.2.34.78-Hetachlorodibenzo-furan (HACDF) 0.844 J 1.14 J 0.246 U 1.02 J 1.18 J 1.37 J 0.898 J 0.965 J 4.2 J 2.3.4.78-Hetachlorodibenzo-furan (HACDF) 7.46 J 8.06 J 1.14 J 9.98 J 10.2 J 1.18 J 1.37 J 0.898 J 0.965 J 4.2 J 2.3.4.78-Hetachlorodibenzo-furan (HACDF) 7.46 J 8.06 J 1.14 J 9.98 J 10.2 J 1.18 J 1.37 J 0.898 J 0.965 J 4.2 J 2.3.4.78-Hetachlorodibenzo-furan (HACDF) 7.46 J 8.06 J 1.14 J 9.98 J 10.2 J 1.18 J 1.37 J 0.898 J 0.965 J 4.2 J 2.3.4.78-Hetachlorodibenzo-furan (HACDF) 7.46 J 8.06 J 1.14 J 9.98 J 10.2 J 1.18 J 3.7 J 0.898 J 0.965 J 4.2 J 2.3.4.78-Hetachlorodibenzo-furan (HACDF) 7.46 J 8.06 J 1.14 J 9.98 J 10.2 J 1.18 J 3.7 J 0.7 J 1.7 J 1.7 J 1.3 | 1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD) | | 11000 | 10600 | 896 | 9460 | 9140 | 9660 | 7200 | 1970 | 42600 |
| Total Hexachlorodibenzo-p-dioxin (HxCDD) 1340 976 88.8 1410 1580 1560 971 411 675 | Total Tetrachlorodibenzo-p-dioxin (TCDD) | | 678 J | 521 J | 44.6 J | 921 J | 1090 J | 1490 J | 542 J | 313 J | 135 J |
| Total Heptachlorodibenzo-p-dioxin (HpCDD) 2750 2810 233 2900 2860 3160 3210 650 9580 22,3/8-Tetrachlorodibenzo-furan (TCDF) 4.1 J | Total Pentachlorodibenzo-p-dioxin (PeCDD) | | 703 J | 535 J | 50 J | 915 J | 1020 J | 1260 | 528 J | 298 J | 126 J |
| 2,3,7,8-Tetrachlorodibenzofuran (PCDF) | Total Hexachlorodibenzo-p-dioxin (HxCDD) | | 1340 | 976 | 88.8 | 1410 | 1580 | 1560 | 971 | 411 | 675 |
| 1,2,3,7,8-Pentachlorodibenzofuran (PeCDF) 3.77 J 3.7 J 3.7 J 0.773 J 4.85 J 6.93 J 6.39 J 4.4 J 6.52 J 12.2 J | Total Heptachlorodibenzo-p-dioxin (HpCDD) | | 2750 | 2810 | 233 | 2900 | 2860 | 3160 | 3210 | 650 | 9580 |
| 2.3.47.8-Pentachlorodibenzofuran (PeCDF) 5.47 J 5.46 J 0.808 J 6.8 J 8.73 J 9.29 J 5.78 J 9.09 J 35.5 1.2.3.47.8-Pentachlorodibenzofuran (HxCDF) 25.3 25 3.01 J 29.8 30.5 31.1 21.1 J 11.3 J 210 1.2.3.67.8-Hexachlorodibenzofuran (HxCDF) 10.4 J 9.71 J 1.35 J 12.8 J 13.1 J 14.1 J 8.7 J 7.9 J 40.1 1.2.3.7.8.9-Hexachlorodibenzofuran (HxCDF) 0.844 J 1.14 J 0.246 U 1.02 J 1.18 J 1.37 J 0.898 J 0.965 J 4.2 J 2.3.46.7.8-Hexachlorodibenzofuran (HxCDF) 7.46 J 8.06 J 1.14 J 9.98 J 10.2 J 10.8 J 6.68 J 7.04 J 17.6 J 1.2.3.4.6.7.8-Heptachlorodibenzofuran (HxCDF) 334 338 32.8 32.8 32.8 32.8 32.8 32.8 32.8 | 2,3,7,8-Tetrachlorodibenzofuran (TCDF) | | 4.1 J | 4.66 J | 0.711 J | 5.07 | 6.93 | 6.14 | 3.91 J | 9.31 | 5.22 |
| 1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF) 25.3 25 3.01 29.8 30.5 31.1 21.1 11.3 210 | 1,2,3,7,8-Pentachlorodibenzofuran (PeCDF) | | 3.77 J | 3.7 J | 0.773 J | 4.85 J | 6.93 J | 6.39 J | 4.4 J | 6.52 J | 12.2 J |
| 1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF) | 2,3,4,7,8-Pentachlorodibenzofuran (PeCDF) | | 5.47 J | 5.46 J | 0.808 J | 6.8 J | 8.73 J | 9.29 J | 5.78 J | 9.09 J | 35.5 |
| 1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF) 0.844 J 1.14 J 0.246 U 1.02 J 1.18 J 1.37 J 0.898 J 0.965 J 4.2 J 2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF) 7.46 J 8.06 J 1.14 J 9.98 J 10.2 J 10.8 J 6.68 J 7.04 J 17.6 J 1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF) 334 338 32.8 328 353 370 229 109 2360 1,2,3,4,7,8-Heptachlorodibenzofuran (HpCDF) 18.5 J 25 2.31 J 19.7 J 20.5 J 20.5 J 13.4 J 5.33 J 159 1,2,3,4,6,7,8-Petachlorodibenzofuran (HpCDF) 1160 1030 106 942 944 973 552 247 17100 1,2,3,4,6,7,8-Petachlorodibenzofuran (PCDF) 1160 1030 106 942 944 973 552 247 17100 10 control tetrachlorodibenzofuran (PCDF) 95.4 J 94.7 J 15.1 J 123 J 162 J 158 J 95.4 J 272 J 46.8 J 1 cotal Pertachlorodibenzofuran (PCDF) 135 J 454 J 50.2 J 478 J 504 J 51 | 1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF) | | 25.3 | 25 | 3.01 J | 29.8 | 30.5 | 31.1 | 21.1 J | 11.3 J | 210 |
| 2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF) 7.46 J 8.06 J 1.14 J 9.98 J 10.2 J 10.8 J 6.68 J 7.04 J 17.6 J 17.6 J 1.2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF) 334 338 32.8 328 353 370 229 109 2360 12.3,4,7,8,9-Heptachlorodibenzofuran (HpCDF) 18.5 J 25 2.3 I J 19.7 J 20.5 J 20.5 J 13.4 J 5.3 3 J 159 12.3,4,6,7,8,9-Clachlorodibenzofuran (OCDF) 1160 1030 106 942 944 973 552 247 17100 104 104 104 104 104 104 104 104 104 | 1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF) | | 10.4 J | 9.71 J | 1.35 J | 12.8 J | 13.1 J | 14.1 J | 8.7 J | 7.9 J | 40.1 |
| 1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF) 334 338 32.8 328 353 370 229 109 2360 1,2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF) 18.5 J 25 2.31 J 19.7 J 20.5 J 20.5 J 13.4 J 5.33 J 159 1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF) 1160 1030 106 942 944 973 552 247 17100 Total Tetrachlorodibenzofuran (TCDF) 95.4 J 94.7 J 15.1 J 123 J 162 J 158 J 95.4 J 272 J 46.8 J Total Pentachlorodibenzofuran (PeCDF) 129 J 135 J 16.8 J 165 J 193 J 207 J 137 J 263 J 399 J Total Hexachlorodibenzofuran (HxCDF) 437 J 454 J 50.2 J 478 J 504 J 519 J 349 J 215 J 3150 Total Heptachlorodibenzofuran (HpCDF) 1310 1300 128 J 1230 J 1260 1330 836 342 J 16300 Dioxin/Furan TEQ 2005 (Mammal) (U = 0) 47.1575 J 43.385 J 5.46939 J 52.6401 J 54.4381 J 57. | 1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF) | | 0.844 J | 1.14 J | 0.246 U | 1.02 J | 1.18 J | 1.37 J | 0.898 J | 0.965 J | 4.2 J |
| 1,2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF) 18.5 J 25 2.31 J 19.7 J 20.5 J 20.5 J 13.4 J 5.33 J 159 1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF) 1160 1030 106 942 944 973 552 247 17100 Total Tetrachlorodibenzofuran (TCDF) 95.4 J 94.7 J 15.1 J 123 J 162 J 158 J 95.4 J 272 J 46.8 J Total Pentachlorodibenzofuran (PeCDF) 129 J 135 J 16.8 J 165 J 193 J 207 J 137 J 263 J 399 J Total Hexachlorodibenzofuran (HxCDF) 437 J 454 J 50.2 J 478 J 504 J 519 J 349 J 215 J 3150 Total Heptachlorodibenzofuran (HpCDF) 1310 1300 128 J 1230 J 1260 1330 836 342 J 16300 Dioxin Furans (ng/kg) Total Dioxin/Furan TEQ 2005 (Mammal) (U = 0) 47.1575 J 43.385 J 5.46939 J 52.6401 J 54.4381 J 57.2846 J 36.5444 J 26.5305 J 163.189 J | 2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF) | | 7.46 J | 8.06 J | 1.14 J | 9.98 J | 10.2 J | 10.8 J | 6.68 J | 7.04 J | 17.6 J |
| 1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF) 1160 1030 106 942 944 973 552 247 17100 Total Tetrachlorodibenzofuran (TCDF) 95.4 J 94.7 J 15.1 J 123 J 162 J 158 J 95.4 J 272 J 46.8 J Total Pentachlorodibenzofuran (PeCDF) 129 J 135 J 16.8 J 165 J 193 J 207 J 137 J 263 J 399 J Total Hexachlorodibenzofuran (HxCDF) 437 J 454 J 50.2 J 478 J 504 J 519 J 349 J 215 J 3150 Total Heptachlorodibenzofuran (HpCDF) 1310 1300 128 J 1230 J 1260 1330 836 342 J 16300 Dioxin Furans (ng/kg) Total Dioxin/Furan TEQ 2005 (Mammal) (U = 0) 47.1575 J 43.385 J 5.46939 J 52.6401 J 54.4381 J 57.2846 J 36.5444 J 26.5305 J 163.189 J | 1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF) | | 334 | 338 | 32.8 | 328 | 353 | 370 | 229 | 109 | 2360 |
| Total Tetrachlorodibenzofuran (TCDF) 95.4 J 94.7 J 15.1 J 123 J 162 J 158 J 95.4 J 272 J 46.8 J Total Pentachlorodibenzofuran (PeCDF) 129 J 135 J 16.8 J 165 J 193 J 207 J 137 J 263 J 399 J Total Hexachlorodibenzofuran (HxCDF) 437 J 454 J 50.2 J 478 J 504 J 519 J 349 J 215 J 3150 Total Heptachlorodibenzofuran (HpCDF) 1310 1300 128 J 1230 J 1260 1330 836 342 J 16300 Dioxin Furans (ng/kg) Total Dioxin/Furan TEQ 2005 (Mammal) (U = 0) 47.1575 J 43.385 J 5.46939 J 52.6401 J 54.4381 J 57.2846 J 36.5444 J 26.5305 J 163.189 J | 1,2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF) | | 18.5 J | 25 | 2.31 J | 19.7 J | 20.5 J | 20.5 J | 13.4 J | 5.33 J | 159 |
| Total Pentachlorodibenzofuran (PeCDF) 129 J 135 J 16.8 J 165 J 193 J 207 J 137 J 263 J 399 J Total Hexachlorodibenzofuran (HxCDF) 437 J 454 J 50.2 J 478 J 504 J 519 J 349 J 215 J 3150 Total Heptachlorodibenzofuran (HpCDF) 1310 1300 128 J 1230 J 1260 1330 836 342 J 16300 Dioxin Furans (ng/kg) Total Dioxin/Furan TEQ 2005 (Mammal) (U = 0) 47.1575 J 43.385 J 5.46939 J 52.6401 J 54.4381 J 57.2846 J 36.5444 J 26.5305 J 163.189 J | 1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF) | | 1160 | 1030 | 106 | 942 | 944 | 973 | 552 | 247 | 17100 |
| Total Hexachlorodibenzofuran (HxCDF) 437 J 454 J 50.2 J 478 J 504 J 519 J 349 J 215 J 3150 Total Heptachlorodibenzofuran (HyCDF) 1310 1300 128 J 1230 J 1260 1330 836 342 J 16300 Dioxin Furans (ng/kg) Total Dioxin/Furan TEQ 2005 (Mammal) (U = 0) 47.1575 J 43.385 J 5.46939 J 52.6401 J 54.4381 J 57.2846 J 36.5444 J 26.5305 J 163.189 J | Total Tetrachlorodibenzofuran (TCDF) | | 95.4 J | 94.7 J | 15.1 J | 123 J | 162 J | 158 J | 95.4 J | 272 J | 46.8 J |
| Total Heptachlorodibenzofuran (HpCDF) 1310 1300 128 J 1230 J 1260 1330 836 342 J 16300 Dioxin Furans (ng/kg) Total Dioxin/Furan TEQ 2005 (Mammal) (U = 0) 47.1575 J 43.385 J 5.46939 J 52.6401 J 54.4381 J 57.2846 J 36.5444 J 26.5305 J 163.189 J | Total Pentachlorodibenzofuran (PeCDF) | | 129 J | 135 J | 16.8 J | 165 J | 193 J | 207 J | 137 J | 263 J | 399 J |
| Dioxin Furans (ng/kg) Total Dioxin/Furan TEQ 2005 (Mammal) (U = 0) 47.1575 J 43.385 J 5.46939 J 52.6401 J 54.4381 J 57.2846 J 36.5444 J 26.5305 J 163.189 J | Total Hexachlorodibenzofuran (HxCDF) | | 437 J | 454 J | 50.2 J | 478 J | 504 J | 519 J | 349 J | 215 J | 3150 |
| Total Dioxin/Furan TEQ 2005 (Mammal) (U = 0) 47.1575 J 43.385 J 5.46939 J 52.6401 J 54.4381 J 57.2846 J 36.5444 J 26.5305 J 163.189 J | Total Heptachlorodibenzofuran (HpCDF) | | 1310 | 1300 | 128 J | 1230 J | 1260 | 1330 | 836 | 342 J | 16300 |
| | Dioxin Furans (ng/kg) | | | | | | | | | | |
| Total Dioxin/Furan TEQ 2005 (Mammal) (U = 1/2) * 47.1575 J 43.385 J 5.48169 J 52.6401 J 54.4381 J 57.2846 J 36.5444 J 26.5305 J 163.189 J | Total Dioxin/Furan TEQ 2005 (Mammal) (U = 0) | | 47.1575 J | 43.385 J | 5.46939 J | 52.6401 J | 54.4381 J | 57.2846 J | 36.5444 J | 26.5305 J | 163.189 J |
| | Total Dioxin/Furan TEQ 2005 (Mammal) (U = 1/2) | * | 47.1575 J | 43.385 J | 5.48169 J | 52.6401 J | 54.4381 J | 57.2846 J | 36.5444 J | 26.5305 J | 163.189 J |

Bold: detected result

*Surface-weighted average concentration RAL (42 ng/kg TEQ)

cm: centimeter

FD: field duplicate

J: estimated value

N: normal sample

ng/kg: nanograms per kilogram

PDI: pre-remedial design investigation

RAL: Remedial Action Level

SE: sediment matrix

SMA: sediment management area

TEQ: toxicity equivalence

Table A-3
SMA-1 PDI Sediment Results

| | Task | SheltonRI_FS_2018 | SheltonRI_FS_2018 | SheltonRI_FS_2018 | SheltonRI_FS_2018 | SheltonRI_FS_2018 | SheltonRI_FS_2018 |
|---|-------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| | Location ID | PDI-SMA1-SG15-180425 | PDI-SMA1-SG16-180425 | PDI-SMA1-SG17-180425 | PDI-SMA1-SG18-180425 | PDI-SMA1-SG19-180425 | PDI-SMA1-SG20-180425 |
| | Sample ID | PDI-SMA1-SG15-180425 | PDI-SMA1-SG16-180425 | PDI-SMA1-SG17-180425 | PDI-SMA1-SG18-180425 | PDI-SMA1-SG19-180425 | PDI-SMA1-SG20-180425 |
| | Sample Date | 4/25/2018 | 4/25/2018 | 4/25/2018 | 4/25/2018 | 4/25/2018 | 4/25/2018 |
| | Depth | 0–10 cm |
| | Sample Type | N | N | N | N | N | N |
| | Matrix | SE | SE | SE | SE | SE | SE |
| | х | 996812.058 | 996610.112 | 996551.123 | 996483.007 | 996553.49 | 996419.366 |
| | Υ | 695534.376 | 695606.699 | 695741.231 | 695875.454 | 696078.109 | 696007.097 |
| | RAL | | | | | | |
| Dioxin Furans (ng/kg) | | • | | | | | |
| 2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD) | | 0.284 J | 0.625 U | 1.61 J | 1.55 J | 2.42 J | 2.13 J |
| 1,2,3,7,8-Pentachlorodibenzo-p-dioxin (PeCDD) | | 0.392 J | 1.32 J | 6.52 J | 7.56 J | 9.66 J | 9.6 J |
| 1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD) | | 0.605 J | 3.34 J | 13.5 J | 14.7 J | 18.3 J | 16.6 J |
| 1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (HxCDD) | | 1.92 J | 11.3 J | 64 | 53.3 | 62.2 | 55.3 |
| 1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (HxCDD) | | 1.06 J | 5.55 J | 23.2 J | 28.6 | 34.8 | 28.7 |
| 1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD) | | 35.7 | 260 | 1530 | 1150 | 1240 | 1190 |
| 1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD) | | 317 | 3130 | 14000 | 13800 | 12900 | 14300 |
| Total Tetrachlorodibenzo-p-dioxin (TCDD) | | 11.7 J | 63.8 J | 285 J | 467 J | 599 J | 504 J |
| Total Pentachlorodibenzo-p-dioxin (PeCDD) | | 14.3 J | 82 J | 316 J | 522 J | 690 J | 537 J |
| Total Hexachlorodibenzo-p-dioxin (HxCDD) | | 35.9 J | 186 J | 709 J | 1050 | 1240 | 1040 |
| Total Heptachlorodibenzo-p-dioxin (HpCDD) | | 87.5 | 639 | 3410 | 3190 | 3160 | 3240 |
| 2,3,7,8-Tetrachlorodibenzofuran (TCDF) | | 0.258 J | 0.9 J | 3.95 J | 4.33 J | 5.11 | 5.08 |
| 1,2,3,7,8-Pentachlorodibenzofuran (PeCDF) | | 0.259 J | 1.32 J | 4.54 J | 4.82 J | 4.84 J | 5.23 J |
| 2,3,4,7,8-Pentachlorodibenzofuran (PeCDF) | | 0.246 U | 1.7 J | 6.64 J | 6.9 J | 7.51 J | 7.47 J |
| 1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF) | | 1.08 J | 7.41 J | 45.7 | 29.3 | 29 | 29 |
| 1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF) | | 0.531 J | 2.8 J | 12.4 J | 11.1 J | 13 J | 12.4 J |
| 1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF) | | 0.246 U | 0.699 U | 1.39 J | 0.926 J | 1.47 J | 1.43 J |
| 2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF) | | 0.459 J | 2.29 J | 8.08 J | 8.54 J | 9.38 J | 9.15 J |
| 1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF) | | 13.8 J | 90.3 | 549 | 339 | 402 | 349 |
| 1,2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF) | | 0.743 J | 5.56 J | 38.3 | 21 J | 21.7 J | 20 J |
| 1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF) | | 30 J | 363 | 2430 | 1030 | 1170 | 957 |
| Total Tetrachlorodibenzofuran (TCDF) | | 3.15 J | 15.8 J | 85.6 J | 98.1 J | 115 J | 105 J |
| Total Pentachlorodibenzofuran (PeCDF) | | 3.78 J | 26 J | 140 J | 149 J | 166 J | 167 J |
| Total Hexachlorodibenzofuran (HxCDF) | | 15.5 J | 114 J | 644 J | 500 J | 534 J | 514 J |
| Total Heptachlorodibenzofuran (HpCDF) | | 41 | 361 J | 2830 | 1350 | 1530 | 1300 J |
| Dioxin Furans (ng/kg) | | | | | | | |
| Total Dioxin/Furan TEQ 2005 (Mammal) (U = 0) | | 1.8816 J | 9.8351 J | 53.5822 J | 45.9532 J | 52.6622 J | 50.061 J |
| Total Dioxin/Furan TEQ 2005 (Mammal) (U = 1/2) | * | 1.9308 J | 10.18255 J | 53.5822 J | 45.9532 J | 52.6622 J | 50.061 J |

Bold: detected result

*Surface-weighted average concentration RAL (42 ng/kg TEQ)

cm: centimeter

FD: field duplicate

J: estimated value

N: normal sample

ng/kg: nanograms per kilogram

PDI: pre-remedial design investigation

RAL: Remedial Action Level

SE: sediment matrix

SMA: sediment management area

TEQ: toxicity equivalence

Table A-4
SMA-2 PDI Sediment Results

| | Task Location ID | = = | SheltonRI_FS_2018 PDI-SMA2-SG02-180430 | SheltonRI_FS_2018 PDI-SMA2-SG03-180427 | SheltonRI_FS_2018 PDI-SMA2-SG04-180427 | SheltonRI_FS_2018 PDI-SMA2-SG05-180501 | SheltonRI_FS_2018 PDI-SMA2-SG06-180427 | SheltonRI_FS_2018 PDI-SMA2-SG06-180427 | SheltonRI_FS_2018 PDI-SMA2-SG07-180430 | SheltonRI_FS_2018 PDI-SMA2-SG13-180430 |
|---|---------------------|------------|---|---|---|---|---|---|---|---|
| | | | | PDI-SMA2-SG03-180427 | | PDI-SMA2-SG05-180501 | PDI-SMA2-SG06-180427 | PDI-SMA2-SG106-180427 | PDI-SMA2-SG07-180430 | PDI-SMA2-SG13-180430 |
| | Sample Date | 4/27/2018 | 4/30/2018 | 4/27/2018 | 4/27/2018 | 5/1/2018 | 4/27/2018 | 4/27/2018 | 4/30/2018 | 4/30/2018 |
| | Depth | 0–10 cm | 0–10 cm | 0–10 cm | 0–10 cm | 0–10 cm | 0–10 cm | 0–10 cm | 0–10 cm | 0–10 cm |
| | Sample Type | N | N N | N | N N | N N | N | FD FD | N | N N |
| | Matrix | SE | SE | SE | SE | SE | SE | SE | SE | SE |
| | Y | 997351.751 | 997437.526 | 997503.611 | 997342.032 | 997335.904 | 997405.082 | 997405.082 | 997487.7 | 997475.68 |
| | v | 696303.863 | 696294.191 | 696266.504 | 696271.649 | 696251.542 | 696219.846 | 696219.846 | 696194.012 | 696156.088 |
| | RAL | 030303.003 | 030254.151 | 030200.304 | 030271.043 | 030231.342 | 030213.040 | 030E13.040 | 030134.012 | 030130.000 |
| Conventional Parameters (pct) | 1012 | | | | | | | | | |
| Total organic carbon | | 0.63 | 3.25 | 0.81 | 0.74 | 2.41 | 2 | 2.66 | 1.92 | 1.96 |
| Total solids | | 89.13 | 43.02 | 68 | 64.05 | 55.29 | 45.39 | 45.53 | 45.1 | 36.18 |
| Metals (mg/kg) | | | | | | | | | | |
| Copper | 390 | 106 | 49.6 | 34.1 | 119 | 59.7 | 47.1 | 46.3 | 47.7 | 48.8 |
| Organometallic Compounds (µg/kg) | | | | | | | | | | |
| Butyltin (ion) | | 4.46 U | 3.26 J | 6 U | 10.8 | 7.74 | 8.75 | 9.19 U | 2.26 J | 2.73 J |
| Dibutyltin (ion) | | 2.98 J | 6.39 | 8.5 U | 68.9 | 60.7 | 24.2 | 8.42 J | 5.99 | 5.03 J |
| Tetrabutyltin | | 5.46 U | 4.93 U | 7.35 U | 7.52 U | 4.81 U | 10.6 U | 11.3 U | 4.82 U | 4.76 U |
| Tributyltin (ion) | | 1.74 J | 6.88 | 0.716 J | 33.8 | 79 | 9.2 | 4.99 J | 10 | 7.65 |
| Organometallic Compounds (mg/kg-OC) | | | | | | | | | | |
| Tributyltin (ion) | 7.5 | 0.27619 J | 0.21169 | 0.088395 J | 4.5676 | 3.278 | 0.46 | 0.18759 J | 0.5208 | 0.39031 |
| Dioxin Furans (ng/kg) | | | | | | | | | | |
| 2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD) | | - | 1.91 J | 1.03 J | - | | 5.6 | 4 J | 4.99 J | 4.39 J |
| 1,2,3,7,8-Pentachlorodibenzo-p-dioxin (PeCDD) | | - | 10.4 J | 6.18 J | - | | 21.7 J | 20.5 J | 21 J | 19.2 J |
| 1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD) | | - | 20.4 J | 12 J | | | 48.8 | 42.5 | 41.6 | 37.2 |
| 1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (HxCDD) | | | 62.3 | 35.9 | | | 121 | 107 | 104 | 95.8 |
| 1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (HxCDD) | | | 33.3 | 19.5 J | | | 71.7 | 65.9 | 60.6 | 48.8 |
| 1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD) | | | 1190 | 656 | | | 1450 | 1320 | 1310 | 1330 |
| 1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD) | | | 9430 | 5050 | | | 9590 | 8880 | 8760 | 8810 |
| Total Tetrachlorodibenzo-p-dioxin (TCDD) | | | 867 J | 554 J | | | 3160 J | 3480 J | 3470 J | 2800 |
| Total Pentachlorodibenzo-p-dioxin (PeCDD) | | | 815 J | 509 | | | 2620 | 2980 J | 2790 | 2390 |
| Total Hexachlorodibenzo-p-dioxin (HxCDD) | | | 1340 | 830 | | | 3430 | 3340 | 3070 | 2700 |
| Total Heptachlorodibenzo-p-dioxin (HpCDD) | | | 3160 | 1730 | | | 3600 | 3300 | 3260 | 3800 |
| 2,3,7,8-Tetrachlorodibenzofuran (TCDF) | | | 5.37 | 3.55 J | | | 11.4 | 9.58 | 10.5 | 9.63 |
| 1,2,3,7,8-Pentachlorodibenzofuran (PeCDF) | | | 5.53 J | 3.31 J | | | 9.68 J | 8.66 J | 9.66 J | 8.12 J |
| 2,3,4,7,8-Pentachlorodibenzofuran (PeCDF) | | | 7.98 J | 4.49 J | | | 15.6 J | 13 J | 14.3 J | 14.1 J |
| 1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF) | | | 27.5 | 17.6 J | | | 36.6 | 35.7 | 36.7 | 38.5 |
| 1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF) | | | 12.5 J | 7.72 J | | | 18.2 J | 16.1 J | 17.4 J | 16.1 J |
| 1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF) | | | 1.3 J | 0.754 J | | | 2.04 J | 1.28 J | 1.74 J | 1.8 J |
| 2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF) | | | 9.77 J | 6.04 J | | | 13.5 J | 12.2 J | 13.4 J | 12.8 J |
| 1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF) | | | 338 | 208 | | | 360 | 326 | 337 | 348 |
| 1,2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF) | | | 19.3 J | 15.5 J | | | 24.5 | 20.4 J | 20.2 J | 21.7 J |
| 1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF) | | | 845 | 513 | | | 954 | 841 | 808 | 888 |
| Total Tetrachlorodibenzofuran (TCDF) | | | 128 J | 80.4 J | | | 311 J | 270 J | 286 J | 252 J |
| Total Pentachlorodibenzofuran (PeCDF) | | | 174 J | 105 J | | | 305 J | 266 J | 291 J | 307 J |
| Total Hexachlorodibenzofuran (HxCDF) | | | 456 J | 290 | | | 583 J | 546 J | 574 J | 650 |
| Total Heptachlorodibenzofuran (HpCDF) | | | 1210 | 760 | | | 1340 | 1210 | 1220 | 1330 |
| Dioxin Furans (ng/kg) | | | | | | | | | | |
| Total Dioxin/Furan TEQ 2005 (Mammal) (U = 0) | | | 50.6694 J | 29.4266 J | | | 86.1026 J | 77.2661 J | 78.7062 J | 74.033 J |
| Total Dioxin/Furan TEQ 2005 (Mammal) (U = 1/2) | * | | 50.6694 J | 29.4266 J | | | 86.1026 J | 77.2661 J | 78.7062 J | 74.033 J |

Bold: detected result

* Surface-weighted average concentration RAL (42 ng/kg TEQ) μg/kg: micrograms per kilogram cm: centimeter FD: field duplicate

J: estimated value

mg/kg: milligrams per kilogram

ng/kg: nanograms per kilogram

N: normal sample

-OC: organic carbon normalized pct: percent

PDI: pre-remedial design investigation

RAL: Remedial Action Level
SE: sediment matrix
SMA: sediment management area

TEQ: toxicity equivalence

Table A-5
SMA-3 PDI Sediment Results

| | Task | SheltonRI_FS_2018 | SheltonRI_FS_2018 | SheltonRI_FS_2018 | SheltonRI_FS_2018 | SheltonRI_FS_2018 | SheltonRI_FS_2018 | SheltonRI_FS_2018 | SheltonRI_FS_2018 | SheltonRI_FS_2018 | SheltonRI_FS_2018 |
|---|------------|----------------------|----------------------|-----------------------|----------------------|----------------------|----------------------|------------------------|------------------------|----------------------|----------------------|
| Loca | ation ID I | PDI-SMA3-OG01-180502 | PDI-SMA3-SG01-180426 | PDI-SMA3-SG01-180426 | PDI-SMA3-SG02-180426 | PDI-SMA3-SG03-180426 | PDI-SMA3-SG04-180426 | PDI-SMA3-SG1004-1804 | PDI-SMA3-SG2004-1804 | PDI-SMA3-SG05-180426 | PDI-SMA3-SG06-180426 |
| San | mple ID I | PDI-SMA3-OG01-180502 | PDI-SMA3-SG01-180426 | PDI-SMA3-SG101-180426 | PDI-SMA3-SG02-180426 | PDI-SMA3-SG03-180426 | PDI-SMA3-SG04-180426 | PDI-SMA3-SG1004-180426 | PDI-SMA3-SG2004-180426 | PDI-SMA3-SG05-180426 | PDI-SMA3-SG06-180426 |
| Samp | le Date | 5/2/2018 | 4/26/2018 | 4/26/2018 | 4/26/2018 | 4/26/2018 | 4/26/2018 | 4/26/2018 | 4/26/2018 | 4/26/2018 | 4/26/2018 |
| | Depth | 0–10 cm | 0–10 cm | 0–10 cm | 0–10 cm | 0–10 cm | 0–10 cm | 0–10 cm | 0–10 cm | 0–10 cm | 0–10 cm |
| Sampl | le Type | N | N | FD | N | N | N | N | N | N | N |
| | Matrix | SE | SE | SE | SE | SE | SE | SE | SE | SE | SE |
| | х | 995842.972 | 995703.931 | 995703.931 | 995910.095 | 996110.857 | 996185.782 | 996184.854 | 996188.995 | 996258.992 | 996332.697 |
| | Y | 693659.884 | 694164.595 | 694164.595 | 694106.722 | 694048.42 | 693919.446 | 693916.436 | 693916.3 | 693788.704 | 693660.38 |
| | RAL | | | | | | | | | | |
| Dioxin Furans (ng/kg) | <u>.</u> | | • | • | • | | • | • | • | | • |
| 2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD) | | 0.248 J | 3.57 J | 3.94 J | 3.75 J | 3.6 J | 6.36 | 7.34 | 5.42 | 3.23 J | 2.6 J |
| 1,2,3,7,8-Pentachlorodibenzo-p-dioxin (PeCDD) | | 1.39 J | 13.3 J | 13.7 J | 15.9 J | 14.8 J | 27.3 | 29.4 | 18.8 J | 15 J | 11.2 J |
| 1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD) | | 2.06 J | 21.3 J | 24.7 | 27.5 | 22.9 J | 52 | 60.8 | 34.3 | 24.6 | 20.9 J |
| 1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (HxCDD) | | 11 | 83.5 | 86 | 91.4 | 89.3 | 161 | 157 | 114 | 82.8 | 70.5 |
| 1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (HxCDD) | | 3.58 J | 36.6 | 47.2 | 43 | 38.7 | 72.9 | 89.2 | 43.6 | 42.4 | 34 |
| 1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD) | | 276 | 1700 | 1840 | 1890 | 1760 | 2910 | 2150 | 1780 | 1560 | 1410 |
| 1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD) | | 3740 | 14700 | 15000 | 15000 | 14300 | 20300 | 14300 | 14100 | 13700 | 12200 |
| Total Tetrachlorodibenzo-p-dioxin (TCDD) | | 53.7 J | 652 J | 870 J | 1800 J | 1150 J | 4220 J | 3520 | 2240 | 987 J | 468 J |
| Total Pentachlorodibenzo-p-dioxin (PeCDD) | | 48.2 J | 702 | 842 | 1210 | 921 | 3320 | 2860 | 1780 | 984 | 659 J |
| Total Hexachlorodibenzo-p-dioxin (HxCDD) | | 102 | 1380 | 1550 | 1730 | 1590 | 3410 | 4160 | 2420 | 1580 | 1330 |
| Total Heptachlorodibenzo-p-dioxin (HpCDD) | | 664 | 4850 | 4890 | 5140 | 4950 | 6940 | 5420 | 4780 | 4290 | 3770 |
| 2,3,7,8-Tetrachlorodibenzofuran (TCDF) | | 0.836 J | 12.9 | 15 | 13.4 | 14 | 21.8 | 23.1 | 13.6 | 11.2 | 8.46 |
| 1,2,3,7,8-Pentachlorodibenzofuran (PeCDF) | | 0.827 J | 9.95 J | 10.7 J | 11.3 J | 10.5 J | 16.8 J | 18.1 J | 14.5 J | 10.3 J | 8.06 J |
| 2,3,4,7,8-Pentachlorodibenzofuran (PeCDF) | | 0.941 J | 14.2 J | 14.5 J | 15 J | 15 J | 26.7 | 26.2 | 20 J | 12.8 J | 11.4 J |
| 1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF) | | 4.32 J | 49.9 | 48.6 | 51.6 | 54.1 | 104 | 63.3 | 56.9 | 44.4 | 38.1 |
| 1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF) | | 2.23 J | 20 J | 19.9 J | 21 J | 21.1 J | 32.4 | 27.2 | 23.3 J | 18.4 J | 16.7 J |
| 1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF) | | 0.263 U | 1.81 J | 1.73 J | 2.09 J | 2.1 J | 2.99 J | 2.52 J | 2.04 J | 1.73 J | 1.5 J |
| 2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF) | | 1.51 J | 15.4 J | 15 J | 15.7 J | 15.5 J | 22.7 J | 21 J | 16.4 J | 13.8 J | 12.5 J |
| 1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF) | | 90.9 | 608 | 650 | 674 | 829 | 1030 | 637 | 652 | 507 | 467 |
| 1,2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF) | | 7.37 | 41.4 | 47.5 | 36.3 | 51.1 | 78.1 | 38.7 | 34.3 | 28.7 | 26.5 |
| 1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF) | | 213 | 1700 | 1950 | 2070 | 1570 | 4150 | 1370 | 1670 | 1340 | 1140 |
| Total Tetrachlorodibenzofuran (TCDF) | | 16.7 J | 290 J | 321 J | 309 J | 319 J | 595 J | 593 J | 457 J | 279 J | 183 J |
| Total Pentachlorodibenzofuran (PeCDF) | | 25.2 J | 290 J | 285 J | 317 J | 327 J | 522 J | 529 J | 413 J | 282 J | 223 J |
| Total Hexachlorodibenzofuran (HxCDF) | | 95.6 J | 776 | 786 J | 835 | 872 | 1470 | 1020 | 949 | 696 | 620 |
| Total Heptachlorodibenzofuran (HpCDF) | | 355 | 2380 | 2670 | 2730 | 2600 | 4880 | 2260 | 2730 | 1830 | 1660 |
| Dioxin Furans (ng/kg) | | | | | | | | | | | |
| Total Dioxin/Furan TEQ 2005 (Mammal) (U = 0) | | 9.42731 J | 73.9835 J | 78.584 J | 82.182 J | 80.147 J | 136.669 J | 122.513 J | 90.463 J | 71.781 J | 60.7648 J |
| Total Dioxin/Furan TEQ 2005 (Mammal) (U = 1/2) | | 9.44046 J | 73.9835 J | 78.584 J | 82.182 J | 80.147 J | 136.669 J | 122.513 J | 90.463 J | 71.781 J | 60.7648 J |
| Notes: | | <u> </u> | | | <u> </u> | <u> </u> | | | | • | |

Bold: detected result

* Surface-weighted average concentration RAL (42 ng/kg TEQ)

cm: centimeter

FD: field duplicate

J: estimated value

N: normal sample

ng/kg: nanograms per kilograms

PDI: pre-remedial design investigation

RAL: Remedial Action Level

SE: sediment matrix

SMA: sediment management area

TEQ: toxicity equivalence

Table A-6
SMA-3 PDI Porewater Hydrogen Sulfide Results

| Sample ID | Sulfide (mg/L as H₂S) |
|-------------------------------|-----------------------|
| PDI-SMA3-DGT01 | 0.004 U |
| PDI-SMA3-DGT02 | 0.004 U |
| PDI-SMA3-DGT1002 (duplicate) | 0.004 U |
| PDI-SMA3-DGT2002 (triplicate) | 0.004 U |
| PDI-SMA3-DGT03 | 0.004 U |
| PDI-SMA3-DGT04 | 0.004 U |
| PDI-SMA3-DGT05 | 0.004 U |
| PDI-SMA3-DGT1005 (duplicate) | 0.004 U |
| PDI-SMA3-DGT2005 (triplicate) | 0.004 U |
| PDI-SMA3-DGT06 | 0.004 U |
| PDI-SMA3-DGT106 (duplicate) | 0.004 U |
| PDI-SMA3-SG03 | 0.032 |
| PDI-SMA3-SG05 | 0.004 U |
| PDI-SMA3-SG07 | 0.006 |
| PDI-SMA3-SG08 | 0.01 |
| PDI-SMA3-SG10 | 0.004 U |
| PDI-SMA3-SG12 | 0.005 |
| PDI-SMA3-SG14 | 0.012 |
| PDI-SMA3-SG18 | 0.004 U |
| PDI-SMA3-SG19 | 0.012 |

H₂S: hydrogen sulfide mg/L: milligrams per liter

PDI: pre-remedial design investigation SMA: sediment management area

U: not detected above the method detection limit

Table A-7
Shelton SCU Surface Sediment Dioxin/Furan 2017 Retest Results

| Task | SheltonRI_FS_2017 | SheltonRI_FS_2017 | SheltonRI_FS_2017 | SheltonRI_FS_2017 | SheltonRI_FS_2017 | SheltonRI_FS_2017 | SheltonRI_FS_2017 | SheltonRI_FS_2017 | SheltonRI_FS_2017 | SheltonRI_FS_2017 |
|---|-------------------|----------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Location ID | | SH-03-170809 | SH-04-170713 | SH-13A-170713 | SH-14-170712 | SH-19-170712 | SH-21-170712 | SH-22-170712 | SH-24-170713 | SH-28-170712 |
| Sample ID | SG-01-SG-170713 | SH-03-SC-0-10-170809 | SH-04-SG-170713 | SH-13A-SG-170713 | SH-14-SG-170712 | SH-19-SG-170712 | SH-21-SG-170712 | SH-22-SG-170712 | SH-24-SG-170713 | SH-28-SG-170712 |
| Sample Date | 7/13/2017 | 8/9/2017 | 7/13/2017 | 7/13/2017 | 7/12/2017 | 7/12/2017 | 7/12/2017 | 7/12/2017 | 7/13/2017 | 7/12/2017 |
| Depth | 0–10 cm | 0–10 cm | 0–10 cm | 0–10 cm | 0–10 cm | 0–10 cm | 0–10 cm | 0–10 cm | 0–10 cm | 0–10 cm |
| Sample Type | N | N | N | N | N | N | N | N | N | N |
| Matrix | SE | SE | SE | SE | SE | SE | SE | SE | SE | SE |
| x | 996049.125 | 996814.446 | 996383.079 | 996153.767 | 999092.728 | 996183.628 | 996872.434 | 997441.609 | 998145.069 | 998803.183 |
| Y | 696269.737 | 695861.948 | 695943.332 | 693698.315 | 694408.1 | 694198.083 | 694494.339 | 693708.26 | 693633.613 | 695034.68 |
| | | | | | | | | | | |
| Dioxin Furans (ng/kg) | | | | | | | | | | |
| 2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD) | 1.35 U | 8.38 J | 1.38 U | 4.55 | 1.55 U | 2.51 U | 1.56 U | 0.936 U | 1.58 U | 1.81 U |
| 1,2,3,7,8-Pentachlorodibenzo-p-dioxin (PeCDD) | 2.5 J | 37.2 | 7.88 | 15.1 | 3.53 J | 6.39 J | 7.79 | 0.892 U | 1.69 J | 1.17 U |
| 1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD) | 4.09 | 74.8 | 16.5 J | 20.8 | 6.17 | 11.1 | 18.6 | 5.2 J | 2.42 J | 1.57 J |
| 1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (HxCDD) | 26.6 | 471 | 68.5 | 55.3 | 29.4 | 50.8 | 63.4 | 31.2 | 11.1 | 9.98 |
| 1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (HxCDD) | 8.14 | 151 | 29.2 | 28.2 | 10.2 J | 16.1 J | 29.7 | 7.81 J | 4.26 J | 3.63 J |
| 1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD) | 596 | 13300 J | 1350 | 796 | 493 | 925 | 1510 | 1190 | 230 | 174 |
| 1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD) | 2240 | 145000 J | 14700 | 7420 | 4160 | 7310 | 12700 | 7900 | 1960 | 1550 |
| Total Tetrachlorodibenzo-p-dioxin (TCDD) | 46.5 J | 1170 J | 492 J | 1160 J | 210 J | 387 | 514 J | 76.3 J | 45.6 | 73.4 J |
| Total Pentachlorodibenzo-p-dioxin (PeCDD) | 57 J | 1430 J | 681 J | 1050 | 235 J | 359 J | 663 J | 93.1 J | 75 J | 64.1 J |
| Total Hexachlorodibenzo-p-dioxin (HxCDD) | 147 J | 4800 | 1060 J | 1050 | 461 J | 581 J | 1200 | 616 J | 156 J | 208 J |
| Total Heptachlorodibenzo-p-dioxin (HpCDD) | 915 | 35100 | 3200 | 2170 | 1370 | 2150 | 4350 | 6540 | 557 | 567 |
| 2,3,7,8-Tetrachlorodibenzofuran (TCDF) | 1.75 U | 21.8 | 3.94 J | 12.7 | 3.72 J | 10.9 | 4.66 | 1.21 U | 2.09 U | 1.84 U |
| 1,2,3,7,8-Pentachlorodibenzofuran (PeCDF) | 1.89 J | 28.3 | 4.89 | 7.6 | 2.59 J | 7.43 | 6 | 1.46 J | 1.42 J | 1.36 J |
| 2,3,4,7,8-Pentachlorodibenzofuran (PeCDF) | 3.01 J | 55 | 6.75 | 13.1 | 4.83 | 9.56 J | 7.8 | 2.54 J | 2.53 J | 1.03 U |
| 1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF) | 27.2 | 282 | 32.4 | 22.3 | 16.3 | 26.1 | 31.7 | 7.33 | 6.54 | 4.83 |
| 1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF) | 5.7 J | 88.3 | 12.9 | 11.1 | 5.93 | 10 J | 11.9 | 3.02 J | 1.81 J | 2.33 J |
| 1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF) | 1.27 U | 4.83 U | 2.03 U | 2.07 U | 1.13 U | 2.93 U | 2.23 U | 1.19 U | 1.5 U | 1.58 U |
| 2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF) | 10.2 | 151 | 19.7 | 15.1 | 8.49 J | 17.1 | 18 | 5.56 | 4.74 | 3.02 J |
| 1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF) | 271 | 4100 | 395 | 237 | 171 | 444 | 441 | 80.2 | 85.5 | 55.9 |
| 1,2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF) | 21.5 | 242 | 25 | 14.9 | 9.97 | 19.9 | 24.4 | 4.33 J | 4.2 J | 3.26 J |
| 1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF) | 950 | 18800 J | 1540 | 736 | 536 | 1410 | 1770 | 220 | 272 | 149 |
| Total Tetrachlorodibenzofuran (TCDF) | 5.51 | 480 J | 86 J | 300 J | 89.9 J | 273 J | 112 J | 1.21 U | 2.09 U | 1.84 U |
| Total Pentachlorodibenzofuran (PeCDF) | 47.5 J | 890 J | 126 J | 168 J | 93.3 J | 188 J | 132 J | 40 J | 26 J | 28.2 J |
| Total Hexachlorodibenzofuran (HxCDF) | 394 J | 5390 | 545 J | 368 | 281 J | 546 J | 525 J | 146 | 113 J | 87.6 J |
| Total Heptachlorodibenzofuran (HpCDF) | 1350 J | 18300 | 1590 | 846 J | 598 | 1620 | 1670 | 268 J | 255 J | 163 J |
| Dioxin Furans (ng/kg) | | | | | | | | | | |
| Total Dioxin/Furan TEQ 2005 (Mammal) (U = 0) | 21.4947 J | 412.479 J | 50.9377 J | 53.2838 | 21.2262 J | 40.1959 J | 52.201 | 21.9991 J | 9.4452 J | 5.4181 J |
| Total Dioxin/Furan TEQ 2005 (Mammal) (U = 1/2) | 22.3207 J | 412.7205 J | 51.7292 J | 53.3873 | 22.0577 J | 41.5974 J | 53.0925 | 23.0331 J | 10.4147 J | 7.2336 J |

Bold: detected result

* Surface-weighted average concentration RAL (42 ng/kg TEQ)

cm: centimeter

J: estimated value

N: normal sample

ng/kg: nanograms per kilogram

RAL: Remedial Action Level

SCU: sediment cleanup unit

SE: sediment matrix

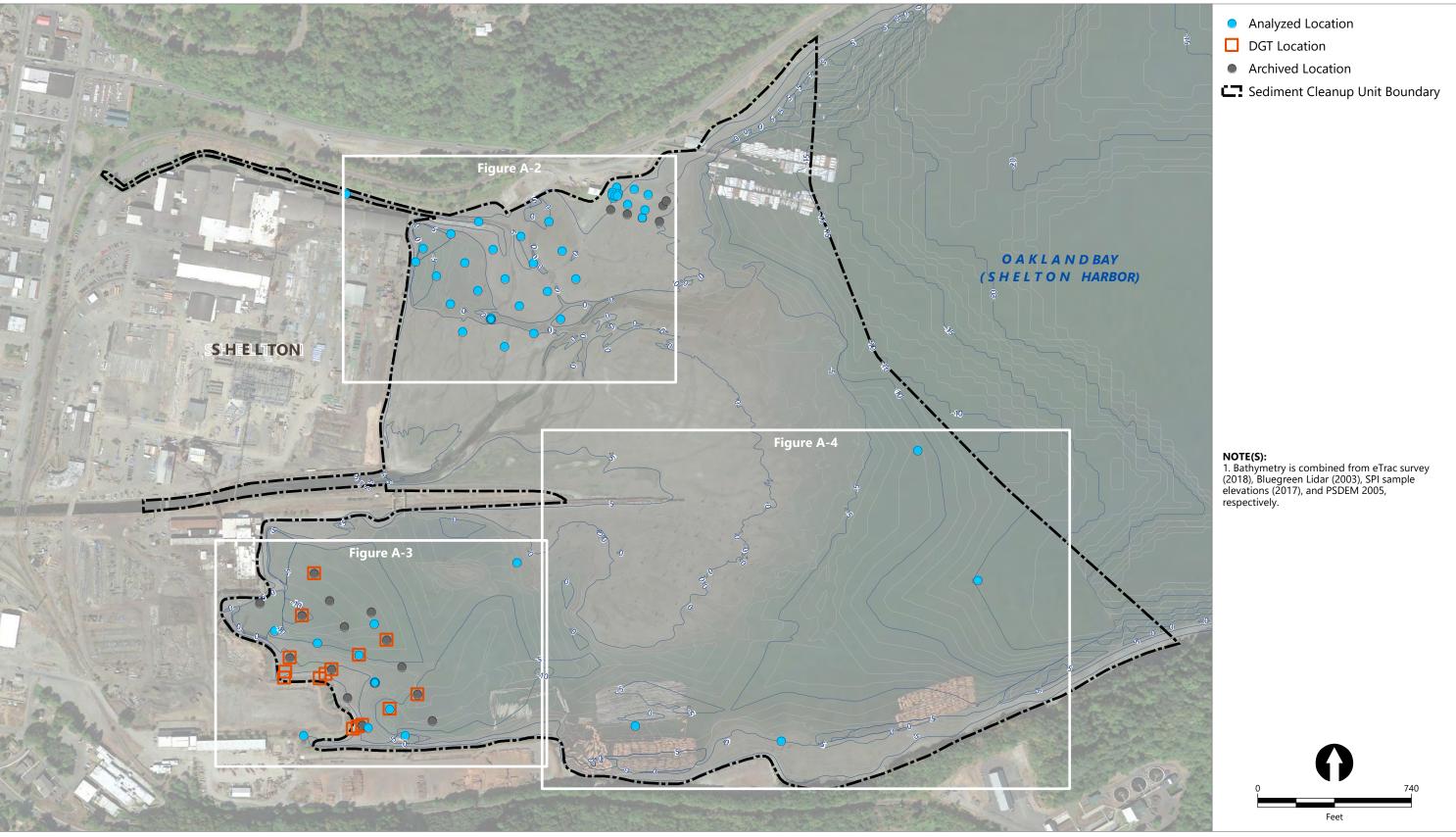
TEQ: toxicity equivalence

Table A-8
Summary of Initial and Retest Dioxin/Furan TEQ Results

| | Dioxin/Furan TEQ I | Mammal (ng/kg dw) |
|---------|--------------------|---------------------|
| | 2017 Initial Test | |
| Station | Results | 2018 Retest Results |
| SG-01 | 22.8 | 22.3 |
| SH-03 | 287 | 413 |
| SH-04 | 20.7 | 51.8 |
| SH-13A | 42.5 | 53.4 |
| SH-14 | 13.7 | 22.1 |
| SH-19 | 15.7 | 41.6 |
| SH-21 | 15.6 | 53.1 |
| SH-22 | 22.0 | 23.0 |
| SH-24 | 21.4 | 10.4 |
| SH-28 | 9.92 | 7.23 |

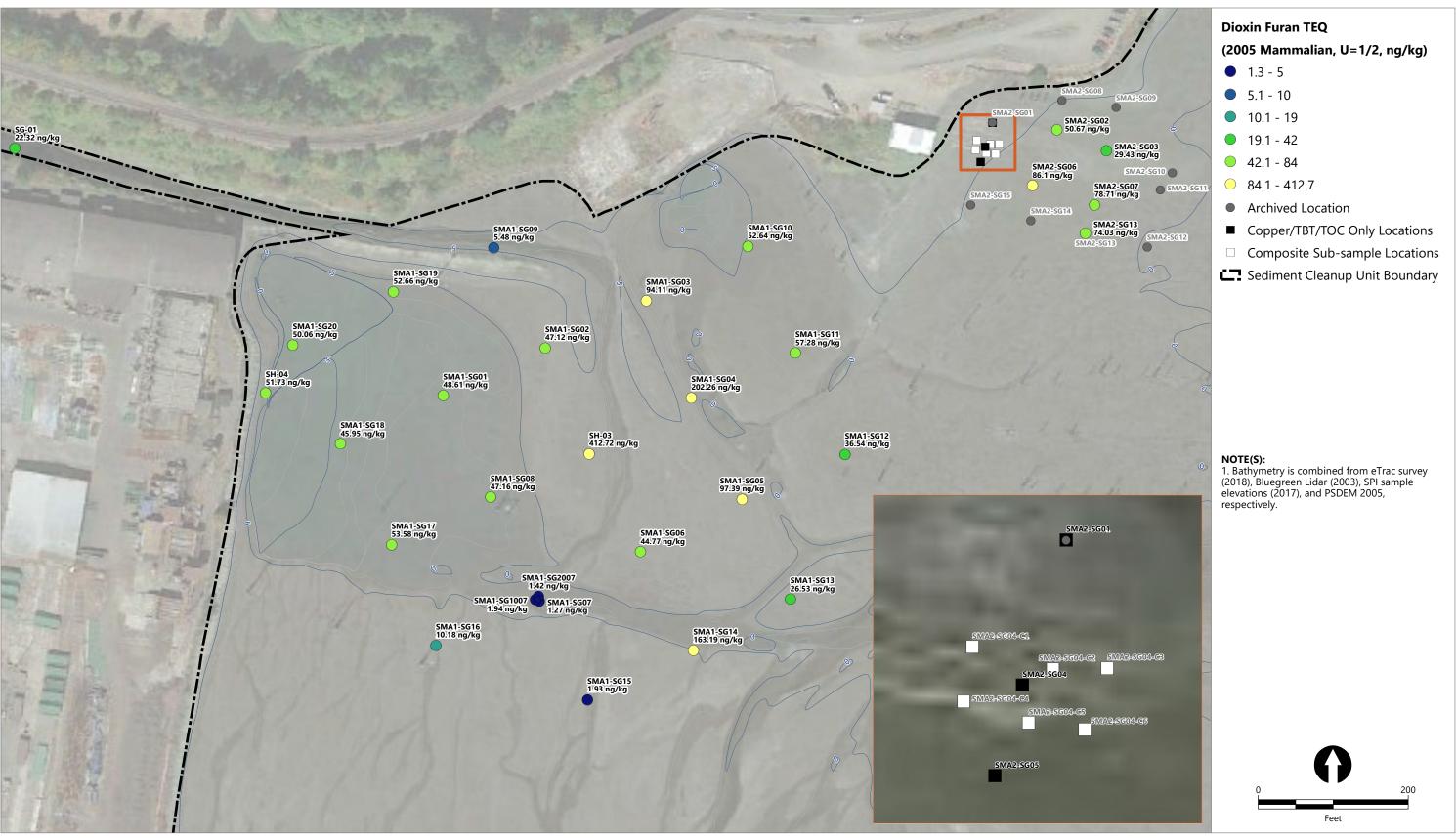
ng/kg dw: nanograms per kilogram on a dry weight basis

Figures



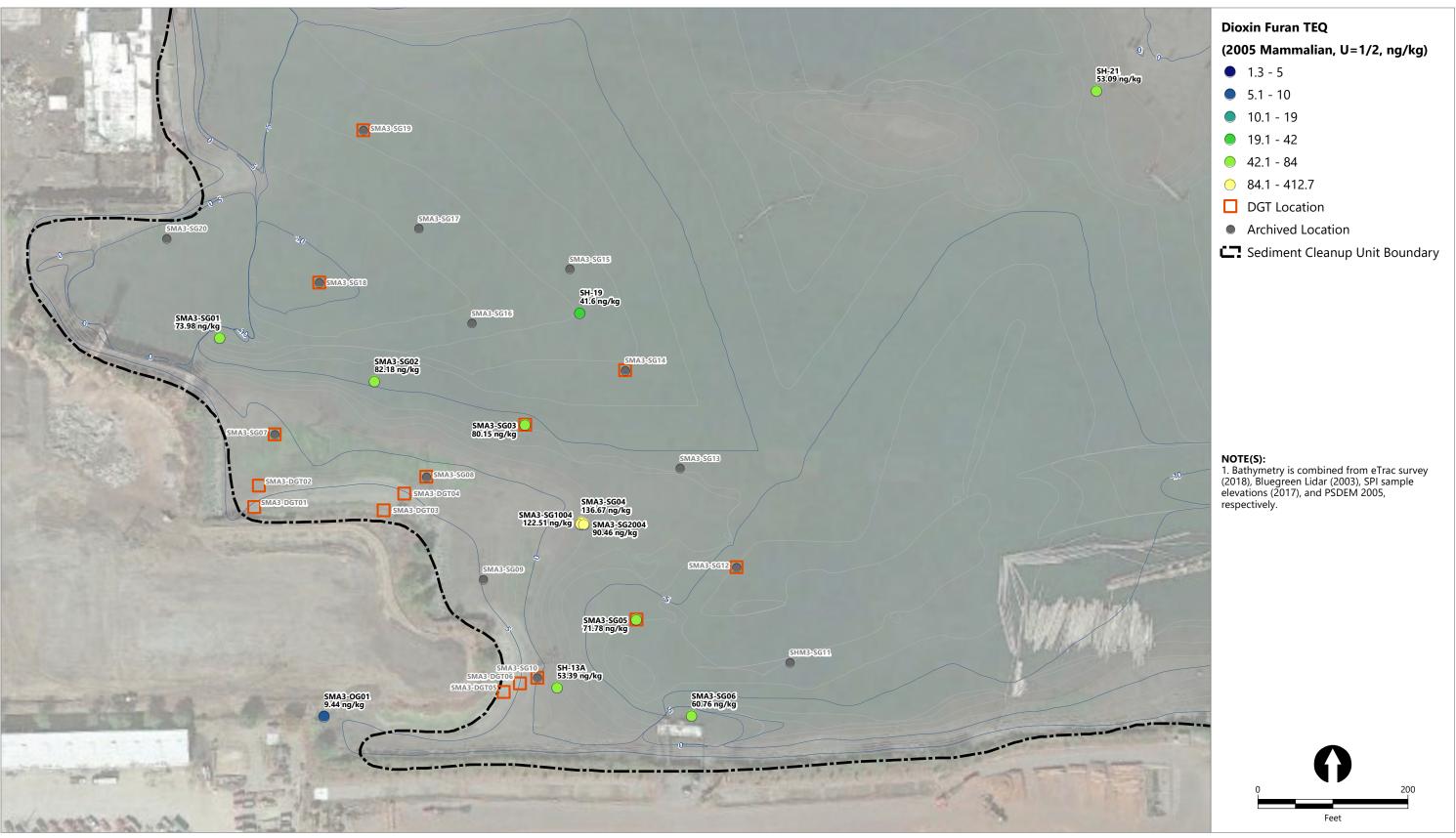
Publish Date: 2018/08/29, 10:23 AM | User: ckiblinger Filepath: \\orcas\gis\obs\Simpson_Timber_0008\SheltonHarbor\Maps\PDIDP\Shelton_PDIDP_ChemistryResults_201808.mxd





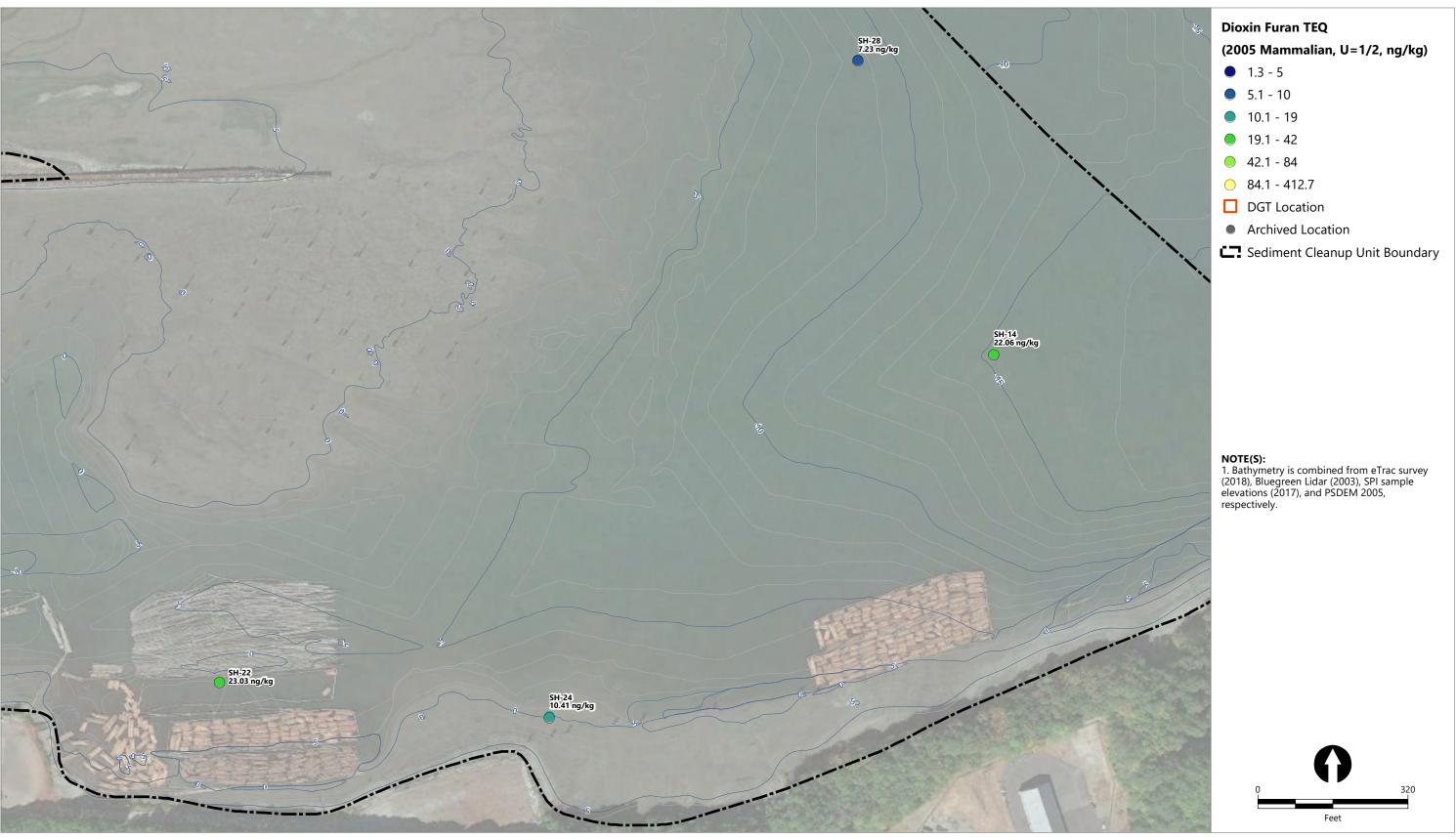
Publish Date: 2018/09/24, 1:20 PM | User: ckiblinger Filepath: \\orcas\gis\Jobs\Simpson_Timber_0008\SheltonHarbor\Maps\PDIDP\Shelton_PDIDP_ChemistryResults_201808_SMA2.mxd





Publish Date: 2018/08/08, 3:08 PM | User: ckiblinger Filepath: \\orcas\gis\Obs\Simpson_Timber_0008\SheltonHarbor\Maps\PDIDP\Shelton_PDIDP_ChemistryResults_201808.mxd





Publish Date: 2018/08/08, 3:08 PM | User: ckiblinger Filepath: \\orcas\gis\Obs\Simpson_Timber_0008\SheltonHarbor\Maps\PDIDP\Shelton_PDIDP_ChemistryResults_201808.mxd



Attachment A-1 Data Validation Reports

Anchor Environmental, LLC 720 Olive Way, Suite 1900 Seattle, WA 98101 ATTN: Ms. Cindy Fields July 20, 2018

SUBJECT: Shelton Harbor, Data Validation

Dear Ms. Fields,

Enclosed are the final validation reports for the fraction listed below. These SDGs were received on June 15, 2018. Attachment 1 is a summary of the samples that were reviewed for each analysis.

LDC Project #42441:

SDG # Fraction

DPWG64001 Polychlorinated Dioxins/Dibenzofurans
DPWG64036

The data validation was performed under Stage 4 guidelines. The analyses were validated using the following documents, as applicable to each method:

- Sampling and Quality Assurance Project Plan for Shelton Harbor Sediment Cleanup Unit, Oakland Bay and Shelton Harbor Sediment Cleanup Site, Shelton Washington; July 2017
- USEPA National Functional Guidelines for High Resolution Superfund Methods Data Review, April 2016

Please feel free to contact us if you have any questions.

Sincerely,

Christina Rink

Project Manager/Senior Chemist

3,077 pages- ADV Attachment 1 EDD / Stage 2B / Dioxins Stage 4 LDC #42441 (Simpson Timber Company/Anchor Environmental - Seattle WA / Shelton Harbor) DATE DATE Dioxins LDC SDG# **REC'D** DUE (1613B) | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | s | w | w s Matrix: Water/Sediment DPWG64001 06/15/18 07/09/18 0 21 В 0 27 DPWG64036 06/15/18 07/09/18 0 0 0 0 0 0 0 0 J/CR

Laboratory Data Consultants, Inc. Data Validation Report

Project/Site Name:

Shelton Harbor

LDC Report Date:

July 20, 2018

Parameters:

Polychlorinated Dioxins/Dibenzofurans

Validation Level:

Stage 4

Laboratory:

SGS AXYS Analytical Services, LTD

Sample Delivery Group (SDG): DPWG64001/WG63849

| | Laboratory Sample | | Collection |
|-------------------------|-------------------|----------|------------|
| Sample Identification | Identification | Matrix | Date |
| PDI-SMA1-SG15-180425 | L29259-1 | Sediment | 04/25/18 |
| PDI-SMA1-SG16-180425 | L29259-2 | Sediment | 04/25/18 |
| PDI-SMA1-SG17-180425 | L29259-3 | Sediment | 04/25/18 |
| PDI-SMA1-SG18-180425 | L29259-4 | Sediment | 04/25/18 |
| PDI-SMA1-SG19-180425 | L29259-5 | Sediment | 04/25/18 |
| PDI-SMA1-SG20-180425 | L29259-6 | Sediment | 04/25/18 |
| PDI-SMA1-SG1007-180425 | L29259-7 | Sediment | 04/25/18 |
| PDI-SMA1-SG2007-180425 | L29259-8 | Sediment | 04/25/18 |
| PDI-SMA1-SG111-180425 | L29259-9 | Sediment | 04/25/18 |
| PDI-SMA1-SG108-180425 | L29259-10 | Sediment | 04/25/18 |
| PDI-SMA1-SG01-180425 | L29259-11 | Sediment | 04/25/18 |
| PDI-SMA1-SG02-180425 | L29259-12 | Sediment | 04/25/18 |
| PDI-SMA1-SG03-180425 | L29259-13 | Sediment | 04/25/18 |
| PDI-SMA1-SG04-180425 | L29259-14 | Sediment | 04/25/18 |
| PDI-SMA1-SG04-180425DL | L29259-14DL | Sediment | 04/25/18 |
| PDI-SMA1-SG05-180425 | L29259-15 | Sediment | 04/25/18 |
| PDI-SMA1-SG06-180425 | L29259-16 | Sediment | 04/25/18 |
| PDI-SMA1-SG07-180425 | L29259-17 | Sediment | 04/25/18 |
| PDI-SMA1-SG08-180425 | L29259-18 | Sediment | 04/25/18 |
| PDI-SMA1-SG09-180425 | L29259-19 | Sediment | 04/25/18 |
| PDI-SMA1-SG10-180425 | L29259-20 | Sediment | 04/25/18 |
| PDI-SMA1-SG08-180425DUP | L29259-18DUP | Sediment | 04/25/18 |

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Sampling and Quality Assurance Project Plan for Shelton Harbor Sediment Cleanup Unit, Oakland Bay and Shelton Harbor Sediment Cleanup Site, Shelton, Washington (July 2017) and a modified outline of the USEPA National Functional Guidelines (NFG) for High Resolution Superfund Methods Data Review (April 2016). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Polychlorinated Dioxins/Dibenzofurans by Environmental Protection Agency (EPA) Method 1613B

All sample results were subjected to Stage 4 data validation, which is comprised of the quality control (QC) summary forms as well as the raw data, to confirm sample quantitation and identification.

The following are definitions of the data qualifiers utilized during data validation:

- J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.
- U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered not detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).
- UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.
- R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.
- NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. HRGC/HRMS Instrument Performance Check

Instrument performance was checked at the required frequency.

Retention time windows were established for all homologues. The chromatographic resolution between 2,3,7,8-TCDD and peaks representing any other unlabeled TCDD isomer was less than or equal to 25%.

The static resolving power was at least 10,000 (10% valley definition).

III. Initial Calibration

A five point initial calibration was performed as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 20.0% for unlabeled compounds and labeled compounds.

The ion abundance ratios for all PCDDs and PCDFs were within validation criteria.

The minimum S/N ratio was greater than or equal to 10 for each unlabeled compound and labeled compound.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

All of the continuing calibration results were within the QC limits for unlabeled compounds and labeled compounds.

The ion abundance ratios for all PCDDs and PCDFs were within validation criteria.

The minimum S/N ratio was greater than or equal to 10 for each unlabeled compound and labeled compound.

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks with the following exceptions:

| Blank ID | Extraction Date | Compound | Concentration | Associated Samples |
|-------------|--------------------|--|---|---|
| WG63849-101 | 05/11/18 | 1,2,3,4,6,7,8-HpCDD OCDD 1,2,3,4,6,7,8-HpCDF OCDF Total TCDD Total PeCDD Total HxCDD Total HpCDD Total HpCDD | 0.665 pg/g 1.55 pg/g 0.358 pg/g 0.286 pg/g 0.845 pg/g 0.273 pg/g 0.529 pg/g 0.665 pg/g 0.358 pg/g | All samples in SDG DPWG64001/WG63849 |

Sample concentrations were compared to concentrations detected in the laboratory blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated laboratory blanks.

VI. Field Blanks

No field blanks were identified in this SDG.

VII. Matrix Spike/Matrix Spike Duplicates/Duplicate Sample Analysis

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

Duplicate (DUP) sample analysis was performed on an associated project sample. Results were within QC limits with the following exceptions:

| DUP ID (Associated Samples) | Compound | RPD (Limits) | Flag | A or P |
|---|-------------------|--------------|-----------------|--------|
| PDI-SMA1-SG08-180425DUP (PDI-SMA1-SG08-180425) | 1,2,3,7,8,9-HxCDD | 38.5 (≤35) | J (all detects) | А |

VIII. Ongoing Precision Recovery

Ongoing precision recovery (OPR) samples were analyzed as required by the method. Percent recoveries (%R) were within QC limits.

IX. Field Duplicates

Samples PDI-SMA1-SG1007-180425 and PDI-SMA1-SG2007-180425 were identified as field duplicates. No results were detected in any of the samples with the following exceptions:

| | Concentration (pg/g) | | |
|---------------------|------------------------|------------------------|----------------|
| Compound | PDI-SMA1-SG1007-180425 | PDI-SMA1-SG2007-180425 | RPD (Limits) |
| 2,3,7,8-TCDD | 0.317 | 0.309 | 3 (≤50) |
| 1,2,3,7,8-PeCDD | 0.441 | 0.333Ų | Not calculable |
| 1,2,3,4,7,8-HxCDD | 0.612 | 0.600 | 2 (≤50) |
| 1,2,3,6,7,8-HxCDD | 1.63 | 1.31 | 22 (≤50) |
| 1,2,3,7,8,9-HxCDD | 1.37 | 1.09 | 23 (≤50) |
| 1,2,3,4,6,7,8-HpCDD | 37.7 | 29.9 | 23 (≤50) |
| OCDD | 321 | 274 | 16 (≤50) |
| 2,3,7,8-TCDF | 0.482 | 0.472 | 2 (≤50) |
| 2,3,4,7,8-PeCDF | 0.288 | 0.346U | Not calculable |
| 1,2,3,4,7,8-HxCDF | 0.782 | 0.741 | 5 (≤50) |
| 1,2,3,6,7,8-HxCDF | 0.356 | 0.419 | 16 (≤50) |
| 1,2,3,4,6,7,8-HpCDF | 15.2 | 9.82 | 43 (≤50) |
| 1,2,3,4,7,8,9-HpCDF | 0.677 | 0.804 | 17 (≤50) |
| OCDF | 40.2 | 29.5 | 31 (≤50) |
| Total TCDD | 9.90 | 13.8 | 33 (≤50) |
| Total PeCDD | 14.5 | 11.9 | 20 (≤50) |
| Total HxCDD | 32.6 | 25.8 | 23 (≤50) |
| Total HpCDD | 89.6 | 74.1 | 19 (≤50) |
| Total TCDF | 1.83 | 3.61 | 65 (≤50) |

| | Concentrat | Concentration (pg/g) | | | | |
|-------------|------------------------|------------------------|--------------|--|--|--|
| Compound | PDI-SMA1-SG1007-180425 | PDI-SMA1-SG2007-180425 | RPD (Limits) | | | |
| Total HxCDF | 4.36 | 3.24 | 29 (≤50) | | | |
| Total PeCDF | 15.5 | 12.8 | 19 (≤50) | | | |
| Total HpCDF | 52.0 | 34.7 | 40 (≤50) | | | |

X. Internal Standards

All internal standard recoveries (%R) were within QC limits.

XI. Compound Quantitation

All compound quantitations met validation criteria with the following exceptions:

| Sample | Compound | Flag | A or P |
|---|---|-----------------|--------|
| All samples in SDG DPWG64001/WG63849 | All compounds were reported as estimated maximum possible concentration (EMPC). | J (all detects) | А |

| Sample | Compound | Finding | Criteria | Flag | A or P |
|----------------------|----------|---|---|-----------------|--------|
| PDI-SMA1-SG04-180425 | OCDD | Sample result exceeded calibration range. | Reported result should be within calibration range. | J (all detects) | A |

XII. Target Compound Identifications

All target compound identifications met validation criteria.

XIII. System Performance

The system performance was acceptable.

XIV. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

In the case where more than one result was reported for an individual sample, the least technically acceptable results were deemed not reportable as follows:

| Sample | | Compound | Flag | A or P |
|---|--------|-----------------------------------|----------------|--------|
| PDI-SMA1-SG04-180425 | : 4 | OCDD | Not reportable | - |
| All samples in SDG DPWG64001/WG63849 | | 2,3,7,8-TCDF 1,2,3,7,8,9-HxCDD | Not reportable | |

Due to DUP RPD and results reported by the laboratory as EMPCs, data were qualified as estimated in twenty-one samples.

The quality control criteria reviewed, other than those discussed above, were met and are considered acceptable. Sample results that were found to be estimated (J) are usable for limited purposes only. Based upon the data validation all other results are considered valid and usable for all purposes.

Shelton Harbor Polychlorinated Dioxins/Dibenzofurans - Data Qualification Summary - SDG DPWG64001/WG63849

| : | | | | |
|--|---|-----------------|--------|------------------------------------|
| Sample | Compound | Flag | A or P | Reason |
| PDI-SMA1-SG15-180425 PDI-SMA1-SG16-180425 PDI-SMA1-SG16-180425 PDI-SMA1-SG18-180425 PDI-SMA1-SG18-180425 PDI-SMA1-SG19-180425 PDI-SMA1-SG20-180425 PDI-SMA1-SG2007-180425 PDI-SMA1-SG1007-180425 PDI-SMA1-SG108-180425 PDI-SMA1-SG01-180425 PDI-SMA1-SG01-180425 PDI-SMA1-SG03-180425 PDI-SMA1-SG03-180425 PDI-SMA1-SG04-180425 PDI-SMA1-SG05-180425 PDI-SMA1-SG06-180425 PDI-SMA1-SG08-180425 PDI-SMA1-SG09-180425 | All compounds were reported as estimated maximum possible concentration (EMPC). | J (all detects) | A | Compound quantitation (EMPC) |
| PDI-SMA1-SG08-180425 | 1,2,3,7,8,9-HxCDD | J (all detects) | Α | Duplicate sample analysis (RPD) |
| PDI-SMA1-SG04-180425 | OCDD | Not reportable | - | Overall assessment of data |
| PDI-SMA1-SG15-180425 PDI-SMA1-SG16-180425 PDI-SMA1-SG16-180425 PDI-SMA1-SG18-180425 PDI-SMA1-SG19-180425 PDI-SMA1-SG20-180425 PDI-SMA1-SG2007-180425 PDI-SMA1-SG2007-180425 PDI-SMA1-SG108-180425 PDI-SMA1-SG108-180425 PDI-SMA1-SG01-180425 PDI-SMA1-SG01-180425 PDI-SMA1-SG01-180425 PDI-SMA1-SG05-180425 PDI-SMA1-SG05-180425 PDI-SMA1-SG06-180425 PDI-SMA1-SG06-180425 PDI-SMA1-SG07-180425 PDI-SMA1-SG07-180425 PDI-SMA1-SG08-180425 PDI-SMA1-SG08-180425 PDI-SMA1-SG08-180425 PDI-SMA1-SG08-180425 PDI-SMA1-SG08-180425 PDI-SMA1-SG08-180425 PDI-SMA1-SG09-180425 PDI-SMA1-SG09-180425 | 2,3,7,8-TCDF 1,2,3,7,8,9-HxCDD | Not reportable | - | Overall assessment of data |

Shelton Harbor

Polychlorinated Dioxins/Dibenzofurans - Laboratory Blank Data Qualification Summary - SDG DPWG64001/WG63849

No Sample Data Qualified in this SDG

| LDC #: 42441 | VALIDATION COMPLETENESS WORKSHEET |
|------------------------|--|
| LDC #: <u>42441A21</u> | VALIDATION COMPLETENESS WORKSHEET |

SDG #: DPWG64001/WG63849

Stage 4

Laboratory: SGS AXYS Analytical Services, LTD

Page: / of 2
Reviewer: 7
2nd Reviewer: 7

METHOD: HRGC/HRMS Polychlorinated Dioxins/Dibenzofurans (EPA Method 1613B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

| | Validation Area | | Comments |
|-------|--|----------|-------------------|
| 1. | Sample receipt/Technical holding times | AIA | |
| 11. | HRGC/HRMS Instrument performance check | Δ | |
| 111. | Initial calibration/ | AIN | % PSD £ 20 no jev |
| IV. | Continuing calibration | Δ | ac limit |
| V. | Laboratory Blanks | يسي | |
| VI. | Field blanks | N | |
| VII. | Matrix spike/Matrix spike duplicates /DM ? | NSW | ひ> |
| VIII. | Laboratory control samples | Δ | OPR |
| IX. | Field duplicates | 5W | D= 7+8 |
| X. | Internal standards | \ | |
| XI. | Compound quantitation RL/LOQ/LODs | SW | |
| XII. | Target compound identification | ۵ | |
| XIII. | System performance | A | |
| XIV. | Overall assessment of data | 500 | |

Note:

A = Acceptable

SW = See worksheet

N = Not provided/applicable

ND = No compounds detected

R = Rinsate

FB = Field blank

D = Duplicate TB = Trip blank

EB = Equipment blank

SB=Source blank OTHER:

| | | | | | T |
|----|--|------------------------|-----------|-------------|----------|
| | Client ID | | Lab ID | Matrix | Date |
| 1 | PDI-SMA | SG15-180425 | L29259-1 | Sediment | 04/25/18 |
| 2 | PDI-SMA | SG16-180425 | L29259-2 | Sediment | 04/25/18 |
| 3 | PDI-SMA | SG17-180425 | L29259-3 | Sediment | 04/25/18 |
| 4 | PDI-SMA | SG18-180425 | L29259-4 | Sediment | 04/25/18 |
| 5 | PDI-SMA | SG19-180425 | L29259-5 | Sediment | 04/25/18 |
| 6 | PDI-SMA | SG20-180425 | L29259-6 | Sediment | 04/25/18 |
| 7 | PDI-SMA | SG1007-180425 \ | L29259-7 | Sediment | 04/25/18 |
| 8 | PDI-SMA | SG2007-180425 | L29259-8 | Sediment | 04/25/18 |
| 9 | PDI-SMA | SG111-180425 | L29259-9 | Sediment | 04/25/18 |
| 10 | PDI-SMA | SG108-180425 | L29259-10 | Sediment | 04/25/18 |
| 11 | PDI-SMA | SG01-180425 | L29259-11 | Sediment | 04/25/18 |
| 12 | PDI-SMA | SG02-180425 | L29259-12 | Sediment | 04/25/18 |
| 13 | PDI-SMA | SG03-180425 | L29259-13 | Sediment | 04/25/18 |
| 14 | PDI-SMA | SG04-180425 | L29259-14 | Sediment | 04/25/18 |

| | 6 #:DPWG64001S pratory:SGS AXYS Analytical Services, LTD | Stage 4 | | R | Page:of deviewer: deviewer: |
|------|---|-------------|----------------|----------|-----------------------------------|
| | FHOD: HRGC/HRMS Polychlorinated Dioxins/Dibenzo | furans (EPA | Method 1613B) | 2nd R | eviewer: |
| | Client ID | | Lab ID | Matrix | Date |
| 15 | PDI-SMA SG04-180425RE 01 | | L29259-14RE DL | Sediment | 04/25/18 |
| 16 | PDI-SMA SG05-180425 | | L29259-15 | Sediment | 04/25/18 |
| 17 | PDI-SMA SG06-180425 | L29259-16 | Sediment | 04/25/18 | |
| 18 | PDI-SMA/SG07-180425 | L29259-17 | Sediment | 04/25/18 | |
| 19 | PDI-SMA SG08-180425 | L29259-18 | Sediment | 04/25/18 | |
| 20 | PDI-SMA SG09-180425 | | L29259-19 | Sediment | 04/25/18 |
| 21 | PDI-SMA/SG10-180425 | | L29259-20 | Sediment | 04/25/18 |
| 22 | PDI-SMA SG08-180425DUP | | L29259-18DUP | Sediment | 04/25/18 |
| 23 | | | | | |
| 24 | | | | | |
| 25 | | | | | |
| Note | es: | | | | |
| | WG 63849-101 | | | | |
| | | | | | |

LDC #: 42441A21 VALIDATION COMPLETENESS WORKSHEET

LDC#: 4244/A2/

VALIDATION FINDINGS CHECKLIST

| Page:_ | _1 of _2 |
|-------------|--------------|
| Reviewer: | FT . |
| 2nd Reviewe | er: |
| | - |

Method: HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 1613B)

| Validation Area | Yes | No | NA | Findings/Comments |
|---|-----|---------------------------------------|--------------------|-------------------|
| I. Technical holding times | | | | |
| All technical holding times were met. | | | | |
| Cooler temperature criteria was met. | | | | |
| III GC/MS Instrument performance check | | | | |
| Was PFK exact mass 380.9760 verified? | | | | |
| Were the retention time windows established for all homologues? | | | | |
| Was the chromatographic resolution between 2,3,7,8-TCDD and peaks representing any other unlabeled TCDD isomers ≤ 25% ? | _ | | | |
| Is the static resolving power at least 10,000 (10% valley definition)? | | | | |
| Was the mass resolution adequately check with PFK? | / | | | |
| Was the presence of 1,2,8,9-TCDD and 1,3,4,6,8-PeCDF verified? | | | z dot o na konstan | |
| IIIa Initial calibration | | * | | |
| Was the initial calibration performed at 5 concentration levels? | | | | |
| Were all percent relative standard deviations (%RSD) ≤ 20% for all compounds? | • | | | |
| Did all calibration standards meet the Ion Abundance Ratio criteria? | | | | |
| Was the signal to noise ratio for each target compound ≥ 2.5 and for each recovery and internal standard ≥ 10? | / | | | |
| IIIb Initial Calibration Verification | | | | |
| Was an initial calibration verification standard analyzed after each initial calibration for each instrument? | | | | |
| Were all concentrations for the unlabeled compounds ≤ 20% and for labeled compounds ≤ 30% ?? | | | - | |
| IV. Continuing calibration | | | | |
| Was a continuing calibration performed at the beginning and end of each 12 hour period? | | | | |
| Were all concentrations for the unlabeled compounds and for labeled compounds within QC limits (Method 1613B, Table 6)? | | | _ | |
| Did all routine calibration standards meet the Ion Abundance Ratio criteria? | / | | | |
| V Blanks | | | | |
| Was a method blank associated with every sample in this SDG? | / | | | |
| Was a method blank performed for each matrix and whenever a sample extraction was performed? | _ | 1 | | |
| Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet? | / | | | |
| VI. Field blanks | | | | |
| Field blanks were identified in this SDG. | | | | |
| Target compounds were detected in the field blanks. | | | / | |
| VII. Matrix spike/Matrix spike dublicates | | e e e e e e e e e e e e e e e e e e e | | |

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VALIDATION FINDINGS CHECKLIST

Page: 2 of 2
Reviewer: FT
2nd Reviewer:

| Validation Area | Yes | No | NA | Findings/Comments |
|---|----------|----------------------------------|---------------------|-------------------|
| Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water. | | | , , | |
| Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits? | | | \ | |
| VIII. Laboratory control samples | | | 4 | |
| Was an LCS analyzed per extraction batch? | | | | |
| Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits? | | | | OPR |
| IX. Field duplicates | | | | |
| Field duplicate pairs were identified in this SDG. | | | | |
| Target compounds were detected in the field duplicates. | | | | |
| X. Internal standards | | | | |
| Were internal standard recoveries within the 25 450% criteria? | | | | |
| Was the minimum S/N ratio of all internal standard peaks ≥ 10? | | 240. U. S. 14-1972 | successive distance | |
| XI. Compound quantitation | | | | |
| Were the correct internal standard (IS), quantitation ion and relative response factor (RRF) used to quantitate the compound? | | | | |
| Were compound quantitation and CRQLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation? | | | | |
| XIII Target compound identification | | | | |
| For 2,3,7,8 substituted congeners with associated labeled standards, were the retention times of the two quantitation peaks within -1 to 3 sec. of the RT of the labeled standard? | | | · | |
| For 2,3,7,8 substituted congeners without associated labeled standards, were the relative retention times of the two quantitation peaks within 0.005 time units of the RRT measured in the routine calibration? | | | | |
| For non-2,3,7,8 substituted congeners, were the retention times of the two quantitation peaks within RT established in the performance check solution? | / | | | |
| Did compound spectra contain all characteristic ions listed in the table attached? | | | | |
| Was the Ion Abundance Ratio for the two quantitation ions within criteria? | / | | | |
| Was the signal to noise ratio for each target compound and labeled standard <u>></u> 2.5? | _ | <u></u> | | |
| Does the maximum intensity of each specified characteristic ion coincide within ± 2 seconds (includes labeled standards)? | _ | | | |
| For PCDF identification, was any signal (S/N \geq 2.5, at \pm seconds RT) detected in the corresponding PCDPE channel? | | | | |
| Was an acceptable lock mass recorded and monitored? | | <u> </u> | | |
| XIII: System performance | I | | I | |
| System performance was found to be acceptable. | | the total providence of the con- | - Wadan | |
| XIV. Overall assessment of data | · | | | |
| Overall assessment of data was found to be acceptable. | <u> </u> | | <u> </u> | |

VALIDATION FINDINGS WORKSHEET

METHOD: HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 8290)

| A. 2,3,7,8-TCDD | F. 1,2,3,4,6,7,8-HpCDD | K. 1,2,3,4,7,8-HxCDF | P. 1,2,3,4,7,8,9-HpCDF | U. Total HpCDD |
|----------------------|------------------------|------------------------|------------------------|----------------|
| B. 1,2,3,7,8-PeCDD | G. OCDD | L. 1,2,3,6,7,8-HxCDF | Q. OCDF | V. Total TCDF |
| C. 1,2,3,4,7,8-HxCDD | H. 2,3,7,8-TCDF | M. 2,3,4,6,7,8-HxCDF | R. Total TCDD | W. Total PeCDF |
| D. 1,2,3,6,7,8-HxCDD | I. 1,2,3,7,8-PeCDF | N. 1,2,3,7,8,9-HxCDF | S. Total PeCDD | X. Total HxCDF |
| E. 1,2,3,7,8,9-HxCDD | J. 2,3,4,7,8-PeCDF | O. 1,2,3,4,6,7,8-HpCDF | T. Total HxCDD | Y. Total HpCDF |

| Notes: | | | |
|--------|------|------|-------------|
| | | | |

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VALIDATION FINDINGS WORKSHEET Blanks

| Page:_ | /of/ |
|---------------|------|
| Reviewer: | P |
| 2nd Reviewer: | |

METHOD: HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 1613B)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

A/N N/A Were all samples associated with a method blank?

Y N N/A Was a method blank performed for each matrix and whenever a sample extraction was performed?

Y/N N/A Was the method blank contaminated?

Associated samples: A1175XBlank analysis date: 5/16/18 Blank extraction date: 5/11/18 Conc. units: pa la

| Compound | Blank ID | | - 11. | Sam | ple Identificatio | n | | |
|----------|----------------|---------|------------------|---------|-------------------|---|--|--|
| | | 249-101 | | | | | | |
| F | 0.665 | • | | | | | | |
| G | 1.55 | | | | | | | |
| 8 | 0.358 0.286 | | | | | | | |
| Q | | | | | | | | |
| R | 0.845 | | | | | | | |
| 5 | 0.273 | | | | | | | |
| T | 0.529 | | | | | | | |
| И | 0.665 | | | | | | | |
| y | 0.665 0.358 | | | | | | | |
| | | | | | | | | |
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| | | | | | | | | |

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT: All contaminants within five times the method blank concentration were qualified as not detected, "U".

LDC #: 4244/ AZ/

VALIDATION FINDINGS WORKSHEET Laboratory Duplicates

| Page:of |
|---------------|
| Reviewer: FT |
| 2nd reviewer: |

METHOD: HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 1613B)

Were laboratory duplicate pairs identified in this SDG. Were target compounds detected in the laboratory duplicate pairs?

| | Concentratio | n(pg/g) | RPD (≤ 35 %) | |
|----------|--------------|---------|------------------------|--------|
| Compound | 19 | 22 | (≤ <u>35</u> %) | QUAL |
| E | 37.3 | 25.3 | 38,5 | Jdet/A |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
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| | | | | |

LDC#: 4244/A2/

VALIDATION FINDINGS WORKSHEET _Field Duplicates

Page: __of___ Reviewer: ____ 2nd Reviewer: ____

METHOD: 1613B

| | Concentra | (≤50) | |
|----------|-----------|---------------|-----|
| Compound | 7 | 8 | RPD |
| А | 0.317 | 0.309 | 3 |
| В | 0.441 | 0.333U | NC |
| С | 0.612 | 0.600 | 2 |
| D | 1.63 | 1.31 | 22 |
| E | 1.37 | 1.09 | 23 |
| F | 37.7 | 29.9 | 23 |
| G | 321 | 274 | 16 |
| Н | 0.482 | 0.472 | 2 |
| J | 0.288 | 0.346U | NC |
| К | 0.782 | 0.741 | 5 |
| L | 0.356 | 0.419 | 16 |
| 0 | 15.2 | 9.82 | 43 |
| Р | 0.677 | 0.804 | 17 |
| Q | 40.2 | 29.5 | 31 |
| R | 9.90 | 13.8 | 33 |
| S | 14.5 | 11.9 | 20 |
| Т | 32.6 | 25.8 | 23 |
| U | 89.6 | 74 £ 1 | 19 |
| V | 1.83 | 3.61 | 65 |
| w | 4.36 | 3.24 | 29 |
| х | 15.5 | 12.8 | 19 |
| Υ | 52.0 | 34.7 | 40 |

LDC#: 4244/A2/

VALIDATION FINDINGS WORKSHEET Compound Quantitation and Reported CRQLs

| Page:of/ | |
|---------------|--|
| Reviewer: | |
| 2nd Reviewer: | |

METHOD: HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 1613B)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N/N/A Y N/N/A Were the correct internal standard (IS), quantitation ions and relative response factors (RRF) used to quantitate the compound? Compound quantitation and CRQLs were adjusted to reflect all sample dilutions and dry weight factors (if necessary).

| # | Date | Sample ID | Finding | Associated Samples | Qualifications |
|----------|----------|-----------|---|--------------------|----------------|
| | | AII | all compounds reported as estimated maximum possible concentration (EMPC) | | Jdet/A |
| | | | | | |
| | | | | | |
| | | 14 | G exceeded cal Range | | Jdet /A |
| <u> </u> | | · | Range | | |
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| Comments: | See sample calculation verification worksheet for recalculations | |
|-----------|--|--|
| • | | |
| | | |

LDC #: 42 441 A2/

VALIDATION FINDINGS WORKSHEET Overall Assessment of Data

| Page: _ | of |
|-----------------|----|
| Reviewer: | FT |
| 2nd Reviewer: _ | 0 |

METHOD: HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 8290)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

All available information pertaining to the data were reviewed using professional judgement to compliment the determination of the overall quality of the data.

YN N/A

Was the overall quality and usability of the data acceptable?

| | | | T | T | T - 1 |
|---|------|-----------|---|--------------------|----------------|
| # | Date | Sample ID | Finding | Associated Samples | Qualifications |
| | | 14 | G exceeded cal Rai | 190 | NR |
| | | | | V | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | AI | H, E from DB5 (report all results from DB235 for H+ | | N/R |
| | | | (report all results | | |
| | | | from DB285 for H+ | ε | |
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| Comments: | | | | |
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LDC #: 4244/ A2/

VALIDATION FINDINGS WORKSHEET Initial Calibration Calculation Verification

| Page:_ | |
|-------------------------|---|
| Reviewer: 2nd Reviewer: | 5 |

METHOD: HRGC/HRMS Dioxins/Dibenzofurans (EPA Method 1613B)

The Relative Response Factor (RRF), average RRF, and percent relative standard deviation (%RSD) were recalculated for the compounds identified below using the following calculations:

 $RRF = (A_v)(C_{is})/(A_{is})(C_v)$ average RRF = sum of the RRFs/number of standards

 A_x = Area of compound,

A_{is} = Area of associated internal standard A_x = Area of compound, A_{is} = Area of associated internal standard C_x = Concentration of compound, C_{is} = Concentration of internal standard C_{is} = Concentration of internal standard C_{is} = Mean of the RRFs

%RSD = 100 * (S/X)

| | | | | Reported | Recalculated | Reported | Recalculated | Reported | Recalculated |
|----|-------------|---------------------|--|--------------------------|--------------------------|------------------|-------------------|----------|--------------|
| # | Standard ID | Calibration Date | Compound (Reference Internal Standard) | Average RRF (initial) | Average RRF (initial) | RRF (CS3 std) | RRF (CS3 std) | %RSD | %RSD |
| 1 | ICAL | 11/6/17 | 2,3,7,8-TCDF (¹³ C-2,3,7,8-TCDF) | 0.9466 | 0.9466 | 0.971 | 0.971 | 2.14 | 2.14 |
| | | | 2,3,7,8-TCDD (¹³ C-2,3,7,8-TCDD) | 1.0166 | 1.0166 | 1.048 | 1.048 | 4.78 | 4.78 |
| | | | 1,2,3,6,7,8-HxCDD (¹³ C-1,2,3,6,7,8-HxCDD) | 0.9904 | 0.9904 | 1.014 | 1.014 | 5.24 | 5.24 |
| | | : | 1,2,3,4,6,7,8-HpCDD (¹³ C-1,2,4,6,7,8,-HpCDD) | 1.021 | 1.021 | 1.046 | 1.046 | 3.34 | 3.34 |
| | | | OCDF (13C-OCDD) | 1.2524 | 1.2524 | 1.324 | 1.324 | 8.25 | 8.25 |
| _2 | | | 2,3,7,8-TCDF (¹³ C-2,3,7,8-TCDF) 2,3,7,8-TCDD (¹³ C-2,3,7,8-TCDD) | | | | | | |
| | 944* | | 1,2,3,6,7,8-HxCDD (\frac{13}{3}C-1,2,3,6,7,8-HxCDD) 1,2,3,4,6,7,8-HpCDD (\frac{13}{3}C-1,2,4,6,7,8,-HpCDD) | | | | | | |
| 3 | | | 2,3,7,8-TCDF (¹³ C-2,3,7,8-TCDF) 2,3,7,8-TCDD (¹³ C-2,3,7,8-TCDD) 1,2,3,6,7,8-HxCDD (¹³ C-1,2,3,6,7,8-HxCDD) 1,2,3,4,6,7,8-HpCDD (¹³ C-1,2,4,6,7,8,-HpCDD) | | | | | | |
| | | | OCDF (13C-OCDD) | | | | <u> </u> | | |

Comments: Refer to Initial Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC#:_ 4244/A2/

VALIDATION FINDINGS WORKSHEET Initial Calibration Calculation Verification

| Page:of | 1 |
|---------------|---|
| Reviewer: | |
| 2nd Reviewer: | |

METHOD: HRGC/HRMS Dioxins/Dibenzofurans (EPA Method 1613B)

The Relative Response Factor (RRF), average RRF, and percent relative standard deviation (%RSD) were recalculated for the compounds identified below using the following calculations:

 $RRF = (A_x)(C_{is})/(A_{is})(C_x)$ average RRF = sum of the RRFs/number of standards A_x = Area of compound,

A_{is} = Area of associated internal standard

%RSD = 100 * (S/X)

 C_x = Concentration of compound,

C_{is} = Concentration of internal standard

 \hat{S} = Standard deviation of the RRFs. \hat{X} = Mean of the RRFs

| | | | | Reported | Recalculated | Reported | Recalculated | Reported | Recalculated |
|---|-------------|---------------------|---|--------------------------|--------------------------|------------------|-------------------|----------|--------------|
| # | Standard ID | Calibration Date | Compound (Reference Internal Standard) | Average RRF (initial) | Average RRF (initial) | RRF (CS3 std) | RRF (CS3 std) | %RSD | %RSD |
| 1 | ICAL | 12/6/18 | 2,3,7,8-TCDF (¹³ C-2,3,7,8-TCDF) | 0.88 | 0.88 | 0.91 | 0.91 | 8.10 | 8.10 |
| | DB225 | 126/18 2/6/18 | 2,3,7,8-TCDD (¹³ C-2,3,7,8-TCDD) | | | | | | |
| | | | 1,2,3,6,7,8-HxCDD (¹³ C-1,2,3,6,7,8-HxCDD) | | | | | | |
| | | | 1,2,3,4,6,7,8-HpCDD (¹³ C-1,2,4,6,7,8,-HpCDD) | | | | | | |
| | | | OCDF (13C-OCDD) | | | | | | |
| 2 | | | 2,3,7,8-TCDF (¹³ C-2,3,7,8-TCDF) | | | | | | |
| | | | 2,3,7,8-TCDD (¹³ C-2,3,7,8-TCDD) | | | | | | |
| | | | 1,2,3,6,7,8-HxCDD (¹³ C-1,2,3,6,7,8-HxCDD) | | | | | | |
| | | | 1,2,3,4,6,7,8-HpCDD (¹³ C-1,2,4,6,7,8,-HpCDD) | | | | | | |
| | | | OCDF (13C-OCDD) | | | | | | |
| 3 | 11 | | 2,3,7,8-TCDF (¹³ C-2,3,7,8-TCDF) | | | | | | |
| | | | 2,3,7,8-TCDD (¹³ C-2,3,7,8-TCDD) | | | | | | |
| | | | 1,2,3,6,7,8-HxCDD (¹³ C-1,2,3,6,7,8-HxCDD) | | | | | | |
| | | | 1,2,3,4,6,7,8-HpCDD (¹³ C-1,2,4,6,7,8,-HpCDD) | | | | | | |
| | | | OCDF (13C-OCDD) | | | | | | |

| Comments: | Refer to Initial | Calibration findings | s worksheet fo | r list of qu | ualifications au | nd associated | samples whe | n reported r | esults do not | agree within | 10.0% of the |
|--------------|------------------|----------------------|----------------|--------------|------------------|---------------|-------------|--------------|---------------|--------------|--------------|
| recalculated | results. | | | | | | • | | | _ | |
| | | | | | | | | | | | |

LDC #: 1 244/ A2/

VALIDATION FINDINGS WORKSHEET Routine Calibration Results Verification

| Page:_ | | |
|---------------|----|--|
| Reviewer: | FT | |
| 2nd Reviewer: | 0 | |

METHOD: HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 1613B)

The percent difference (%D) of the initial calibration average Relative Response Factors (RRFs) and the continuing calibration RRFs were recalculated for the compounds identified below using the following calculation:

% Difference = 100 * (ave. RRF - RRF)/ave. RRF $RRF = (A_x)(C_{is})/(A_{is})(C_x)$

Where: ave. RRF = initial calibration average RRF

RRF = continuing calibration RRF

A, = Area of compound,

A_{is} = Area of associated internal standard

C, = Concentration of compound, C_{is} = Concentration of internal standard

| | | | | | Reported | Recalculated | Reported | Recalculated |
|---|-------------|---------------------|---|--------------------------|-------------|--------------|----------|--------------|
| # | Standard ID | Calibration Date | Compound (Reference Internal Standard) | Average RRF (initial) | RRF (CC) | RRF (CC) | %D | %D |
| 1 | ecv | 5/16/18 | 2,3,7,8-TCDF (¹³ C-2,3,7,8-TCDF) | 10.0 | 10.2 | 10.2 | | |
| | 1458 | | 2,3,7,8-TCDD (¹³ C-2,3,7,8-TCDD) | 10.0 | 10.2 | 10.2 | | |
| | | | 1,2,3,6,7,8-HxCDD (¹³ C-1,2,3,6,7,8-HxCDD) | 50.0 | 49.2 | 49.2 | . * | · |
| | | | 1,2,3,4,6,7,8-HpCDD (¹³ C-1,2,4,6,7,8,-HpCDD) | 50.O | 50.2 | 50.2 | | |
| | | | OCDF (13C-OCDD) | 100.0 | 96.4 | 96.4 | | |
| 2 | cev | 5/17/18 | 2,3,7,8-TCDF (¹³ C-2,3,7,8-TCDF) | 10. D | 10.1 | 10./ | | |
| | 00:09 | | 2,3,7,8-TCDD (¹³ C-2,3,7,8-TCDD) | 10.0 | 10.4 | 10.4 | | |
| | | | 1,2,3,6,7,8-HxCDD (¹³ C-1,2,3,6,7,8-HxCDD) | 50.0 | 49.3 | 493 | | |
| | | | 1,2,3,4,6,7,8-HpCDD (¹³ C-1,2,4,6,7,8,-HpCDD) | 9 0.0 | 49.9 | 49.9 | | : |
| | | | OCDF (13C-OCDD) | 100.0 | 99.0 | 99.0 | | |
| 3 | cc V | 5/16/18 | 2,3,7,8-TCDF (¹³ C-2,3,7,8-TCDF) | 10.0 | 10.2 | 10.2 | | |
| | DB 225 | | 2,3,7,8-TCDD (¹³ C-2,3,7,8-TCDD) | | | | | . 42 |
| | 20:34 | | 1,2,3,6,7,8-HxCDD (¹³ C-1,2,3,6,7,8-HxCDD) | | | | | |
| | | | 1,2,3,4,6,7,8-HpCDD (¹³ C-1,2,4,6,7,8,-HpCDD) | | | | | |
| | | | OCDF (13C-OCDD) | | | | | |

Comments: Refer to Routine Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC#: 42441 A2/

VALIDATION FINDINGS WORKSHEET Routine Calibration Results Verification

| Page:_ | of_ | / |
|----------------|-----|---|
| Reviewer:_ | 1 | 2 |
| 2nd Reviewer:_ | | |

METHOD: HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 8290)

The percent difference (%D) of the initial calibration average Relative Response Factors (RRFs) and the continuing calibration RRFs were recalculated for the compounds identified below using the following calculation:

% Difference = 100 * (ave. RRF - RRF)/ave. RRF $RRF = (A_x)(C_{is})/(A_{is})(C_x)$

Where: ave. RRF = initial calibration average RRF

RRF = continuing calibration RRF

 A_x = Area of compound,

A_{is} = Area of associated internal standard C_{is} = Concentration of internal standard

 C_x = Concentration of compound,

| | | | | | Reported | Recalculated | Reported | Recalculated |
|---|-------------|---------------------|---|--------------------------|-------------|--------------|----------|--------------|
| # | Standard ID | Calibration Date | Compound (Reference Internal Standard) | Average RRF (initial) | RRF (CC) | RRF (CC) | %D | %D |
| 1 | cev | 5/17/18 | 2,3,7,8-TCDF (¹³ C-2,3,7,8-TCDF) | 10.0 | 10.6 | 10.6 | | |
| | PB225 | | 2,3,7,8-TCDD (¹³ C-2,3,7,8-TCDD) | | | | | |
| | 0823 | | 1,2,3,6,7,8-HxCDD (¹³ C-1,2,3,6,7,8-HxCDD) | | | | | |
| | |] | 1,2,3,4,6,7,8-HpCDD (¹³ C-1,2,4,6,7,8,-HpCDD) | | | | | |
| | | | OCDF (13C-OCDD) | | | | | |
| 2 | car | 5/17/18 | 2,3,7,8-TCDF (¹³ C-2,3,7,8-TCDF) | 10.0 | 10./ | 10./ | | |
| | 1206 | | 2,3,7,8-TCDD (¹³ C-2,3,7,8-TCDD) | ט.טן | 10.3 | 10.3 | | |
| | | | 1,2,3,6,7,8-HxCDD (¹³ C-1,2,3,6,7,8-HxCDD) | 50.0 | 48.8 | 48.8 | | |
| | | | 1,2,3,4,6,7,8-HpCDD (¹³ C-1,2,4,6,7,8,-HpCDD) | 50.0 | 50.2 | 50.2 | | |
| | | | OCDF (13C-OCDD) | 100 | 95.8 | 95-8 | | |
| 3 | ecv | 5/17/18 | 2,3,7,8-TCDF (¹³ C-2,3,7,8-TCDF) | 10.0 | 9.83 | 9.83 | | |
| | 2020 |] ' | 2,3,7,8-TCDD (¹³ C-2,3,7,8-TCDD) | 10.6 | 10.4 | 10.4 | | |
| | |] | 1,2,3,6,7,8-HxCDD (¹³ C-1,2,3,6,7,8-HxCDD) | 50.0 | 51.0 | 51.0 | | |
| | | | 1,2,3,4,6,7,8-HpCDD (¹³ C-1,2,4,6,7,8,-HpCDD) | 50.0 | 49.6 | 49.6 | | |
| | | | OCDF (13C-OCDD) | 100 | 101 | p 100/01 | | |

Comments: Refer to Routine Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC#: 4244/A2/

VALIDATION FINDINGS WORKSHEET Laboratory Control Sample Results Verification

| Page:_1_of_1_ | |
|---------------|--|
| Reviewer: FT | |
| 2nd Reviewer: | |

METHOD: GC/MS Dioxins/Dibenzofurans (EPA SW 846 Method 1613B)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the laboratoy control sample and laboratory control sample duplicate (if applicable) were recalculated for the compounds identified below using the following calculation:

% Recovery = 100 * SSC/SA

Where: SSC = Spiked sample concentration

SA = Spike added

RPD = I LCS - LCSD I * 2/(LCS + LCSD)

LCS = Laboraotry control sample percent recovery

LCSD = Laboratory control sample duplicate percent recovery

LCS ID: WG 63849-102 LCS

| Compound | Ad | oike ded /m | Conce | Sample ntration g /tn / | | CS Recovery | | Recovery | | /LCSD PD |
|---------------------|------|-------------------|-------|-------------------------------|----------|----------------|----------|----------|----------|-------------|
| | LCS | LCSD | LCS | LCSD | Reported | Recalc | Reported | Recalc | Reported | Recalc |
| 2,3,7,8-TCDD | 10.0 | NA | 9.89 | NA | 98.9 | 98.9 | | | | |
| 1,2,3,7,8-PeCDD | 50.0 | | 49.9 | | 99.7 | 99.7 | | | | |
| 1,2,3,4,7,8-HxCDD | 50.0 | | 49.4 | | 98.7 | 98.7 | | | | |
| 1,2,3,4,7,8,9-HpCDF | 50.0 | | 49.3 | | 98.7 | 98.7 | | | | |
| OCDF | 100 | J | 92.0 | | 92.0 | 92.0 | NA | | | |
| | | | | 1 | | | | | | |
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| | | | | | | | | | | |

Comments: Refer to Laboratory Control Sample findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC#: 4244/ A 2/

VALIDATION FINDINGS WORKSHEET

Sample Calculation Verification

Page: 1_of_1
Reviewer: 2nd reviewer:

METHOD: HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 8290A)

| A | M | N/A |
|------------------|---|-----|
| (\overline{Y}) | N | N/A |

Were all reported results recalculated and verified for all level IV samples?
Were all recalculated results for detected target compounds agree within 10.0% of the reported results?

| Example: |
|--|
| Sample I.D. # / , |
| Conc. = (4.47 × 10 4) (4000) (2.35 × 106) (1.2524) (2.03) |
| (2.35 × 106) (1.2524) (2.03) |
| = 29.93 pg/g |

| | | | | | T |
|------------|----------------|--|------------------------|-----------------------------|---|
| April 12 i | 4 | e de la composition della comp | Reported Concentration | Calculated Concentration | tan Magazia e e e e e e e e e e e e e e e e e e e |
| # | Sample ID | Compound | 19/9 | (pg:/gr) | Qualification |
| | #/ | OCPF | 10.0 30.0 | 29.93 | |
| | | | | | |
| | | | | | |
| | (#1) - 2, 3, 7 | (8.7CDF (DB225) | | | |
| | | 1,8.7CDF (DB225) = 1.88 × 104 (2000) 8-13 × 107 (0.88) (2.03) | | | |
| | | 8-13 X10 ((0.88) (2.03) | , | | |
| | | - 0.2588 pg/g | | | |
| | | lab Reported 0.x | 8 pg/g | | |
| | | · · · · · · · · · · · · · · · · · · · | 700 | | |
| | | | | | |
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Laboratory Data Consultants, Inc. Data Validation Report

Project/Site Name:

Shelton Harbor

LDC Report Date:

June 28, 2018

Parameters:

Polychlorinated Dioxins/Dibenzofurans

Validation Level:

Stage 4

Laboratory:

SGS AXYS Analytical Services, LTD

Sample Delivery Group (SDG): DPWG64036/WG63850/WG64075

| | Laboratory Sample | | Collection |
|--------------------------|-------------------|----------|------------|
| Sample Identification | Identification | Matrix | Date |
| PDI-SMA1-SG11-180425 | L29259-21 | Sediment | 04/25/18 |
| PDI-SMA1-SG12-180425 | L29259-22 | Sediment | 04/25/18 |
| PDI-SMA1-SG13-180425 | L29259-23 | Sediment | 04/25/18 |
| PDI-SMA1-SG14-180425 | L29259-24 | Sediment | 04/25/18 |
| PDI-SMA1-SG14-180425DL | L29259-24 DL | Sediment | 04/25/18 |
| PDI-SMA3-SG05-180426 | L29259-25 | Sediment | 04/26/18 |
| PDI-SMA3-SG05-180426 DL | L29259-25 DL | Sediment | 04/26/18 |
| PDI-SMA3-SG06-180426 | L29259-26 | Sediment | 04/26/18 |
| PDI-SMA3-SG04-180426 | L29259-27 | Sediment | 04/26/18 |
| PDI-SMA3-SG04-180426 DL | L29259-27DL | Sediment | 04/26/18 |
| PDI-SMA3-SG02-180426 | L29259-28 | Sediment | 04/26/18 |
| PDI-SMA3-SG02-180426DL | L29259-28DL | Sediment | 04/26/18 |
| PDI-SMA3-SG1004-180426 | L29259-29 | Sediment | 04/26/18 |
| PDI-SMA3-SG1004-180426DL | L29259-29DL | Sediment | 04/26/18 |
| PDI-SMA3-SG01-180426 | L29239-30 | Sediment | 04/26/18 |
| PDI-SMA3-SG03-180426 | L29259-31 | Sediment | 04/26/18 |
| PDI-SMA3-SG2004-180426 | L29259-32 | Sediment | 04/26/18 |
| PDI-SMA3-SG2004-180426DL | L29259-32DL | Sediment | 04/26/18 |
| PDI-SMA3-SG101-180426 | L29259-33 | Sediment | 04/26/18 |
| PDI-SMA3-SG101-180426DL | L29259-33DL | Sediment | 04/26/18 |
| PDI-SMA2-SG106-180427 | L29259-34 | Sediment | 04/27/18 |
| PDI-SMA2-SG03-180427 | L29259-35 | Sediment | 04/27/18 |
| PDI-SMA2-SG06-180427 | L29259-36 | Sediment | 04/27/18 |
| PDI-SMA2-SG07-180430 | L29259-1 | Sediment | 04/30/18 |
| PDI-SMA2-SG13-180430 | L29264-2 | Sediment | 04/30/18 |
| PDI-SMA2-SG02-180430 | L29264-6 | Sediment | 04/30/18 |

| | Laboratory Sample | | Collection |
|----------------------------|-------------------|----------|------------|
| Sample Identification | Identification | Matrix | Date |
| PDI-SMA3-OG01-180502 | L29264-9 | Sediment | 05/02/18 |
| PDI-SMA3-SG101-180426DUP | L29259-33DUP | Sediment | 04/26/18 |
| PDI-SMA3-SG101-180426DLDUP | L29259-33DLDUP | Sediment | 04/26/18 |

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Sampling and Quality Assurance Project Plan for Shelton Harbor Sediment Cleanup Unit, Oakland Bay and Shelton Harbor Sediment Cleanup Site, Shelton, Washington (July 2017) and a modified outline of the USEPA National Functional Guidelines (NFG) for High Resolution Superfund Methods Data Review (April 2016). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Polychlorinated Dioxins/Dibenzofurans by Environmental Protection Agency (EPA) Method 1613B

All sample results were subjected to Stage 4 data validation, which is comprised of the quality control (QC) summary forms as well as the raw data, to confirm sample quantitation and identification.

The following are definitions of the data qualifiers utilized during data validation:

- J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.
- U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered not detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).
- UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.
- R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.
- NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition.

The chain-of-custodies were reviewed for documentation of cooler temperatures. Cooler temperature for one of three coolers was reported 7.1°C upon receipt by the laboratory.

All technical holding time requirements were met.

II. HRGC/HRMS Instrument Performance Check

Instrument performance was checked at the required frequency.

Retention time windows were established for all homologues. The chromatographic resolution between 2,3,7,8-TCDD and peaks representing any other unlabeled TCDD isomer was less than or equal to 25%.

The static resolving power was at least 10,000 (10% valley definition).

III. Initial Calibration

A five point initial calibration was performed as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 20.0% for unlabeled compounds and labeled compounds.

The ion abundance ratios for all PCDDs and PCDFs were within validation criteria.

The minimum S/N ratio was greater than or equal to 10 for each unlabeled compound and labeled compound.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

All of the continuing calibration results were within the QC limits for unlabeled compounds and labeled compounds.

The ion abundance ratios for all PCDDs and PCDFs were within validation criteria.

The minimum S/N ratio was greater than or equal to 10 for each unlabeled compound and labeled compound.

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks with the following exceptions:

| Blank ID | Extraction Date | Compound | Concentration | Associated Samples |
|-------------|--------------------|--|--|--|
| WG64075-101 | 06/05/18 | 1,2,3,4,6,7,8-HpCDD OCDD 1,2,3,7,8,9-HxCDF 2,3,4,6,7,8-HxCDF 1,2,3,4,6,7,8-HpCDF OCDF Total TCDD Total HxCDD Total HpCDD Total HyCDD Total HpCDF | 0.079 pg/g 0.222 pg/g 0.059 pg/g 0.054 pg/g 0.078 pg/g 0.097 pg/g 0.055 pg/g 0.093 pg/g 0.079 pg/g 0.113 pg/g 0.078 pg/g | PDI-SMA3-OG01-180502 |
| WG63850-101 | 05/11/18 | 1,2,3,6,7,8-HxCDD 1,2,3,4,6,7,8-HpCDD OCDD 1,2,3,7,8-PeCDF 1,2,3,4,6,7,8-HpCDF OCDF Total TCDD Total HxCDD Total HpCDD Total PeCDF Total HxCDF Total HxCDF | 0.284 pg/g 1.41 pg/g 4.89 pg/g 0.278 pg/g 0.305 pg/g 0.614 pg/g 0.854 pg/g 1.73 pg/g 1.27 pg/g 2.28 pg/g 0.278 pg/g 0.305 pg/g 1.12 pg/g | PDI-SMA1-SG11-180425 PDI-SMA1-SG12-180425 PDI-SMA1-SG13-180425 PDI-SMA1-SG14-180425 PDI-SMA1-SG14-180425 PDI-SMA3-SG04-180426 PDI-SMA3-SG05-180426 PDI-SMA3-SG06-180426 PDI-SMA3-SG04-180426 PDI-SMA3-SG04-180426 PDI-SMA3-SG02-180426 PDI-SMA3-SG02-180426 PDI-SMA3-SG1004-180426 PDI-SMA3-SG1004-180426 PDI-SMA3-SG03-180426 PDI-SMA3-SG03-180426 PDI-SMA3-SG03-180426 PDI-SMA3-SG03-180426 PDI-SMA3-SG101-180426 PDI-SMA3-SG101-180426 PDI-SMA3-SG101-180427 PDI-SMA2-SG106-180427 PDI-SMA2-SG06-180427 PDI-SMA2-SG07-180430 PDI-SMA2-SG07-180430 PDI-SMA2-SG03-180430 PDI-SMA2-SG03-180430 |

Sample concentrations were compared to concentrations detected in the laboratory blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated laboratory blanks with the following exceptions:

| Sample | Compound | Reported Concentration | Modified Final Concentration |
|----------------------|-------------------|---------------------------|---------------------------------|
| PDI-SMA3-OG01-180502 | 1,2,3,7,8,9-HxCDF | 0.263 pg/g | 0.263U pg/g |

VI. Field Blanks

No field blanks were identified in this SDG.

VII. Matrix Spike/Matrix Spike Duplicates/Duplicate Sample Analysis

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

Duplicate (DUP) sample analysis was performed on an associated project sample. Results were within QC limits.

VIII. Ongoing Precision Recovery

Ongoing precision recovery (OPR) samples were analyzed as required by the method. Percent recoveries (%R) were within QC limits.

IX. Field Duplicates

Samples PDI-SMA3-SG1004-180426 and PDI-SMA3-SG2004-180426 and samples PDI-SMA3-SG1004-180426DL and PDI-SMA3-SG2004-180426DL were identified as field duplicates. No results were detected in any of the samples with the following exceptions:

| | Concentra | | |
|---------------------|------------------------|------------------------|--------------|
| Compound | PDI-SMA3-SG1004-180426 | PDI-SMA3-SG2004-180426 | RPD (Limits) |
| 2,3,7,8-TCDD | 7.34 | 5.42 | 30 (≤50) |
| 1,2,3,7,8-PeCDD | 29.4 | 18.8 | 44 (≤50) |
| 1,2,3,4,7,8-HxCDD | 60.8 | 34.3 | 56 (≤50) |
| 1,2,3,6,7,8-HxCDD | 157 | 114 | 32 (≤50) |
| 1,2,3,7,8,9-HxCDD | 115 | 71.1 | 47 (≤50) |
| 1,2,3,4,6,7,8-HpCDD | 2150 | 1780 | 19 (≤50) |
| 2,3,7,8-TCDF | 72.2 | 55.7 | 26 (≤50) |
| 1,2,3,7,8-PeCDF | 18.1 | 14.5 | 22 (≤50) |
| 2,3,4,7,8-PeCDF | 26.2 | 20.0 | 27 (≤50) |
| 1,2,3,4,7,8-HxCDF | 63.3 | 56.9 | 11 (≤50) |

| | Concentra | | |
|---------------------|------------------------|------------------------|--------------|
| Compound | PDI-SMA3-SG1004-180426 | PDI-SMA3-SG2004-180426 | RPD (Limits) |
| 1,2,3,6,7,8-HxCDF | 27.2 | 23.3 | 15 (≤50) |
| 1,2,3,7,8,9-HxCDF | 2.52 | 2.04 | 21 (≤50) |
| 2,3,4,6,7,8-HxCDF | 21.0 | 16.4 | 25 (≤50) |
| 1,2,3,4,6,7,8-HpCDF | 637 | 652 | 2 (≤50) |
| 1,2,3,4,7,8,9-HpCDF | 38.7 | 34.3 | 12 (≤50) |
| OCDF | 1370 | 1670 | 20 (≤50) |
| Total TCDD | 3520 | 2240 | 44 (≤50) |
| Total PeCDD | 2860 | 1780 | 47 (≤50) |
| Total HxCDD | 4160 | 2420 | 53 (≤50) |
| Total HpCDD | 5420 | 4780 | 13 (≤50) |
| Total TCDF | 593 | 457 | 26 (≤50) |
| Total PeCDF | 529 | 413 | 25 (≤50) |
| Total HxCDF | 1020 | 949 | 7 (≤50) |
| Total HpCDF | 2260 | 2730 | 19 (≤50) |
| 1,2,3,7,8,9-HxCDD | 89.2 | 43.6 | 69 (≤50) |
| 2,3,7,8-TCDF | 23.1 | 13.6 | 52 (≤50) |

| | Concentra | | |
|----------|--------------------------|--------------------------|--------------|
| Compound | PDI-SMA3-SG1004-180426DL | PDI-SMA3-SG2004-180426DL | RPD (Limits) |
| OCDD | 14300 | 14100 | 1 (≤50) |

X. Internal Standards

All internal standard recoveries (%R) were within QC limits.

XI. Compound Quantitation

All compound quantitations met validation criteria with the following exceptions:

| Sample | Compound | Flag | A or P |
|---|---|-----------------|--------|
| All samples in SDG DPWG64036/WG63850/WG64075 | All compounds were reported as estimated maximum possible concentration (EMPC). | J (all detects) | А |

| Sample | Compound | Finding | Criteria | Flag | A or P |
|---|--------------|---|---|------------------------------------|--------|
| PDI-SMA1-SG14-180425 | OCDD OCDF | Sample result exceeded calibration range. | Reported result should be within calibration range. | J (all detects) | А |
| PDI-SMA3-SG05-180426 PDI-SMA3-SG04-180426 PDI-SMA3-SG02-180426 PDI-SMA3-SG1004-180426 PDI-SMA3-SG2004-180426 PDI-SMA3-SG101-180426 | OCDD | Sample result exceeded calibration range. | Reported result should be within calibration range. | J (all detects) J (all detects) | А |

XII. Target Compound Identifications

All target compound identifications met validation criteria.

XIII. System Performance

The system performance was acceptable.

XIV. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

In the case where more than one result was reported for an individual sample, the least technically acceptable results were deemed not reportable as follows:

| Sample | Compound | Flag | A or P |
|---|--------------|----------------|--------|
| PDI-SMA1-SG14-180425 | OCDD OCDF | Not reportable | - |
| PDI-SMA3-SG05-180426 PDI-SMA3-SG04-180426 PDI-SMA3-SG02-180426 PDI-SMA3-SG1004-180426 PDI-SMA3-SG2004-180426 PDI-SMA3-SG101-180426 | OCDD | Not reportable | - |

| Sample | Compound | Flag | A or P |
|---|-----------------------------------|----------------|--------|
| All samples in SDG DPWG64036/WG63850/WG64075 | 2,3,7,8-TCDF 1,2,3,7,8,9-HxCDD | Not reportable | - |

Due to results reported by the laboratory as EMPCs, data were qualified as estimated in twenty-seven samples.

Due to laboratory blank contamination, data were qualified as not detected in one sample.

The quality control criteria reviewed, other than those discussed above, were met and are considered acceptable. Sample results that were found to be estimated (J) are usable for limited purposes only. Based upon the data validation all other results are considered valid and usable for all purposes.

Shelton Harbor Polychlorinated Dioxins/Dibenzofurans - Data Qualification Summary - SDG DPWG64036/WG63850/WG64075

| Sample | Compound | Flag | A or P | Reason |
|---|---|-----------------|--------|------------------------------|
| PDI-SMA1-SG11-180425 PDI-SMA1-SG12-180425 PDI-SMA1-SG13-180425 PDI-SMA1-SG14-180425 PDI-SMA1-SG14-180425DL PDI-SMA3-SG05-180426 PDI-SMA3-SG05-180426 | All compounds were reported as estimated maximum possible concentration (EMPC). | J (all detects) | A | Compound quantitation (EMPC) |
| PDI-SMA3-SG06-180426 PDI-SMA3-SG04-180426 PDI-SMA3-SG04-180426 DL PDI-SMA3-SG02-180426 PDI-SMA3-SG02-180426DL PDI-SMA3-SG1004-180426 PDI-SMA3-SG1004-180426DL | | | | |
| PDI-SMA3-SG01-180426 PDI-SMA3-SG03-180426 PDI-SMA3-SG2004-180426 PDI-SMA3-SG2004-180426DL PDI-SMA3-SG101-180426 PDI-SMA3-SG101-180426DL | | | | |
| PDI-SMA2-SG106-180427 PDI-SMA2-SG03-180427 PDI-SMA2-SG06-180427 PDI-SMA2-SG07-180430 PDI-SMA2-SG13-180430 PDI-SMA2-SG02-180430 PDI-SMA3-OG01-180502 | | | | |
| PDI-SMA1-SG14-180425 | OCDD OCDF | Not reportable | - | Overall assessment of data |
| PDI-SMA3-SG05-180426 PDI-SMA3-SG04-180426 PDI-SMA3-SG02-180426 PDI-SMA3-SG1004-180426 PDI-SMA3-SG2004-180426 PDI-SMA3-SG101-180426 | OCDD | Not reportable | - | Overall assessment of data |

| Sample | Compound | Flag | A or P | Reason |
|--------------------------|--------------------|----------------|--------|-----------------------|
| PDI-SMA1-SG11-180425 | 2,3,7,8-TCDF | Not reportable | _ | Overall assessment of |
| PDI-SMA1-SG11-180425 | 1,2,3,7,8,9-HxCDD | Not reportable | _ | data |
| PDI-SMA1-SG13-180425 | 1,2,0,7,0,0-110000 | | | data |
| PDI-SMA1-SG13-180425 | | | | <u> </u> |
| PDI-SMA1-SG14-180425DL | | | | |
| PDI-SMA3-SG05-180426 | | | | |
| PDI-SMA3-SG05-180426 DL | | | | |
| PDI-SMA3-SG06-180426 | | | | |
| PDI-SMA3-SG04-180426 | , ' | | | |
| PDI-SMA3-SG04-180426 DL | | | | |
| PDI-SMA3-SG02-180426 | | | | |
| PDI-SMA3-SG02-180426DL | | | | |
| PDI-SMA3-SG1004-180426 | • | | | |
| PDI-SMA3-SG1004-180426DL | : | | | |
| PDI-SMA3-SG01-180426 | | i | | |
| PDI-SMA3-SG03-180426 | • | | | |
| PDI-SMA3-SG2004-180426 | | | | ** |
| PDI-SMA3-SG2004-180426DL | : | | | |
| PDI-SMA3-SG101-180426 | | | | |
| PDI-SMA3-SG101-180426DL | | | | |
| PDI-SMA2-SG106-180427 | | | | |
| PDI-SMA2-SG03-180427 | | | | |
| PDI-SMA2-SG06-180427 | · | İ | | |
| PDI-SMA2-SG07-180430 | : | , | | . * |
| PDI-SMA2-SG13-180430 | • | | | |
| PDI-SMA2-SG02-180430 | | | | |
| PDI-SMA3-OG01-180502 | <u> </u> | | | |
| | | | | |

Shelton Harbor

Polychlorinated Dioxins/Dibenzofurans - Laboratory Blank Data Qualification Summary - SDG DPWG64036/WG63850/WG64075

| Sample | Compound | Modified Final Concentration | A or P |
|----------------------|-------------------|---------------------------------|--------|
| PDI-SMA3-OG01-180502 | 1,2,3,7,8,9-HxCDF | 0.263U pg/g | Α |

LDC #: 42441B21 VALIDATION COMPLETENESS WORKSHEET

SDG #: DPWG64036 /WG 63850 /WG 64075 Stage 4

Laboratory: SGS AXYS Analytical Services, LTD

METHOD: HRGC/HRMS Polychlorinated Dioxins/Dibenzofurans (EPA Method 1613B)

Date: 6/27/18

Page: 1 of 2

Reviewer: 7

2nd Reviewer: 6/27/18

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

| - Tanaa | tion infalligs worksheets. | | one of 3 wolers = 7.1°C |
|---------|--|-----|------------------------------|
| | Validation Area | | Comments |
| 1. | Sample receipt/Technical holding times | A A | |
| II. | HRGC/HRMS Instrument performance check | A | 4 |
| 111. | Initial calibration/ICV | A,N | % PSD = 20 cw = a (limit |
| IV. | Continuing calibration | Δ | cw = a c limit |
| V. | Laboratory Blanks | SW | |
| VI. | Field blanks | N | |
| VII. | Matrix spike/Matrix spike duplicates | N/A | c5 |
| VIII. | Laboratory control samples | A | OPR |
| IX. | Field duplicates | SW | P= 13, 17 14, 18 |
| X. | Internal standards | Δ. | • |
| XI. | Compound quantitation RL/LOQ/LODs | SW | |
| XII. | Target compound identification | ٨ | |
| XIII. | System performance | ۵ | |
| XIV. | Overall assessment of data | 5~ | |

Note: A = Acceptable

N = Not provided/applicable SW = See worksheet ND = No compounds detected

R = Rinsate FB = Field blank D = Duplicate

TB = Trip blank EB = Equipment blank SB=Source blank OTHER:

| | Client ID | Lab ID | Matrix | Date |
|----|--------------------------------|----------------|----------|----------|
| 1 | PDI-SMA1-SG11-180425 | L29259-21 | Sediment | 04/25/18 |
| 2 | PDI-SMA1-SG12-180425 | L29259-22 | Sediment | 04/25/18 |
| 3 | PDI-SMA1-SG13-180425 | L29259-23 | Sediment | 04/25/18 |
| 4 | PDI-SMA1-SG14-180425 | L29259-24 | Sediment | 04/25/18 |
| 5 | PDI-SMA1-SG14-180425RE PL | L29259-24RE PL | Sediment | 04/25/18 |
| 6 | PDI-SMA3-SG05-180426 | L29259-25 | Sediment | 04/26/18 |
| 7 | PDI-SMA3-SG05-180426RE 0L | L29259-25RE VL | Sediment | 04/26/18 |
| 8 | PDI-SMA3-SG06-180426 | L29259-26 | Sediment | 04/26/18 |
| 9 | PDI-SMA3-SG04-180426 | L29259-27 | Sediment | 04/26/18 |
| 10 | PDI-SMA3-SG04-180426RE VL | L29259-27RE 0L | Sediment | 04/26/18 |
| 11 | PDI-SMA3-SG02-180426 | L29259-28 | Sediment | 04/26/18 |
| 12 | PDI-SMA3-SG02-180426RE VL | L29259-28RE OL | Sediment | 04/26/18 |
| 13 | PDI-SMA3-SG1004-180426 | L29259-29 | Sediment | 04/26/18 |
| 14 | PDI-SMA3-SG1004-180426RE 0L 01 | L29259-29RE のレ | Sediment | 04/26/18 |

| LDC | #: | 42441B21 | |
|-----|----|----------|--|
| | | | |

VALIDATION COMPLETENESS WORKSHEET

Stage 4

SDG #: <u>DPWG64036</u>

Laboratory: SGS AXYS Analytical Services, LTD

METHOD: HRGC/HRMS Polychlorinated Dioxins/Dibenzofurans (EPA Method 1613B)

Date: 6/27/

Reviewer: 2nd Reviewer:

| | Client ID | Lab ID | Matrix | Date |
|-------------|---|--|----------|----------|
| 15 | PDI-SMA3-SG01-180426 | L29239-30 | Sediment | 04/26/18 |
| 16 | PDI-SMA3-SG03-180426 | L29259-31 | Sediment | 04/26/18 |
| 17 | PDI-SMA3-SG2004-180426 | L29259-32 | Sediment | 04/26/18 |
| 18 | PDI-SMA3-SG2004-180426RE 01 0, | L29259-32RE DL | Sediment | 04/26/18 |
| 19 | PDI-SMA3-SG101-180426 | L29259-33 | Sediment | 04/26/18 |
| 20 | PDI-SMA3-SG101-180426RE DV | L29259-33RE 01 | Sediment | 04/26/18 |
| 21 | PDI-SMA2-SG106-180427 | L29259-34 | Sediment | 04/27/18 |
| 22 | PDI-SMA2-SG03-180427 | L29259-35 | Sediment | 04/27/18 |
| 23 | PDI-SMA2-SG06-180427 | L29259-36 | Sediment | 04/27/18 |
| 24 | PDI-SMA2-SG07-180430 | L292 59 -1 | Sediment | 04/30/18 |
| 25 | PDI-SMA2-SG13-180430 | L29264-2 | Sediment | 04/30/18 |
| 26 | PDI-SMA2-SG02-180430 | L29264-6 | Sediment | 04/30/18 |
| 27 2 | PDI-SMA3-OG01-180502 | L29264-9 | Sediment | 05/02/18 |
| 28 | PDI-SMA3-SG101-180426DUP | L29259-33DUP | Sediment | 04/26/18 |
| 29 | PDI-SMA3-SG101-180426 RE DUP | DL L29259-33 RE DUP | Sediment | 04/26/18 |
| 30 | | | | |
| 31 | | | | |
| 32 | | | | |

LDC#: 12441B21

VALIDATION FINDINGS CHECKLIST

| Page: | 1_of2 |
|------------|-------|
| Reviewer: | FT |
| 2nd Review | er: |

Method: HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 1613B)

| Validation Area | Yes | No | NA | Findings/Comments |
|--|------|----|------|--|
| I. Technical holding times | - 44 | | 14.4 | |
| All technical holding times were met. | | | | |
| Cooler temperature criteria was met. | | | | _ |
| II. GC/MS Instrument performance check | | | | |
| Was PFK exact mass 380.9760 verified? | | | | |
| Were the retention time windows established for all homologues? | | | | |
| Was the chromatographic resolution between 2,3,7,8-TCDD and peaks representing any other unlabeled TCDD isomers \leq 25% ? | | | | |
| Is the static resolving power at least 10,000 (10% valley definition)? | | | | · |
| Was the mass resolution adequately check with PFK? | | | | |
| Was the presence of 1,2,8,9-TCDD and 1,3,4,6,8-PeCDF verified? | | | | |
| IIIa. Initial calibration | | | | And the second s |
| Was the initial calibration performed at 5 concentration levels? | | | | |
| Were all percent relative standard deviations (%RSD) ≤ 20% for all compounds? | | | | |
| Did all calibration standards meet the Ion Abundance Ratio criteria? | | | | |
| Was the signal to noise ratio for each target compound \geq 2.5 and for each recovery and internal standard \geq 10? | | | | |
| IIIb. Initial Galibration Verification | | | | |
| Was an initial calibration verification standard analyzed after each initial calibration for each instrument? | M | | | |
| Were all concentrations for the unlabeled compounds ≤ 20% and for labeled compounds ≤ 30% ?? | * | | | |
| IV/I Continuing calibration | | | | |
| Was a continuing calibration performed at the beginning and end of each 12 hour period? | _ | | | |
| Were all concentrations for the unlabeled compounds and for labeled compounds within QC limits (Method 1613B, Table 6)? | _ | | | |
| Did all routine calibration standards meet the Ion Abundance Ratio criteria? | | | | |
| V Blanks | | | | |
| Was a method blank associated with every sample in this SDG? | | | | |
| Was a method blank performed for each matrix and whenever a sample extraction was performed? | - | | | |
| Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet? | | | | |
| VII Field blanks | | | | |
| Field blanks were identified in this SDG. | | | | |
| Target compounds were detected in the field blanks. | | | / | |
| VII. Matrix spike/Matrix spike duplicates | | | | |

LDC #: 42441 B2

VALIDATION FINDINGS CHECKLIST

Page: 2 of 2
Reviewer: FT
2nd Reviewer:

| Validation Area | Yes | No | NA | Findings/Comments |
|---|----------|---------|--|--|
| Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water. | | | | |
| Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits? | | | / | |
| VIII Laboratory control samples | | | | |
| Was an LCS analyzed per extraction batch? | / | | | |
| Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits? | _ | · · | | |
| IX-Field duplicates | | | | |
| Field duplicate pairs were identified in this SDG. | | | | |
| Target compounds were detected in the field duplicates. | | · | | |
| X. Internal standards | | | | de 45 de la companya |
| Were internal standard recoveries within the 25-150% criteria? | / | | | |
| Was the minimum S/N ratio of all internal standard peaks ≥ 10? | | | | |
| Xi. Compound quantitation | | | | |
| Were the correct internal standard (IS), quantitation ion and relative response factor (RRF) used to quantitate the compound? | • | | | |
| Were compound quantitation and CRQLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation? | / | | | |
| XII. Target compound identification | | | | |
| For 2,3,7,8 substituted congeners with associated labeled standards, were the retention times of the two quantitation peaks within -1 to 3 sec. of the RT of the labeled standard? | / | - | | |
| For 2,3,7,8 substituted congeners without associated labeled standards, were the relative retention times of the two quantitation peaks within 0.005 time units of the RRT measured in the routine calibration? | / | | | |
| For non-2,3,7,8 substituted congeners, were the retention times of the two quantitation peaks within RT established in the performance check solution? | | | | |
| Did compound spectra contain all characteristic ions listed in the table attached? | _ | | | |
| Was the Ion Abundance Ratio for the two quantitation ions within criteria? | / | | | |
| Was the signal to noise ratio for each target compound and labeled standard \geq 2.5? | / | r. | | |
| Does the maximum intensity of each specified characteristic ion coincide within \pm 2 seconds (includes labeled standards)? | / | | | |
| For PCDF identification, was any signal (S/N \geq 2.5, at \pm seconds RT) detected in the corresponding PCDPE channel? | | | | |
| Was an acceptable lock mass recorded and monitored? | | | | |
| XIII. System performance | ı | Γ | ı . | |
| System performance was found to be acceptable. | | | - No. 100 Person 100 P | |
| XIV. Overall assessment of data | | ć I | i i | |
| Overall assessment of data was found to be acceptable. | <u> </u> | <u></u> | <u> </u> | |

VALIDATION FINDINGS WORKSHEET

METHOD: HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 8290)

| A. 2,3,7,8-TCDD | F. 1,2,3,4,6,7,8-HpCDD | K. 1,2,3,4,7,8-HxCDF | P. 1,2,3,4,7,8,9-HpCDF | U. Total HpCDD |
|----------------------|------------------------|------------------------|------------------------|----------------|
| B. 1,2,3,7,8-PeCDD | G. OCDD | L. 1,2,3,6,7,8-HxCDF | Q. OCDF | V. Total TCDF |
| C. 1,2,3,4,7,8-HxCDD | H. 2,3,7,8-TCDF | M. 2,3,4,6,7,8-HxCDF | R. Total TCDD | W. Total PeCDF |
| D. 1,2,3,6,7,8-HxCDD | I. 1,2,3,7,8-PeCDF | N. 1,2,3,7,8,9-HxCDF | S. Total PeCDD | X. Total HxCDF |
| E. 1,2,3,7,8,9-HxCDD | J. 2,3,4,7,8-PeCDF | O. 1,2,3,4,6,7,8-HpCDF | T. Total HxCDD | Y. Total HpCDF |

| Notes: | | |
|--------|--|--|
| | | |

LDC #: 4244/ B2/

VALIDATION FINDINGS WORKSHEET Blanks

Page:__of__ Reviewer:__FT_ 2nd Reviewer:__

METHOD: HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 1613B)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N/A Were all samples associated with a method blank?

Y N N/A Was a method blank performed for each matrix and whenever a sample extraction was performed?

Y/N N/A Was the method blank contaminated?

Blank extraction date: 6 8 18 Associated samples: 9 7 7 / Conc. units: pa a

| Compound | Blank ID | | Sample Identification | | | | | |
|----------|-------------|-------|-----------------------|--|--|--|--|--|
| | WG64075-10) | 5× | 17 | | | | | |
| F | 0.019 | 0.395 | | | | | | |
| G | 0.222 | 1.11 | - | | | | | |
| 7 | 0.059 | 0.295 | 0.2631 | | | | | |
| M, | 0.054 | 0.27 | _ | | | | | |
| 6, | 0.078 | 0.39 | | | | | | |
| 8 | 0.097 | 0.485 | - | | | | | |
| | | | | | | | | |

| Blank extraction date:_ Conc. units:palay | V Blank anal | ysis date: <u> </u> | Associated S | Samples: | 2 | 7 | | |
|---|--------------|---------------------|-----------------------|----------|---|---|--|--|
| Compound | Blank ID | | Sample Identification | | | | | |
| | J | SX √ | 27 | | | | | |
| R | 0.055 | 0.275 | ' | | | | | |
| T | 0.093 | 0.465 | _ | | | | | |
| и | 0.079 | 0.395 | | | | | | |
| X | 0.113 | 0.565 | | | | | | |
| 4 | 0.018 | 0.39 | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT: All contaminants within five times the method blank concentration were qualified as not detected, "U".

LDC#: 4244/B2/

VALIDATION FINDINGS WORKSHEET Blanks

| Page:of |
|---------------|
| Reviewer: FT_ |
| 2nd Reviewer: |

METHOD: HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 1613B)

Plaase see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Were all samples associated with a method blank?

Y N/A Was a method blank performed for each matrix and whenever a sample extraction was performed?

Y/N N/A Was the method blank contaminated?

Blank extraction date: $\frac{5|1|}{8}$ Blank analysis date: $\frac{5|22|18}{8}$ Associated samples: $\frac{1-726}{75}$

| Compound | Blank ID | Sample Identification | | | | | |
|----------|-------------|-----------------------|--|---|--|--|---|
| | WG63850-101 | | | | | | |
| D | 0.284 | | | | | | · |
| F | 1.41 | | | | | | |
| G | 4.129 | | | | | | |
| I | 0.278 | | | | | | |
| K | 0.309 | | | | | | |
| 9 | 0.614 | | | - | | | |
| Q | 0.454 | | | | | | |

| Slank extraction date: 9/11/16 Blank analysis date: 5 122 10 Associated Samples: 1> 26 75 × | | | | | | | | |
|---|----------|----|-----------------------|--|--|--|--|---|
| Compound | Blank ID | | Sample Identification | | | | | |
| | 4 | | | | | | | |
| R | 1.73 | | | | | | | |
| T | 1.27 | | | | | | | |
| И | 2.28 | | | | | | | |
| W | 0.278 | | | | | | | |
| X | 0.305 | | | | | | | |
| <u> </u> | 1.12 | · | | | | | | |
| | | 1) | | | | | | l |

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT: All contaminants within five times the method blank concentration were qualified as not detected, "U".

LDC#: 4244/132/

VALIDATION FINDINGS WORKSHEET <u>Field Duplicates</u>

Page:__of__ Reviewer:____ 2nd Reviewer:___

METHOD: 1613B

| | Concentra | tion (pg/g) | (≤50) |
|-----------|-----------|-------------|-------|
| Compound | 13 | 17 | RPD |
| А | 7.34 | 5.42 | 30 |
| В | 29.4 | 18.8 | 44 |
| С | 60.8 | 34.3 | 56 |
| D | 157 | 114 | 32 |
| E | 115 | 71.1 | 47 |
| F | 2150 | 1780 | 19 |
| н | 72.2 | 55.7 | 26 |
| ı | 18.1 | 14.5 | 22 |
| J | 26.2 | 20.0 | 27 |
| К | 63.3 | 56.9 | 11 |
| L | 27.2 | 23.3 | 15 |
| N | 2.52 | 2.04 | 21 |
| М | 21.0 | 16.4 | 25 |
| 0 | 637 | 652 | 2 |
| Р | 38.7 | 34.3 | 12 |
| Q | 1370 | 1670 | 20 |
| R | 3520 | 2240 | 44 |
| s | 2860 | 1780 | 47 |
| Т | 4160 | 2420 | 53 |
| U | 5420 | 4780 | 13 |
| V | 593 | 457 | 26 |
| W | 529 | 413 | 25 |
| х | 1020 | 949 | 7 |
| Υ | 2260 | 2730 | 19 |
| E (DB225) | 89.2 | 43.6 | 69 |
| H (DB225) | 23.1 | 13.6 | 52 |

LDC#:_42441B2/

VALIDATION FINDINGS WORKSHEET <u>Field Duplicates</u>

Page: ____of___ Reviewer: ______ 2nd Reviewer: _____

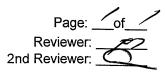
METHOD: GCMS PAH (EPA SW 846 Method 8270D-SIM)

| | Concentrat | (≤50) | |
|-------------|------------|-------|-----|
| Compound 14 | | 18 | RPD |
| G | 14300 | 14100 | 1 |

V:\FIELD DUPLICATES\Field Duplicates\FD_Organics\2018\42441B21.wpd

LDC #: 42 44/B2/

VALIDATION FINDINGS WORKSHEET <u>Compound Quantitation and Reported CRQLs</u>



METHOD: HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 1613B)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Y N N/A

Were the correct internal standard (IS), quantitation ions and relative response factors (RRF) used to quantitate the compound? Compound quantitation and CRQLs were adjusted to reflect all sample dilutions and dry weight factors (if necessary).

| # | Date | Sample ID | Finding | Associated Samples | Qualifications |
|---|------|-----------------|---|--------------------|----------------|
| | | AI ⁾ | all compounds reported as estimated maximum possible concentration (EMPC) | | Jdet/A |
| | | | | | |
| | | 4 | G, Q x'd col Range | | Jdet// |
| | | 6,9,11,13,17,19 | G X'd cal Range | | Jdet/A |
| | | | | | |
| | | | | <u> </u> | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

| Comments: _ | See sample calculation verification worksheet for recalculations | |
|-------------|--|--|
| | | |

LDC #: 42 44/B2/

VALIDATION FINDINGS WORKSHEET Overall Assessment of Data

| Page: _ | <u>of_</u> | _ |
|-----------------|------------|----|
| Review | ver: | FT |
| 2nd Reviewer: _ | | 1 |

METHOD: HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 1613B)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

All available information pertaining to the data were reviewed using professional judgement to compliment the determination of the overall quality of the data.

YN N/A Was the overall quality and usability of the data acceptable?

| # | Date | Sample ID | Finding | Associated Samples | Qualifications |
|---|------|-----------------|--|--------------------|----------------|
| | | 4 | G, Q x'ol cal Range | | N/R |
| | | 6,9,11,13,17,19 | G x'd cal Range | | N/R |
| | | , , , | , | | , |
| | | All | H, E From DB5 | | N/R |
| | | | H, E prom DB5 (report all results prom DB225 jor | H + F | |
| | | | 7-11. 00223 386 | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

| Comments: | | | | |
|-----------|--|--|--|------|
| | | | | |
| | | | | |

VALIDATION FINDINGS WORKSHEET Initial Calibration Calculation Verification

| Page:of |
|---------------|
| Reviewer: |
| 2nd Reviewer: |

METHOD: HRGC/HRMS Dioxins/Dibenzofurans (EPA Method 1613B)

The Relative Response Factor (RRF), average RRF, and percent relative standard deviation (%RSD) were recalculated for the compounds identified below using the following calculations:

 $RRF = (A_x)(C_{is})/(A_{is})(C_x)$

 A_{v} = Area of compound,

A_{is} = Area of associated internal standard

average RRF = sum of the RRFs/number of standards

 C_x = Concentration of compound, C_{is} = Concentration of internal standard C_{is} = Concentration of internal standard C_{is} = Concentration of internal standard C_{is} = Mean of the RRFs

%RSD = 100 * (S/X)

| | | | | Reported | Recalculated | Reported | Recalculated | Reported | Recalculated |
|----------|--|---------------------|--|--------------------------|--------------------------|------------------|-------------------|----------|--------------|
| # | Standard ID | Calibration Date | Compound (Reference Internal Standard) | Average RRF (initial) | Average RRF (initial) | RRF (CS3 std) | RRF (CS3 std) | %RSD | %RSD |
| 1 | ICAL | 6/4/18 | 2,3,7,8-TCDF (¹³ C-2,3,7,8-TCDF) | 0.9110 | 0.9110 | 0.937 | 0.937 | 2.46 | 2.46 |
| | | | 2,3,7,8-TCDD (¹³ C-2,3,7,8-TCDD) | 1.0829 | 1.0829 | 1.088 | 1.088 | 3.66 | 3.66 |
| | | | 1,2,3,6,7,8-HxCDD (¹³ C-1,2,3,6,7,8-HxCDD) | 0.9433 | 0.9433 | 0.967 | 0.967 | 2.22 | 2.22 |
| | | | 1,2,3,4,6,7,8-HpCDD (¹³ C-1,2,4,6,7,8,-HpCDD) | 0.990 | 0.990 | 0.9898 | 0.9898 | 1.65 | 1.65 |
| | | | OCDF (13C-OCDD) | 1.2492 | 1.2492 | 1.250 | 1.250 | 5.74 | 5.74 |
| 2 | MANUFACTURE IN THE STATE OF THE | | 2,3,7,8-TCDF (¹³ C-2,3,7,8-TCDF) 2,3,7,8-TCDD (¹³ C-2,3,7,8-TCDD) | | | | | | |
| <u> </u> | | | 1,2,3,6,7,8-HxCDD (¹³ C-1,2,3,6,7,8-HxCDD) | | | | | | |
| | | | 1,2,3,4,6,7,8-HpCDD (¹³ C-1,2,4,6,7,8,-HpCDD) | | | | | | |
| 3 | | | 2,3,7,8-TCDF (¹³ C-2,3,7,8-TCDF) | | | | | | |
| | | | 2,3,7,8-TCDD (¹³ C-2,3,7,8-TCDD) | | | | | | |
| | | | 1,2,3,6,7,8-HxCDD (¹³ C-1,2,3,6,7,8-HxCDD) | | | | | | |
| | | | 1,2,3,4,6,7,8-HpCDD (¹³ C-1,2,4,6,7,8,-HpCDD) | | | | | | |
| <u></u> | | | OCDF (13C-OCDD) | | | | | | |

Comments: Refer to Initial Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 4244182/

VALIDATION FINDINGS WORKSHEET Initial Calibration Calculation Verification

| Page:of | |
|---------------|--|
| Reviewer: | |
| 2nd Reviewer: | |

METHOD: HRGC/HRMS Dioxins/Dibenzofurans (EPA Method 1613B)

The Relative Response Factor (RRF), average RRF, and percent relative standard deviation (%RSD) were recalculated for the compounds identified below using the following calculations:

 $RRF = (A_x)(C_{is})/(A_{is})(C_x)$ average RRF = sum of the RRFs/number of standards

 A_x = Area of compound,

A_{is} = Area of associated internal standard C_x = Concentration of compound, C_{is} = Concentration of internal standard C_{is} = Concentration of internal standard C_{is} = Mean of the RRFs

%RSD = 100 * (S/X)

| | | | | Reported | Recalculated | Reported | Recalculated | Reported | Recalculated |
|---|-------------|---------------------|---|--------------------------|--------------------------|------------------|-------------------|----------|--------------|
| # | Standard ID | Calibration Date | Compound (Reference Internal Standard) | Average RRF (initial) | Average RRF (initial) | RRF (CS3 std) | RRF (CS3 std) | %RSD | %RSD |
| 1 | ICAL | 11/6/17 | 2,3,7,8-TCDF (¹³ C-2,3,7,8-TCDF) | 0.9466 | 0.9466 | 0.971 | 0.971 | 2.14 | 2.14 |
| | | | 2,3,7,8-TCDD (¹³ C-2,3,7,8-TCDD) | 1.0166 | 1.0166 | 1.048 | 1.048 | 4.78 | 4.78 |
| | | | 1,2,3,6,7,8-HxCDD (¹³ C-1,2,3,6,7,8-HxCDD) | 0.9904 | 0.9904 | 1.014 | 1.014 | 5.24 | 5.24 |
| | | | 1,2,3,4,6,7,8-HpCDD (¹³ C-1,2,4,6,7,8,-HpCDD) | 1.021 | 1.021 | 1.046 | 1.046 | 3.34 | 3.34 |
| | | | OCDF (13C-OCDD) | 1.2524 | 1.2524 | 1,324 | 1.324 | 8.25 | 8.25 |
| 2 | | | 2,3,7,8-TCDF (¹³ C-2,3,7,8-TCDF) 2,3,7,8-TCDD (¹³ C-2,3,7,8-TCDD) | | | | | | |
| | | | 1,2,3,6,7,8-HxCDD (¹³ C-1,2,3,6,7,8-HxCDD) 1,2,3,4,6,7,8-HpCDD (¹³ C-1,2,4,6,7,8,-HpCDD) OCDE (¹³ C-OCDD) | | | | | | |
| 3 | | | 2,3,7,8-TCDF (¹³ C-2,3,7,8-TCDF) 2,3,7,8-TCDD (¹³ C-2,3,7,8-TCDD) 1,2,3,6,7,8-HxCDD (¹³ C-1,2,3,6,7,8-HxCDD) 1,2,3,4,6,7,8-HpCDD (¹³ C-1,2,4,6,7,8,-HpCDD) OCDF (¹³ C-OCDD) | | | | | | |

| Comments: | Refer to Initial | Calibration find | <u>lings workshee</u> | t for list of | qualifications | and associate | <u>d samples wh</u> | en reported | <u>results do no</u> | t agree within | 10.0% of the |
|----------------|------------------|------------------|-----------------------|---------------|----------------|---------------|---------------------|-------------|----------------------|----------------|--------------|
| recalculated | results | | | | - | | | | | | |
| - Total alatea | . roounto. | | | | | · | | *** | | | |

LDC#: 4244/82/

VALIDATION FINDINGS WORKSHEET Initial Calibration Calculation Verification

| Page: | of |
|--------------------------|----|
| Reviewer 2nd Reviewer | |

METHOD: HRGC/HRMS Dioxins/Dibenzofurans (EPA Method 1613B)

The Relative Response Factor (RRF), average RRF, and percent relative standard deviation (%RSD) were recalculated for the compounds identified below using the following calculations:

 $RRF = (A_x)(C_{is})/(A_{is})(C_x)$ average RRF = sum of the RRFs/number of standards

%RSD = 100 * (S/X)

 A_x = Area of compound, C_x = Concentration of compound,

A_{is} = Area of associated internal standard C_{is} = Concentration of internal standard

S = Standard deviation of the RRFs, X = Mean of the RRFs

| | | | | Reported | Recalculated | Reported | Recalculated | Reported | Recalculated |
|----------|-------------|---------------------|---|--------------------------|--------------------------|------------------|-------------------|----------|--------------|
| # | Standard ID | Calibration Date | Compound (Reference Internal Standard) | Average RRF (initial) | Average RRF (initial) | RRF (CS3 std) | RRF (CS3 std) | %RSD | %RSD |
| 1 | ICAL | 12/6/18 | 2,3,7,8-TCDF (¹³ C-2,3,7,8-TCDF) | 0.88 | 0.88 | 0.91 | 0.91 | 8.10 | 8.10 |
| | DB225 | 2/6/18 | 2,3,7,8-TCDD (¹³ C-2,3,7,8-TCDD) | | | | | | |
| | | 1 1 | 1,2,3,6,7,8-HxCDD (¹³ C-1,2,3,6,7,8-HxCDD) | | | | | | |
| | | | 1,2,3,4,6,7,8-HpCDD (¹³ C-1,2,4,6,7,8,-HpCDD) | | | | | | |
| <u> </u> | | | OCDF (13C-OCDD) | | | | | | |
| 2 | | | 2,3,7,8-TCDF (¹³ C-2,3,7,8-TCDF) | | | | | | |
| | | | 2,3,7,8-TCDD (¹³ C-2,3,7,8-TCDD) | | | | | | |
| | | | 1,2,3,6,7,8-HxCDD (¹³ C-1,2,3,6,7,8-HxCDD) | | | | | | |
| | | | 1,2,3,4,6,7,8-HpCDD (¹³ C-1,2,4,6,7,8,-HpCDD) | | | | | | |
| <u> </u> | | | OCDF (13C-OCDD) | | | | | | |
| 3 | | | 2,3,7,8-TCDF (¹³ C-2,3,7,8-TCDF) | | | | | | |
| | | | 2,3,7,8-TCDD (¹³ C-2,3,7,8-TCDD) | | | | | | |
| | | | 1,2,3,6,7,8-HxCDD (¹³ C-1,2,3,6,7,8-HxCDD) | | | | | | |
| | | | 1,2,3,4,6,7,8-HpCDD (¹³ C-1,2,4,6,7,8,-HpCDD) | | | | | | |
| | | | OCDF (13C-OCDD) | | | | | | |

| Comments: | Refer to Initial | Calibration findings | worksheet for list o | <u>f qualifications a</u> | and associated | samples when | reported results of | <u>do not agree within</u> | 10.0% of the |
|--------------|------------------|----------------------|----------------------|---------------------------|----------------|--------------|---------------------|----------------------------|--------------|
| recalculated | results. | | | | | | | | |
| | | | _ | | | | | | |

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VALIDATION FINDINGS WORKSHEET Routine Calibration Results Verification

| Page:_ | _of |
|----------------|---------------|
| Reviewer: | FT |
| 2nd Reviewer:_ | \mathcal{O} |

METHOD: HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 1613B)

The percent difference (%D) of the initial calibration average Relative Response Factors (RRFs) and the continuing calibration RRFs were recalculated for the compounds identified below using the following calculation:

% Difference = 100 * (ave. RRF - RRF)/ave. RRF $RRF = (A_x)(C_{is})/(A_{is})(C_x)$

Where: ave. RRF = initial calibration average RRF

RRF = continuing calibration RRF

 A_{ν} = Area of compound, C_{v} = Concentration of compound, A_{is} = Area of associated internal standard

C_{is} = Concentration of internal standard

| | | | | | Reported | Recalculated | Reported | Recalculated |
|---|-------------|---------------------|---|--------------------------|-------------|--------------|----------|--------------|
| # | Standard ID | Calibration Date | Compound (Reference Internal Standard) | Average RRF (initial) | RRF (CC) | RRF (CC) | %D | %D |
| 1 | cor | 5/22/18 | 2,3,7,8-TCDF (¹³ C-2,3,7,8-TCDF) | 10.0 | 10.5 | 10.5 | | |
| | 1105 | , , | 2,3,7,8-TCDD (¹³ C-2,3,7,8-TCDD) | 10.0 | 11.7 | 11.1 | | |
| | | , | 1,2,3,6,7,8-HxCDD (¹³ C-1,2,3,6,7,8-HxCDD) | 50.U | 51.2 | 5/.2 | | |
| | | | 1,2,3,4,6,7,8-HpCDD (¹³ C-1,2,4,6,7,8,-HpCDD) | 50.0 | 49./ | 49.7 | | |
| | | | OCDF (13C-OCDD) | 100.0 | 99.6 | 99.6 | | |
| 2 | col | 5/22/18 | 2,3,7,8-TCDF (¹³ C-2,3,7,8-TCDF) | | 10.8 | 10.8 | | |
| | 2127 | | 2,3,7,8-TCDD (¹³ C-2,3,7,8-TCDD) | | 11.0 | 11.0 | | |
| | | | 1,2,3,6,7,8-HxCDD (¹³ C-1,2,3,6,7,8-HxCDD) | | 50.6 | 50.6 | | |
| | | | 1,2,3,4,6,7,8-HpCDD (¹³ C-1,2,4,6,7,8,-HpCDD) | | 51.0 | 510 | | |
| | | | OCDF (13C-OCDD) | <u> </u> | 96.4 | 96.4 | | |
| 3 | cer | 5/23/18 | 2,3,7,8-TCDF (¹³ C-2,3,7,8-TCDF) | | 10.6 | 10.6 | | |
| | 0836 | | 2,3,7,8-TCDD (¹³ C-2,3,7,8-TCDD) | | 10.7 | 10.7 | | Ü |
| | | | 1,2,3,6,7,8-HxCDD (¹³ C-1,2,3,6,7,8-HxCDD) | | 51.7 | 51.7 | | |
| | | | 1,2,3,4,6,7,8-HpCDD (¹³ C-1,2,4,6,7,8,-HpCDD) | | 49.7 | 49.7 | | |
| | · | | OCDF (13C-OCDD) | | 95./ | 95- | | |

Comments: Refer to Routine Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 42 44/ B2/

VALIDATION FINDINGS WORKSHEET Routine Calibration Results Verification

2nd Reviewer:

METHOD: HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 8290)

The percent difference (%D) of the initial calibration average Relative Response Factors (RRFs) and the continuing calibration RRFs were recalculated for the compounds identified below using the following calculation:

% Difference = 100 * (ave. RRF - RRF)/ave. RRF $RRF = (A_x)(C_{is})/(A_{is})(C_x)$

Where: ave. RRF = initial calibration average RRF

RRF = continuing calibration RRF

 A_{v} = Area of compound, C_x = Concentration of compound,

A_{is} = Area of associated internal standard C_{is} = Concentration of internal standard

| | | | | | Reported | Recalculated | Reported | Recalculated |
|---|-------------|---------------------|---|--------------------------|-------------|--------------|----------|--------------|
| # | Standard ID | Calibration Date | Compound (Reference Internal Standard) | Average RRF (initial) | RRF (CC) | RRF (CC) | %D | %D |
| 1 | cev | 5/23/18 | 2,3,7,8-TCDF (¹³ C-2,3,7,8-TCDF) | 10.0 | 10,0 | 10.0 | | |
| | DB225 | 7 7 | 2,3,7,8-TCDD (¹³ C-2,3,7,8-TCDD) | | | | | |
| | 0903 | | 1,2,3,6,7,8-HxCDD (¹³ C-1,2,3,6,7,8-HxCDD) | | | | | |
| | | | 1,2,3,4,6,7,8-HpCDD (¹³ C-1,2,4,6,7,8,-HpCDD) | | | • | | |
| | | <u>-</u> | OCDF (13C-OCDD) | | | | | |
| 2 | cer | 5/23/18 | 2,3,7,8-TCDF (¹³ C-2,3,7,8-TCDF) | 10.0 | 10.6 | 10.6 | | |
| | DB225 | / " | 2,3,7,8-TCDD (¹³ C-2,3,7,8-TCDD) | | | | | |
| | 2047 | | 1,2,3,6,7,8-HxCDD (¹³ C-1,2,3,6,7,8-HxCDD) | | | | | |
| | | | 1,2,3,4,6,7,8-HpCDD (¹³ C-1,2,4,6,7,8,-HpCDD) | | | | | |
| | | | OCDF (13C-OCDD) | | | | | |
| 3 | cev | 5/24/18 | 2,3,7,8-TCDF (¹³ C-2,3,7,8-TCDF) | 10.0 | F7 4-4 10.7 | 10.7 | | |
| | 0623 | - | 2,3,7,8-TCDD (¹³ C-2,3,7,8-TCDD) | 10.0 | 11-4 | 11.4 | | |
| | | | 1,2,3,6,7,8-HxCDD (¹³ C-1,2,3,6,7,8-HxCDD) | 50.0 | 49.8 | 49.8 | | |
| | | | 1,2,3,4,6,7,8-HpCDD (¹³ C-1,2,4,6,7,8,-HpCDD) | 50.0 | 51.8 | 51.8 | | |
| | | | OCDF (13C-OCDD) | 100.0 | 98.3 | 98.3 | | |

Comments: Refer to Routine Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 42 44/ B2/

VALIDATION FINDINGS WORKSHEET Routine Calibration Results Verification

| Page:_ | |
|---------------|----|
| Reviewer: | £7 |
| 2nd Reviewer: | |

METHOD: HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 8290)

The percent difference (%D) of the initial calibration average Relative Response Factors (RRFs) and the continuing calibration RRFs were recalculated for the compounds identified below using the following calculation:

% Difference = 100 * (ave. RRF - RRF)/ave. RRF $RRF = (A_x)(C_{is})/(A_{is})(C_x)$

Where: ave. RRF = initial calibration average RRF

RRF = continuing calibration RRF

 $A_{v} =$ Area of compound, $C_x = Concentration of compound,$

A_{is} = Area of associated internal standard C_{is} = Concentration of internal standard

| | | | | | Reported | Recalculated | Reported | Recalculated |
|---|-------------|---------------------|---|--------------------------|-------------|--------------|----------|--------------|
| # | Standard ID | Calibration Date | Compound (Reference Internal Standard) | Average RRF (initial) | RRF (CC) | RRF (CC) | %D | %D |
| 1 | cev | 5/24/18 | 2,3,7,8-TCDF (¹³ C-2,3,7,8-TCDF) | 10.0 | 10.9 | 10.9 | | |
| | DB 225 | • | 2,3,7,8-TCDD (¹³ C-2,3,7,8-TCDD) | | | | | |
| | 0942 | | 1,2,3,6,7,8-HxCDD (¹³ C-1,2,3,6,7,8-HxCDD) | | | | | |
| | • | | 1,2,3,4,6,7,8-HpCDD (¹³ C-1,2,4,6,7,8,-HpCDD) | | | | | |
| | | | OCDF (13C-OCDD) | | | | | |
| 2 | | | 2,3,7,8-TCDF (¹³ C-2,3,7,8-TCDF) | | | | | |
| | | | 2,3,7,8-TCDD (¹³ C-2,3,7,8-TCDD) | | | | | |
| | | | 1,2,3,6,7,8-HxCDD (¹³ C-1,2,3,6,7,8-HxCDD) | | | | | |
| | | | 1,2,3,4,6,7,8-HpCDD (¹³ C-1,2,4,6,7,8,-HpCDD) | | | | | |
| | | | OCDF (13C-OCDD) | | | | | |
| 3 | | | 2,3,7,8-TCDF (¹³ C-2,3,7,8-TCDF) | | | | | |
| | | | 2,3,7,8-TCDD (¹³ C-2,3,7,8-TCDD) | | | | | |
| | | | 1,2,3,6,7,8-HxCDD (¹³ C-1,2,3,6,7,8-HxCDD) | | | | | |
| | | | 1,2,3,4,6,7,8-HpCDD (¹³ C-1,2,4,6,7,8,-HpCDD) | | | | | |
| | | | OCDF (¹³ C-OCDD) | | | | | |

| Comments: | Refer to Routine | Calibration find | <u>dings worksheet f</u> | <u>or list of quali</u> | fications and a | associated sa | <u>amples when</u> | reported res | sults do not agre | <u>e within 10.0%</u> | % of the |
|--------------|------------------|------------------|--------------------------|-------------------------|-----------------|---------------|--------------------|--------------|-------------------|-----------------------|----------|
| recalculated | results. | | | | | | | | | | |
| | | | | | | | | | | | |

LDC #: 42 44/B2/

VALIDATION FINDINGS WORKSHEET Laboratory Control Sample Results Verification

| Page: 1 of 1 | |
|---------------|--|
| Reviewer: FT | |
| 2nd Reviewer: | |

METHOD: GC/MS Dioxins/Dibenzofurans (EPA SW 846 Method 1613B)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the laboratoy control sample and laboratory control sample duplicate (if applicable) were recalculated for the compounds identified below using the following calculation:

% Recovery = 100 * SSC/SA

Where: SSC = Spiked sample concentration

SA = Spike added

RPD = I LCS - LCSD I * 2/(LCS + LCSD)

LCS = Laboraotry control sample percent recovery

LCSD = Laboratory control sample duplicate percent recovery

LCS ID: WG63850-102 LC)

| Compound | Ad | Spike Spiked Sample <u>ICS</u> Added Concentration (na/m) (ng/m) Percent Recovery | | Concentration | | | LCSD Percent Recovery | | LCS/LCSD RPD | |
|---------------------|-------|---|------|---------------|----------|--------|-----------------------|--------|-----------------|--------|
| | LCS | LCSD | LCS | LCSD | Reported | Recalc | Reported | Recalc | Reported | Recalc |
| 2,3,7,8-TCDD | 10.0 | 24 | 10.6 | NΔ | 106 | 106 | | | | |
| 1,2,3,7,8-PeCDD | 50.0 | | 52.1 | | 104 | loy | | | | |
| 1,2,3,4,7,8-HxCDD | 50.0 | | 50.0 | | 100 | 100 | | | | |
| 1,2,3,4,7,8,9-HpCDF | 50. D | | 51.4 | | 103 | 103 | | | | |
| OCDF | 100.0 | | 94.5 | y | 94.5 | 94.5 | NA | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | f | | | | | | |
| | | | | | | · | | | | |
| | | | | | N. | | | | | |
| | | | | · | | | | | | |

Comments: Refer to Laboratory Control Sample findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC#: 4244/132/

VALIDATION FINDINGS WORKSHEET

Sample Calculation Verification

Page: 1 of 1

Reviewer: FT

2nd reviewer:

METHOD: HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 1613B)

| K | N. | N/A |
|-------------|----|-----|
| <u>/ Y/</u> | N | N/A |

Were all reported results recalculated and verified for all level IV samples?

Were all recalculated results for detected target compounds agree within 10.0% of the reported results?

Example:

| Concent | ration | $= \frac{(A_{\bullet})(I_{\bullet})(DF)}{(A_{i_{\bullet}})(RRF)(V_{\bullet})(\%S)}$ |
|-----------------|--------|---|
| A _x | = | Area of the characteristic ion (EICP) for the compound to be measured |
| A _{is} | = | Area of the characteristic ion (EICP) for the specific internal standard |
| l _s | = | Amount of internal standard added in nanograms (ng) |
| V _o | = | Volume or weight of sample extract in milliliters (ml) or grams (g). |
| RRF | æ | Relative Response Factor (average) from the initial calibration |
| Df | = | Dilution Factor. |
| %S | = | Percent solids, applicable to soil and solid matrices only. |

| Sample I.D. #/ |
|------------------------------------|
| Conc. = 7.48×10^{3} (now) |
| 2-92 × 106 (1.0166) (2.05) |
| = 2.458 pg/g |

| | | | Reported | Calculated | T |
|-----|-----------|--------------------|---------------|---------------|---------------|
| # | Sample ID | Compound | Concentration | Concentration | Qualification |
| | #/ | 7000 | 2.46 | 2.458 | |
| - | | | | | |
| | | | | | <u> </u> |
| | | | | | |
| · | #25 (3, | 3,7,8 TCDF D | B2X) | | |
| | - 974 x | 10 (2000) | | | |
| | | (107 (0.88) (2.07) | | | |
| | | | | | |
| | = 11. | 23 pg/g | | | |
| | lab | upor teal | | · | |
| | | = 11.2 pg/g | | | |
| | | , , , | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| - 1 | | | | | 1 |

LDC #: 4241

EDD POPULATION COMPLETENESS WORKSHEET

Anchor

Date: 7//9//2 Page: 1 of 1 2nd Reviewer:

| | EDD Process | Y/N | Initi | al | Comments/Action |
|-------|--|-----|-------|-----------|--|
| I. | EDD Completeness | - | | | |
| Ia. | - All methods present? | Y | B | A | |
| Ib. | - All samples present/match report? | Y | | | |
| Ic. | - All reported analytes present? | 4 | | | the state of the s |
| Id. | 70% or 100% verification of EDD? | 4 | | | |
| | | | | | |
| II. | EDD Preparation/Entry | - | | | |
| IIa. | - QC Level applied? (EPAStage2B or EPAStage4) | У | | | |
| IIb. | - Laboratory EMPC qualified results qualified (J with reason code 23)? | Y | | | |
| | 11: 多数特别数据第二 | | | 423. 3 | |
| III. | Reasonableness Checks | | | | |
| IIIa. | - Do all qualified ND results have ND qualifier (e.g. UJ)? | 4 | | | |
| IIIb. | - Do all qualified detect results have detect qualifier (e.g. J)? | Y | | | |
| IIIc. | - If reason codes are used, do all qualified results have reason code field populated, and vice versa? | 7 | | | |
| IIId. | - Do blank concentrations in report match EDD, where data was qualified due to blank? | 7 | | | |
| IIIe. | - Is the detect flag set to "N" for all "U" qualified blank results? | Y | | | |
| IIIf. | - Were there multiple results due to dilutions/reanalysis? If so, were results qualified appropriately? | 4/4 | | | |
| IIIg. | -Are all results marked reportable "Yes" unless rejected for overall assessment in the data validation report? | 4 | | | For some results, only the dilution was reported. LDC made he changes and radded valid |
| IIIh. | -Are there any lab "R" qualified data? / Are the entry columns blank for these results? | N/K | | | made he changes and todded volit qualifiers as necessary |
| IIIi. | -Are there any discrepancies between the data packet and the EDD? | Ay | * | | Sec above |

| Notes: | *see discrepancy sheet | |
|--------|------------------------|--|
| | | |

Anchor Environmental, LLC 720 Olive Way, Suite 1900 Seattle, WA 98101 ATTN: Ms. Cindy Fields July 20, 2018

SUBJECT: Shelton Harbor, Data Validation

Dear Ms. Fields,

Enclosed is the final validation report for the fraction listed below. This SDG was received on June 18, 2018. Attachment 1 is a summary of the samples that were reviewed for analysis.

LDC Project #42449:

SDG # Fraction

DPWG64183/WG636914 Polychlorinated Dioxins/Dibenzofurans

The data validation was performed under Stage 4 guidelines. The analyses were validated using the following documents, as applicable to each method:

- Sampling and Quality Assurance Project Plan for Shelton Harbor Sediment Cleanup Unit, Oakland Bay and Shelton Harbor Sediment Cleanup Site, Shelton Washington; July 2017
- USEPA National Functional Guidelines for High Resolution Superfund Methods Data Review, April 2016

Please feel free to contact us if you have any questions.

Sincerely,

Christina Rink

Project Manager/Senior Chemist

295 pages- ADV Attachment 1 EDD / Stage 2B / Dioxins Stage 4 LDC #42449 (Simpson Timber Company/Anchor Environmental - Seattle WA / Shelton Harbor) DATE DATE Dioxins LDC SDG# **REC'D** DUE (1613B) ws Matrix: Water/Sediment DPWG64183 06/18/18 07/10/18 /WG63914 T/CR Total

Laboratory Data Consultants, Inc. Data Validation Report

Project/Site Name:

Shelton Harbor

LDC Report Date:

June 28, 2018

Parameters:

Polychlorinated Dioxins/Dibenzofurans

Validation Level:

Stage 4

Laboratory:

SGS AXYS Analytical Services, LTD

Sample Delivery Group (SDG): DPWG64183/WG63914

| Sample Identification | Laboratory Sample Identification | Matrix | Collection Date |
|-----------------------|----------------------------------|--------|--------------------|
| SH-RB-SG-180510 | L29324-1 | Water | 05/10/18 |

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Sampling and Quality Assurance Project Plan for Shelton Harbor Sediment Cleanup Unit, Oakland Bay and Shelton Harbor Sediment Cleanup Site, Shelton, Washington (July 2017) and a modified outline of the USEPA National Functional Guidelines (NFG) for High Resolution Superfund Methods Data Review (April 2016). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Polychlorinated Dioxins/Dibenzofurans by Environmental Protection Agency (EPA) Method 1613B

All sample results were subjected to Stage 4 data validation, which is comprised of the quality control (QC) summary forms as well as the raw data, to confirm sample quantitation and identification.

The following are definitions of the data qualifiers utilized during data validation:

- J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.
- U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered not detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).
- UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.
- R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.
- NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition.

The chain-of-custodies were reviewed for documentation of cooler temperatures. Cooler temperature was reported at 7.7°C upon receipt by the laboratory. No data was qualified based on cooler temperature.

All technical holding time requirements were met.

II. HRGC/HRMS Instrument Performance Check

Instrument performance was checked at the required frequency.

Retention time windows were established for all homologues. The chromatographic resolution between 2,3,7,8-TCDD and peaks representing any other unlabeled TCDD isomer was less than or equal to 25%.

The static resolving power was at least 10,000 (10% valley definition).

III. Initial Calibration

A five point initial calibration was performed as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 20.0% for unlabeled compounds and labeled compounds.

The ion abundance ratios for all PCDDs and PCDFs were within validation criteria.

The minimum S/N ratio was greater than or equal to 10 for each unlabeled compound and labeled compound.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

All of the continuing calibration results were within the QC limits for unlabeled compounds and labeled compounds.

The ion abundance ratios for all PCDDs and PCDFs were within validation criteria.

The minimum S/N ratio was greater than or equal to 10 for each unlabeled compound and labeled compound.

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks with the following exceptions:

| Blank ID | Extraction Date | Compound | Concentration | Associated Samples |
|-------------|--------------------|---|--|---|
| WG63914-101 | 05/24/18 | 1,2,3,4,6,7,8-HpCDD OCDD 1,2,3,7,8-PeCDF Total HxCDD Total HpCDD Total PeCDF | 0.707 pg/L 2.79 pg/L 0.591 pg/L 0.712 pg/L 1.40 pg/L 0.591 pg/L | All samples in SDG DPWG64183/WG63914 |

Sample concentrations were compared to concentrations detected in the laboratory blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated laboratory blanks with the following exceptions:

| Sample | Compound | Reported Concentration | Modified Final Concentration |
|-----------------|---------------------|---------------------------|---------------------------------|
| SH-RB-SG-180510 | 1,2,3,4,6,7,8-HpCDD | 2.08 pg/L | 2.08U pg/L |
| | Total HxCDD | 0.708 pg/L | 0.708J pg/L |
| | Total HpCDD | 4.12 pg/L | 4.12J pg/L |
| | Total PeCDF | 0.503 pg/L | 0.503J pg/L |

VI. Field Blanks

Sample SH-RB-SG-180510 was identified as a rinsate blank. No contaminants were found with the following exceptions:

| Blank ID | Compound | Concentration (pg/L) |
|-----------------|---|--|
| SH-RB-SG-180510 | 1,2,3,4,6,7,8-HpCDD OCDD 2,3,4,7,8-PeCDF 1,2,3,4,6,7,8-HpCDF OCDF Total HxCDD Total HpCDD Total PeCDF Total HpCDF | 2.08 15.3 0.503 0.538 1.22 0.708 4.12 0.503 1.19 |

VII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

VIII. Ongoing Precision Recovery

Ongoing precision recovery (OPR) samples were analyzed as required by the method. Percent recoveries (%R) were within QC limits.

IX. Field Duplicates

No field duplicates were identified in this SDG.

X. Internal Standards

All internal standard recoveries (%R) were within QC limits.

XI. Compound Quantitation

All compound quantitations met validation criteria with the following exceptions:

| Sample | Compound | Flag | A or P |
|---|---|-----------------|--------|
| All samples in SDG DPWG64183/WG63914 | All compounds were reported as estimated maximum possible concentration (EMPC). | J (all detects) | Α |

XII. Target Compound Identifications

All target compound identifications met validation criteria.

XIII. System Performance

The system performance was acceptable.

XIV. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

Due to results reported by the laboratory as EMPCs, data were qualified as estimated in one sample.

Due to laboratory blank contamination, data were qualified as not detected or estimated in one sample.

The quality control criteria reviewed, other than those discussed above, were met and are considered acceptable. Sample results that were found to be estimated (J) are usable for limited purposes only. Based upon the data validation all other results are considered valid and usable for all purposes.

Shelton Harbor Polychlorinated Dioxins/Dibenzofurans - Data Qualification Summary - SDG DPWG64183/WG63914

| Sample | Compound | Flag | A or P | Reason |
|-----------------|---|-----------------|--------|------------------------------|
| SH-RB-SG-180510 | All compounds were reported as estimated maximum possible concentration (EMPC). | J (all detects) | А | Compound quantitation (EMPC) |

Shelton Harbor Polychlorinated Dioxins/Dibenzofurans - Laboratory Blank Data Qualification Summary - SDG DPWG64183/WG63914

| Sample | Compound | Modified Final Concentration | A or P |
|-----------------|--|--|--------|
| SH-RB-SG-180510 | 1,2,3,4,6,7,8-HpCDD Total HxCDD Total HpCDD Total PeCDF | 2.08U pg/L 0.708J pg/L 4.12J pg/L 0.503J pg/L | A |

| SDG # Labora | t: 42449A21 VALIDATIO t: DPWG64183/WG63914 atory: SGS AXYS Analytical Services, L | ; .TD | Stage 4 | | | F | Date: 6/27 Page: / of / iewer: / |
|-----------------|---|-------------|------------|--|------------|--|----------------------------------|
| The sa | amples listed below were reviewed for eation findings worksheets. | | · | | • | indings are not | ed in attached |
| randa | T | | Ī | Cool | er fe | mp = 7.7 | 1°C |
| | Validation Area | | | | Commen | ts | |
| l. | Sample receipt/Technical holding times | AIA | | | | | |
| II. | HRGC/HRMS Instrument performance check | A | 1 | | | | |
| 111. | Initial calibration/I C∀ | AIN | 0/0 ps | D 5 20 | | | |
| IV. | Continuing calibration | A | | acN | <u>-</u> a | C limit | ٠ > |
| V. | Laboratory Blanks | Ju | | | | | |
| VI. | Field blanks | رسى | RB = | 1 | | | |
| VII. | Matrix spike/Matrix spike duplicates | N | | mple | | | |
| VIII. | Laboratory control samples | Δ | OPR | J-: | | | |
| IX. | Field duplicates | N | | | | | |
| X. | Internal standards | Δ | | | | | |
| XI. | Compound quantitation RL/LOQ/LODs | SW | | | · · | | |
| | | Δ | | | | | |
| XII. | Target compound identification | A | | | | | |
| XIII. XIV. | System performance Overall assessment of data | A | | | | | |
| Note: | A = Acceptable ND = N N = Not provided/applicable R = Rir | No compound | s detected | D = Duplicat TB = Trip bla EB = Equipn | ank | SB=Source to OTHER: | blank |
| | Client ID | | | Lab ID | | Matrix | Date |
| 1 5 2 3 | SH-RB-SG-180510 | | | L29324-1 | | Water | 05/10/18 |
| 2 | | | | | | | |
| 3 | | | | | | | |
| 4 | | | | | | | |
| 5 | | | | | | A 10 2 11 11 11 11 11 11 11 11 11 11 11 11 1 | |
| 6 | | | | | | <u> </u> | |
| 7 | | | | | | | |
| g l | | | | | | | |
| 9 | | | | | | | |
| 10 | | | | | | | |
| Notes: | | | | | | | |
| | NG63914-101 | | | | | | |
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LDC #: 42449 A2

VALIDATION FINDINGS CHECKLIST

Page: 1 of 2
Reviewer: FT
2nd Reviewer:

Method: HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 1613B)

| Validation Area | Yes | No | NA | Findings/Comments |
|---|-----|----------|---------------|-------------------|
| I. Technical holding times | | | | |
| All technical holding times were met. | | • | | |
| Cooler temperature criteria was met. | | | | |
| II. GC/MS Instrument performance check | | | | |
| Was PFK exact mass 380.9760 verified? | | | | |
| Were the retention time windows established for all homologues? | | | | |
| Was the chromatographic resolution between 2,3,7,8-TCDD and peaks representing any other unlabeled TCDD isomers ≤ 25% ? | | | | |
| Is the static resolving power at least 10,000 (10% valley definition)? | | | à | |
| Was the mass resolution adequately check with PFK? | / | | | |
| Was the presence of 1,2,8,9-TCDD and 1,3,4,6,8-PeCDF verified? | / | | OWN HAVE COME | |
| IIIa, Initial calibration | | | | |
| Was the initial calibration performed at 5 concentration levels? | / | | | / / |
| Were all percent relative standard deviations (%RSD) ≤ 20% for all compounds? | _ | | | |
| Did all calibration standards meet the Ion Abundance Ratio criteria? | / | | | |
| Was the signal to noise ratio for each target compound ≥ 2.5 and for each recovery and internal standard ≥ 10? | | | | |
| IIIb, initial Calibration Verification | | | | |
| Was an initial calibration verification standard analyzed after each initial calibration for each instrument? | | | _ | |
| Were all concentrations for the unlabeled compounds ≤ 20% and for labeled compounds ≤ 30% ?? | | | | |
| IV. Continuing calibration | | | | |
| Was a continuing calibration performed at the beginning and end of each 12 hour period? | _ | | | |
| Were all concentrations for the unlabeled compounds and for labeled compounds within QC limits (Method 1613B, Table 6)? | | | | |
| Did all routine calibration standards meet the Ion Abundance Ratio criteria? | | | | |
| V. Blanks | | | T | |
| Was a method blank associated with every sample in this SDG? | / | | ļ | |
| Was a method blank performed for each matrix and whenever a sample extraction was performed? | _ | | | |
| Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet? | | | | |
| VI Field blanks | | T | т — | |
| Field blanks were identified in this SDG. | | <u> </u> | | |
| Target compounds were detected in the field blanks. | | | | |
| VII. Matrix spike/Matrix spike duplicates | | | | |

LDC#: 42449 A2

VALIDATION FINDINGS CHECKLIST

Page: 2 of 2
Reviewer: FT
2nd Reviewer:

| Validation Area | Yes | No | NA | Findings/Comments |
|---|-----|--------------|----------|-------------------|
| Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water. | | | / | |
| Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits? | | | | |
| VIII. Laboratory control samples | | | | |
| Was an LCS analyzed per extraction batch? | | | | |
| Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits? | | | | |
| IX. Field duplicates | | | I | |
| Field duplicate pairs were identified in this SDG. | | | | |
| Target compounds were detected in the field duplicates. | | | | |
| X Internal standards | | . | ı | |
| Were internal standard recoveries within the 25-150% criteria? | / | | | |
| Was the minimum S/N ratio of all internal standard peaks ≥ 10? | | | | |
| XI, Compound quantitation | l | | | |
| Were the correct internal standard (IS), quantitation ion and relative response factor (RRF) used to quantitate the compound? | | | | |
| Were compound quantitation and CRQLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation? | / | | | |
| XII. Target compound identification | | ı ——— | 1 | |
| For 2,3,7,8 substituted congeners with associated labeled standards, were the retention times of the two quantitation peaks within -1 to 3 sec. of the RT of the labeled standard? | / | | | |
| For 2,3,7,8 substituted congeners without associated labeled standards, were the relative retention times of the two quantitation peaks within 0.005 time units of the RRT measured in the routine calibration? | / | | | |
| For non-2,3,7,8 substituted congeners, were the retention times of the two quantitation peaks within RT established in the performance check solution? | | | | |
| Did compound spectra contain all characteristic ions listed in the table attached? | | | | |
| Was the Ion Abundance Ratio for the two quantitation ions within criteria? | | | | |
| Was the signal to noise ratio for each target compound and labeled standard ≥ 2.5? | | | <u> </u> | |
| Does the maximum intensity of each specified characteristic ion coincide within ± 2 seconds (includes labeled standards)? | / | | | |
| For PCDF identification, was any signal (S/N \geq 2.5, at \pm seconds RT) detected in the corresponding PCDPE channel? | / | | | |
| Was an acceptable lock mass recorded and monitored? | | | | |
| XIII. System performance | | 7 | | |
| System performance was found to be acceptable. | | | | |
| XIV. Overall assessment of data | ΤŻ | / | T | T |
| Overall assessment of data was found to be acceptable. | | | | |

VALIDATION FINDINGS WORKSHEET

METHOD: HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 8290)

| A. 2,3,7,8-TCDD | F. 1,2,3,4,6,7,8-HpCDD | K. 1,2,3,4,7,8-HxCDF | P. 1,2,3,4,7,8,9-HpCDF | U. Total HpCDD |
|----------------------|------------------------|------------------------|------------------------|----------------|
| B. 1,2,3,7,8-PeCDD | G. OCDD | L. 1,2,3,6,7,8-HxCDF | Q. OCDF | V. Total TCDF |
| C. 1,2,3,4,7,8-HxCDD | H. 2,3,7,8-TCDF | M. 2,3,4,6,7,8-HxCDF | R. Total TCDD | W. Total PeCDF |
| D. 1,2,3,6,7,8-HxCDD | I. 1,2,3,7,8-PeCDF | N. 1,2,3,7,8,9-HxCDF | S. Total PeCDD | X. Total HxCDF |
| E. 1,2,3,7,8,9-HxCDD | J. 2,3,4,7,8-PeCDF | O. 1,2,3,4,6,7,8-HpCDF | T. Total HxCDD | Y. Total HpCDF |

| Notes: | | | • | |
|--------|--|--|-------|--|
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| LDC # | t: 4244 | 19A2/ |
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VALIDATION FINDINGS WORKSHEET Blanks

| / / > |
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| Page:of |
| Reviewer: FT_ |
| 2nd Reviewer: |

METHOD: HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 1613B)

Blank analysis date:

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Were all samples associated with a method blank?

Y N/A Was a method blank performed for each matrix and whenever a sample extraction was performed?

Y/N N/A Was the method blank contaminated?

Blank extraction date: 5/2 4/16 Blank analysis date: 5/31/18 Associated samples: A //

| Compound | Blank ID | | Sai | mple Identification | |
|----------|-------------|----------------------|--------|---------------------|----|
| | WG 63914-10 | 1 5× | 1 | | |
| F | | 3,535 | 2.084 | | |
| G | 2.79 | 13.95 | | | |
| I | 0.591 | 2.955 | | | |
| T | 0.712 | 3.56 | 0.708] | | ·. |
| и | 1.40 | 7 | 4-12] | | |
| W | 0.591 | 0.5 2.955 | 0.503J | | |
| | | | | | |

| Conc. units: | | Associated S | amples: | | | |
|--------------|----------|--------------|---------|-------------------|-------|------|
| Compound | Blank ID | | | Sample Identifica | ition | |
| | | | | | | |
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CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT: All contaminants within five times the method blank concentration were qualified as not detected, "U".

Blank extraction date:

LDC#: 42449A2/

VALIDATION FINDINGS WORKSHEET <u>Field Blanks</u>

| Page:of |
|---------------|
| Reviewer: FT_ |
| 2nd reviewer: |
| |

METHOD: HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 1613B)

V N N/A

Were field blanks identified in this SDG?

Were target compounds detected in the field blanks?

Sample: _____/ (RB) Field Blank / Rinsate Blank/ Equipment Blank / Rinsate (circle one)

| Compound | Concentration Units (pg/L) |
|----------|---------------------------------|
| F | 2.08 15.3 |
| G | <i>/5.</i> 3 |
| J | 0.503 |
| Ð | 0.538 |
| P | 1.22 |
| Ť | 1.22 0.708 |
| И | 4./2 |
| W | 0.503 |
| У | 1.19 |
| | , |
| | |
| | |

Sample: _____ Field Blank / Rinsate Blank/ Equipment Blank / Rinsate (circle one)

| Compound | Concentration Units (pg/L) |
|----------|---------------------------------|
| | |
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LDC #: 42449A 2/

VALIDATION FINDINGS WORKSHEET <u>Compound Quantitation and Reported CRQLs</u>

| | Page: | | _ |
|-----|-----------|---|---|
| | Reviewer: | | 7 |
| 2nd | Reviewer: | 0 | |

METHOD: HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 1613B)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Y N(N/A

Were the correct internal standard (IS), quantitation ions and relative response factors (RRF) used to quantitate the compound? Compound quantitation and CRQLs were adjusted to reflect all sample dilutions and dry weight factors (if necessary).

| # | Date | Sample ID | Finding | Associated Samples | Qualifications |
|---|------|-----------|---|--------------------|----------------|
| | | AII | all compounds reported as estimated maximum possible concentration (EMPC) | | Jdet/A |
| | | | | | |
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| | | | | | |

| Comments: _ | See sample calculation verifica | tion worksheet for recalculations | | |
|-------------|---------------------------------|-----------------------------------|------|--|
| <u>i </u> | | | | |

LDC #: 42449A2/

VALIDATION FINDINGS WORKSHEET Initial Calibration Calculation Verification

| Page: <u></u> of | |
|------------------|----|
| Reviewer: | -> |
| 2nd Reviewer: < | 2 |

METHOD: HRGC/HRMS Dioxins/Dibenzofurans (EPA Method 1613B)

The Relative Response Factor (RRF), average RRF, and percent relative standard deviation (%RSD) were recalculated for the compounds identified below using the following calculations:

 $RRF = (A_x)(C_{is})/(A_{is})(C_x)$

average RRF = sum of the RRFs/number of standards

%RSD = 100 * (S/X)

 A_x = Area of compound,

A_{is} = Area of associated internal standard

 C_x = Concentration of compound, C_{is} = Concentration of in S = Standard deviation of the RRFs, X = Mean of the RRFs

C_{is} = Concentration of internal standard

| | | | | Reported | Recalculated | Reported | Recalculated | Reported | Recalculated |
|---|-------------|---------------------|---|--------------------------|--------------------------|------------------|-------------------|----------|--------------|
| # | Standard ID | Calibration Date | Compound (Reference Internal Standard) | Average RRF (initial) | Average RRF (initial) | RRF (CS3 std) | RRF (CS3 std) | %RSD | %RSD |
| 1 | ICAL | 11/6/17 | 2,3,7,8-TCDF (¹³ C-2,3,7,8-TCDF) | 0.9466 | 0.9466 | 0.971 | 0.971 | 2.14 | 2.14 |
| | | | 2,3,7,8-TCDD (¹³ C-2,3,7,8-TCDD) | 1.0166 | 1.0166 | 1.048 | 1.048 | 4.78 | 4.78 |
| | | | 1,2,3,6,7,8-HxCDD (¹³ C-1,2,3,6,7,8-HxCDD) | 0.9904 | 0.9904 | 1.014 | 1.014 | 5.24 | 5.24 |
| | | | 1,2,3,4,6,7,8-HpCDD (¹³ C-1,2,4,6,7,8,-HpCDD) | 1.021 | 1.021 | 1.046 | 1.046 | 3.34 | 3.34 |
| | | | OCDF (13C-OCDD) | 1.2524 | 1.2524 | 1,324 | 1,324 | 8.25 | 8.25 |
| 2 | | | 2,3,7,8-TCDF (¹³ C-2,3,7,8-TCDF) | | | | | | |
| | | | 2,3,7,8-TCDD (¹³ C-2,3,7,8-TCDD) | | | | | | |
| | | | 1,2,3,6,7,8-HxCDD (¹³ C-1,2,3,6,7,8-HxCDD) | | | | | | |
| | | | 1,2,3,4,6,7,8-HpCDD (¹³ C-1,2,4,6,7,8,-HpCDD) | | | | | | |
| | | | OCDF (13C-OCDD) | | | | | | |
| 3 | | | 2,3,7,8-TCDF (¹³ C-2,3,7,8-TCDF) | | | | | | |
| | | | 2,3,7,8-TCDD (¹³ C-2,3,7,8-TCDD) | | | | | | |
| | | | 1,2,3,6,7,8-HxCDD (¹³ C-1,2,3,6,7,8-HxCDD) | | | | | | |
| | | | 1,2,3,4,6,7,8-HpCDD (¹³ C-1,2,4,6,7,8,-HpCDD) | | | | | | |
| | | | OCDF (13C-OCDD) | | | | | | |

Comments: Refer to Initial Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 42449A2/

VALIDATION FINDINGS WORKSHEET Routine Calibration Results Verification

| Page:_ | of |
|----------------|----|
| Reviewer: | FT |
| 2nd Reviewer:_ | a_ |

METHOD: HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 1613B)

The percent difference (%D) of the initial calibration average Relative Response Factors (RRFs) and the continuing calibration RRFs were recalculated for the compounds identified below using the following calculation:

% Difference = 100 * (ave. RRF - RRF)/ave. RRF $RRF = (A_x)(C_{is})/(A_{is})(C_x)$

Where: ave. RRF = initial calibration average RRF

RRF = continuing calibration RRF

 $A_v = Area of compound,$

A_{is} = Area of associated internal standard

C_{is} = Concentration of internal standard C_{v} = Concentration of compound,

| | | | | | Reported | Recalculated | Reported | Recalculated |
|----|-------------|---------------------|---|--------------------------|-------------|--------------|----------|--------------|
| # | Standard ID | Calibration Date | Compound (Reference Internal Standard) | Average RRF (initial) | RRF (CC) | RRF (CC) | %D | %D |
| 1 | ccv : | 5/31/18 | 2,3,7,8-TCDF (¹³ C-2,3,7,8-TCDF) | 10.0 | 10.7 | 10.7 | | |
| | 1439 | | 2,3,7,8-TCDD (¹³ C-2,3,7,8-TCDD) | 10.0 | 10.7 | 10.7 | | |
| | | | 1,2,3,6,7,8-HxCDD (¹³ C-1,2,3,6,7,8-HxCDD) | 50.0 | 51-4 | 5/.4 | | |
| | | | 1,2,3,4,6,7,8-HpCDD (¹³ C-1,2,4,6,7,8,-HpCDD) | 50.0 | 51.7 | 51.7 | | |
| | | | OCDF (13C-OCDD) | 100.0 | 97.0 | 97.0 | | |
| 2 | | | 2,3,7,8-TCDF (¹³ C-2,3,7,8-TCDF) | | | | | |
| | · | | 2,3,7,8-TCDD (¹³ C-2,3,7,8-TCDD) | | | | | |
| | | | 1,2,3,6,7,8-HxCDD (¹³ C-1,2,3,6,7,8-HxCDD) | | | | | |
| | | | 1,2,3,4,6,7,8-HpCDD (¹³ C-1,2,4,6,7,8,-HpCDD) | | | | | |
| | | | OCDF (13C-OCDD) | | | | | |
| _3 | | | 2,3,7,8-TCDF (¹³ C-2,3,7,8-TCDF) | | | | | |
| | | | 2,3,7,8-TCDD (¹³ C-2,3,7,8-TCDD) | | | | | £1 |
| | | | 1,2,3,6,7,8-HxCDD (¹³ C-1,2,3,6,7,8-HxCDD) | | | | | |
| | | | 1,2,3,4,6,7,8-HpCDD (¹³ C-1,2,4,6,7,8,-HpCDD) | 1 | | | | |
| | | | OCDF (13C-OCDD) | | | | | |

Comments: Refer to Routine Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC#: 42449A2/

VALIDATION FINDINGS WORKSHEET Laboratory Control Sample Results Verification

| Page: 1 of 1 |
|---------------|
| Reviewer: FT |
| 2nd Reviewer: |

METHOD: GC/MS Dioxins/Dibenzofurans (EPA SW 846 Method 1613B)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the laboratoy control sample and laboratory control sample duplicate (if applicable) were recalculated for the compounds identified below using the following calculation:

% Recovery = 100 * SSC/SA

Where: SSC = Spiked sample concentration

SA = Spike added

RPD = I LCS - LCSD | * 2/(LCS + LCSD)

LCS = Laboraotry control sample percent recovery

LCSD = Laboratory control sample duplicate percent recovery

LCS ID: WG639/4-102 (OPR)

| Compound | Spike Added (ng/m/) | | Spiked Sample Concentration (1/3 / 1/9) | | | CS Recovery | 1 | SD Recovery | | /LCSD PD |
|---------------------|---------------------------|------|---|------|----------|----------------|----------|----------------|----------|-------------|
| | LCS_ | LCSD | LCS | LCSD | Reported | Recalc | Reported | Recalc | Reported | Recalc |
| 2,3,7,8-TCDD | 10.0 | μД | 9.60 | NA | 96.0 | 96.0 | | | | |
| 1,2,3,7,8-PeCDD | 50.D | | 46.3 | | 92.6 | 94.6 | | | | |
| 1,2,3,4,7,8-HxCDD | 50.0 | | 46.9 | | 93.9 | 93.9 | | | | |
| 1,2,3,4,7,8,9-HpCDF | 50.0 | | 46.8 | 1 | 93.7 | 93.7 | | | | |
| OCDF | 100.0 | | 87.0 | | 87.0 | 870 | NA | | | |
| | | | | | | | | | | |
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Comments: Refer to Laboratory Control Sample findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 4 2449 12/

VALIDATION FINDINGS WORKSHEET

Sample Calculation Verification

| _of_1_ |
|--------|
| FT_ |
| |
| |

METHOD: HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 1613B)

| Ŋ | N/A |
|---|--------|
| N | N/A |
| | N N |

Were all reported results recalculated and verified for all level IV samples?

Were all recalculated results for detected target compounds agree within 10.0% of the reported results?

| Conce | ntration | | Example: | • | | , |
|----------------|----------|--|--------------|---------|--------------|------|
| A _x | · = | $(A_{is})(RRF)(V_o)(\%S)$ Area of the characteristic ion (EICP) for the compound to be measured | Sample I.D | o#/ | oc PD | |
| A_{is} | = | Area of the characteristic ion (EICP) for the specific internal standard | | 911 | (10 3 (4000) | |
| Is | = | Amount of internal standard added in nanograms (ng) | Conc. = | 1.68 X | 70 (1000) | |
| V _o | = | Volume or weight of sample extract in milliliters (ml) or grams (g). | | 2.30×10 | 6 (1.0368) | 1.06 |
| RRF | = | Relative Response Factor (average) from the initial calibration | . * = | | 20 /1 | |
| Df . | = | Dilution Factor. | * | 15. 31 | Pall | |
| %S | = | Percent solids, applicable to soil and solid matrices | | | | |

| # | Sample ID | Compound | Reported Concentration | Calculated Concentration | Qualification |
|---|-----------|----------|---------------------------|-----------------------------|---------------|
| | #/ | OCDD | (pg/4- /5·3 | 15.31 | |
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LDC #: 42449

EDD POPULATION COMPLETENESS WORKSHEET

Anchor



| | EDD Process | Y/N | Initial | | Comments/Action |
|-------|--|--|---------|---------------|-----------------|
| I. | EDD Completeness | - | | | |
| Ia. | - All methods present? | 4 | BA | | |
| Ib. | - All samples present/match report? | У | | | |
| Ic. | - All reported analytes present? | 7 | | | |
| Id. | - 10% or 100% verification of EDD? | 4 | | | |
| | | A Comment of the Comm | | 3440 41 40 | |
| II. | EDD Preparation/Entry | - | | ļ | |
| IIa. | - QC Level applied? (EPAStage2B or EPAStage4) | 4 | | | |
| IIb. | - Laboratory EMPC qualified results qualified (J with reason code 23)? | 7 | | | |
| | | | | | |
| III. | Reasonableness Checks | - | | | |
| IIIa. | - Do all qualified ND results have ND qualifier (e.g. UJ)? | Y | | | |
| IIIb. | - Do all qualified detect results have detect qualifier (e.g. J)? | 4 | | | |
| IIIc. | - If reason codes are used, do all qualified results have reason code field populated, and vice versa? | 4 | | | |
| IIId. | - Do blank concentrations in report match EDD, where data was qualified due to blank? | 4 | | | |
| IIIe. | - Is the detect flag set to "N" for all "U" qualified blank results? | 4 | | | |
| IIIf. | - Were there multiple results due to dilutions/reanalysis? If so, were results qualified appropriately? | N/A | | | |
| IIIg. | -Are all results marked reportable "Yes" unless rejected for overall assessment in the data validation report? | 4 | | | |
| IIIh. | -Are there any lab "R" qualified data? / Are the entry columns blank for these results? | N/A | | | |
| IIIi. | -Are there any discrepancies between the data packet and the EDD? | N | | | |

| Notes: | *see discrepancy sheet | |
|--------|------------------------|--|
| | | |

Anchor Environmental, LLC 720 Olive Way, Suite 1900 Seattle, WA 98101 ATTN: Ms. Cindy Fields

July 31, 2018

SUBJECT: Shelton Harbor, Data Validation

Dear Ms. Fields,

Enclosed is the final validation report for the fraction listed below. This SDG was received on June 19, 2018. Attachment 1 is a summary of the samples that were reviewed for analysis.

LDC Project #42458:

SDG# **Fraction**

B2290 Polychlorinated Dioxins/Dibenzofurans

The data validation was performed under Stage 4 guidelines. The analyses were validated using the following documents, as applicable to each method:

- Sampling and Quality Assurance Project Plan for Shelton Harbor Sediment Cleanup Unit, Oakland Bay and Shelton Harbor Sediment Cleanup Site, Shelton Washington; July 2017
- USEPA National Functional Guidelines for High Resolution Superfund Methods Data Review, April 2016

Please feel free to contact us if you have any questions.

Sincerely,

Christina Rink

Project Manager/Senior Chemist

384 pages- ADV Attachment 1 EDD / Stage 2B / Dioxins Stage 4 LDC #42458 (Simpson Timber Company/Anchor Environmental - Seattle WA / Shelton Harbor) DATE DATE Dioxins LDC SDG# **REC'D** DUE (1613B) ws Matrix: Water/Sediment 0 06/19/18 07/11/18 10 B2290 0 0 0 0 0 0 0 0 T/CR

Laboratory Data Consultants, Inc. Data Validation Report

Project/Site Name:

Shelton Harbor

LDC Report Date:

July 9, 2018

Parameters:

Polychlorinated Dioxins/Dibenzofurans

Validation Level:

Stage 4

Laboratory:

SGS North America, Inc.

Sample Delivery Group (SDG): B2290

| | Laboratory Sample | | Collection |
|------------------------|-------------------|----------|------------|
| Sample Identification | Identification | Matrix | Date |
| SG-01-SG-170713 | B2290-001 | Sediment | 07/13/17 |
| SH-03-SC-0-10-170809 | B2290-002 | Sediment | 08/09/17 |
| SH-04-SG-170713(Split) | B2290-003 | Sediment | 07/13/17 |
| SH-13A-SG-170713 | B2290-004 | Sediment | 07/13/17 |
| SH-14-SG-170712 | B2290-005 | Sediment | 07/12/17 |
| SH-19-SG-170712(Split) | B2290-006 | Sediment | 07/12/17 |
| SH-21-SG-170712(Split) | B2290-007 | Sediment | 07/12/17 |
| SH-22-SG-170712 | B2290-008 | Sediment | 07/12/17 |
| SH-24-SG-170713 | B2290-009 | Sediment | 07/13/17 |
| SH-28-SG-170712 | B2290-010 | Sediment | 07/12/17 |

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Sampling and Quality Assurance Project Plan for Shelton Harbor Sediment Cleanup Unit, Oakland Bay and Shelton Harbor Sediment Cleanup Site, Shelton, Washington (July 2017) and a modified outline of the USEPA National Functional Guidelines (NFG) for High Resolution Superfund Methods Data Review (April 2016). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Polychlorinated Dioxins/Dibenzofurans by Environmental Protection Agency (EPA) Method 1613B

All sample results were subjected to Stage 4 data validation, which is comprised of the quality control (QC) summary forms as well as the raw data, to confirm sample quantitation and identification.

The following are definitions of the data qualifiers utilized during data validation:

- J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.
- U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered not detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).
- UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.
- R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.
- NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. HRGC/HRMS Instrument Performance Check

Instrument performance was checked at the required frequency.

Retention time windows were established for all homologues. The chromatographic resolution between 2,3,7,8-TCDD and peaks representing any other unlabeled TCDD isomer was less than or equal to 25%.

The static resolving power was at least 10,000 (10% valley definition).

III. Initial Calibration

A five point initial calibration was performed as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 20.0% for unlabeled compounds and labeled compounds.

The ion abundance ratios for all PCDDs and PCDFs were within validation criteria.

The minimum S/N ratio was greater than or equal to 10 for each unlabeled compound and labeled compound.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

All of the continuing calibration results were within the QC limits for unlabeled compounds and labeled compounds.

The ion abundance ratios for all PCDDs and PCDFs were within validation criteria.

The minimum S/N ratio was greater than or equal to 10 for each unlabeled compound and labeled compound.

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

VI. Field Blanks

No field blanks were identified in this SDG.

VII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

VIII. Ongoing Precision Recovery

Ongoing precision recovery (OPR) samples were analyzed as required by the method. Percent recoveries (%R) were within QC limits.

IX. Field Duplicates

No field duplicates were identified in this SDG.

X. Internal Standards

All internal standard recoveries (%R) were within QC limits with the following exceptions:

| Sample | Finding |
|------------------------|---|
| SH-21-SG-170712(Split) | The cleanup standard 1,2,3,4,7-PeCDD was found to be outside the method control limits, since the associated labeled standard were within the QC limits, no qualification is necessary. |

XI. Compound Quantitation

All compound quantitations met validation criteria with the following exceptions:

| Sample | Compound | Flag | A or P |
|--------------------------|---|-----------------|--------|
| All samples in SDG B2290 | All compounds were reported as estimated maximum possible concentration (EMPC). | J (all detects) | А |

| Sample | Compound | Finding | Criteria | Flag | A or P |
|----------------------|-------------------------------------|---|---|---|--------|
| SH-03-SC-0-10-170809 | 1,2,3,4,6,7,8-HpCDD OCDD OCDF | Sample result exceeded calibration range. | Reported result should be within calibration range. | J (all detects) J (all detects) J (all detects) | Р |

XII. Target Compound Identifications

All target compound identifications met validation criteria.

XIII. System Performance

The system performance was acceptable.

XIV. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

Due to results reported by the laboratory as EMPCs and results exceeding calibration range, data were qualified as estimated in ten samples.

The quality control criteria reviewed, other than those discussed above, were met and are considered acceptable. Sample results that were found to be estimated (J) are usable for limited purposes only. Based upon the data validation all other results are considered valid and usable for all purposes.

Shelton Harbor Polychlorinated Dioxins/Dibenzofurans - Data Qualification Summary - SDG B2290

| Sample | Compound | Flag | A or P | Reason |
|---|---|---|--------|--|
| SG-01-SG-170713 SH-03-SC-0-10-170809 SH-04-SG-170713(Split) SH-13A-SG-170713 SH-14-SG-170712 SH-19-SG-170712(Split) SH-21-SG-170712(Split) SH-22-SG-170712 SH-24-SG-170713 SH-28-SG-170712 | All compounds were reported as estimated maximum possible concentration (EMPC). | J (all detects) | А | Compound quantitation (EMPC) |
| SH-03-SC-0-10-170809 | 1,2,3,4,6,7,8-HpCDD OCDD OCDF | J (all detects) J (all detects) J (all detects) | Р | Compound quantitation (exceeded range) |

Shelton Harbor Polychlorinated Dioxins/Dibenzofurans - Laboratory Blank Data Qualification Summary - SDG B2290

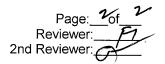
No Sample Data Qualified in this SDG

VALIDATION COMPLETENESS WORKSHEET LDC #: 42458A21 Stage 4 SDG #: B2290 Laboratory: SGS North America, Inc. Reviewer: 2nd Reviewer; METHOD: HRGC/HRMS Polychlorinated Dioxins/Dibenzofurans (EPA Method 1613B) The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets. Validation Area Comments $\mathbf{A}_I \mathbf{A}$ Sample receipt/Technical holding times HRGC/HRMS Instrument performance check 11. PSD & W III. Initial calibration/IEV = ac samples cer IV. Continuing calibration Laboratory Blanks ٧. VI. Field blanks VII. Matrix spike/Matrix spike duplicates OPR VIII. Laboratory control samples Field duplicates IX. X. Internal standards SW Compound quantitation RL/LOQ/LODs XI. Á XII. Target compound identification XIII. System performance XIV. Overall assessment of data A = Acceptable ND = No compounds detected D = Duplicate Note: SB=Source blank N = Not provided/applicable R = Rinsate TB = Trip blank OTHER: FB = Field blank SW = See worksheet EB = Equipment blank Client ID Lab ID Matrix Date SG-01-SG-170713 B2290-001 Sediment 07/13/17 SH-03-SC-0-10-170809 B2290-002 Sediment 08/09/17 SH-04-SG-170713(Split) B2290-003 Sediment 07/13/17 SH-13A-SG-170713 B2290-004 Sediment 07/13/17 SH-14-SG-170712 B2290-005 Sediment 07/12/17 SH-19-SG-170712(Split) B2290-006 6 Sediment 07/12/17 SH-21-SG-170712(Split) B2290-007 Sediment 07/12/17 SH-22-SG-170712 B2290-008 07/12/17 Sediment 9 SH-24-SG-170713 B2290-009 Sediment 07/13/17 SH-28-SG-170712 10 B2290-010 Sediment 07/12/17 Notes:

132290_15910 MB

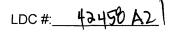
LDC #: 42458 A2

VALIDATION FINDINGS CHECKLIST



Method: HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 1613B)

| Validation Area | Yes | No | NA | Findings/Comments |
|--|-----|----|----|-------------------|
| I. Technical holding times | | | | |
| All technical holding times were met. | | | | |
| Cooler temperature criteria was met. | | | | |
| II, GC/MS Instrument performance check | | | | |
| Was PFK exact mass 380.9760 verified? | | | | <u> </u> |
| Were the retention time windows established for all homologues? | | | | |
| Was the chromatographic resolution between 2,3,7,8-TCDD and peaks representing any other unlabeled TCDD isomers \leq 25% ? | | | |] |
| Is the static resolving power at least 10,000 (10% valley definition)? | | | | |
| Was the mass resolution adequately check with PFK? | / | | | |
| Was the presence of 1,2,8,9-TCDD and 1,3,4,6,8-PeCDF verified? | | | | |
| IIIa. Initial calibration | | | | |
| Was the initial calibration performed at 5 concentration levels? | | | | |
| Were all percent relative standard deviations (%RSD) ≤ 20% for all compounds? | | | | |
| Did all calibration standards meet the Ion Abundance Ratio criteria? | | | | |
| Was the signal to noise ratio for each target compound ≥ 2.5 and for each recovery and internal standard ≥ 10? | | | | |
| IIIb. Initial Calibration Verification | | | | |
| Was an initial calibration verification standard analyzed after each initial calibration for each instrument? | 100 | | | |
| Were all concentrations for the unlabeled compounds \leq 20% and for labeled compounds \leq 30% ?? | | | | |
| IV. Continuing calibration | | | | |
| Was a continuing calibration performed at the beginning and end of each 12 hour period? | | | | L |
| Were all concentrations for the unlabeled compounds and for labeled compounds within QC limits (Method 1613B, Table 6)? | | | | |
| Did all routine calibration standards meet the Ion Abundance Ratio criteria? | | | | |
| V. Blanks | | | | |
| Was a method blank associated with every sample in this SDG? | | | | |
| Was a method blank performed for each matrix and whenever a sample extraction was performed? | | | | |
| Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet? | | _ | - | |
| VI. Field blanks | | | | |
| Field blanks were identified in this SDG. | | / | | |
| Target compounds were detected in the field blanks. | | | | , |
| VII. Matrix spike/Matrix spike duplicates | | | | |



VALIDATION FINDINGS CHECKLIST

Page: Vof V Reviewer: 2nd Reviewer: 2nd Reviewer: Volume 1

| Validation Area | Yes | No | NA | Findings/Comments |
|---|-----|----|----|-------------------|
| Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water. | | | / | |
| Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits? | | | / | |
| VIII. Laboratory control samples | | | | |
| Was an LCS analyzed per extraction batch? | | | | |
| Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits? | | | | |
| IX. Field duplicates | | | | |
| Field duplicate pairs were identified in this SDG. | | / | | |
| Target compounds were detected in the field duplicates. | | | | |
| X. Internal standards | | | | |
| Were internal standard recoveries within QC criteria? | / | | | |
| Was the minimum S/N ratio of all internal standard peaks ≥ 10? | | \ | | |
| XI. Compound quantitation | | | | |
| Were the correct internal standard (IS), quantitation ion and relative response factor (RRF) used to quantitate the compound? | ·/ | | | |
| Were compound quantitation and CRQLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation? | | | | |
| XII. Target compound identification | | | | |
| For 2,3,7,8 substituted congeners with associated labeled standards, were the retention times of the two quantitation peaks within -1 to 3 sec. of the RT of the labeled standard? | | | | |
| For 2,3,7,8 substituted congeners without associated labeled standards, were the relative retention times of the two quantitation peaks within 0.005 time units of the RRT measured in the routine calibration? | | 1 | | |
| For non-2,3,7,8 substituted congeners, were the retention times of the two quantitation peaks within RT established in the performance check solution? | | | | |
| Did compound spectra contain all characteristic ions listed in the table attached? | | 1 | | |
| Was the Ion Abundance Ratio for the two quantitation ions within criteria? | | | | |
| Was the signal to noise ratio for each target compound and labeled standard > 2.5? | / | | | |
| Does the maximum intensity of each specified characteristic ion coincide within ± 2 seconds (includes labeled standards)? | | | | |
| For PCDF identification, was any signal (S/N \geq 2.5, at \pm seconds RT) detected in the corresponding PCDPE channel? | | | | |
| Was an acceptable lock mass recorded and monitored? | | \ | | |
| XIII. System performance | | | | |
| System performance was found to be acceptable. | | _ | | |
| XIV. Overall assessment of data | | | | |
| Overall assessment of data was found to be acceptable. | | | | |

VALIDATION FINDINGS WORKSHEET

METHOD: HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 8290)

| A. 2,3,7,8-TCDD | F. 1,2,3,4,6,7,8-HpCDD | K. 1,2,3,4,7,8-HxCDF | P. 1,2,3,4,7,8,9-HpCDF | U. Total HpCDD |
|----------------------|------------------------|------------------------|------------------------|----------------|
| B. 1,2,3,7,8-PeCDD | G. OCDD | L. 1,2,3,6,7,8-HxCDF | Q. OCDF | V. Total TCDF |
| C. 1,2,3,4,7,8-HxCDD | H. 2,3,7,8-TCDF | M. 2,3,4,6,7,8-HxCDF | R. Total TCDD | W. Total PeCDF |
| D. 1,2,3,6,7,8-HxCDD | I. 1,2,3,7,8-PeCDF | N. 1,2,3,7,8,9-HxCDF | S. Total PeCDD | X. Total HxCDF |
| E. 1,2,3,7,8,9-HxCDD | J. 2,3,4,7,8-PeCDF | O. 1,2,3,4,6,7,8-HpCDF | T. Total HxCDD | Y. Total HpCDF |

| Notes: | | |
|--------|------|--|
| | | |

LDC #: 42458A2/

VALIDATION FINDINGS WORKSHEET Internal Standards

| Page: / of | Ĭ |
|-------------------|---|
| Reviewer: FT | _ |
| 2nd Reviewer: | |

METHOD: HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 1613B)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Are all internal standard recoveries were within the 40-135% criteria?

| Y (V) | y <u>N/A</u> Was the S/N ratio all internal standard peaks ≥ 10? | | | | | |
|------------|--|---|----------------------|----------|-----------------------------------|----------------------|
| # | Date | Lab ID/Reference | Internal Standard | | % Recovery \ (Limit: 40-135%) | Qualifications |
| | | 7 | The clean up standa | rd | 12347 - PECRD) | tex+ |
| | | | was found to be | | | 1 |
| | | | | | , since the (associated) | |
| | | | labeled standard | | | |
| | | | the QC limits | NU | qualification) | |
| H | | | | 10 | 7 | |
| \vdash | | | is necessary | - | , | |
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| | 1 | nternal Standards | Associated compounds | | Internal Standards | Associated compounds |
| Α. | ¹³ C-2,3,7,8-TCD | F | | I. | 13C-OCDD | |
| В. | ¹³ C-2,3,7,8-TCD | | | J. | ¹³ C-1,2,3,4-TCDD | |
| C. | ¹³ C-1,2,3,7,8-Pe | | | K. | ¹³ C-1,2,3,7,8,9-HxCDD | |
| D. | ¹³ C-1,2,3,7,8-Pe | CDD | | L. | ¹³ C-1,2,3,4,7,8-HxCDF | |
| E. | ¹³ C-1,2,3,6,7,8-H | | | | | |
| F. | ¹³ C-1,2,3,6,7,8-F | ···· | | _ | | |
| G. | ¹³ C-1,2,3,4,6,7,8 | | | | | |
| | ¹³ C-1234678 | -HpCDD | | | <u> </u> | |

LDC#: 42458A2/

VALIDATION FINDINGS WORKSHEET Compound Quantitation and Reported CRQLs

| Page: | of |
|------------------------|----|
| Reviewer: Reviewer: | 8 |

METHOD: HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 1613B)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Y/N N/A

Were the correct internal standard (IS), quantitation ions and relative response factors (RRF) used to quantitate the compound? Compound quantitation and CRQLs were adjusted to reflect all sample dilutions and dry weight factors (if necessary).

| # | Date | Sample ID | Finding | Associated Samples | Qualifications |
|---|------|-----------|---|--------------------|----------------|
| | | li A | all compounds reported as estimated maximum possible concentration (EMPC) | | Jdet/A |
| | | | | | |
| | | | - 1/4 | | |
| | | 2 | F, G, Q | x'd cal Range | Jan 19 |
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| | | | | | |

| Comments: | See sample calculation verification worksheet for recalculations | |
|-----------|--|--|
| | | |

LDC #: 42458A2/

VALIDATION FINDINGS WORKSHEET Initial Calibration Calculation Verification

| Page:of | |
|---------------|---|
| Reviewer: | 2 |
| 2nd Reviewer: | |

METHOD: HRGC/HRMS Dioxins/Dibenzofurans (EPA Method 1613B)

The Relative Response Factor (RRF), average RRF, and percent relative standard deviation (%RSD) were recalculated for the compounds identified below using the following calculations:

 $RRF = (A_x)(C_{is})/(A_{is})(C_x)$

 A_x = Area of compound,

A_{is} = Area of associated internal standard

average RRF = sum of the RRFs/number of standards

 $\hat{C_x}$ = Concentration of compound,

C_{is} = Concentration of internal standard

%RSD = 100 * (S/X)

S = Standard deviation of the RRFs, X = Mean of the RRFs

| | | | | Reported | Recalculated | Reported | Recalculated | Reported | Recalculated |
|----|-------------|---------------------|---|--------------------------|--------------------------|------------------|-------------------|----------|--------------|
| # | Standard ID | Calibration Date | Compound (Reference Internal Standard) | Average RRF (initial) | Average RRF (initial) | RRF (CS3 std) | RRF (CS3 std) | %RSD | %RSD |
| 11 | ICAL | 11/22/17 | 2,3,7,8-TCDF (¹³ C-2,3,7,8-TCDF) | 1.02 | 1.02 | 1.05 | 1.05 | 4.5 | 4.5 |
| | | | 2,3,7,8-TCDD (¹³ C-2,3,7,8-TCDD) | 1.10 | 1.10 | 1.13 | 1.13 | 4.5 | 4.5 |
| | | | 1,2,3,6,7,8-HxCDD (¹³ C-1,2,3,6,7,8-HxCDD) | 1.06 | 1.06 | 1.08 | 1.08 | 3.8 | 3.8 |
| | | | 1,2,3,4,6,7,8-HpCDD (¹³ C-1,2,4,6,7,8,-HpCDD) | 0.98 | 0.98 | 1.00 | 1.00 | 4.3 | 4.3 |
| | | | OCDF (13C-OCDD) | 1.03 | 1.03 | 1.09 | 1.09 | 5.0 | 5.0 |
| 2 | | | 2,3,7,8-TCDF (¹³ C-2,3,7,8-TCDF) 2,3,7,8-TCDD (¹³ C-2,3,7,8-TCDD) 1,2,3,6,7,8-HxCDD (¹³ C-1,2,3,6,7,8-HxCDD) | | | | | | |
| | | | 1,2,3,4,6,7,8-HpCDD (¹³ C-1,2,4,6,7,8,-HpCDD) | | | | | | |
| 3 | | | 2,3,7,8-TCDF (¹³ C-2,3,7,8-TCDF) 2,3,7,8-TCDD (¹³ C-2,3,7,8-TCDD) 1,2,3,6,7,8-HxCDD (¹³ C-1,2,3,6,7,8-HxCDD) 1,2,3,4,6,7,8-HpCDD (¹³ C-1,2,4,6,7,8,-HpCDD) | | | | | | |
| | | | OCDF (13C-OCDD) | | | | | | |

Comments: Refer to Initial Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 424582/

VALIDATION FINDINGS WORKSHEET Routine Calibration Results Verification

| Pa | ge:_ | | |
|----------------------|------|---|----------|
| Reviev 2nd Reviev | | 3 | <u>ラ</u> |

METHOD: HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 1613B)

The percent difference (%D) of the initial calibration average Relative Response Factors (RRFs) and the continuing calibration RRFs were recalculated for the compounds identified below using the following calculation:

% Difference = 100 * (ave. RRF - RRF)/ave. RRF $RRF = (A_x)(C_{is})/(A_{is})(C_x)$

Where: ave. RRF = initial calibration average RRF

RRF = continuing calibration RRF

 A_x = Area of compound,

A_{is} = Area of associated internal standard

 C_x = Concentration of compound,

C_{is} = Concentration of internal standard

| | | Calibration | | euncentration Avorage RRF | Reported Con contraction | Recalculated · Concentration | Reported | Recalculated |
|---|-------------|-------------|---|------------------------------|-----------------------------|------------------------------|----------|--------------|
| # | Standard ID | Date | Compound (Reference Internal Standard) | (initial) | (CC) | (CC) | %D | %D |
| 1 | coV | 6/13/18 | 2,3,7,8-TCDF (¹³ C-2,3,7,8-TCDF) | 10.0 | 10.9 | 109 | | |
| | 1634 | • | 2,3,7,8-TCDD (¹³ C-2,3,7,8-TCDD) | | 11.0 | 11.0 | | |
| | | | 1,2,3,6,7,8-HxCDD (¹³ C-1,2,3,6,7,8-HxCDD) | | 53.2 | 53.2 | | |
| | | | 1,2,3,4,6,7,8-HpCDD (¹³ C-1,2,4,6,7,8,-HpCDD) | <u> </u> | 53.5 | 535 | | |
| | | | OCDF (13C-OCDD) | 100.0 | 108 | 80, | • | |
| 2 | | | 2,3,7,8-TCDF (¹³ C-2,3,7,8-TCDF) | | | | | |
| | | | 2,3,7,8-TCDD (¹³ C-2,3,7,8-TCDD) | | | | | |
| | | | 1,2,3,6,7,8-HxCDD (¹³ C-1,2,3,6,7,8-HxCDD) | | | | | |
| | | | 1,2,3,4,6,7,8-HpCDD (¹³ C-1,2,4,6,7,8,-HpCDD) | | | | | |
| | | | OCDF (13C-OCDD) | | | | | |
| 3 | | | 2,3,7,8-TCDF (¹³ C-2,3,7,8-TCDF) | | | | | |
| | | | 2,3,7,8-TCDD (¹³ C-2,3,7,8-TCDD) | | | | | |
| | | | 1,2,3,6,7,8-HxCDD (¹³ C-1,2,3,6,7,8-HxCDD) | | | | | |
| | | | 1,2,3,4,6,7,8-HpCDD (¹³ C-1,2,4,6,7,8,-HpCDD) | | | | | |
| | | | OCDF (13C-OCDD) | | | | | |

Comments: Refer to Routine Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: \$2458A2/

VALIDATION FINDINGS WORKSHEET Laboratory Control Sample Results Verification

| Page:_1_of_1_ |
|---------------|
| Reviewer: FT_ |
| and Reviewer: |

METHOD: GC/MS Dioxins/Dibenzofurans (EPA SW 846 Method 1613B)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the laboratoy control sample and laboratory control sample duplicate (if applicable) were recalculated for the compounds identified below using the following calculation:

% Recovery = 100 * SSC/SA

Where: SSC = Spiked sample concentration

SA = Spike added

RPD = I LCS - LCSD I * 2/(LCS + LCSD)

LCS = Laboraotry control sample percent recovery

LCSD = Laboratory control sample duplicate percent recovery

LCS ID: OPRI

15910

| Compound | Ad | oike ded w) | Spiked Sample Concentiation · (ng m | | | CS Recovery | LCSD Percent Recovery | | L CS/L CSD RPD | |
|---------------------|-------|--------------------|--|------|----------|----------------|-----------------------|--------|-------------------|--------|
| | LCS | LCSD | LCS | LCSD | Reported | Recalc | Reported | Recalc | Reported | Recalc |
| 2,3,7,8-TCDD | 10.0 | P4 | 11.5 | NA | NR | 115 | | | | |
| 1,2,3,7,8-PeCDD | 50.0 | | 57.4 | | j | 114.8 | | | | |
| 1,2,3,4,7,8-HxCDD | 50.0 | | 60.2 | | | 120-4 | | | | |
| 1,2,3,4,7,8,9-HpCDF | 50.0 | | 60.2 | | | 120.4 | | | | |
| OCDF | 100.0 | j | 118 | J | | 114 | | | | |
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Comments: Refer to Laboratory Control Sample findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 4245842/

VALIDATION FINDINGS WORKSHEET

Sample Calculation Verification

Page: 1_of_1 Reviewer: FT 2nd reviewer:

METHOD: HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 1613B)

Y N N/A Y N N/A

Were all reported results recalculated and verified for all level IV samples?

Were all recalculated results for detected target compounds agree within 10.0% of the reported results?

Concentration = $(A_s)(I_s)(DF)$ $(A_{is})(RRF)(V_o)(\%S)$ Area of the characteristic ion (EICP) for the compound to be measured Area of the characteristic ion (EICP) for the specific internal standard Amount of internal standard added in nanograms (ng) Volume or weight of sample extract in milliliters (ml) or V_o Relative Response Factor (average) from the initial **RRF** calibration Df Dilution Factor. %S Percent solids, applicable to soil and solid matrices

Example: Sample I.D. $\frac{1}{1}$, $\frac{0CDF}{1000}$: Conc. = $\frac{4.24 \times 10^{-7}}{2.26 \times 10^{-7}}$ $\frac{4000}{1.03}$ $\frac{1}{7.67}$

| # | Sample ID | Compound | Reported Concentration | Calculated Concentration (pg q) | Qualification |
|---|---------------|----------|---------------------------|--|---------------|
| | #/ | OCDF | 950 | 930 | |
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LDC#: 42458

EDD POPULATION COMPLETENESS WORKSHEET

Anchor



| | EDD Process | Y | /N | Ini | tial | Comments/Action |
|-------|--|----|-----|-----|----------------|-----------------|
| I. | EDD Completeness | | - | | | |
| Ia. | - All methods present? | ` | { | P | A | |
| Ib. | - All samples present/match report? | \ | (| | Ĺ | |
| Ic. | - All reported analytes present? | ` | 1 | | | |
| Id. | £ 10% or 100% verification of EDD? | | (| | | |
| | | | 4.4 | 7 | | |
| II. | EDD Preparation/Entry | | - | | | |
| IIa. | - QC Level applied? (EPAStage2B or EPAStage4) | Y | | | | |
| IIb. | - Laboratory EMPC qualified results qualified (J with reason code 23)? | Y | | | | |
| | | | | | er de stati | |
| III. | Reasonableness Checks | | | | | 7.744.6 |
| IIIa. | - Do all qualified ND results have ND qualifier (e.g. UJ)? | N | A | | | |
| IIIb. | - Do all qualified detect results have detect qualifier (e.g. J)? | | { | | | |
| IIIc. | - If reason codes are used, do all qualified results have reason code field populated, and vice versa? | \ | 1 | | | |
| IIId. | - Do blank concentrations in report match EDD, where data was qualified due to blank? | 2 | /A | | | |
| IIIe. | - Is the detect flag set to "N" for all "U" qualified blank results? | | | | | |
| IIIf. | - Were there multiple results due to dilutions/reanalysis? If so, were results qualified appropriately? | , | , | | | |
| IIIg. | -Are all results marked reportable "Yes" unless rejected for overall assessment in the data validation report? | Y | | | | |
| IIIh. | -Are there any lab "R" qualified data? / Are the entry columns blank for these results? | N/ | 'A | | | |
| IIIi. | -Are there any discrepancies between the data packet and the EDD? | N | (| • | , | |

| Notes: | *see discrepancy sheet | , |
|--------|------------------------|---|
| | | |

Attachment A-2 Field Collection Forms



| Project Name: 5/201 | ON Harbov Pr | oject No: | | Station | D: SMAI | -SG01 |
|---------------------------------|---------------------------------|------------------|---|-------------|-----------|-----------|
| | N: BW) JA 100 | | | | | / |
| | e: 4/25/18 | | Sampling Method | 501 F | 2010 | |
| Sampling Vesse | | | | | ucc | |
| Subcontractor(s | | | - Weather | Sunn | 2 4 | |
| | s: N/Lat. 47.212712 | 2.1 | | | | |
| | Ellana 102 AGAGG | , C , | _ | | | |
| 200 | E/Long. 123, 090899 | | _ | | | |
| | : NAD 83 /WGS 84 | zone: | | | | |
| Sample 10 | F-SMA1-5901-19 | 30425 | | | | |
| Analysis | : Dioxins Furans / TBT / TOC | | Other: | | | |
| | (Circle Appropriate Analyses | 5) | Other: | | | |
| Assessed Cook | | | | | | |
| Accecpted Grab Number: | Water Depth:ft. | 210' | Grab Recovery:_ | 24 0 | m Time:_ | 1745 |
| tunion. | Tide Level: +8.99 ft. | | Sample Interval: | | cm | |
| | Depth MLLW:ft. | | | | | |
| Sediment Type: | Sediment Color: | Density: | Sediment Odor: | | Sheen: | Moisture: |
| cobble | D.O. | Very soft/Loose | none | H2S | none | Dry |
| gravel | gray | soft/loose | slight | Petroleum | trace | Damp |
| Sand C ME Trace | black | mod dense/stiff | moderate | other: | slight | Moist |
| silt clay | brown | dense/stiff | strong | | moderate | Wet |
| organic matter Comments: | brown surface | very dense/stiff | overwhelming | | heavy | |
| | organics - sticks | | | | | |
| DGT Location? Yes (No) | If yes | Temp: | pH: | | Salinity: | |
| Duplicate Station? Yes / No | 1,500 | 1 comp. | 1877 | | ounney. | |
| Processing Crew | BW JAJCO | | Time: | 11- | | 34 |
| Destruction of matrices and the | | | Date: | 4/65 | 116 | |
| Photograph of unhomogenize | | | 100000000000000000000000000000000000000 | | 1753 | |
| Homogenization Start Time | 1752 | | - Homogenization | n End Time: | 1103 | |
| Television and the company | riin aani daabaa aa aa aa ir ah | | | | | |
| Homogenize sample with pac | ddle until consisyency and colo | or are uniform: | | | | |
| Obstances but because in a | | | | | | |
| Photograph of homogenized | sample: [U | | | | | |
| Comments: | | | | | | |
| comments. | nogerized an | bons A | | | | |
| Sample Mar | regenter on | OCOUT, | | | | |
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Recorded by: Recorded by:



| | ew: JA/BW/00 | | 8-0(.03 s | | | |
|-----------------------------|--------------------------------|-----------------------|-------------------|---------|-----------|-----------|
| | ate: 4125)8 | | Sampling Method: | - 1 | 201 | |
| | sel: Peter R | | Sampling Method. | sa c | grab | |
| | (s): VN 5 5 | | Monther | NIN. | 1 . | |
| | tes: N/Lat. 47, 21289 | 76.1 | Weather: | CIONA | u | |
| Station Coordinat | es. N/Lat. 9/, 2/28/ | 1 10 | | | O . | |
| | E/Long. 123. 070 | 361 10 | | | | |
| Datu | m: NAD 83 / WGS 84 | zone: | | | | |
| Sample | 10: PDI-SMAI-S | GD2-180425 | | | | |
| Analys | is: Dioxins Furans / TBT / TO | DC / Cu / DGT | Other: | | | |
| | (Gircle Appropriate Analys | ses) | Other: | | | |
| Accounted Cook | | | | | | |
| Accecpted Grab Number: | Water Depth:f | | Grab Recovery: 2 | 1 0 | m Time: | 1640 |
| | Tide Level: + 10.38 | t. | Sample Interval: | | m | |
| | Depth MLLW:f | t. | | | | |
| Sediment Type: | Sediment Color: | Density: | Sediment Odor: | | Sheen: | Moisture: |
| cobble | D.O. | Very soft/Loose | none H2 | | none | Dry |
| gravel | gray | soft/loose | | roleum | trace | Damp |
| Sand C ME ~ 10% | black | mod dense/stiff | moderate oth | er: | slight | Moist |
| silt clay organic matter | brown surface | dense/stiff | strong | | moderate | Wet |
| Commonto: | | very dense/stiff | overwhelming | | heavy | |
| vace or | ganic - wood de | bris | | | | |
| | | | | | | |
| TIME | biota (shells) | | | | | |
| OGT Location? Yes (No) | If yes | Temp: | pH: | | Salinity: | |
| Ouplicate Station? Yes/I No | | | | | ounney. | |
| Processing Cree | w: BW JA(1) | | Time: | | 1640 | |
| | | | Date: | H | 125 19) | |
| Photograph of unhomogeniz | | | | 1 | | |
| Homogenization Start Tim | e: 1648 | | Homogenization En | d Time: | 1649 | |
| | | , | | | | |
| lomogenize sample with pa | addle until consisyency and co | olor are uniform: [Y | | | | |
| | 1 | | | | | |
| | | | | | | |
| hotograph of homogenized | l sample: | | | | | |
| Photograph of homogenized | sample: | | | | | |

Recorded by: M- Boll



| Sampling Crew Sample Date Sampling Vessel | BW/JA/CO | | | |
|---|---------------------------------|---------------------|----------------------|------------------|
| | 1. 1. | | Sampling Method: S | edPialo |
| | | | | iga Chicolo |
| Subcontractor(s) | | | Weather: | (mide) |
| Station Coordinates | N/Lat. 47.2:3082 | 200 | _ | 3 |
| | E/Long. 123. 08982 | | - | |
| Datum | NAD 83 / WGS 84 | Cartes and a second | - - | |
| | | zone: | | |
| | PDI-SMAI-SGU | | | |
| Analysis: | Diexins Furans / TBT / TOC | | Other: | |
| | (Circle Appropriate Analyses | 5) | Other: | |
| Accecpted Grab | | 01 | 20 | 11 11 |
| Number: 3 | Water Depth:ft. | ~ 8' | Grab Recovery: 25 | |
| | Tide Level: 10.78 ft. | | Sample Interval: | cm |
| Sediment Type: | Depth MLLW:ft. Sediment Color: | Density: | Sediment Odor: | Ichoon: Ivaire |
| cobble | D.O. | Very soft/Loose | none H2S | Sheen: Moisture: |
| gravel | gray | softwoose | | oleum trace Damp |
| Sand C M F ~ 20% | black | mod dense/stiff | moderate othe | |
| siltclay | (b) fown | dense/stiff | strong | moderate Wet |
| organic matter | brown surface | very dense/stiff | overwhelming | heavy |
| OGT Location? Yes (No) | If yes | Temp: | pH: | Salinity: |
| Duplicate Station? Yes I No | | | | |
| Processing Crew: | TAIBMICO. | | Time: | 1600 |
| Photograph of unhomogenized | d sample: [] | | Date. | 4100110 |
| Homogenization Start Time: | | | Homogenization End | Time: 1/2/1 |
| Transgement of the Control | 1003 | | riomogenization Lite | 11111e |
| Homogenize sample with pade | dle until consisyency and color | r are uniform: [V | | |
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| | ample: [U | | | |
| hotograph of homogenized s | | | | |
| Photograph of homogenized s | | | | |
| Comments: | 0 | C A | | |
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| Comments: | yerited an 1 | beat, | | |
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| Comments: | genzed on | beat, | | |
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| 'ommente: | gented an | beat, | | |

Recorded by: St. Williams



| Project Name: 54 | | Project No: 1 (COL | 8 01,03 S | tation ID: SMA | 1-5901 |
|---|--------------------------------|------------------------|-------------------|----------------|------------------|
| | Crew: BW JA (0) | | | | |
| | ssel: Peter re | | Sampling Method: | ed Frab | |
| | or(s): MSS | | | 1511 | |
| Station Coordina | | | Weather: | louay | |
| Station Coolding | | | | • | |
| | E / Long. | | | | |
| | um: NAD 83 / WGS 84 | zone: | | | |
| | DI-SMAI-S | | | | |
| Analy | sis Dioxins Furans / TBT / | | Other: | | |
| | (Circle Appropriate An | alyses) | Other: | | |
| Accecpted Grab | W-t Dth | 7 | | ^ | 1=11. |
| Number: | Water Depth: Tide Level: 140.8 | E 4 10 87 | Grab Recovery: > | | 1540 |
| | Depth MLLW: | ft. | Sample Interval: | cm | |
| Sediment Type: | Sediment Color: | Density: | Sediment Odor: | Sheen: | Majatuwa |
| cobble | D.O. | Very soft/Loose | none H2 | | Moisture: Dry |
| gravel | gray | softMoose | | troleum trace | Damp |
| and C M (F) ~ 70" | black | mod dense/stiff | moderate oth | | Moist |
| clay | brown | dense/stiff | strong | moderate | Wet |
| organic matter Comments: | Atlal Woodwas | very dense/stiff | overwhelming | heavy | 4 |
| OGT Location? Yes / No Ouplicate Station? Yes / No | If yes | Temp: | pH; | Salinity: | |
| Proceeding Cheek II | | | | | |
| Processing Check-li | w: JA BW hO | | | +11c | |
| Processing Cre | w. Still Did I.O. | | Time: | 1540 | |
| hotograph of unhomogeni | V Irelamas her | | Date: | 4/125/18 | |
| Homogenization Start Tim | | | ACTOR OF THE | 1-111 | |
| Tromogemeation Start Till | 1373 | | Homogenization En | d Time: 1546 | |
| omogenize sample with pa | addle until consisyency and | color are uniform: [12 | | | |
| | and and advanced and | color are uniform. [4 | | | |
| hotograph of homogenized | sample: I | | | | |
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| omments: | | | | | |
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Recorded by: Alaman and the second a



| Project Name: Sue | | oject No: 1000 | 5-9-03 Station | n ID: SMAI - SADS |
|-----------------------------|---------------------------------|------------------|------------------------|-------------------|
| | ew: JA/(0/BW | | | |
| Sample Da | ite: 4 25 18 | | Sampling Method: Sed 0 | roah |
| Sampling Vess | sel: Peter R | | | |
| Subcontractor(| (s): <u>MSS</u> | | Weather: MOS | thy doudy |
| Station Coordinate | es: N/Lat. 47, 212366 | Oal La | | 7 |
| | E/Long. 123. 08927 | | | |
| | | | - | |
| | m: NAD 83 / WGS 84 | zone: | | |
| | ID: PDI-SMAI-SGO | | _ | |
| Analysi | is: Dioxins Furans / TBT / TOC | | Other: | |
| | (Circle Appropriate Analyses | s) | Other: | |
| Assessed Cash | | | | |
| Accecpted Grab Number: | Water Depth:ft. | 27' | Grab Recovery: 14 | cm Time: 1350 |
| vuilibei. | Tide Level: + 8.63 ft. | | Sample Interval: | cm |
| | Depth MLLW:ft. | | | |
| Sediment Type: | Sediment Color: | Density: | Sediment Odor: | Sheen: Moisture: |
| cobble | D.O. | Very soft/Loose | none (H2S) | none Dry |
| gravel | gray | soft/loose | slight Petroleur | |
| sand C M/F/15% | black | mod dense/stiff | moderate other: | slight Moist |
| silt clay | browp | dense/stiff | strong | moderate Wet |
| organic matter | brown surface | very dense/stiff | overwhelming | heavy |
| OGT Location? Yes (No | If yes | Temp: | pH: | Salinity: |
| Duplicate Station? Yes / No | | Tremp. | pri. | Saillity. |
| Processing Crev | N: JA/BW/CO | | Time: | 1350 |
| hotograph of unhomogeniz | red sample: | | | |
| Homogenization Start Time | e: <u>1356</u> | | Homogenization End Tim | e: 1357 |
| Homogenize sample with pa | ddle until consisyency and colo | r are uniform(| | |
| | / | | | |
| Photograph of homogenized | sample: | | | |
| Comments: | | | | |
| . 1. | magerized o | as bount | | |
| Sample No | mageri zen | on will - | | |
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Recorded by: Recorded by:



| Sampling Vessel: 4/25/2018 Sampling Vessel: Active 12 Subcontractor(s): MSS Station Coordinates: N/Lat. 47. 242/64 % E/Long. 123 CB/98 14 ° \(\text{D} \) Datum: NAD 83 RVSS 89 zone: Sample ID. 7/DI - S/MA I- S/A ID. 16/04/25 Analysis: Dioxins Furans / TBT / TOC/ Cu / DGT Other: Circle Appropriate Analyses) Other: Circle Appropriate Analyses) Other: | Sampling Vessel: 4/2/2/2 Weather: Subcontractor(s): MSS Station Coordinates: N/Lat. 47. 74.2/6.4 W E/Long. 123. 66/98 14 ° W Datum: NAD 83/NGS 84) zone: Sample ID | Sampling Cre | W JABW 10 | | | |
|--|--|----------------------------|--------------------------------|--------------------|--|---------------|
| Sampling Vesset: Subcontractor(s): MS Subcontractor(s): MS Subcontractor(s): MS Station Coordinates: N/Lat. 47. 24264% E/Long. 123. 06/98/4 CW Datum: NAD 83 / WGS 84) zone: Sample ID | Sampling Vesset: Subcontractor(s): MS Subcontractor(s): MS Subcontractor(s): MS Station Coordinates: N/Lat. 47. 24264% E/Long. 123. 06/98/4 CW Datum: NAD 83 / WGS 84) zone: Sample ID | Sample Dat | e: 4/25/2018 | | Sampling Method: See 6 | nab |
| Subcontractor(s): MSS Station Coordinates: N/Lat 47. 24264.W E/Long. 123. CB/9814°.J Datum: NAD 83.78/CS8.9) zone: Sample ID: 7DI - S/MA I- SA, D. G. 18.0475 Analysis: Dioxins Furans / TBT / TOC / Cu / DGT (Circle Appropriate Analyses) Other: Othe | Subcontractor(s): MSS Station Coordinates: N/Lat 47. 24264.W E/Long. 123. CB/9814°.J Datum: NAD 83.78/CS8.9) zone: Sample ID: 7DI - S/MA I- SA, D. G. 18.0475 Analysis: Dioxins Furans / TBT / TOC / Cu / DGT (Circle Appropriate Analyses) Other: Othe | Sampling Vesse | al Reter 12 | | | 1000 |
| Station Coordinates: N/Lat. 97. 72.26.9 w E / Long. 123. CB/98 14 0 J Datum: NAD 83 / NGS 89 zone: Sample ID: 7DT - SINA I-SC 0 G- 186475 Analysis: Dioxins Furans / TBT / TOC/ Cu / DGT Other: (Circle Appropriate Analyses) Water Depth: ft7 / Grab Recovery: >10 cm Time: 1405 Number: Tide Level: +9.2 ft. Sample Interval: cm Depth MLLW: ft. Sediment Odor: Sheen: Moisture: cm Sediment Type: Sediment Color: Density: Sediment Odor: Sheen: Moisture: cobble | Station Coordinates: N/Lat. 97. 72.26.9 w E / Long. 123. CB/98 14 0 J Datum: NAD 83 / NGS 89 zone: Sample ID: 7DT - SINA I-SC 0 G- 186475 Analysis: Dioxins Furans / TBT / TOC/ Cu / DGT Other: (Circle Appropriate Analyses) Water Depth: ft7 / Grab Recovery: >10 cm Time: 1405 Number: Tide Level: +9.2 ft. Sample Interval: cm Depth MLLW: ft. Sediment Odor: Sheen: Moisture: cm Sediment Type: Sediment Color: Density: Sediment Odor: Sheen: Moisture: cobble | | | | Weather: 2014 | 1 Asinda |
| Datum: NAD 83 TWGS 84) zone: Sample ID PDT_SINAL-SLOW 60475 Analysis: Dioxins Furans / TBT / TOC / Cu / DGT Other: (Circle Appropriate Analyses) Other: Circle Appropriate Analyses) Other: Oth | Datum: NAD 83 TWGS 84) zone: Sample ID PDT_SINAL-SLOW 60475 Analysis: Dioxins Furans / TBT / TOC / Cu / DGT Other: (Circle Appropriate Analyses) Other: Circle Appropriate Analyses) Other: Oth | Station Coordinate | s: N/Lat. 47 7/2/64 | 11 | | There are |
| Datum: NAD 83 (NGS 84) zone: Sample ID: \(\frac{1}{2}\) \(\frac{1}\) \(\frac{1}{2}\) \(\frac{1}{2}\) \(| Datum: NAD 83 (NGS 84) zone: Sample ID: \(\frac{1}{2}\) \(\frac{1}\) \(\frac{1}{2}\) \(\frac{1}{2}\) \(| | | | | |
| Sample ID: PDI - SMAIL SC D - 1804 South S | Sample ID: PDI - SMAIL SC D - 1804 South S | Datum | | | _ | 141 |
| Analysis: Dioxins Furans / TBT / TOC / Cu / DGT Other: Circle Appropriate Analyses | Analysis: Dioxins Furans / TBT / TOC / Cu / DGT Other: Circle Appropriate Analyses | | | | | |
| Circle Appropriate Analyses Other: | Circle Appropriate Analyses Other: | | | | | |
| Accepted Grab Number: | Accepted Grab Number: | Analysis | | | The second secon | |
| Number: Tide Level: 19.21 ft. Depth MLLW: ft. Sample Interval: | Number: Tide Level: 19.21 ft. Depth MLLW: ft. Sample Interval: | | (Circle Appropriate Analyse | es) | Other: | |
| Number: Tide Level: 19.21 ft. Depth MLLW: ft. Sample Interval: | Number: Tide Level: 19.21 ft. Depth MLLW: ft. Sample Interval: | Accecpted Grab | M673 54-55 - Delivery | | × 11 | ula- |
| Depth MLLW: Sediment Type: Sediment Color: Density: Sediment Odor: Sheen: Moisture: Cobble D. D. Very soft/Loose Softiloose Travel Sand C M F 15 ^c | Depth MLLW: Sediment Type: Sediment Color: Density: Sediment Odor: Sheen: Moisture: Cobble D. O. Very soft/Loose Soft@oose Travel Sand C M F 15 ^c | P | | 7' | | cm Time: 1905 |
| Sediment Type: Sediment Color: Density: Sediment Odor: Sheen: Moisture: pobble D.O. Very soft/Loose Slight Petroleum trace Damp Soft/Bose Slight Petroleum trace Damp moderate other: slight Moist moderate other: slight Moist moderate other: slight moderate other: slight moderate brown surface very dense/stiff overwhelming overwhe | Sediment Type: Sediment Color: Density: Sediment Odor: Sheen: Moisture: pobble | | | | Sample Interval: | cm |
| DO Very soft/Loose soft/Bose moderate other: slight moderate other: | DO O. Very soft/Loose soft/Bose flight petroleum frace Damp moderate other: slight moderate | Sediment Tuno | | In-resident | 10.15.101 | In In |
| SoftWoose slight Petroleum Trace Damp moderate other: slight moderate other: slight moderate strong overwhelming overwhelm | SoftWoose Slight Petroleum Trace Damp Moist Mois | | | | 7 | |
| and C M (F) (5°) black moderate slight moderate strong overwhelming wery dense/stiff dense/stiff wery dense/stiff overwhelming overwhelming wery dense/stiff brown surface | Salinity: Sali | | | | | |
| dense/stiff very dense/ | dense/stiff very dense/ | | | | | |
| DGT Location? Yes (No lif yes Temp: pH: Salinity: Processing Check-list Processing Crew: JA BW CO Time: J405 Photograph of unhomogenized sample: 14 Homogenization Start Time: J415 Inhotograph of homogenized sample: 14 Inhotograph of homogenized s | DGT Location? Yes (No lif yes Temp: pH: Salinity: Processing Check-list Processing Crew: JA BW CO Time: J405 Photograph of unhomogenized sample: M Homogenization Start Time: J415 Indication Start Time: J415 Indicat | | | | | |
| OGT Location? Yes (No) If yes Temp: pH: Salinity: Processing Check-list Processing Crew: JA BN CO Time: 1405 Date: 4/25/48 Homogenization Start Time: 1415 hotograph of homogenized sample: W hotograph of homogenized sample: W | OGT Location? Yes (No) If yes Temp: pH: Salinity: Processing Check-list Processing Crew: JA BN CO Time: 1405 Date: 4/25/18 Homogenization Start Time: 1415 hotograph of homogenized sample: W hotograph of homogenized sample: W | | | | | |
| Processing Check-list Processing Crew: JA BW CO Time: 1405 Date: 4/25/16 Photograph of unhomogenized sample: H Homogenization Start Time: 1415 Identify the sample with paddle until consistency and color are uniform: H Interpretation of the sample with paddle until consistency and color are uniform: H Processing Crew: JA BW CO Date: 4/25/16 Homogenization End Time: 1415 Time: 1405 Date: 4/25/16 Homogenization End Time: 1415 Description: H Descr | Processing Check-list Processing Crew: JA BW CO Time: 1405 Date: 4/25/16 Photograph of unhomogenized sample: H Homogenization Start Time: 1415 Identify the sample with paddle until consistency and color are uniform: H Interpretation of the sample with paddle until consistency and color are uniform: H Processing Crew: JA BW CO Date: 4/25/16 Homogenization End Time: 1415 Time: 1405 Date: 4/25/16 Homogenization End Time: 1415 Description: H Descr | | 1 | | | |
| Processing Check-list Processing Crew: JA BW CO Time: 1405 Date: 4/25/18 Homogenization Start Time: 1415 Homogenization Start Time: 1415 hotograph of homogenized sample: W hotograph of homogenized sample: W | Processing Check-list Processing Crew: JA BW CO Time: 1405 Date: 4/25/18 Homogenization Start Time: 1415 Homogenization Start Time: 1415 hotograph of homogenized sample: W hotograph of homogenized sample: W | OGT Location? Yes (No) | If yes | Temp: | pH; | Salinity: |
| Processing Crew: JA BW CO Time: 1405 Date: 4/25/45 Homogenization Start Time: 1415 Homogenize sample with paddle until consisyency and color are uniform: 1415 hotograph of homogenized sample: W | Processing Crew: JA BW CO Time: 1405 Date: 4/25/18 Homogenization Start Time: 1415 Homogenize sample with paddle until consisyency and color are uniform: 1415 hotograph of homogenized sample: W | Suplicate Station? Yes (No | | | - | |
| Homogenization Start Time: Homogenization End Time: 1415 Homogenization Start Time: Homogenization End Time: 1415 Homogenize sample with paddle until consisyency and color are uniform: Homogenized sample: W | Homogenized sample: Homogenized sample: Homogenization Start Time: Homogenization End Time: 1415 Homogenize sample with paddle until consisyency and color are uniform: Homogenized sample: Homogenized sampl | Processing Crew | JA BW CO | | | 405 |
| Homogenization Start Time: Homogenization End Time: 1415 Identify the total part of homogenized sample: W | Homogenization Start Time: Homogenization End Time: 1415 Identify the total consistency and color are uniform: Incompanies to the total consistency and color are uniform: Incompanies to the total consistency and color are uniform: Incompanies to the total consistency and color are uniform: Incompanies to the total consistency and color are uniform: Incompanies to the total consistency and color are uniform: Incompanies to the total consistency and color are uniform: Incompanies to the total consistency and color are uniform: Incompanies to the total consistency and color are uniform: Incompanies to the total consistency and color are uniform: Incompanies to the total consistency and color are uniform. | hotograph of unhomogenize | d sample: | | 1/201 | 17. |
| hotograph of homogenized sample: | hotograph of homogenized sample: | | | | Homogenization End Time: | 1415 |
| hotograph of homogenized sample: W | hotograph of homogenized sample: W | | - PELES | | Tromogenization End Time. | |
| hotograph of homogenized sample: W | hotograph of homogenized sample: W | | | or are uniform: IV | | |
| omments | omments | lomogenize sample with pad | dle until consisvency and cold | | | |
| omments | omments | lomogenize sample with pad | dle until consisyency and colo | are amonn. [-] | | |
| Samle hongerzel on boat. | Symple hongerzel on boat. | | | ware dimorni. [-] | | |
| Sample homogerized on boat. | Symple homogenized on boat. | | | ware dimenii. [-1 | | |
| Sample nonager etal | Symple Nonager etal | holograph of homogenized s | sample: W | | | |
| | | hotograph of homogenized s | sample: W | | | |
| | | holograph of homogenized s | sample: W | | | |
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| | | holograph of homogenized s | sample: W | | | |
| | | holograph of homogenized s | sample: W | | | |
| | | hotograph of homogenized s | sample: W | | | |
| | | holograph of homogenized s | sample: W | | | |



| Sampling Vess | ew: BN JANO ate: 4/25/18 sel: Peter R | | Sampling Method: | Sed E | rrab | |
|---|---|---------------------------|-------------------|--------|----------|--------|
| Subcontractor | (s): MSS | | Weather: < | Shany | - partl | 4 Clou |
| Station Coordinate | es: N/Lat. 47. 2-11 | 171 " | | - | 4 | , |
| | E/Long. 123, 69 | 0346 0 | | | | |
| Datur | m: NAD 83 / WGS 84 | zone: | | | | |
| | 10: PDI-SMP1-SG1 | 9-190415 | | | | |
| | is: Dioxins Furans / TBT | | Other: | | | |
| | (Circle Appropriate An | alyses) | Other: | | | |
| Accecpted Grab | West David | | - | | | 1 |
| Number: | Water Depth: Tide Level: † 3.80 | | Grab Recovery: | | | 1105 |
| | Depth MLLW: | ft. ft. | Sample Interval: | cm | n | |
| Sediment Type: | Sediment Color: | Density: | Sediment Odor: | Is | Sheen: | Moistu |
| cobble | D.O. | Very soft/Loose | none H2 | | none) | Dry |
| gravel | gray | soft/loose | | | race | Damp |
| sand C M F | black | mod dense/stiff | moderate oth | | slight | Moist |
| Sitt clay | brown | dense/stiff | strong | n | noderate | Wet |
| organic matter Comments: | ganics + Woo | very dense/stiff | overwhelming | h | neavy | 4 |
| Processing Check-lis | it | | | | | |
| Processing Crev | N: JA BWICO | | Time: | 1105 | , | |
| | VI slomes ber | | Date: | 4/25 | 18 | |
| Photograph of unhomogenia | eu sample [F] | | | | 1112 | |
| Photograph of unhomogenize Homogenization Start Time | 9: 1/1/ | | Homogonization Er | | 1112 | |
| Homogenization Start Time | | | Homogenization Er | _ | | |
| | | color are uniform: [] [) | | _ | | |
| Homogenization Start Time | ddle until consisyency and | | | _ | | |
| Homogenization Start Time Homogenize sample with pace | ddle until consisyency and | notes | o - see notes | | | |
| Homogenization Start Time Homogenize sample with pace | ddle until consisyency and | | o - see notes | | | |
| Homogenization Start Time Homogenize sample with pace Photograph of homogenized Comments: | sample: [1] NO-see | notes homogenized | o-see notes | , haid | | |
| Homogenization Start Time Homogenize sample with pace Photograph of homogenized Comments: | sample: [1] NO-see | notes homogenized | o-see notes | , haid | | |
| Homogenization Start Time Homogenize sample with pace Photograph of homogenized Comments: | sample: [1] NO-see | notes homogenized | o-see notes | , haid | | |
| Homogenization Start Time Homogenize sample with pace Photograph of homogenized Comments: | sample: [1] NO-see | notes | o-see notes | , haid | | |
| Homogenization Start Time Homogenize sample with pace Photograph of homogenized Comments: | sample: [1] NO-see | notes homogenized | o-see notes | , haid | | |
| Homogenization Start Time Homogenize sample with pace Photograph of homogenized Comments: | sample: [1] NO-see | notes homogenized | o-see notes | , haid | | |
| Homogenization Start Time Homogenize sample with pace Photograph of homogenized Comments: | sample: [1] NO-see | notes homogenized | o-see notes | , haid | | |
| Homogenization Start Time Homogenize sample with pace Photograph of homogenized Comments: | sample: [1] NO-see | notes homogenized | o-see notes | , haid | | |
| Homogenization Start Time Homogenize sample with pace Photograph of homogenized Comments: | sample: [1] NO-see | notes homogenized | o-see notes | , haid | | |
| Homogenization Start Time Homogenize sample with pace Photograph of homogenized Comments: | sample: [1] NO-see | notes homogenized | o-see notes | , haid | | |

Recorded by: Gl. P. Gl.



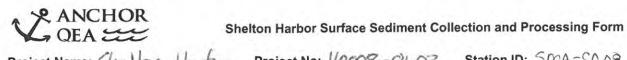
| Number: | | W JA CO BW | | | |
|--|----------------------------|----------------------------|---|------------------------|-----------------|
| Sampling Vessel: PHZ VE Subcontractor(s): M/SS Station Coordinates: N/Lst. 47, 2/1 971. 50 E1/Long 12.3, 610.367 50 Datum: NAD 83 / VISS 84 20ne: Sample ID: PDT_SMA SG_1007 - 180425 Analysis: Broins Fughs / TBT / TOC / Cu / DGT (Circle Appropriate Analyses) Water Depth: Tide Level: 1700 110 110 110 110 110 110 110 110 11 | | | | Sampling Method: Sed | Erran |
| Station Coordinates: N/Lat. 47, 211 17, 20 E/Long. 12.3, 21 C 36.9 E/Long. 12. | | | | | |
| Station Coordinates: M.Lat. 47, 2.11 971. E / Long. 12.3, 0.10 36.9 Datum: NAD 83 / VGS 84 zone: Sample ID: PDI_SMA SG 1007 - 20425 Analysis: Proxins rugns / TBT / TOC / Cu / DGT Other: Other: Other: Oth | Subcontractor(s | s): MSS | | Weather: Mos | HUSUNGU |
| Datum: NAD 83 (| Station Coordinate | s: N/Lat. 47, 2119 | 76 0 | | |
| Datum: NAD 83 / VGS 84 zone: Sample ID: PDT-SMAI-SG1007-100425 Analysis: Drowns Furghs / TBT / TOC / Cu / DGT (Circle Appropriate Analyses) Water Depth: ft. Tide Level: 13-92 Sediment Odor: Sheen: Moisture Cobble D.O. Very soft/Loose soft/60se slight Petroleum trace Damp with paddle until consistence of uniform: TMLE DIGATICS (Shells) Hale Wad debits Processing Crew: DIM (V) Main | | E/Long. 123. C | 10 369 W | | |
| Sample ID: Analysis: PIOC ISMA - SCLOOT - 100425 Analysis: PIOC ISMA TBT / TOC / Cu / DGT Other: O | Datum | | | | |
| Analysis. Dioxins Furans / TBT / TOC / Cu / DGT Other: Circle Appropriate Analyses | - KN 10.3 | - | | 354 | |
| Accepted Grab Number: Valer Depth: ft. | | Playing Furans / TRT / | 1001-1009 | Other: | |
| Accepted Grab Number: Tide Level: 13 1920 Rt 392 Sample Interval: Depth MLLW: Sediment Type: Sediment Type: Sediment Type: Sediment Type: Sediment Type: Sediment Type: Sediment Color: Density: Sediment Odor: Sheen: Moisture Conbble D. O. Very soft/Loose Slight Petroleum Brown Brown Brown Brown Brown Brown surface Density: Sediment Odor: Sheen: Moisture Damp Moist Moderate Odense/stiff Strong Overwhelming Density: Sediment Odor: Sheen: Moisture Damp Moist Moist Most Most Most Most Most Most More Petroleum Inace Damp Moist Most Most Most Most More Processing Check-list Processing Check-list Processing Check-list Processing Check-list Processing Check-list Homogenization Start Time: ILZO Date: ILZO | Allalysis | | | | |
| Number: Water Depth: Tide Level: 13.92 Sample Interval: cm Time: 120 Depth MLLW: ft. Sediment Type: Sediment Color: Density: Sediment Odor: Sheen: Moisture Color Depth MLLW: ft. Sediment Type: Sediment Color: Density: Sediment Odor: Sheen: Moisture Color Depth MLLW: ft. Sediment Type: Sediment Color: Density: Sediment Odor: Sheen: Moisture Color Density: Sediment Odor: Sheen: Sheen: Sheen: Moisture Color Density: Sediment Odor: Sheen: Sheen: Sheen: Sheen: Sheen: Sheen: Sheen | | (S. O.S. Ippropriate Fair | ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,, | | |
| Tide Level: 370 10 15 992 Depth MLLW: Sediment Type: Sediment Color: Depth MLLW: Sediment Type: Sediment Color: Depth MLLW: Sediment Odor: Sheen: Moisture Dry Sediment Odor: Sheen: Moisture Dry Sample Interval: Sediment Odor: Sheen: Moisture Damp Moist moderate other: slight moderate other: | Accecpted Grab | Water Denth: | ft | Grah Recovery: 21 | cm Time: 112() |
| Depth MLLW: Sediment Type: Sediment Color: Density: Sediment Odor: Sheen: Moisture Coobble D.D. Very soft/Loose Sheen: Moisture Coobble D.D. Very soft/Loose Shight Petroleum trace Damp Sand C.M.F. Black mod dense/stiff moderate other: Slight Moist moderate overy dense/stiff strong overwhelming wery dense/stiff overwhelming overwhelming DOT Location? Yes IND If yes Temp: pH: Salinity: Processing Check-list Processing Crew: BULLO A Time: 1/20 Date: 4/25/18 Homogenization Start Time: 1/25 Homogenization Start Time: 1/25 Photograph of homogenized sample: [X] Photograph of homogenized sample: [X] Photograph of homogenized sample: [X] | Number: | Tide Level: 13 Book | Tet 3.92 | | |
| Cobble gravel gray soft/Loose sof | | | | oumple interven | |
| Cobble gravel gray soft/Loose slight Petroleum trace Damp black mod dense/stiff moderate other: slight moderate ot | Sediment Type: | 7 | | Sediment Odor: | Sheen: Moisture |
| black brown black brown brown surface black brown brown surface black brown brown surface brown surf | cobble | D.O. | | none H2S | |
| dense/stiff very dense/ | gravel | gray | soft/toose | slight Petroleu | m trace Damp |
| DGT Location? Yes INO If yes Temp: pH: Salinity: Processing Check-list Processing Crew: BW O A: Time: 120 Date: 475\$B Photograph of unhomogenized sample: IX Homogenization Start Time: 1125 Photograph of homogenized sample: IX Photograph of homogenized sample: IX Photograph of homogenized sample: IX | sand C M-F | black | mod dense/stiff | moderate other: | slight Moist |
| Comments: Trace organics (Shells), trace wood debris DGT Location? Yes INO If yes Temp: pH: Salinity: Processing Check-list Processing Crew: BW 10 A: Time: 1120 Date: 4/2518 Photograph of unhomogenized sample: [X] Homogenization Start Time: 1125 Homogenize sample with paddle until consisyency and color are uniform: [1 NO - See Notes] Photograph of homogenized sample: [M] | silt clay | | | | moderate Wet |
| Processing Check-list Processing Crew: BU O A Time: 120 Date: 47318 Photograph of unhomogenized sample: IN Homogenization End Time: 1127 Photograph of homogenized sample with paddle until consisyency and color are uniform: IN Selection Start Time: 127 Photograph of homogenized sample: IN Salinity: Date: 472518 Photograph of homogenized sample: IN Selection Find Time: 1127 | | | very dense/stiff | overwhelming | heavy |
| Photograph of unhomogenized sample: | | | | Times 11 | 2/) |
| Photograph of unhomogenized sample: [X] Homogenization Start Time: 1/25 Homogenization Start Time: 1/27 Homogenize sample with paddle until consisyency and color are uniform: [+ NO - See Notes Photograph of homogenized sample: [X] | Processing Crew | DWIND DA | | | |
| Homogenization Start Time: 1125 Homogenization End Time: 1127 Homogenize sample with paddle until consistency and color are uniform: [+ NO - Sel Notes] Photograph of homogenized sample: [4] | Photograph of unhomogenize | ed sample: [X | | 9/2 | Spin - |
| Photograph of homogenized sample: [4] | | | | Homogenization End Tin | na: 1177 |
| Photograph of homogenized sample: [4 | Tromogornzadon otare mina | 112+ | | Homogenization End Tin | ic. 112 1 |
| Photograph of homogenized sample: [4 | Homogenize sample with pac | ddle until consisvency and | color are uniform: 1 - 1 | 10-see notes | |
| | | | | see mores | |
| Comments: Sample too sandy - homogenized in spoon by hard | | | | | |
| Comments: Sample too Sandy - homogenized in spoon by hard | Photograph of homogenized | sample: [U] | | | |
| per soo wanteg - normagenized not speen by raciel | | | | | |
| | | | Manageriae I in | I some by han | 1 |
| | | | omogenized w | I spoon by hare | (|
| | | | omogenized in | I spoon by hare | (|
| | | | omogenized in | I spoon by hard | (|
| | | | omogenized w | I spoon by hare | 1 |
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| | | | omogenized iv | I spoon by hard | 1 |
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| | | | omogenized w | I spoon by hare | € |
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| | | | omogenized w | I spoon by have | ₹ |
| | | | omogenized w | I spoon by hare | ₹ |

Recorded by: Recorded by:



| Sampling Vessel: Detect Subcontractor(s): MSS Weather: MSSIAND | Sampl | g Crew: BW (D) JA e Date: 4/25 18 | | Sampling Method: | 1 | 3 00 10 | |
|--|---|--|-------------------------|--|-----------|---------|-------|
| Subcontractor(s): MSS Station Coordinates: N/Lat. 47. 211966 ".V E/Long. 123, 090351 " | | | | _ Camping Metricu. | Sea C | grav | |
| Station Coordinates: N/Lat. 47, 2-11966 E/Long. 523, 04035 j Datum: NAD 83 / MCS 83 zone: Sample ID: DISMA PADOT - IMPUS Analysis: Olioxins Prans / TBT / TOC / Cu / DGT (Griele Appropriate Analyses) Other: Accepted Grab Number: Tide Level: + 4.00 nt. Depth MLLW: ft. Sediment Type: Sediment Color: Density: Sediment Odor: None of the proving and dense/stiff and overwhelming | | | | - Weather: | mix | la Sian | nIA |
| Datum: NAD 83 / WGS 64 zone: Sample ID: PLSMA PLOOT - 1604 S Analysis: Dioxins Pyrans / TBT / TOC / Cu / DGT Other: Accepted Grab Number: Tide Level: + 4.00 ft. Sample Interval: cm | Station Coord | finates: N/Lat. 47, 2119 | PER "N | | | T Juli | 1 |
| Datum: NAD 83 / VIGS 84 zone: Sample ID: DLSMA 2007 - 160425 Analysis: Dioxins Forans / TBT / TOC / Cu / DGT Circle Appropriate Analyses) Other: Accepted Grab Number: Tide Level: + 4.00 ft. Depth MLLW: ft. Sediment Type: Sediment Color: Density: Sediment Odor: Sheen: Microbial Management of Management | | | | - | | | |
| Sample ID: Analysis: Oloxins Forans / TBT / TOC / Cu / DGT Other: Accecpted Grab Number: | ı | and the same of th | | - | | | |
| Analysis: Dioxins Pylans / TBT / TOC / Cu / DGT Other: Circle Appropriate Analyses) Accecpted Grab Number: | | | | | | | |
| Accepted Grab Number: | | | | Other: | | | |
| Number: | 333 | | | The state of the s | | | |
| Number: | | | | | | | |
| Tide Level: 4 10 ft. Depth MLLW: ft. Sediment Type: Sediment Color: Density: Sediment Odor: Sheen: Mc Cobble D.O. Very soft/Loose slight Petroleum Irrace Day Sand) C M F black mod dense/stiff moderate other: slight moderate other: slight moderate other: slight moderate organic matter brown surface very dense/stiff overwhelming overwhelming DGT Location? Yes (No) If yes Temp: pH: Salinity: Processing Check-list Processing Crew: BW DD A Time: 30 Date: 4/25 8 Homogenization Start Time: 36 Homogenize sample with paddle until consisyency and color are uniform: [V] Photograph of homogenized sample: [1] Photograph of homogenized sample: [1] | | Water Depth: | ft. | Grab Recovery: | 23 | m Time: | 1130 |
| Sediment Type: Sediment Color: Density: Sediment Odor: Sheen: Microbble D.O. Very soft/Loose none none H2S none Density: Sediment Odor: Sheen: Microbble gravel gray soft/Gose soft/Gose slight Petroleum trace Day soft/Gose none shift petroleum trace Day soft/Gose slight petroleum trace Day soft/Gose none shift petroleum trace Day shift petroleum trace Day soft/Gose none shift petroleum trace Day soft/Gos | Number. | | | | , | | |
| cobble gravel gray soft/Loose soft/Loose soft/Loose gray soft/Loose soft/Loos | | Depth MLLW: | _ft. | | | | |
| gravel gray soft floose slight Petroleum trace Day and C M F black mod dense/stiff moderate other: slight moderate organic matter brown surface very dense/stiff overwhelming | | | | | | - | Moist |
| sand C M F Silicity Organic matter Comments: Comments Comm | | | | | | | Dry |
| Sinclay brown surface brown su | | | | | | | Damp |
| organic matter brown surface very dense/stiff overwhelming heavy Comments: The Dipolity of Wood delors DGT Location? Yes (No) If yes Temp: pH: Salinity: Duplicate Station? Yes / No Processing Check-list Processing Crew: BW LO JA Time: 30 Date: 4/25 8 Photograph of unhomogenized sample: If Homogenization Start Time: 36 Homogenization Start Time: 136 Homogenizes sample with paddle until consisyency and color are uniform: [If Photograph of homogenized sample: If Photograph of homogenized sample: | | | | Control of the contro | other: | | Moist |
| DGT Location? Yes (No) If yes Temp: pH: Salinity: Duplicate Station? Yes / No Processing Check-list Processing Crew: BW LO JA Time: 30 Date: 4/25 8 Photograph of unhomogenized sample: If Homogenization Start Time: 36 Homogenize sample with paddle until consisyency and color are uniform: [If Photograph of homogenized sample: If | | | | The state of the s | | | Wet |
| DGT Location? Yes (No) If yes Temp: pH: Salinity: Duplicate Station? Yes / No Processing Check-list Processing Crew: BW LO JA Time: 30 Date: 4/25 8 Homogenization Start Time: 36 Homogenize sample with paddle until consisyency and color are uniform: [V] Photograph of homogenized sample: [Y] | 0 | | | overwhenning | | lieavy | |
| Photograph of unhomogenized sample: Homogenization Start Time: //36 Homogenize sample with paddle until consisyency and color are uniform: [V] Photograph of homogenized sample: [Y] | | | | Time: | 1130 | | |
| Photograph of unhomogenized sample: Homogenization Start Time: //36 Homogenize sample with paddle until consisyency and color are uniform: Photograph of homogenized sample: [' ' | | - I co jour | | • | | | |
| Homogenize sample with paddle until consisyency and color are uniform: [1/ | | genized sample: [| | _ | - | | |
| Photograph of homogenized sample: ['J' | Photograph of unhomog | Time: /136 | | Homogenization | End Time: | | |
| Photograph of homogenized sample: [ゾ | | | | | | | |
| | Homogenization Start | | | | | | |
| | Homogenization Start | th paddle until consisyency and | color are uniform: [1/] | | | | |
| Comments: sample too sandy - nomogenized w/spoon by hand | Homogenization Start | | color are uniform: [4] | | | | |
| sample too survey homegan jest of spare by home | Homogenization Start | | color are uniform: [/] | | | | |
| 1 0 0 | Homogenization Start Homogenize sample with | nized sample: [🌱 | | lepon blu | hand | | |
| | omogenization Start mogenize sample wito | nized sample: [🌱 | | Ispoon by | hand | | |
| | Homogenization Start Homogenize sample with | nized sample: [🌱 | | Ispoon by | hand | | |
| | Homogenization Start Homogenize sample with | nized sample: [🌱 | | Ispaon by | hand | | |
| | Homogenization Start Homogenize sample with | nized sample: [🌱 | | Ispan by | hand | | |
| | Homogenization Start Homogenize sample with | nized sample: [🌱 | | Ispoon by | hand | | |
| | Homogenization Start Homogenize sample with | nized sample: [🌱 | | Ispoon by | hand | | |
| | Homogenization Start Homogenize sample with Photograph of homogen | nized sample: [🌱 | | Ispoon by | hand | | |
| | Homogenization Start Homogenize sample with Photograph of homogen | nized sample: [🌱 | | Ispaon by | hand | | |
| | Homogenization Start Homogenize sample with | nized sample: [🌱 | | Ispaon by | hand | | |
| | Homogenization Start Homogenize sample with | nized sample: [🌱 | | Ispan by | hand | | |
| | Homogenization Start Homogenize sample with | nized sample: [🌱 | | Ispoon by | hand | | |
| | Homogenization Start Homogenize sample with | nized sample: [🌱 | | Ispaon by | hand | | |
| | Homogenization Start Homogenize sample with Photograph of homogen | nized sample: [🌱 | | Ispan by | hand | | |
| | Homogenization Start Homogenize sample with Photograph of homogen | nized sample: [🌱 | | Ispan by | hand | | |

Recorded by: Recorded by:



| roject Name: She | ton Harber F | Project No: 1000 | 3-01-03 | Station I | D: SMA | -SG08 |
|--------------------------------|---|-------------------|--------------------|------------|----------|-----------|
| Sampling Crew | VI SA COIBW | | | | | |
| | : A 123 18 | | Sampling Method: | Sed GO | ab | |
| Sampling Vessel | 1: Feter & | | | | | |
| Subcontractor(s) | | | Weather: | mostly | Sunne | 1 |
| | : N/Lat. 47, 2/234 | 14023 | | | 1 . |) |
| | E/Long. (23.090) | 3 | | | | |
| Data | : NAD 83 / WGS 84 | zone: | _ | | | |
| | | | | | | |
| | PDI-SMAI-S | | Other: | Gald | duction | 40 |
| Analysis: | : Dioxins Furans / TBT / TC | | Other: | TIETO | duplica | SG108-180 |
| | (Circle Appropriate Analys | ses) | Other. | - TDT. | -3111A1- | 36108-100 |
| ccecpted Grab | | | TANKS OF THE TANKS | 11 | | 1211 |
| lumber: | Water Depth:ff Tide Level: <u>† 4.79</u> ff | 471 | Grab Recovery:_ | | | 1200 |
| | | | Sample Interval: | | cm | |
| | Depth MLLW:ft | | los dissent Odem | | Ichaan: | Moisture: |
| ediment Type: | Sediment Color: | Density: | Sediment Odor: | H2S | Sheen: | Dry |
| obble | D.O. | Very soft/Loose | none | Petroleum | trace | Damp |
| and C M E 220% | gray black | mod dense/stiff | moderate | other: | slight | Moist |
| | | dense/stiff | strong | oulei. | moderate | Wet |
| iltclay | brown surface | very dense/stiff | overwhelming | | heavy | Wei |
| ganic matter omments: Trace WO | | very deriserstill | Overwheiming | | meary | |
| Processing Check-lis | • | | | | | |
| | | | Time: | 1200 |) | |
| Processing Crew | : JA BW (1) | | Date: | 1111111 | | |
| Photograph of unhomogenize | od sample: [A | | | -41 | /11/ | |
| Homogenization Start Time | 1012 | | Homogenization | n End Time | 1211 | |
| Homogenization Start Time | 1210 | | · | T End Time | | |
| Homogenize sample with page | ddle until consisvency and c | olor are uniform: | | | | |
| tomogenize sample with par | and and concleyoney and c | | | | | |
| Photograph of homogenized | sample: [-1 | | | | | |
| notegraph of nemogerization | | | | | | |
| Comments: Field Di | iplicate | | | | | |
| | | | | | | |
| . 1 | yerized as | 6.4 | | | | |
| Sumle homo | yeu zad as | Own. | | | | |
| 71.4 | J | | | | | |
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| | W: JA/BW/CO | | | | | |
|--|--|---------------------------------|--|-----------|-----------|-----------|
| | ite: 4/25/18 | | Sampling Method: | Sed € | irab | |
| | sel: Peter P- | | | | | |
| Subcontractor(| | | Weather: | Cloud | lex | |
| Station Coordinate | es: N/Lat. 47. 213256 | | _ | | 0 | |
| | E/Long. 123. 09065 | 3°W | _ | | | |
| Datur | m: NAD 83 / WGS 84 | zone: | | | | |
| Sample I | ID: PDI-SMA-SGO | 9-180425 | | | | |
| Analysi | s: Dioxins Furans / TBT / TOO | C / Cu / DGT | Other: | | | |
| | (Circle Appropriate Analyse | es) | Other: | | | |
| Accecpted Grab | Water Donth: | | 4004 | 17 | | 11.20 |
| Number: | Water Depth: ft. Tide Level: 10.65 ft. | ~5' | Grab Recovery: Sample Interval: | | | 1620 |
| | Depth MLLW:ft. | | Sample Interval | | m | |
| Sediment Type: | Sediment Color: | Density: | Sediment Odor: | | Sheen: | Moisture: |
| cobble | D.O. | Very soft/Loose | | 12S | none | Dry |
| graver 20% | gray | soft/loose | slight P | etroleum | trace | Damp |
| sand C M F 50% | black | mod dense/stiff | Proceedings of the control of the co | ther: | slight | Moist |
| Silvclay 50% | brown brown surface | dense/stiff very dense/stiff | strong | - 1. 17 | moderate | Wet |
| | The state of the s | | overwhelming | | heavy | |
| abundan | yer of gravel on: + biola (algae, | shells, etc) | | | | |
| OGT Location? Yes / No | If yes | Temp: | pH: | | Salinity: | |
| Duplicate Station? Yes //No | | Tromp. | Ibri. | | Sallinty, | |
| | W. JAIRIAIN | | Time: | 162 | | |
| Processing Crew | V: JA BIS 100 | | Date: | 4/12 | 25/18 | |
| Processing Crew | ed sample: [| | Date: | 4/12 | - 1 | |
| Processing Crew | ed sample: [] | | | 4/12 | 1630 | |
| Processing Crew Photograph of unhomogeniz Homogenization Start Time | ed sample: [\frac{1}{28} | or are uniform: [+ \\ | Date: | 4/12 | - 1 | |
| Processing Crew Photograph of unhomogeniz Homogenization Start Time | ed sample: [| or are uniform: [+ NC | Date: | 4/12 | - 1 | |
| Processing Crew Photograph of unhomogeniz Homogenization Start Time | ed sample: [] e: 1628 ddle until consisyency and colo | or are uniform: [+] NC | Date: | 4/12 | - 1 | |
| Processing Crew Photograph of unhomogeniz Homogenization Start Time Homogenize sample with pare | ed sample: [] e: 1628 ddle until consisyency and colo | or are uniform: [+* N C | Date: | 4/12 | - 1 | |
| Processing Crew Photograph of unhomogenize Homogenization Start Time Homogenize sample with pace | ed sample: [\frac{1628}{} ddle until consisyency and colors ample: [\frac{1}{2} | | Date: Homogenization E | End Time: | 1630 | |
| Photograph of unhomogenize Homogenization Start Time Homogenize sample with pace | ed sample: [] e: 1628 ddle until consisyency and colo | | Date: Homogenization E | End Time: | 1630 | |
| Processing Crew Photograph of unhomogeniz Homogenization Start Time Homogenize sample with pace | ed sample: [\frac{1628}{} ddle until consisyency and colors ample: [\frac{1}{2} | | Date: Homogenization E | End Time: | 1630 | |
| Processing Crew Photograph of unhomogenize Homogenization Start Time Homogenize sample with pace | ed sample: [\frac{1628}{} ddle until consisyency and colors ample: [\frac{1}{2} | | Date: Homogenization E | End Time: | 1630 | |
| Processing Crew Photograph of unhomogenize Homogenization Start Time Homogenize sample with pace | ed sample: [\frac{1628}{} ddle until consisyency and colors ample: [\frac{1}{2} | | Date: Homogenization E | End Time: | 1630 | |
| Processing Crew Photograph of unhomogenize Homogenization Start Time Homogenize sample with pace | ed sample: [\frac{1628}{} ddle until consisyency and colors ample: [\frac{1}{2} | | Date: Homogenization E | End Time: | 1630 | |
| Processing Crew Photograph of unhomogenize Homogenization Start Time Homogenize sample with pace | ed sample: [\frac{1628}{} ddle until consisyency and colors ample: [\frac{1}{2} | | Date: Homogenization E | End Time: | 1630 | |
| Processing Crew Photograph of unhomogenize Homogenization Start Time Homogenize sample with pace | ed sample: [\frac{1628}{} ddle until consisyency and colors ample: [\frac{1}{2} | | Date: Homogenization E | End Time: | 1630 | |
| Processing Crew Photograph of unhomogenize Homogenization Start Time Homogenize sample with pace | ed sample: [\frac{1628}{} ddle until consisyency and colors ample: [\frac{1}{2} | | Date: Homogenization E | End Time: | 1630 | |
| Processing Crew Photograph of unhomogenize Homogenization Start Time Homogenize sample with pace | ed sample: [\frac{1628}{} ddle until consisyency and colors ample: [\frac{1}{2} | | Date: Homogenization E | End Time: | 1630 | |
| Processing Crew Photograph of unhomogenize Homogenization Start Time Homogenize sample with pace | ed sample: [\frac{1628}{} ddle until consisyency and colors ample: [\frac{1}{2} | | Date: Homogenization E | End Time: | 1630 | |
| Processing Crew Photograph of unhomogenize Homogenization Start Time Homogenize sample with pace | ed sample: [\frac{1628}{} ddle until consisyency and colors ample: [\frac{1}{2} | | Date: Homogenization E | End Time: | 1630 | |
| Processing Crew Photograph of unhomogenize Homogenization Start Time Homogenize sample with pace | ed sample: [\frac{1628}{} ddle until consisyency and colors ample: [\frac{1}{2} | | Date: Homogenization E | End Time: | 1630 | |
| Processing Crew Photograph of unhomogenize Homogenization Start Time Homogenize sample with pace | ed sample: [\frac{1628}{} ddle until consisyency and colors ample: [\frac{1}{2} | | Date: Homogenization E | End Time: | 1630 | |

Recorded by: At Thatle



| Sampling Cre | w. BW/CO/JA | | | | | |
|---------------------------|---|------------------|-------------------|-----------|----------|-------------|
| Sample Dat | | | Sampling Method: | < 0.1 b | 20010 | |
| | el: Peter R | | . Sampling Method | Dea ! | TIGE | |
| Subcontractor(s | | | . Waathar | Doct | · Cloude | 1 |
| Subcontractor(s |). <u>11(35</u> | J , | vveatilei | Ter In | 7 Crouac | |
| Station Coordinate | s: N/Lat. 47, 213292 | N | | | | |
| | E/Long. 123,0892 | 92 W | | | | |
| Datum | 1: NAD 83 WGS 84 | zone: | | | | |
| Sample II | D: PDI-SMAI-SI | 210-180425 | | | | |
| Analysis | s: Dioxins Furans / TBT / TOC | / Cu / DGT | Other: | | | |
| | (Gircle Appropriate Analyses | | Other: | | | |
| | | | - | | | |
| Accecpted Grab | Water Denth: ft | , | Grab Recovery: 2 | 2.5 cr | m Time: | 1305 |
| Number: | Water Depth:ft. Tide Level: <u>† 6.62</u> ft. | ~ 7 | Sample Interval: | | m | Do |
| | Depth MLLW:ft. | | | | | |
| Sediment Type: | Sediment Color: | Density: | Sediment Odor: | | Sheen: | Moisture: |
| cobble | D.O. | Very soft Loose | | 12S | none | Dry |
| gravel | gray | soft/loose | | etroleum | trace | Damp |
| Sand C M E 250°11 | black | mod dense/stiff | | ther: | slight | Moist |
| silt elay | brown | dense/stiff | strong | | moderate | Wet |
| organic matter | brown surface | very dense/stiff | overwhelming | | heavy | |
| Comments: | | | | | | |
| Processing Check-lis | | | | | | |
| Processing Crev | v: UA BW CO | | Time: | 1305 | | |
| | | | Date: | 4/25 | 118 | |
| hotograph of unhomogeniz | ed sample: | | 7.00 | , | | |
| Homogenization Start Time | e: 1309 | | Homogenization | End Time: | 1310 | |
| | | | | | 1-10 | |
| Homogenize sample with pa | ddle until consisyency and colo | r are uniform: | | | | |
| | | | | | | |
| Photograph of homogenized | sample: | | | | | |
| | | | | | | |
| Charles have a | | | | | | |
| | | | | | | |
| | Da 6 | out- | | | | |
| Sample Nome | ogenized on 6 | out | | | | |
| | ogerized on 6 | out | | | | |
| | ogenized on 6 | out | | | | |
| | ogerized on 6 | out | | | | |
| | ogerized on 6 | out | | | | |
| | ogerized on 6 | out | | | | |
| | ogerized on 6 | end | | | | |
| | ogerized on 6 | eud | | | | |
| | ogerized on 6 | eud | | | | |
| | ogerized on 6 | eud | | | | |
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| | ogenized on 6 | eut | | | | |
| | ogenized on 6 | eut | | | | |
| | ogenized on 6 | eut | | | | |
| | ogerized on 6 | eut | | | | |

Recorded by: 41



| Sampling Cre | W: BW JA CO | | | | |
|--|--|-----------------------|------------------|-------------------|-----------|
| | te: 4)25\8 | | Sampling Method: | sed Grap | |
| | el: Poter R | | | AU CHIAD | |
| Subcontractor(| | | Weather: 0 | artly Moude | |
| | es: N/Lat. 47.2129 | 0.0.1 | | ming fromany | |
| Otation Coordinate | 5. 11/Lat. 11/21 20 | 0120 | _ | | |
| | E/Long. 123, 089 | | | | |
| | n: NAD 83 /40GS-84 | zone: | | | |
| Sample I | D: PDI-SMAI-SO | 111-1808425 | | DI-SMAI-III | |
| Analysis | s: Dioxins Furans / TBT / T | OC / Cu / DGT | Other: | DI-2W41-111 | -180423 |
| | (Circle Appropriate Analy | /ses) | Other: | | |
| | | | | | |
| Accecpted Grab Number: | Water Depth: | ft. ~82 | Grab Recovery: 2 | <u>4</u> cm Time: | 1315 |
| vullber | Tide Level: +7,29 | | Sample Interval: | | |
| | Depth MLLW: | ft. | | | |
| Sediment Type: | Sediment Color: | Density: | Sediment Odor: | Sheen: | Moisture: |
| obble | D.O. | Very soft/Loose | none H25 | none | Dry |
| ravel 1 rol | gray | soft/loose | slight Pet | roleum trace | Damp |
| and C M (F) ~ 15°/c | black | mod dense/stiff | moderate other | er: slight | Moist |
| silt clay | brown | dense/stiff | strong | moderate | Wet |
| rganic matter Comments: | brown surface | very dense/stiff | overwhelming | heavy | |
| | If yes | Temp: | pH: | Salinity: | |
| Duplicate Station Yes No. | 2 W | Temp: | pH: | Salinity: | |
| Processing Check-lis | ZW st | Temp: | JpH: | Salinity: | |
| Processing Check-lis | 2 W | Temp: | pH: | Salinity: | |
| Processing Check-lis Processing Crev | ot v: Ja BW CO | Temp: | | | |
| Processing Check-lis | st v: JA BW CO red sample: [X | Temp: | Time: | 1315 | |
| Processing Check-lis Processing Crev | st w: JA BW CO red sample: LY | Temp: | Time: | 315 25 8 | |
| Processing Check-lis Processing Crev Photograph of unhomogeniz Homogenization Start Time | 200 st w: JA BW CO ted sample: [1] | | Time: | 315 25 8 | |
| Processing Check-lis Processing Crev Photograph of unhomogeniz Homogenization Start Time | st w: JA BW CO red sample: LY | | Time: | 315 25 8 | |
| Processing Check-lis Processing Crev Photograph of unhomogeniz Homogenization Start Time | st v: JA BW CO red sample: LY e: 1325 ddle until consisyency and co | | Time: | 315 25 8 | |
| Processing Check-lis Processing Crev Photograph of unhomogeniz Homogenization Start Time Homogenize sample with pa | st v: JA BW CO red sample: LY e: 1325 ddle until consisyency and co | | Time: | 315 25 8 | |
| Processing Check-lis Processing Crew Photograph of unhomogeniz Homogenization Start Time Homogenize sample with pa | st v: JA BW CO red sample: [Y 1325 ddle until consisyency and consistency and consiste | | Time: | 315 25 8 | |
| Processing Check-lis Processing Crev Photograph of unhomogeniz Homogenization Start Time Homogenize sample with pa | st v: JA BW CO red sample: [Y 1325 ddle until consisyency and consistency and consiste | | Time: | 315 25 8 | |
| Photograph of unhomogeniz Homogenization Start Time Homogenize sample with pa Photograph of homogenized Comments: Field Diu | et w: JA BW CO red sample: LY iddle until consisyency and of sample: LY pucate | color are uniform: [4 | Time: | 315 25 8 | |
| Processing Check-lis Processing Crev Photograph of unhomogeniz Homogenization Start Time Homogenize sample with pa Photograph of homogenized Comments: Field Diu | et w: JA BW CO red sample: LY iddle until consisyency and of sample: LY pucate | color are uniform: [4 | Time: | 315 25 8 | |
| Processing Check-lis Processing Crev Photograph of unhomogeniz Homogenization Start Time Homogenize sample with pa Photograph of homogenized Comments: Field Diu | et w: JA BW CO red sample: LY iddle until consisyency and of sample: LY pucate | color are uniform: [4 | Time: | 315 25 8 | |
| Processing Check-lis Processing Crev Photograph of unhomogeniz Homogenization Start Time Homogenize sample with pa Photograph of homogenized Comments: Field Diu | st v: JA BW CO red sample: [Y 1325 ddle until consisyency and consistency and consiste | color are uniform: [4 | Time: | 315 25 8 | |
| Processing Check-lis Processing Crev Photograph of unhomogeniz Homogenization Start Time Homogenize sample with pathotograph of homogenized Comments: Field Direct | et w: JA BW CO red sample: LY iddle until consisyency and of sample: LY pucate | color are uniform: [4 | Time: | 315 25 8 | |
| Processing Check-lis Processing Crev Photograph of unhomogeniz Homogenization Start Time Homogenize sample with pa Photograph of homogenized Comments: Field Diu | et w: JA BW CO red sample: LY iddle until consisyency and of sample: LY pucate | color are uniform: [4 | Time: | 315 25 8 | |
| Processing Check-lis Processing Crev Photograph of unhomogeniz Homogenization Start Time Homogenize sample with part Photograph of homogenized Comments: Field Dire | et w: JA BW CO red sample: LY iddle until consisyency and of sample: LY pucate | color are uniform: [4 | Time: | 315 25 8 | |
| Processing Check-lis Processing Crev Photograph of unhomogeniz Homogenization Start Time Homogenize sample with pathotograph of homogenized Comments: Field Direct | et w: JA BW CO red sample: LY iddle until consisyency and of sample: LY pucate | color are uniform: [4 | Time: | 315 25 8 | |
| Processing Check-lis Processing Crev Photograph of unhomogeniz Homogenization Start Time Homogenize sample with pa Photograph of homogenized Comments: Field Diu | et w: JA BW CO red sample: LY iddle until consisyency and of sample: LY pucate | color are uniform: [4 | Time: | 315 25 8 | |
| Processing Check-lis Processing Crev Photograph of unhomogeniz Homogenization Start Time Homogenize sample with part Photograph of homogenized Comments: Field Direct C | et w: JA BW CO red sample: LY iddle until consisyency and of sample: LY pucate | color are uniform: [4 | Time: | 315 25 8 | |
| Processing Check-lis Processing Crev Photograph of unhomogeniz Homogenization Start Time Homogenize sample with part Photograph of homogenized Comments: Field Direct C | et w: JA BW CO red sample: LY iddle until consisyency and of sample: LY pucate | color are uniform: [4 | Time: | 315 125 8 | |
| Processing Check-lis Processing Crev Photograph of unhomogeniz Homogenization Start Time Improved the common of the common o | et w: JA BW CO red sample: LY iddle until consisyency and of sample: LY pucate | color are uniform: [4 | Time: | 315 125 8 | |
| Processing Check-lis Processing Crev Photograph of unhomogeniz Homogenization Start Time Improved the common of the common o | et w: JA BW CO red sample: LY iddle until consisyency and of sample: LY pucate | color are uniform: [4 | Time: | 315 125 8 | |



| Sampling Vessel: Subcontractor(s): M/S Station Coordinates: N/Lat. 47, 7217544 P E/Long. 123, 08875 P Datum: NAD 83 / WGS 84 zone: Sample ID: DI - 5MA - 5M2 - 100 475 Analysis: Pioxins Furans / TBT / TOC / Cu / DGT (Circle Appropriate Analyses) Accecpted Grab Number: ft. Tide Level: + 8,01 | Other: Other: Other: ample Interval: | Mostle | ab 1 Cloude | 1 |
|--|--|--------------|----------------|-----------|
| Sampling Vessel: Subcontractor(s): MSS Station Coordinates: N/Lat. 47, 7, 7, 7, 7, 7, 7, 7, 7, 7, 7, 7, 7, 7 | Other: Other: other: ample Interval: | Mostle | | 1 |
| Subcontractor(s): MSS Station Coordinates: N/Lat. 47, 217544 PA E/Long. 123, 08875 PW Datum: NAD 83 / WGS 84 zone: Sample ID: DI - MA I - SA IV I BD 425 Analysis: Dioxins Furans / TBT / TOC / Cu / DGT (Circle Appropriate Analyses) Accecpted Grab Number: Tide Level: + 8.0° ft. Depth MLLW: ft. Depth MLLW: ft. Sediment Type: Sediment Color: Density: Securiose Incomplete Incomple | Other: Other: rab Recovery:_ample Interval:_ | | 1 Cloude | 1 |
| Station Coordinates: N/Lat. 47, 212544 PA E/Long. 123, 08873 PA Datum: NAD 83 / WG6 84 Zone: Sample ID: PDI - SMA - S | Other: Other: rab Recovery:_ample Interval:_ | | 7 (101/2) | 1 |
| Datum: NAD 83 / WGS 84 zone: Sample ID: PDI SMA I SUZ IDD 425 Analysis: Dioxins Furans / TBT / TOC / Cu / DGT (Circle Appropriate Analyses) Water Depth: ft. Tide Level: + 6.0 1 ft. Depth MLLW: ft. Sediment Type: Sediment Color: Density: Sediment Type: Obble D.O. Very soft Loose ravel and C ME IS I black mod dense/stiff mod dense/stiff str. Depth MLEW: Town dense/stiff str. Density: Sediment Color: Density: Sediment | Other: | | | 7 |
| Datum: NAD 83 / WES 84 zone: Sample ID: PDI SMA SAN BD 425 Analysis: Proxins Furans / TBT / TOC / Cu / DGT (Circle Appropriate Analyses) Accecpted Grab Number: Tide Level: Ft. Tide Level: Ft. Depth MLLW: Ft. Sediment Type: Sediment Color: Density: Sediment Type: Sediment Type: Sediment Color: Density: Sediment Color: Sediment Type: Sediment Color: Density: Sediment Type: Sediment Color: Density: Sediment Color: Sediment Type: Sediment Color: Density: Sediment Color: Sediment Color: Sediment Type: Sediment Color: Density: Sediment Color: | Other: | | | |
| Sample ID: | Other: | | | |
| Analysis: Dioxins Furans / TBT / TOC / Cu / DGT (Circle Appropriate Analyses) Accepted Grab Number: | Other: | | | |
| Analysis: Dioxins Furans / TBT / TOC / Cu / DGT (Circle Appropriate Analyses) Accepted Grab Number: | Other: | | | |
| Accecpted Grab Number: | rab Recovery:_ ample Interval:_ | | | |
| Number: | ample Interval:_ | | | |
| Water Depth: | ample Interval:_ | | | |
| Depth MLLW: | | 15 0 | m Time: _ | 1335 |
| Sediment Type: Sediment Color: Density: Secobble D.O. Very soft/Loose no soft/fosse slip and C M F 150/1 black mod dense/stiff brown dense/stiff brown dense/stiff overy dense | ediment Odor: | | cm | |
| D.O. Very soft/Loose gray Soft/foose Slip Sind C MF 15 / black Sind C | ediment Odor: | | | |
| pravel gray black mod dense/stiff dense/stiff dense/stiff wery dense/stiff over dense/stiff | | | Sheen: | Moisture: |
| black brown dense/stiff with prown surface brown dense/stiff wery dense/stiff overy dense/stiff wery dense/stiff overy dense/stiff over dense/stiff over dense/stiff over dense/stiff overy dense/stiff over dense/stiff over dense/stiff over dense/s | | H2S | none | Dry |
| Description of unhomogenized sample: [7] Comments: Strong Str | | Petroleum | trace | Damp |
| Processing Crew: | | other: | slight | Moist |
| OGT Location? Yes (No) Processing Check-list Processing Crew: JA BW Photograph of unhomogenized sample: 1340 Idomogenize sample with paddle until consisyency and color are uniform: 14 Photograph of homogenized sample: [] | ong | | moderate | Wet |
| Processing Check-list Processing Crew: JA BW Photograph of unhomogenized sample: I 340 Identify the sample with paddle until consisyency and color are uniform: I 100 Photograph of homogenized sample: I 100 Photograph of homogen | erwhelming | | heavy | |
| hotograph of unhomogenized sample: 1340 Image: 1340 Ima | | | | |
| Photograph of unhomogenized sample: 1340 Homogenization Start Time: 1340 Homogenize sample with paddle until consisyency and color are uniform: 14 Photograph of homogenized sample: [] | Time: | 133 | < | |
| Homogenization Start Time: | Date: | 4170 | Tie | |
| Homogenization Start Time: | Duto | 1103 | 110 | |
| Photograph of homogenized sample: [] | Homogenization | End Time | | |
| Photograph of homogenized sample: [] | Tomogemzation | Liid Tillie. | | |
| Photograph of homogenized sample: [] | | | | |
| Comments: | | | | |
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| Sample homogerized on bowt | | | | |
| Damphe Mortagon Een of Land | | | | |
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Recorded by: M. Wall



| Number: Water Depth: ft. Tide Level: 3.98 ft. Sample Interval: cm CO2 | 13 | | | | |
|--|-------------------------------|--|--|--|--|
| Sampling Vessel: Water Corp. Station Coordinates: N/Lat. 47, 212.cc? 3 Datum: NAD 83 WGS-84 zone: Sample ID: PDI - 5 MA - 5C 13 Analysis: Dioxins Furans / TBT / TOC / Cu / DGT Circle Appropriate Analyses) Water Depth: ft. Tide Level: 13.92 ft. Depth MLLW: ft. Sediment Type: Sediment Color: Density: Sediment Odor: Sheen: Mit dense/stiff brown surface wery dense/stiff strong overwhelming heavy Depth MLW brown Und duwis Diota (Nams) DIOTA (Claras) Weather: Slunn: Sunn: Slunn: Slun | | | | | |
| Sampling Vessel: ATT OF SUMPLY SUBSTRIAN Station Coordinates: N/Lat. 47.2/2.c.c/g c/J E/Long. 1/23.0 6.6c.c (c/c) Datum: NAD 83 (MSS-84 zone: Sample ID: PDL 5 MA I - SC I/3 Analysis: Dioxins Parans / TBT / TOC / Cu / DGT Other: (Circle Appropriate Analyses) Water Depth: ft. Tide Level: 13.92 n. Depth MLLW: ft. Depth MLLW: ft. Sediment Type: Sediment Color: Density: Sediment Odor: Shaeq: Minor dense/stiff of the sight with the sig | | | | | |
| Station Coordinates: N / Lat. 47, 212 c c c c c c c c c c c c c c c c c c | | | | | |
| Station Coordinates: N/Lat. 47, 2/2 C-CY SIE/Long. 1723 - 0 th Co C C C C C C C C C C C C C C C C C C | | | | | |
| Datum: NAD 83 (WS at zone: Sample ID: PDI - 5 MA - SC 13 Analysis: Dioxins Farans / TBT / TOC / Cu / DGT (Circle Appropriate Analyses) Other: Accecpted Grab Number: It. Tide Level: 13.98 ft. Depth MLLW: ft. Sediment Color: Density: Sediment Odor: Sheer: Mr. Sample Interval: cm Sediment Type: Sediment Color: Density: Sediment Odor: Sheer: Mr. Sample Interval: cm Sediment Type: Sediment Color: Density: Sediment Odor: Sheer: Mr. Sample Interval: cm Sediment Type: Sediment Color: Density: Sediment Odor: Sheer: Mr. Sample Interval: cm Sediment Odor: Sheer: Mr. Sheer: Mr. Sample Interval: cm Sediment Odor: Sheer: Mr. Sheer | | | | | |
| Sample ID: PDI - 5 MAI - SC IS Analysis: Dioxins Flarans / TBT / TOC / Cu / DGT Other: Accecpted Grab Number: Tide Level: 13.93 ft. Depth MLLW: ft. Sediment Type: Sediment Color: Density: Sediment Odor: Sheet: Mone of the strong overwhelming overwhel | | | | | |
| Analysis: Ploxins Farans / TBT / TOC / Cu / DGT Other: Circle Appropriate Analyses Other: | | | | | |
| Accepted Grab Number: | | | | | |
| Accepted Grab Number: Tide Level: 13.99 ft. Depth MLLW: ft. Sediment Type: Sediment Color: Density: Sediment Odor: Common Marker Depth MLLW: ft. Sediment Type: Sediment Color: Density: Sediment Odor: Marker Depth MLLW: ft. Sediment Type: Sediment Color: Density: Sediment Odor: Marker Depth MLLW: ft. Sediment Type: Sediment Color: Density: Sediment Odor: Marker Depth MLLW: ft. Sediment Type: Sediment Color: Density: Sediment Odor: Marker Depth MLLW: ft. Very soft/Loose None H2S ft. Folia dense/stiff Moderate other: slight Marker Depth MLLW: Marker Dept | | | | | |
| Number: Water Depth: ft. Tide Level: 3.92 ft. Depth MLLW: ft. Sample Interval: cm cm CO2 | | | | | |
| Number: Water Depth: ft. Tide Level: 3.9.95 ft. Depth MLLW: ft. Sample Interval: om om om om om om om o | | | | | |
| Depth MLLW: ft. Sediment Type: Sediment Color: Density: Sediment Odor: Sheeq: Microscobble gravel g | !5 | | | | |
| Sediment Type: Sediment Color: Density: Sediment Odor: Sheeq: Mone Draw Grave Sediment Odor: Density: Sediment Odor: Sheeq: Mone Draw Grave Sediment Odor: Sheeq: Mone Draw Sight Sediment Odor: Sheeq: Mone Draw Draw Sight Sediment Odor: Sheeq: Mone Draw Draw Sight Sediment Odor: Sheeq: Mone Draw Dr | | | | | |
| Cobble gravel gray soft/Loose soft/loose slight (\$\frac{1}{2}\$) Petroleum trace Drack brown surface were dense/stiff dense/stiff overwhelming overwhelming overwhelming overwhelming brown surface brotograph of unhomogenized sample: 10 Dense/stiff brownstation Start Time: 10 Dense/stiff brotograph of homogenized sample: 10 Dense/stiff brotograph of homogenized sample: 11 Dense/stiff brotograph of homogenized sample: 12 Dense/stiff brotograph of homogenized sample: 13 Dense/stiff brotograph of homogenized sample: 14 Dense/stiff brotograph of homogenized sample: 15 Dense/st | | | | | |
| gravel gray soft/loose moderate other: slight wood dense/stiff dense/stiff strong overwhelming o | oisture: | | | | |
| Sand C M F sili day brown surface | y imp | | | | |
| Description of unhomogenized sample: 1035 Homogenize sample with paddle until consisyency and color are uniform: [2] Description of homogenized sample: 12 Description of homogenized sample: 13 Description of homogenized sample: 14 Description of h | | | | | |
| Processing Check-list Processing Crew: BW JA CO Photograph of unhomogenized sample: Whomogenized sample: Whomoge | | | | | |
| Processing Crew: BW JA CO Processing Crew: BW JA CO Photograph of unhomogenized sample: I Homogenization Start Time: ID35 Photograph of homogenized sample: I Photograph of | | | | | |
| Processing Check-list Processing Crew: BW JA CO Time: Date: 4/25 B Photograph of unhomogenized sample: Homogenization Start Time: 1035 Homogenize sample with paddle until consisyency and color are uniform: W Photograph of homogenized sample: | 7 | | | | |
| Photograph of unhomogenized sample: 1035 Homogenization Start Time: 1035 Homogenize sample with paddle until consisyency and color are uniform: [U] Photograph of homogenized sample: [U] | | | | | |
| Photograph of unhomogenized sample: 4 125 18 Homogenization Start Time: 1035 Homogenize sample with paddle until consisyency and color are uniform: [U] Photograph of homogenized sample: [U] Comments: | | | | | |
| Photograph of unhomogenized sample: 4 125 18 Homogenization Start Time: 1035 Homogenize sample with paddle until consisyency and color are uniform: [U] Photograph of homogenized sample: [U] | | | | | |
| Photograph of unhomogenized sample: Homogenization Start Time: 1035 Homogenize sample with paddle until consisyency and color are uniform: [V] Photograph of homogenized sample: Homogen | | | | | |
| Homogenize sample with paddle until consisyency and color are uniform: [// Photograph of homogenized sample: [// Comments: | | | | | |
| Photograph of homogenized sample: | Homogenization End Time: (037 | | | | |
| Photograph of homogenized sample: | | | | | |
| Photograph of homogenized sample: | | | | | |
| Comments: | | | | | |
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| Sample homogenized on boat. | | | | | |
| Sample homegen eta al son! | | | | | |
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Recorded by: Ali Ditt



| Project Name: Skel | | oject No: 11000 | Station | ID: SMAI- | 14 | |
|-----------------------------|--------------------------------|-------------------|-------------------------------|-------------|-----------|--|
| | V: Bluscopa | | | | | |
| | 4 25 18 | | Sampling Method: Sad G | grap | | |
| Sampling Vesse | | C . L . F | | 10 011 11 | 4 | |
| Subcontractor(s | 1: marine Sampling | 5ystem = | Weather: Sunny | Pactly Clos | idy | |
| Station Coordinates | s: N/Lat. 47.400 4 | 7.2116100 | | | 0 | |
| | E/Long. 123.08951 | 3000 | | | | |
| Datum | : NAD 83 / WGS 84 | zone: | | | | |
| Sample ID | : PDI-SMAI-SG14- | 180425 | | | | |
| | Dioxins Furans / TBT / TOC | | Other: | | | |
| | Circle Appropriate Analyses | | Other: | | | |
| Accecpted Grab | Water Depth:ft. | , | Grab Recovery: 22 c | m Time: // | ×0 | |
| Number: | Tide Level: $+3.95$ ft. | ~2' | | cm | 730 | |
| | Depth MLLW:ft. | | Cample Interval | orti | | |
| Sediment Type: | Sediment Color: | Density: | Sediment Odor: | Sheen: | Moisture: | |
| cobble | D.O. | Very soft/Loose | none (H2S) | | Ory | |
| gravel | gray | soft/loose | slight Petroleum | | Damp | |
| sand C M E 25% | black | mod dense/stiff | moderate other: | | Moist | |
| silt elay | brown | dense/stiff | strong | | Net) | |
| organic matter | brown surface | very dense/stiff | overwhelming | heavy | | |
| abundant v | If yes | Temp: | pH: | Salinity: | | |
| Duplicate Station? Yes No |) | | | | | |
| Processing Crew | JACOBW | | Time: 105 | | | |
| Photograph of unhomogenize | ed sample: [1] | | | | | |
| Homogenization Start Time: | 1056 | | Homogenization End Time: 1057 | | | |
| Homogenize sample with pad | dle until consisyency and colo | r are uniform: [V | | | | |
| Photograph of homogenized s | sample: | | | | | |
| Comments: | | | | | | |
| zoninients. | in 0 | / 1 | | | | |
| Sample do. | rogerized on | Cont | | | | |
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Recorded by: Ali Parts



| Project Name: JAR | ilter later p | Project No: 1000 | 8 01.03 | Station | ID: 5MA | 11-5G15 |
|--|--|--------------------------------|-------------------------------------|-----------|--------------------|--------------|
| | ew: JA/CO/BW | | | | | |
| | ate: 4125/18 | | Sampling Method | Sed 6 | Frah | |
| | sel: 1455 Petar P | | | | , , | |
| Subcontractor | | | Weather | - Anoth | 1 Cloude | 1 |
| Station Coordinat | es: N/Lat. 47.211617 | | _ | | | |
| | E/Long. 123.0900 | 72 0 | _ | | | |
| | m: NAD 83 / AGS 84) | zone: | | | | |
| | 10: PDI-SMAI-SG | | | | | |
| Analys | is: Dioxins Furans / TBT / TO | | Other: | | | |
| | (Circle Appropriate Analyse | es) | Other: | - | | |
| Accecpted Grab | Water Depth: ft. | n8. | 0.15 | 111 | 2,01 | 11125 |
| Number: | Tide Level: +9.84 ft. | | Grab Recovery:_ Sample Interval: | | cm Time: | 1425 |
| | Depth MLLW:ft. | | Gample Interval | | CIII | |
| Sediment Type: | Sediment Color: | Density: | Sediment Odor: | | Sheen: | Moisture: |
| raver - i fl | D.O. | Very soft/Loose | none | H2S | none | Dry |
| and C M F | gray | soft/foose | slight | Petroleum | trace | Damp |
| ilt play | black brown | mod dense/stiff dense/stiff | moderate | other: | slight moderate | Moist Wet |
| rganic matter | brown surface | very dense/stiff | overwhelming | | heavy | VVEI |
| | If yes | Temp: | pH: | | Salinity: | |
| uplicate Station? Yes No | | Temp: | рН: | | Salinity: | |
| Suplicate Station? Yes No | st ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ | Temp: | pH: | 14 | | |
| Processing Check-lis | st N: BWJA/OD | Temp: | | 11- 1 | Salinity: | |
| rocessing Check-lis Processing Cree | st N: BW JA (2) ted sample: [4] | Temp: | Time: Date: | 4/25/1 | 25 | |
| rocessing Check-lis Processing Cree | st w: BW JA (1) red sample: [4] | Temp: | Time; | 4/25/1 | 25 | |
| Processing Check-list Processing Cres Processi | st w:_BW JA (1) ted sample: [4' e:1432 | | Time: Date: Homogenization | 4/25/1 | 25 | |
| Processing Check-lise Processing Cree hotograph of unhomogeniz Homogenization Start Time | st N: BW JA (2) ted sample: [4] | | Time: Date: Homogenization | 4/25/1 | 25 | |
| rocessing Check-lis Processing Creation Creating Creatin | st w:BW JA n) red sample: [44] e:1432 ddle until consisyency and colo | | Time: Date: Homogenization | 4/25/1 | 25 | |
| Processing Check-lis Processing Cree hotograph of unhomogeniz Homogenization Start Time | st w:BW JA n) red sample: [44] e:1432 ddle until consisyency and colo | | Time: Date: Homogenization | 4/25/1 | 25 | |
| Processing Check-lis Processing Check-lis Processing Creat hotograph of unhomogeniz Homogenization Start Time ornogenize sample with pathotograph of homogenized | st w:BW JA 00) red sample: [44] e:1432 ddle until consisyency and colorsample: #1 | or are uniform: [-}-1\ | Time: Date: Homogenization | 4/25/1 | 25 % 1434 | |
| Processing Check-lis Processing Check-lis Processing Creat hotograph of unhomogeniz Homogenization Start Time omogenize sample with pathotograph of homogenized | st w:BW JA 00) red sample: [44] e:1432 ddle until consisyency and colorsample: #1 | or are uniform: [-}-1\ | Time: Date: Homogenization | 4/25/1 | 25 % 1434 | |
| Processing Check-lis Processing Check-lis Processing Creat Proc | st w:BW JA n) red sample: [44] e:1432 ddle until consisyency and colo | or are uniform: [-}-1\ | Time: Date: Homogenization | 4/25/1 | 25 % 1434 | |
| Photograph of unhomogeniz Homogenization Start Time lomogenize sample with pa hotograph of homogenized | st w:BW JA 00) red sample: [44] e:1432 ddle until consisyency and colorsample: #1 | or are uniform: [-}-1\ | Time: Date: Homogenization | 4/25/1 | 25 % 1434 | |
| Processing Check-lis Processing Check-lis Processing Creat Proc | st w:BW JA 00) red sample: [44] e:1432 ddle until consisyency and colorsample: #1 | or are uniform: [-}-1\ | Time: Date: Homogenization | 4/25/1 | 25 % 1434 | |
| Processing Check-lis Processing Check-lis Processing Creat Proc | st w:BW JA 00) red sample: [44] e:1432 ddle until consisyency and colorsample: #1 | or are uniform: [-}-1\ | Time: Date: Homogenization | 4/25/1 | 25 % 1434 | |
| Processing Check-lis Processing Check-lis Processing Creat hotograph of unhomogeniz Homogenization Start Time omogenize sample with pathotograph of homogenized | st w:BW JA 00) red sample: [44] e:1432 ddle until consisyency and colorsample: #1 | or are uniform: [-}-1\ | Time: Date: Homogenization | 4/25/1 | 25 % 1434 | |
| Processing Check-lis Processing Check-lis Processing Creat hotograph of unhomogeniz Homogenization Start Time omogenize sample with pathotograph of homogenized | st w:BW JA 00) red sample: [44] e:1432 ddle until consisyency and colorsample: #1 | or are uniform: [-}-1\ | Time: Date: Homogenization | 4/25/1 | 25 % 1434 | |
| Processing Check-lis Processing Check-lis Processing Creat hotograph of unhomogeniz Homogenization Start Time ornogenize sample with pathotograph of homogenized | st w:BW JA 00) red sample: [44] e:1432 ddle until consisyency and colorsample: #1 | or are uniform: [-}-1\ | Time: Date: Homogenization | 4/25/1 | 25 % 1434 | |
| Processing Check-lise Processing Check-lise Processing Creat Processing Cr | st w:BW JA 00) red sample: [44] e:1432 ddle until consisyency and colorsample: #1 | or are uniform: [-}-1\ | Time: Date: Homogenization | 4/25/1 | 25 % 1434 | |
| Processing Check-lis Processing Check-lis Processing Creat hotograph of unhomogeniz Homogenization Start Time omogenize sample with pathotograph of homogenized | st w:BW JA 00) red sample: [44] e:1432 ddle until consisyency and colorsample: #1 | or are uniform: [-}-1\ | Time: Date: Homogenization | 4/25/1 | 25 % 1434 | |
| Processing Check-lise Processing Check-lise Processing Creat Processing Cr | st w:BW JA 00) red sample: [44] e:1432 ddle until consisyency and colorsample: #1 | or are uniform: [-}-1\ | Time: Date: Homogenization | 4/25/1 | 25 % 1434 | |



| Project Name: Shell | | oject No: ((CCC | 0.01.03 | Station | D: SMAI | 3910 |
|-----------------------------|---|--------------------|------------------|-----------|------------|-----------|
| | BW JACO | | | | | |
| | : 4/25/18 | | Sampling Method: | Seak | grav | |
| | Refer | | 10/ | 2 | 0/ 1/ | |
| Subcontractor(s) | INSS | | vveatner: | MOST | 4 Cloud | y |
| Station Coordinates | N/Lat. 47, 211796 | <i>y</i> | | | | |
| | E/Long. 123.09089 | 40W | <u></u> 7 | | | |
| Datum: | NAD 83 / WGS 84 | zone: | | | | |
| Sample ID | : PDI-SMAI-SGI | 16-180425 | | | | |
| | Dioxins Furans / TBT / TOC | | Other: | | | |
| | (Circle Appropriate Analyses | s) | Other: | | | |
| Accecpted Grap | Water Depth: # | out at | Grab Recovery: | 71 | Time. | 1440 |
| Number: | Water Depth: ft. Tide Level: +10.23 ft. | ~10' | Sample Interval: | 4 | cm Time: _ | 1710 |
| | Depth MLLW:ft. | | Sample interval | | GIII | |
| Sediment Type: | Sediment Color: | Density: | Sediment Odor: | | Sheen: | Moisture: |
| cobble | D.O. | Very soft/Loose | | H2S | none | Dry |
| gravel (Soma) | gray | softwoose | | Petroleum | trace | Damp |
| sand C M F | black | mod dense/stiff | | other: | slight | Moist |
| silt clay | browp | dense/stiff | strong | | moderate | Wet |
| organic matter | brown surface | very dense/stiff | overwhelming | | heavy | |
| DGT Location? Yes (No | If yes | Temp: | pH: | | Salinity: | |
| Duplicate Station? Yes / No |) | | | | | |
| Processing Crew: | JA BW CO | | Time: _ Date: | 4125 | 118 | _ |
| Photograph of unhomogenize | d sample: [4 | | - | .,, | | |
| Homogenization Start Time: | 1447 | | Homogenization | End Time: | | |
| Homogenize sample with pad | dle until consisyency and colo | or are uniform: [/ | | | | |
| Photograph of homogenized s | sample: | | | | | |
| | | | | | | |
| Comments: | 0. | A 1 | | | | |
| C 1- 1- 1000 | nagerited or | 1 Court | | | | |
| Dample 10 | 2 | | | | | |
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| Weather: MOSHLY SUNYU |
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| Weather: Mostly Sunny |
| weather: 110314 Skilling |
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| ther: |
| ther: |
| 7/8 |
| ecovery: 70 cm Time: 1145 |
| Interval:cm |
| ont Odor: Sheen: Moisture: |
| H2S none Dry |
| Petroleum trace Damp |
| te other: slight Moist |
| moderate Wet |
| elming heavy |
| |
| Time: |
| Date: 4/25/18 |
| 1163 |
| ogenization End Time: |
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Recorded by: 41 41



| Sample Date Sampling Vesse Subcontractor(s) | · JA BWID | | | | i | |
|---|--------------------------------|------------------|--|-----------|------------|-----------|
| Sampling Vesse Subcontractor(s) | | | Sampling Method: | Sed 1 | ann | |
| Subcontractor(s) | | | | SCO. P | 11000 | |
| | | | - Weather | ciand | les (part) | 1.) |
| Station Coordinates | N/Lat. \$47.21308 | W 47 757527 | C. | Live | - pur | 4 |
| | E/Long. 123. 1448 | | -T- | | | 9 |
| E., | | | | | | |
| | NAD 83 / WGS 84 | zone: | | | | |
| Sample ID | : PDI-SMAI-SG | 118-180425 | - Jack | | | |
| Analysis: | Dioxins Furans / TBT / TOC | | Other: | | | |
| | (Circle Appropriate Analyses | 3) | Other: | | | |
| Accecpted Grab | | | | | | |
| Number: | Water Depth:ft. | 2151 | Grab Recovery: | 24 | cm Time: | 1730 |
| | Tide Level: +9.36 ft. | | Sample Interval: | | cm | |
| | Depth MLLW:ft. | | | | | |
| Sediment Type: | Sediment Color: | Density: | Sediment Odor: | | Sheen: | Moisture: |
| cobble | D.O. | Very soft Loose | | 128 | none | Dry |
| gravel | gray | soft/loose | 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | Petroleum | trace | Damp |
| sand C MF Trace | black | mod dense/stiff | The state of the s | other: | slight | Moist |
| stitclay | brown | dense/stiff | strong | | moderate (| Wet |
| ganic marter Comments: | Ibrown surface Otab Shrip | very dense/stiff | overwhelming | | heavy | |
| OGT Location? Yes (No) | ganics - leaves | Temp: | pH: | | Salinity: | |
| Ouplicate Station? Yes (No |) | T. winki | Prince | | Joannity. | |
| Processing Crew: | BW JA/CO | | Time: _ | 1734 | | |
| hotograph of unhomogenized | d sample: [14 | | Date: _ | 4/25/ | 18 | |
| | | | 1100 | | 17.00 | |
| Homogenization Start Time: | 1758 | | Homogenization | End Time: | 1739 | |
| | 05 | | | | | |
| lower and a second of the second | ne until consisyency and color | are uniform: [| | | | |
| lomogenize sample with pado | | | | | | |
| | | | | | | |
| | ample: [4] | | | | | |
| Photograph of homogenized sa | ample: [4 | | | | | |
| hotograph of homogenized so | | ` 1 | ba-L | | | |
| hotograph of homogenized s | | ized on | bant. | | | |
| Photograph of homogenized s | pie homogen | ized on | Coart. | | | |
| hotograph of homogenized s | | ized or | Coart. | | | |
| hotograph of homogenized s | | ized on | bart. | | | |
| hotograph of homogenized s | | ised or | bart. | | | |
| hotograph of homogenized so | | ized or | bant. | | | |
| hotograph of homogenized s | | ized or | bant. | | | |
| Photograph of homogenized s | | ized or | bant. | | | |
| Photograph of homogenized si | | ized or | bart. | | | |
| Photograph of homogenized s | | ized on | bant. | | | |
| Photograph of homogenized s | | ized on | Coart. | | | |
| hotograph of homogenized so | | ized or | Coart. | | | |
| hotograph of homogenized so | | ized or | bant. | | | |

Recorded by: Shi Table



| Sampling Crev Sample Date | | | 8-01.03 Stat | tion ID: SMA | 0-11 |
|--|--|--------------------|--------------------------|---------------|------------------|
| Sample Date | | | | | |
| | e: 4/25/18 | | Sampling Method: | ed Grab | |
| Sampling Vesse | | | | | |
| Subcontractor(s | | | Weather: | rudey | |
| Station Coordinates | s: N/Lat. 47,213083 | J. | | | |
| | E/Long. 123 091183 | | | | |
| Datum | : NAD 83 /(WGS 84) | zone: | | | |
| | PDI-SMAT BE | | | | |
| | Dioxins Furans / TBT / TOC | | Other: | | |
| ritalysis | (Circle Appropriate Analyses | | Other: | | |
| | (Sirolo rippropriate ritary sec | 9) | Outer. | | |
| Accecpted Grab | Water Danth: 4 | | 215 72 | | MA |
| Number: | Water Depth:ft. Tide Level: # 1,98 ft. | ~13' | Grab Recovery: <u>13</u> | | 1700 |
| | Depth MLLW:ft. | | Sample Interval: | cm | |
| ediment Type: | Sediment Color: | Density: | Sediment Odor: | Sheen: | Majatura |
| obble | D.O. | Very soft/Loose | none H2S | none none | Moisture: Dry |
| ravel | gray | soft/loose | slight Petrol | | Damp |
| and C M F - Trace | black | mod dense/stiff | moderate other: | 2000 | Moist |
| silt clay | brown | dense/stiff | strong | moderate | Wet |
| organic matter | brown surface | very dense/stiff | overwhelming | heavy | VVE |
| OGT Location? Yes No | If yes | Temp: | pH: | Salinity: | |
| Processing Check-list Processing Crew | : JA BW CO | | Time: | 1700 | |
| | od sample: [1] | | Date: 4/ | 20110 | |
| Photograph of unhamogenize | su sample. [G | | Homogenization End | 00 17 | 19 |
| | 1700 | | Homogenization End | Time: -/ 1 /7 | 01 |
| Photograph of unhomogenize Homogenization Start Time | .1708 | | | | |
| Homogenization Start Time | | or are uniform: (| | | |
| Homogenization Start Time | : 1708 dle until consisyency and colo | or are uniform: [4 | | | |
| Homogenization Start Time | dle until consisyency and colo | or are uniform: [4 | | | |
| Homogenization Start Time | dle until consisyency and colo | or are uniform: [4 | | | |
| Homogenization Start Time domogenize sample with pad Photograph of homogenized somments: | dle until consisyency and colo | | | | |
| Homogenization Start Time domogenize sample with pad Photograph of homogenized somments: | dle until consisyency and colo | | | | |
| Homogenization Start Time Homogenize sample with pad Photograph of homogenized s | dle until consisyency and colo | | | | |
| Homogenization Start Time domogenize sample with pad Photograph of homogenized somments: | dle until consisyency and colo | | | | |
| Homogenization Start Time Homogenize sample with pad Photograph of homogenized s | dle until consisyency and colo | | | | |
| Homogenization Start Time domogenize sample with pad Photograph of homogenized somments: | dle until consisyency and colo | | | | |
| Homogenization Start Time lomogenize sample with pad thotograph of homogenized s | dle until consisyency and colo | | | | |
| Homogenization Start Time lomogenize sample with pad thotograph of homogenized s | dle until consisyency and colo | | | | |
| Homogenization Start Time Homogenize sample with pad Photograph of homogenized s | dle until consisyency and colo | | | | |
| Homogenize sample with pad Photograph of homogenized s | dle until consisyency and colo | | | | |
| Homogenization Start Time Homogenize sample with pad Photograph of homogenized s | dle until consisyency and colo | | | | |
| Homogenization Start Time Homogenize sample with pad Photograph of homogenized s | dle until consisyency and colo | | | | |
| Homogenization Start Time domogenize sample with pad Photograph of homogenized somments: | dle until consisyency and colo | | | | |
| Homogenization Start Time lomogenize sample with pad thotograph of homogenized s | dle until consisyency and colo | | | | |
| Homogenization Start Time lomogenize sample with pad thotograph of homogenized s | dle until consisyency and colo | | | | |



| | Aleula | | | | | A - SB 20 |
|--|--|------------------|--------------------------------------|------------------|-------------------|-----------|
| | W. JAJBWICO | | | 6 1 | | |
| | e: 475 18 | | Sampling Method | - Sed 1 | 3(ab | |
| | of Poter 12 | | | | | |
| Subcontractor(s | | | Weather | Clou | dy | |
| Station Coordinates | s: N/Lat. 47.213093 | | _ | | 1 | |
| | E/Long. 123.041714 | CW | | | | |
| Datum | NAD 83 / WGS 84 | zone: | | | | |
| | Dioxins Furans / TBT / TOC (Circle Appropriate Analyses | / Cu / DGT | Other: Other: | | | |
| Accecpted Grab Number: | Water Depth:ft. Tide Level: † 9 7 4ft. | wil, | Grab Recovery:_ Sample Interval:_ | | cm Time: | 1715 |
| Sediment Type: | Depth MLLW:ft. | In | To vi vicin | | T- | |
| cobble | Sediment Color: D.O. | Density: | Sediment Odor: | LIOC | Sheen: | Moisture: |
| gravel | gray | Very soft/Loose | none | H2S Potroloum | none | Dry |
| and CMF-TIALL | black | mod dense/stiff | slight moderate | Petroleum | trace | Damp |
| illClay | brown | dense/stiff | strong | other: | slight | Moist |
| organic matter | brown surface | very dense/stiff | overwhelming | | moderate heavy | Wet |
| OGT Location? Yes /No | If yes | Temp: | pH: | | Salinity: | |
| | JA/CO BW | | Time: | 1715 | 5 25/18 | |
| hotograph of unhomogenized Homogenization Start Time: | | | Homogenization | End Time | 1724 | |
| omogenize sample with pado | dle until consisyency and color | are uniform: | | | | |
| holograph of homogenized s | ample: [| | | | | |
| omments: | | | | | | |
| Sumple ho | magarzed o | er bont. | | | | |



| Sample Da Sampling Vess Subcontractor(| ew: EP/GB | | | |
|--|------------------------------|----------------------------|--------------------------|------------------|
| | ate: 4/27/2018 | | Sampling Method: Hand | Grab |
| Subcontractor | | | | |
| | | | Weather: Clouds | 65°F |
| Station Coordinate | es: N / Lat. | | | A CONTRACTOR |
| | E / Long. | | | |
| Datur | m: NAD 83 / WGS 84 | zone: | | |
| Sample | ID: PDI-SMAZ-SO | 501-180427 | | |
| Analysi | is: Dioxins Furans / TBT / T | | Other: | |
| | (Circle Appropriate Anal | yses) | Other: | |
| Accecpted Grab | | | La | 11.00 |
| Number: | | _ft. ft. | 4.4 | cm Time: 11:50 |
| | | _π. ft. | Sample Interval: | cm |
| Sediment Type: | Sediment Color: | Density: | Sediment Odor: | Sheen: Moisture: |
| cobble | D.O. | Very soft/Loose | none H2S | none Dry |
| ravel | gray | soft/loose | slight Petroleum | trace Damp |
| and C M F | black | mod dense/stiff | moderate other: | slight Moist |
| silt clay | brown | dense/stiff | strong | moderate Vet |
| organic matter Comments: | brown surface | very dense/stiff | overwhelming | heavy |
| Ouplicate Station? Yes / No | If yes | Temp: | pH: | Salinity: |
| Processing Check-lis | st | | | |
| Processing Crev | N: EP/GB | | Time: 1400 | |
| | 1/ | | | 12018 |
| hotograph of unhomogeniz | | | | |
| Homogenization Start Time | e: 1460 | | Homogenization End Time: | 1401 |
| omogenize sample with na | ddle until consisyency and o | color are uniform. I | | |
| | | Solor are utiliotini. [IJ | | |
| to an buy the first that the second of the | sample: [U | | | |
| notograph of homogenized | - 0 | | | |
| | | | | |
| omments: | 11 . 1 | 96 | ^ | |
| comments: | lle nixed : | sample was a | a mixture of su | ed tarevel. |
| comments: | lle nixed, | sample was | a mixture of su | ed & gravel, |
| Not pado | | | a mixture of su | nd t gravel, |
| omments: Not pado | lle mixed,: nix with pude | | a mixture of su | nd t gravel, |
| | | | a mixture of su | ed t gravel, |
| Comments: Not pado | | | n mixture of su | nd t gravel, |
| omments: Not pado | | | a mixture of su | nd & gravel, |
| omments: Not pado | | | a mixture of su | nd & gravel, |
| omments: Not pado | | | a mixture of su | nd & gravel, |
| omments: Not pado | | | a mixture of su | nd & gravel, |
| omments: Not pado | | | n mixture of su | nd & gravel, |
| omments: Not pado | | | a mixture of su | nd & gravel, |

Recorded by: RC Valo



| Sampling (Sample I | Crew: EP/BJ/SN | | | | 2-50 |
|--|--|-----------------------|----------------------|-----------|-----------|
| | Date: 4/30/208 | | Complies Mathed 11 | | |
| Sampling Ve | | | Sampling Method: Hyd | Carlic C. | 25 |
| Subcontracto | | n) - 6 - 11 - n1 | - 10/ | | |
| | ates: N/Lat. 47, 2/3 | mistage pollog | Weather: | | |
| | | | | | |
| 14-25 | E/Long. 123.08 | 1457 2 | | | |
| | um: NAD 83 / WGS 84 | zone: | | | |
| | ID: PDI-SM42 | -56-02-18043 |) | | |
| Analy | sis: Dioxins Furans / TBT / | TOC / Cu / DGT | Other: | | |
| | (Circle Appropriate Ana | alyses) | Other: | | |
| accepted Cont | | | | | |
| Accecpted Grab | Water Depth: 6 | ft. ~6' | Grab Recovery: 14 | m Time | 00 |
| | Tide Level: | ft. | 0 11 11 | cm Time: | 00 |
| | Depth MLLW: | _ft. | oumpio mici vai. | Citi | |
| Sediment Type: | Sediment Color: | Density: | Sediment Odor: | Sheen: | Moisture: |
| obble | D.O. | Very soft/Loose | none, H2S | | Dry |
| ravel | gray | soft/loose | slight Petroleum | | Damp |
| and C M F | black | mod dense/stiff | moderate other: | 17 20 | Moist |
| ilt clay | brown | dense/stiff | strong | | Wet |
| rganic matter | brown surface | very dense/stiff | overwhelming | heavy | |
| omments: | Y | | | | |
| abundanta | ravel | | | | |
| tince shell | 0 | | | | |
| GT Location? Yes / No | If yes | Temp: | Lin | | |
| uplicate Station? Yes / No | | Temp. | pH: | Salinity: | |
| | | | | | |
| Processing Check-line Processing Cre | W: FP/BJ/SN | | Time: [0] | | |
| Processing Cre | W: FP/BJ/SN | es is anot | | 2018 | |
| Processing Cre | w: FP/BJ/SN zed sample: [V tuk | en in grat | Date: 4/30 | | |
| Processing Cre | w: FP/BJ/SN zed sample: [V tuk | en in grat | | 1017 | |
| Processing Cre- notograph of unhomogenia Homogenization Start Tim | w: $FP/BJ/SA/$ zed sample: IV/Tak e: IOU | | Date: 4/30 | | |
| Processing Cre- notograph of unhomogenia Homogenization Start Tim | w: FP/BJ/SN zed sample: [V tuk | | Date: 4/30 | | |
| Processing Cre- notograph of unhomogeniz Homogenization Start Time emogenize sample with pa | zed sample: [V Tutz e: 10 U | | Date: 4/30 | | |
| Processing Cre- notograph of unhomogeniz Homogenization Start Time emogenize sample with pa | zed sample: [V Tutz e: 10 U | | Date: 4/30 | | |
| Processing Cre- notograph of unhomogeniz Homogenization Start Time emogenize sample with particles otograph of homogenized | zed sample: [V Tutz e: 10 U | | Date: 4/30 | | |
| Processing Cre- notograph of unhomogeniz Homogenization Start Tim progenize sample with particular processing contact and the sample contact and the sample with particular processing contact and the sample with particular processing contact and the sample with particular processing contact and the sample contact and the sa | w: FR/B 5 / SA/ zed sample: [V/ Tu kz e: 10 U addle until consisyency and sample: [V/ | color are uniform: [V | Date: 4/30 | | |
| Processing Cre- notograph of unhomogeniz Homogenization Start Tim progenize sample with particular processing contents and the content of the | w: FR/B 5 / SA/ zed sample: [V/ Tu kz e: 10 U addle until consisyency and sample: [V/ | color are uniform: [V | Date: 4/30 | | |
| Processing Cre- notograph of unhomogeniz Homogenization Start Tim progenize sample with particular processing contents and the content of the | zed sample: [V Tutz e: 10 U | color are uniform: [V | Date: 4/30 | | |
| Processing Cre- notograph of unhomogeniz Homogenization Start Tim progenize sample with particular processing contents and the content of the | w: FR/B 5 / SA/ zed sample: [V/ Tu kz e: 10 U addle until consisyency and sample: [V/ | color are uniform: [V | Date: 4/30 | | |
| Processing Cre- notograph of unhomogeniz Homogenization Start Tim progenize sample with particular processing contact and the sample contact and the sample with particular processing contact and the sample with particular processing contact and the sample with particular processing contact and the sample contact and the sa | w: FR/B 5 / SA/ zed sample: [V/ Tu kz e: 10 U addle until consisyency and sample: [V/ | color are uniform: [V | Date: 4/30 | | |
| Processing Cre- notograph of unhomogenization Start Time amogenize sample with particular processing contact and the context of the context o | w: FR/B 5 / SA/ zed sample: [V/ Tu kz e: 10 U addle until consisyency and sample: [V/ | color are uniform: [V | Date: 4/30 | | |
| Processing Cre- notograph of unhomogenization Start Time amogenize sample with particular processing contact and the context of the context o | w: FR/B 5 / SA/ zed sample: [V/ Tu kz e: 10 U addle until consisyency and sample: [V/ | color are uniform: [V | Date: 4/30 | | |
| Processing Cre- notograph of unhomogenization Start Time amogenize sample with particular otograph of homogenized mments: | w: FR/B 5 / SA/ zed sample: [V/ Tu kz e: 10 U addle until consisyency and sample: [V/ | color are uniform: [V | Date: 4/30 | | |
| Processing Cre- notograph of unhomogenization Start Time amogenize sample with particular processing contact and c | w: FR/B 5 / SA/ zed sample: [V/ Tu kz e: 10 U addle until consisyency and sample: [V/ | color are uniform: [V | Date: 4/30 | | |
| Processing Cre- notograph of unhomogeniz Homogenization Start Tim progenize sample with particular processing contact and the sample contact and the sample with particular processing contact and the sample with particular processing contact and the sample with particular processing contact and the sample contact and the sa | w: FR/B 5 / SA/ zed sample: [V/ Tu kz e: 10 U addle until consisyency and sample: [V/ | color are uniform: [V | Date: 4/30 | | |
| Processing Cre- notograph of unhomogeniz Homogenization Start Tim progenize sample with particular processing contents and the content of the | w: FR/B 5 / SA/ zed sample: [V/ Tu kz e: 10 U addle until consisyency and sample: [V/ | color are uniform: [V | Date: 4/30 | | |
| Processing Cre- notograph of unhomogeniz Homogenization Start Tim progenize sample with particular processing contents and the content of the | w: FR/B 5 / SA/ zed sample: [V/ Tu kz e: 10 U addle until consisyency and sample: [V/ | color are uniform: [V | Date: 4/30 | | |
| Processing Cre- notograph of unhomogeniz Homogenization Start Tim progenize sample with particular processing contact and the sample contact and the sample with particular processing contact and the sample with particular processing contact and the sample with particular processing contact and the sample contact and the sa | w: FR/B 5 / SA/ zed sample: [V/ Tu kz e: 10 U addle until consisyency and sample: [V/ | color are uniform: [V | Date: 4/30 | | |
| Processing Cre- notograph of unhomogenization Start Time amogenize sample with particular processing contact and the context of the context o | w: FR/B 5 / SA/ zed sample: [V/ Tu kz e: 10 U addle until consisyency and sample: [V/ | color are uniform: [V | Date: 4/30 | | |

Recorded by: Silver Brown



| Aumber: | | | | | | |
|--|-----------------------------|--|--|--|--|---|
| Subcontractor(s): Station Coordinates: N / Lat. E / Long. Datum: NAD 83 / WGS 84 zone: Sample ID: PDT - SM 2 - Sc 3 - 1804 2.7 Analysis: Dioxins Furans / TBT / TOC / Cu / DGT (Circle Appropriate Analyses) Other: Oth | | | Sampling Method: | Hand o | Brab | |
| Station Coordinates: N / Lat. E / Long. Datum: NAD 83 / WGS 84 zone: Sample ID: PDT - SMAD - SCO3 - 180 4 27 Analysis: Dioxins Furans / TBT / TOC / Cu / DGT Other: (Circle Appropriate Analyses) Other: Coccepted Grab Aumber: Tide Level: ft. Sample Interval: Community: Sediment Color: Density: Sediment Color: Density: Sediment Color: Sheen: Moisture: Obble D.O. Very soft/Loose | | | | | | |
| Station Coordinates: N / Lat. E / Long. Datum: NAD 83 / WGS 84 zone: Sample ID: PDT - SMA2 - SCO3 - SOY 27 - Other: (Circle Appropriate Analyses) Corecpted Grab Aumber: Tide Level: | | | Weather | Cloudy | 657= | |
| Datum: NAD 83 / WGS 84 zone: Sample ID: PDT-SM42 - 56.03 - 180424 Analysis: Dioxins Furans / TBT / TOC / Cu / DGT Other: Circle Appropriate Analyses) Water Depth:ft. | / Lat. | | | 7 | | |
| Datum: NAD 83 / WGS 84 zone: Sample ID: PDT - SMA 2 - S - O 3 - 80 4/2 1 Analysis: Dioxins Furans / TBT / TOC / Cu / DGT Other: (Circle Appropriate Analyses) Water Depth:ft. | / Long. | | _ | | | |
| Sample ID: PDT-SMAD - 5C03 - 1804 2.7 Analysis: Dioxins Furans / TBT / TOC / Cu / DGT Other: Circle Appropriate Analyses | STATUTE STATE | | - | | | |
| Analysis: Dioxins Furans / TBT / TOC / Cu / DGT (Circle Appropriate Analyses) Accepted Grab Number: | | 127122 | | _ | | |
| Circle Appropriate Analyses Other: | 01-3NA 1-3GO | 3-180927 | _ | | | |
| Accepted Grab Number: | | | | | | |
| Number: | ircie Appropriate Analyses, | | Otner: | | | |
| Tide Level:ft. Depth MLLW:ft. Sediment Type: | Several Services | | Barrier Committee | 10 | | 1100 |
| Depth MLLW:ft. Sediment Type: | | | | | m Time: _ | 1120 |
| Sediment Type: Sediment Color: Density: Sediment Odor: Sheen: Moisture: Dobble D.O. Very soft/Loose none H2S none Dry gray and C M F black mod dense/stiff dense/stiff strong moderate wery dense/stiff strong overwhelming wery dense/stiff overwhelm | | | Sample Interval: | (0 | cm | |
| bobble pravel pr | | Danait:: | Indiana a | | Tot | The second |
| gravel gr | | | | LIGO | | |
| Sand C M F black brown brown surface DGT Location? Yes 166 DGT Location? Yes 166 Deprocessing Check-list Processing Crew: Processing Crew: Processing Crew: Deprocessing Crew: Dep | | | | | | |
| brown brown dense/stiff strong overwhelming with paddle until consisyency and color are uniform: [Web | | | | | | |
| Processing Check-list Processing Crew: FP/GB Photograph of unhomogenized sample: [1] Homogenization Start Time: 13.20 Photograph of homogenized sample: [1] Photograph of homogenized sample: [1] Photograph of homogenized sample: [1] | | | 11/1/2/1/2/2 | otner: | Land Control of the Control | |
| Comments: DGT Location? Yes 166 If yes Temp: pH: Salinity: Duplicate Station? Yes 169 Processing Check-list Processing Crew: FP/6B Time: 320 Date: 4/24/Z018 Homogenization Start Time: 3.20 Homogenization Start Time: 3.20 Homogenization Start Time: 3.20 Homogenization Start Time: 3.20 Date: 4/24/Z018 Homogenization End Time: 3.20 Chotograph of homogenized sample: [W | | | And the state of t | | The second of the second | Wet |
| Displaced Station? Yes / No Processing Check-list Processing Crew: EP/GB Photograph of unhomogenized sample: [1] Homogenization Start Time: 13:20 Homogenize sample with paddle until consisyency and color are uniform: [[]] Photograph of homogenized sample: [] | | Tory deliberatii | Toverwielling | | neavy | 1 |
| Chotograph of unhomogenized sample: [14] Homogenization Start Time: 13:20 Homogenize sample with paddle until consisyency and color are uniform: [14] hotograph of homogenized sample: [14] comments: | EP/6-B | | Time | 1220 | | |
| Photograph of unhomogenized sample: 13.20 Homogenization Start Time: 13.20 Homogenize sample with paddle until consisyency and color are uniform: [W | -100 | | | 1 1 | 17016 | |
| Homogenization Start Time: 3:20 Homogenization End Time: 13:20 Homogenize sample with paddle until consisyency and color are uniform: [W Photograph of homogenized sample: [W Comments: | mple: [] | | Dute. | 1/2+1 | 2010 | |
| Photograph of homogenized sample: | | | Homogenization | End Time | 13.71 | |
| Photograph of homogenized sample: [V Comments: | 11.7 | | nomogenization | r Lina Time. | 1). 24 | |
| Photograph of homogenized sample: [V Comments: | until consisyency and color | are uniform: [\ | | | | |
| Comments: | | | | | | |
| | ole: [W | | | | | |
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| Paddle Mixed | | | | | | |
| Vadale Miner | ~ | | | | | |
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| Photograph of homogenized samp | | oxins Furans / TBT / TOC / ircle Appropriate Analyses) ater Depth:ft. de Level:ft. epth MLLW:ft. diment Color: O. average of the colors of the c | oxins Furans / TBT / TOC / Cu / DGT ircle Appropriate Analyses) ater Depth:ft. de Level:ft. de Level:ft. diment Color: Density: O. Very soft/Loose soft/loose mod dense/stiff dense/stiff very dense/stiff very dense/stiff res Temp: | Oxins Furans / TBT / TOC / Cu / DGT Other: O | oxins Furans / TBT / TOC / Cu / DGT ircle Appropriate Analyses) Other: Sample Interval: Other: Sample Interval: Other: Other: Other: Other: Sample Interval: Other: Otherial of the sample of the sample of the sample of the sample of th | oxins Furans / TBT / TOC / Cu / DGT oxins Furans / TBT / TCC / Cu / DGT oxins Furans / TBT / TCC / Cu / DGT oxins Furans / TBT / TCC / Cu / DGT oxins Furans / TBT / TCC / Cu / DGT oxins Furans / TBT / TCC / Cu / DGT oxins Furans / TBC / Cu / |



| Sampling Crew: Sample Date: Sampling Vessel: Subcontractor(s): Station Coordinates: | | | | |
|--|-------------------------------|------------------|-------------------------|------------------|
| Sampling Vessel: Subcontractor(s): Station Coordinates: | 4/27/2013 | | Sampling Method: Hand | Frab |
| Subcontractor(s): Station Coordinates: | | | HUM | BY M.D. |
| Station Coordinates: | | | Weather: | |
| | | | | |
| | | | _ | |
| | E / Long. | | _ | |
| | NAD 83 / WGS 84 | zone: | | |
| Sample ID: | PDI-SMAZ-SGO | 04-180427 | | |
| 2000 700 100 | Dioxins Furans / TBT / TOC | Dark v z ra c | Other: | |
| | (Circle Appropriate Analyses |) | Other: | |
| Associated Cook | | | | |
| Accecpted Grab | Water Depth:ft. | | Grab Recovery: 10 | cm Time: 1:00 |
| Tombon. | Tide Level:ft. | | Sample Interval: 10 | cm |
| | Depth MLLW:ft. | | | · A.V |
| | Sediment Color: | Density: | Sediment Odor: | Sheen: Moisture: |
| | D.O. | Very soft/Loose | none H2S | none Dry |
| Marina de la companio del companio del companio de la companio del companio de la companio del companio de la companio del companio de la companio del comp | gray | soft/loose | slight Petroleum | trace Damp |
| | black | mod dense/stiff | moderate other: | slight Moist |
| / | brown | dense/stiff | strong | moderate Wet |
| organic matter Comments: | brown surface | very dense/stiff | overwhelming | heavy |
| OGT Location? Yes / No | If yes | Temp: | pH; | Salinity: |
| Processing Check-list Processing Crew: | EP/GB | | Time: 1130 | |
| Photograph of unhomogenized | | | Date: 4/27/2 | 2018 |
| | | | | 11 2 0 |
| Homogenization Start Time: | 130 | | Homogenization End Time | 113 |
| | e until consisyency and color | are uniform: | | |
| lomogenize sample with paddle | mole: [[V | | | |
| | ilpic. [W | | | |
| hotograph of homogenized sar | | | | |
| Photograph of homogenized sai | | | | |
| Photograph of homogenized sail | and all Me | - 1110 | | |
| Photograph of homogenized sail | mixed with | puddle | | |
| Photograph of homogenized sail | mixed with | puddle | | |
| Photograph of homogenized sail | mixed with | puddle | | |
| Photograph of homogenized sail | mixed with | puddle | | |
| Photograph of homogenized sail | mixed with | puddle | | |
| Photograph of homogenized sail | mixed with | puddle | | |
| hotograph of homogenized sai | mixed with | puddle | | |
| hotograph of homogenized sai | mixed with | puddle | | |
| hotograph of homogenized sar comments: | mixed with | puddle | | |
| Photograph of homogenized sail | mixed with | puddle | | |
| Photograph of homogenized sail | mixed with | puddle | | |
| hotograph of homogenized sai | mixed with | puddle | | |



| Sampling Cre | | | | | |
|--|------------------------------|---------------------------------|---|--------------------|-----------|
| Sample Dat | | | Sampling Method: Has | 1 Grub | |
| Sampling Vess | 0 | | | | |
| Subcontractor(s | | | Weather: | | |
| Station Coordinate | s: N / Lat. | | _ | | |
| | E / Long. | | | | |
| Datum | n: NAD 83 / WGS 84 | zone: | | | |
| Sample II | D: PDI-SMA2- | SG-05 - 08 180 | 501 | | |
| | s: Dioxins Furans / TBT / To | | Other: | | |
| | (Circle Appropriate Analy | /ses) | Other: | | |
| and the second second | | | | | |
| Accecpted Grab | Water Depth: | ft. | Grab Recovery: 10 | cm Time: _/ | 621 |
| | Tide Level: | ft. | Sample Interval:tC | cm | |
| - | | ft. | | | |
| Sediment Type: | Sediment Color: | Density: | Sediment Odor: | Sheen: | Moisture: |
| cobble | D.O. | Very soft/Loose | none H2S | none | Dry |
| ravel and CMF | gray | soft/loose | slight Petrole | | Damp |
| ilt clay | brown | mod dense/stiff | moderate other: | slight | Moist |
| rganic matter | brown surface | dense/stiff very dense/stiff | strong | moderate < | Wet |
| Comments: | DIOWII SUITACE | very dense/still | overwhelming | heavy | |
| Handelt larg | e graver | | | | |
| CT Leasting Von (M) | | | 100 | | |
| Ouplicate Station? Yes / No | t = 2/- = 1 | Temp: | pH: | | |
| Processing Check-lis Processing Crew | t : | Temp: | | 12018 | |
| Processing Check-lis Processing Crew Photograph of unhomogenization Start Time | t : | | Time: 162 Date: 51 | 12018 | |
| Processing Check-lis Processing Crew Processin | ed sample: [U | | Time: 162 Date: 51 | 12018 | |
| Photograph of unhomogenize Homogenization Start Time | ed sample: [U | | Time: 162 Date: 51 | 12018 | |
| Processing Check-lis Processing Crew Photograph of unhomogenize Homogenization Start Time Identification of the part of the processing Crew Photograph of homogenized Photograph of homogenized Photograph of homogenized Comments: | ed sample: [U es: | color are uniform: [i] | Time: 162 Date: 51 Homogenization End T | 2018 ime: | |
| Processing Check-lis Processing Crew Photograph of unhomogenize Homogenization Start Time Homogenize sample with pace Photograph of homogenized Comments: | ed sample: [U | color are uniform: [i] | Time: 162 Date: 51 Homogenization End T | 2018 ime: | |
| Processing Check-lis Processing Crew Processin | ed sample: [U es: | color are uniform: [i] | Time: 162 Date: 51 Homogenization End T | 2018 ime: | |
| Processing Check-lis Processing Crew hotograph of unhomogenize Homogenization Start Time omogenize sample with pace hotograph of homogenized omments: | ed sample: [U es: | color are uniform: [i] | Time: 162 Date: 51 Homogenization End T | 2018 ime: | |

Recorded by: LL DATE



| Sample Date | EP/GB | | | | | |
|---|---------------------------------------|--------------------|-------------------|--------------|-------------|-----------|
| | 4127/2018 | | Sampling Method | Hund G | mb | |
| Sampling Vessel | | | | | | |
| Subcontractor(s) | | | Weather | Cloudy | 65°F | |
| Station Coordinates | : N / Lat. | | _ | | | |
| | E / Long. | | | | | |
| Datum: | NAD 83 / WGS 84 | zone: | | | | |
| Sample ID | PDI-SMAZ-SG | -06 - 18042 : | 7 | | | |
| | Dioxins Furans / TBT / TOO | | Other: | | | |
| | (Circle Appropriate Analyse | es) | Other: | | | |
| Accecpted Grab | Water Depth:ft. | | Grab Recovery: | 10 | m Time: | 1751 |
| Number: | Tide Level: ft. | | Sample Interval: | 1.11 | cm | 1201 |
| | Depth MLLW:ft. | | outhpio intol run | | | |
| Sediment Type: | Sediment Color: | Density: | Sediment Odor: | | Sheen: | Moisture: |
| cobble | D.O. | Very soft/Loose | none | H2S | none | Dry |
| gravel | gray | soft/loose | slight | Petroleum | trace | Damp |
| sand C M F | black | mod dense/stiff | moderate | other: | slight | Moist |
| silt clay | brown | dense/stiff | strong | | moderate | Wet |
| organic matter Comments: | brown surface | very dense/stiff | overwhelming | | heavy | |
| Processing Check-list | | | | | | |
| Processing Crew: | | | Time: | 1401 | | |
| | | | Date: | 4/27 | 12018 | |
| | | | |)) | | |
| Photograph of unhomogenized | d sample: [Y | | | | | |
| Photograph of unhomogenized Homogenization Start Time: | | | Homogenizatio | n End Time: | 1402 | |
| Homogenization Start Time: | 1901 | or are uniform: [U | Homogenizatio | n End Time: | 1402 | |
| Homogenization Start Time: | dle until consisyency and col | or are uniform: [| Homogenizatio | n End Time: | 1902 | |
| Homogenization Start Time: Homogenize sample with pado Photograph of homogenized s | dle until consisyency and col | or are uniform: [U | Homogenizatio | on End Time; | 1402 | |
| Homogenization Start Time: Homogenize sample with padd Photograph of homogenized s Comments: | dle until consisyency and colorample: | | | n End Time: | 1402 | |
| Homogenization Start Time: Homogenize sample with pado Photograph of homogenized s Comments: | dle until consisyency and colorample: | | | n End Time; | 1402 | |
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| Homogenization Start Time: Homogenize sample with padd Photograph of homogenized s Comments: | dle until consisyency and colorample: | | | n End Time; | 1402 | |
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| Homogenization Start Time: Homogenize sample with padd Photograph of homogenized s Comments: | dle until consisyency and colorample: | | | n End Time; | <u>140z</u> | |
| Homogenization Start Time: Homogenize sample with padd Photograph of homogenized s Comments: | dle until consisyency and colorample: | | | n End Time: | 1402 | |
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| Homogenization Start Time: Homogenize sample with padd Photograph of homogenized s Comments: | dle until consisyency and colorample: | | | n End Time: | 1402 | |

Recorded by: Recorded by:



| Sample Date: Sampling Method: Station Coordinates: N/Lat. 47, 2/3540 % Station Coordinates: N/Lat. 47, 2/3540 % Sampling Method: Station Coordinates: N/Lat. 47, 2/3540 % Sampling Method: Sampling Method: Station Coordinates: N/Lat. 47, 2/3540 % Sampling Method: | Sample Date: Sampling Method: Hydroutic Crab Sampling Method: Sampling Method: Sampling Method: Subcontractor(s): Pack R Subcontractor(s): Marchit Stanflund: System Pund: Sys | Project Name: She | MAL: - I | Project No: (1000 | 18-0403 | Station | ID: >MH | 2-SG |
|--|--|--|---------------------------------|--|-------------------|-----------|---|------|
| Sampling Vessel: Subcontractor(s): Manageria Station Coordinates: N/Lat. 47, 213540 N Datum: NAD 83 /NGS 84 zone: Sample ID: Datum: NAD 83 /NGS 84 zone: Sample ID: Analysis: Dioxins Furans / TBT / TOC / CU / DGT (Circle Appropriate Analyses) Water Depth: 1 | Sampling Vessel: Subcontractor(s): Manageria Station Coordinates: N/Lat. 47, 213540 N Datum: NAD 83 /NGS 84 zone: Sample ID: Datum: NAD 83 /NGS 84 zone: Sample ID: Analysis: Dioxins Furans / TBT / TOC / CU / DGT (Circle Appropriate Analyses) Water Depth: 1 | | | | | | | |
| Sampling Vessel: PACAL SHAPLING SYSTEMS Station Coordinates: N/Lat. 47, 213540 % E/Long. 123, 06, 1755 % // Datum: NAD 83 /NGS 83 zone: Sample ID: DIT = 5MA 1 - 5CO 7 - (COL 20) Analysis: Dioxins Furans / TBT / TOC / Cu / DGT Circle Appropriate Analyses) Water Depth: 9 ft. 9 ft. 9 ft. Sediment Odor: Other: Depth MLLW: ft. Sediment Odor: Sheen: Moisture: Sediment Odor: Sheen: Moisture: Depth MLLW: ft. Sediment Odor: Sheen: Sheen: Moisture: Depth MLLW: ft. Sediment Odor: Sheen: Sheen: Sheen: Sheen: S | Sampling Vessel: PACAL SHAPLING SYSTEMS Station Coordinates: N/Lat. 47, 213540 % E/Long. 123, 06, 1755 % // Datum: NAD 83 /NGS 83 zone: Sample ID: DIT = 5MA 1 - 5CO 7 - (COL 20) Analysis: Dioxins Furans / TBT / TOC / Cu / DGT Circle Appropriate Analyses) Water Depth: 9 ft. 9 ft. 9 ft. Sediment Odor: Other: Depth MLLW: ft. Sediment Odor: Sheen: Moisture: Sediment Odor: Sheen: Moisture: Depth MLLW: ft. Sediment Odor: Sheen: Sheen: Moisture: Depth MLLW: ft. Sediment Odor: Sheen: Sheen: Sheen: Sheen: S | | | | Sampling Method: | Hydr | -autic | Grab |
| Station Coordinates: N/Lat. 47, 2135 40 50 E/Long. 12.3, 06.7155 50/ Datum: NAD 83/WGS 84 zone: Sample ID: PDT - 5M 2 - 560 7 - (80430) Analysis: Dioxins Furans / TBT / TOC / Cu / DGT Other: Circle Appropriate Analyses: Other: Circle Appropriate Analyses: Other: Depth MLLW: ft. Sediment Color: Sample Interval: Ocm Depth MLLW: ft. Sediment Color: Sediment Odor: Sheen: Moisture: obbile D.O. Very soft/Loose soft/ | Station Coordinates: N/Lat. 47, 2135 40 50 E/Long. 12.3, 06.7155 50/ Datum: NAD 83/WGS 84 zone: Sample ID: PDT - 5M 2 - 560 7 - (80430) Analysis: Dioxins Furans / TBT / TOC / Cu / DGT Other: Circle Appropriate Analyses: Other: Circle Appropriate Analyses: Other: Depth MLLW: ft. Sediment Color: Sample Interval: Ocm Depth MLLW: ft. Sediment Color: Sediment Odor: Sheen: Moisture: obbile D.O. Very soft/Loose soft/ | | | | | | T 0 1/2 14/2 | |
| Datum: NAD 83 /NGS 83 zone: Sample ID: PDT - 5M 2 - SGO 7 - (SOC) 30 Analysis: Dioxins Furans / TBT / TOC / Cu / DGT Other: (Circle Appropriate Analyses) Water Depth: 1 ft. | Datum: NAD 83 /NGS 83 zone: Sample ID: PDT - 5M 2 - SGO 7 - (SOC) 30 Analysis: Dioxins Furans / TBT / TOC / Cu / DGT Other: (Circle Appropriate Analyses) Water Depth: 1 ft. | | THE PROPERTY. | | 5 Weather: | | | |
| Datum: NAD 83 / NGS 84 zone: Sample ID: PVT - 5MA 2 - 56-07 - 180430 Analysis: Dioxins Furans / TBT / TOC / Cu / DGT | Datum: NAD 83 / NGS 84 zone: Sample ID: PVT - 5MA 2 - 56-07 - 180430 Analysis: Dioxins Furans / TBT / TOC / Cu / DGT | Station Coordinate | es: N/Lat. 47, 21354 | บ°ม | | | | |
| Sample ID: | Sample ID: | | E/Long. 123.087 | 755°W | | | | |
| Analysis: Dioxins Furans / TBT / TOC / Cu / DGT Other: Circle Appropriate Analyses Other: | Analysis: Dioxins Furans / TBT / TOC / Cu / DGT Other: Circle Appropriate Analyses Other: | Datur | | | | | | |
| Circle Appropriate Analyses) Other: Comparison Comp | Circle Appropriate Analyses) Other: Comparison Comp | | | | | | | |
| Accepted Grab Number: Tide Level: ft. Depth MLLW: ft. Sediment Type: Sediment Color: Density: Sediment Odor: Sheen: Moisture: Dobble D.O. Very soft/Loose | Accepted Grab Number: Tide Level: ft. Depth MLLW: ft. Sediment Type: Sediment Color: Density: Sediment Odor: Sheen: Moisture: Dobble D.O. Very soft/Loose | Analysi | | | Other: | | | |
| Number: | Number: | | (Circle Appropriate Analyse | es) | Other: | | | |
| Number: | Number: | Accecpted Grab | 0 | | | | | |
| Depth MLLW: ft. Sediment Type: Sediment Color: Density: Sediment Odor: Sheen: Moisture: Pobble D.O. Very soft/Loose soft | Depth MLLW: ft. Sediment Type: Sediment Color: Density: Sediment Odor: Sheen: Moisture: Pobble D.O. Very soft/Loose soft | | | | Grab Recovery: | 37 | cm Time: | 1000 |
| Sediment Type: Sediment Color: Density: Sediment Odor: Sheen: Moisture: sobble D.O. Very soft/Loose | Sediment Type: Sediment Color: Density: Sediment Odor: Sheen: Moisture: sobble D.O. Very soft/Loose | | | | Sample Interval:_ | 10 | cm | |
| Documents Docu | Documents Docu | Sediment Type: | | | lo u voi | | | |
| ravel and C M F black brown black brown brown surface wery dense/stiff wery dense/stiff overwhelming brownsurface wery dense/stiff wery dense/stiff overwhelming brownsurface wery dense/stiff wery dense/stiff overwhelming brownsurface wery dense/stiff overwhelming brownsurface wery dense/stiff wery dense/stiff overwhelming brownsurface brownsurface wery dense/stiff overwhelming brownsurface br | ravel and C M F black brown black brown brown surface wery dense/stiff wery dense/stiff overwhelming brownsurface wery dense/stiff wery dense/stiff overwhelming brownsurface wery dense/stiff wery dense/stiff overwhelming brownsurface wery dense/stiff overwhelming brownsurface wery dense/stiff wery dense/stiff overwhelming brownsurface brownsurface wery dense/stiff overwhelming brownsurface br | | | | 7905 | 1100 | 2985 | |
| and C M F black brown black brown brown surface brown surf | and C M F black brown black brown brown surface brown surf | | | A STATE OF THE PARTY OF THE PAR | | | | |
| brown brown brown brown surface GT Location? Yes / No If yes Temp: pH: Salinity: GT Location? Yes / No If yes Temp: pH: Salinity: Processing Check-list Processing Crew: FPB5/5N Interpretable of the processing Crew: PRO If yes Temp: pH: Date: 4/30/2018 Homogenization Start Time: Oq II Date: 4/30/2018 Homogenization End Time: Oq II Demogenization End Time: Oq II Demogeniz | brown brown brown brown surface GT Location? Yes / No If yes Temp: pH: Salinity: GT Location? Yes / No If yes Temp: pH: Salinity: Processing Check-list Processing Crew: FPB5/5N Interpretable of the processing Crew: PRO If yes Temp: pH: Date: 4/30/2018 Homogenization Start Time: Oq II Date: 4/30/2018 Homogenization End Time: Oq II Demogenization End Time: Oq II Demogeniz | | | | | | | |
| Processing Check-list Processing Crew: FPB55N Time: OG 11 Date: 4/30/2018 Homogenization Start Time: OG 11 Date: 4/30/2018 Homogenization End Time: OG 17 Date: 4/30/2018 Homogenization End Time: OG 17 Date: 4/30/2018 Homogenization End Time: OG 17 Date: 4/30/2018 Da | Processing Check-list Processing Crew: FPB55N Time: OG 11 Date: 4/30/2018 Homogenization Start Time: OG 11 Date: 4/30/2018 Homogenization End Time: OG 17 Date: 4/30/2018 Homogenization End Time: OG 17 Date: 4/30/2018 Homogenization End Time: OG 17 Date: 4/30/2018 Da | | | | | other: | The second second second | |
| Processing Check-list Processing Crew: FP/B5/5N Time: O9(1) Date: 4/30/20/8 Homogenization Start Time: O9(1) Processing with paddle until consisyency and color are uniform: [1] Interpretation of the paddle until consisyency and color are uniform: [1] Processing Check-list Processing Crew: FP/B5/5N Time: O9(1) Date: 4/30/20/8 Homogenization End Time: O917 Processing Check-list Date: 4/30/20/8 Homogenization End Time: O917 Processing Check-list Processing Check-li | Processing Check-list Processing Crew: FP/B5/5N Time: O9(1) Date: 4/30/20/8 Homogenization Start Time: O9(1) Processing with paddle until consisyency and color are uniform: [1] Interpretation of the paddle until consisyency and color are uniform: [1] Processing Check-list Processing Crew: FP/B5/5N Time: O9(1) Date: 4/30/20/8 Homogenization End Time: O917 Processing Check-list Date: 4/30/20/8 Homogenization End Time: O917 Processing Check-list Processing Check-li | | | - C - C - C - C - C - C - C - C - C - C | | | 111000000000000000000000000000000000000 | Wet |
| Processing Check-list Processing Crew: FP/B5/5N Time: O9(1) Photograph of unhomogenized sample: [W Taken 14 g Nob Homogenization Start Time: O9 | Processing Check-list Processing Crew: FP/B5/5N Time: O9(1) Photograph of unhomogenized sample: [W Taken 14 g Nob Homogenization Start Time: O9 | THE RESERVE THE PERSON NAMED IN COLUMN TWO IS NOT THE PERSON NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO I | DIOWII SUITACE | very dense/stm | overwhelming | | heavy | |
| hotograph of unhomogenized sample: [U Taken In gg Na6] Homogenization Start Time: O9 Homogenization End Time: 0917 omogenize sample with paddle until consisyency and color are uniform: [U notograph of homogenized sample: [V notograph of homoge | hotograph of unhomogenized sample: [U Taken In gg Na6] Homogenization Start Time: O9 Homogenization End Time: 0917 omogenize sample with paddle until consisyency and color are uniform: [U notograph of homogenized sample: [V notograph of homoge | | | | 1200 | 00/11 | | |
| hotograph of unhomogenized sample: [U | hotograph of unhomogenized sample: [U | | | | • | 14/20/ | - 100 | |
| Homogenization Start Time: Homogenization End Time: OQ17 Iomogenize sample with paddle until consisyency and color are uniform: [\vert \text{ hotograph of homogenized sample: [\vert \text{ omments:} | Homogenization Start Time: Homogenization End Time: OQ17 Iomogenize sample with paddle until consisyency and color are uniform: [\vert \text{ hotograph of homogenized sample: [\vert \text{ omments:} | hotograph of unhomogenize | ed sample 11 V Take | who do rook | Date: | 43012 | 2018 | |
| hotograph of homogenized sample: [V | hotograph of homogenized sample: [V | Homogenization Start Time | ou dampic. [Q | 2.0 | Hamana lastica | - 1- | anın | |
| hotograph of homogenized sample: [V | hotograph of homogenized sample: [V | | | - / | nomogenization | End Time: | 0412 | |
| hotograph of homogenized sample: [V | hotograph of homogenized sample: [V | lomogenize sample with page | ddle until consisyency and cold | or are uniform: [U | | | | |
| hotograph of homogenized sample: [v/ | hotograph of homogenized sample: [v/ | | / | | | | | |
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| *************************************** | *************************************** | omments: | | | | | | |
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| The sample Talley | 711 Sample TAICA | E/A Soi | 1 1000 24 | V | | | | |
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| | v: EP/GB | | | |
|--|--|-------------------|-------------------------------------|------------------|
| Sample Date | 4/27/298 | | Sampling Method: Hand G | FM6 |
| Sampling Vesse | | | | |
| Subcontractor(s) |): | | Weather: Cloudy | 65°F |
| Station Coordinates | s: N / Lat. | | | |
| | E / Long. | | | |
| Datum | : NAD 83 / WGS 84 | zone: | | |
| Sample ID | Dioxins Furans / TBT / TOC (Circle Appropriate Analyses | / Cu / DGT | Other: | |
| | (Onoio / ippropriato / inalyoco | , | | |
| Accecpted Grab Number: | Water Depth:ft. Tide Level:ft. Depth MLLW:ft. | | | cm Time: #:33 |
| Sediment Type: | Sediment Color: | Density: | Sediment Odor: | Sheen: Moisture: |
| cobble | D.O. | Very soft/Loose | none H2S | none) Dry |
| gravel | gray | soft/loose | slight Petroleum | trace Damp |
| sand C M F | black | mod dense/stiff | moderate other: | slight Moist |
| silt clay | brown | dense/stiff | strong | moderate (Wet) |
| organic matter of Comments: | brown surface | very dense/stiff | overwhelming | heavy |
| Duplicate Station? Yes (No | | | | |
| Processing Check-list | | | | |
| | F0/60 | | Time: 350 | |
| | EP/090 | | 2 3 3 6 1 7 2 3 | 2010 |
| Processing Crew | / | | Date: 4/27/ | 1013 |
| Processing Crew | ed sample: [V | | | V |
| Processing Crew | ed sample: [V | | Date: 9/24) Homogenization End Time | V |
| Processing Crew Photograph of unhomogenize Homogenization Start Time Homogenize sample with pac | ed sample: [4] | r are uniform: [V | | V |
| Processing Crew Photograph of unhomogenize Homogenization Start Time Homogenize sample with pace | ed sample: [4] | r are uniform: [V | | V |
| Processing Crew Photograph of unhomogenize Homogenization Start Time Homogenize sample with pace Photograph of homogenized Comments: | ed sample: [4] ddle until consisyency and colo | | Homogenization End Time | V |
| Processing Crew Photograph of unhomogenize Homogenization Start Time Homogenize sample with pace Photograph of homogenized Comments: | ed sample: [4] | | Homogenization End Time | V |
| Processing Crew Photograph of unhomogenize Homogenization Start Time Homogenize sample with pace Photograph of homogenized Comments: | ed sample: [4] ddle until consisyency and colo | | Homogenization End Time | V |
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| Processing Crew Photograph of unhomogenize Homogenization Start Time Homogenize sample with pace Photograph of homogenized Comments: | ed sample: [4] ddle until consisyency and colo | | Homogenization End Time | V |
| Processing Crew Photograph of unhomogenize Homogenization Start Time Homogenize sample with pace Photograph of homogenized Comments: | ed sample: [4] ddle until consisyency and colo | | Homogenization End Time | V |
| Processing Crew Photograph of unhomogenize Homogenization Start Time Homogenize sample with pace Photograph of homogenized Comments: | ed sample: [4] ddle until consisyency and colo | | Homogenization End Time | V |
| Processing Crew Photograph of unhomogenize Homogenization Start Time Homogenize sample with pace Photograph of homogenized Comments: | ed sample: [4] ddle until consisyency and colo | | Homogenization End Time | V |
| Processing Crew Photograph of unhomogenize Homogenization Start Time Homogenize sample with pace Photograph of homogenized Comments: | ed sample: [4] ddle until consisyency and colo | | Homogenization End Time | V |
| Processing Crew Photograph of unhomogenize Homogenization Start Time Homogenize sample with pace Photograph of homogenized Comments: | ed sample: [4] ddle until consisyency and colo | | Homogenization End Time | V |
| Processing Crew Photograph of unhomogenize Homogenization Start Time Homogenize sample with pace Photograph of homogenized Comments: | ed sample: [4] ddle until consisyency and colo | | Homogenization End Time | V |

Recorded by: M. Political



| | EP/GB | | | | |
|---|--|---------------------|--------------------------|-----------|-----------|
| Sample Date: | 4/27/2018 | | Sampling Method: Hand | Grab | |
| Sampling Vessel: | | | | | |
| Subcontractor(s): | _ | | Weather: Claude | 4 65°F | |
| Station Coordinates: | N / Lat. | | | 3 | |
| | E / Long. | | | | |
| Datum: | NAD 83 / WGS 84 | zone: | | | |
| | PDT-SMA2-SGA Dioxins Furans / TBT / TOC (Circle Appropriate Analyses | / Cu / DGT | Other: | | |
| accecpted Grab | Water Depth:ft. | | Grab Recovery: | cm Time: | 1239 |
| Number:I | Tide Level: ft | | Sample Interval: | _cm _mine | |
| | Tide Level:ft. Depth MLLW: ft. | | Campie intervalte | _0 | |
| Sediment Type: | Sediment Color: | Density: | Sediment Odor: | Sheen: | Moisture: |
| obble | D.O. | Very soft/Loose | none H2S | none | Dry |
| | gray | soft/loose | slight Petroleur | | Damp |
| and C M F | black | mod dense/stiff | moderate other: | slight | Moist |
| silt clay | brown | dense/stiff | strong | moderate | Wet |
| | brown surface | very dense/stiff | overwhelming | heavy | |
| DGT Location? Yes / No Duplicate Station? Yes / No | If yes | Temp: | pH: | Salinity: | |
| | | | | | |
| | | | - 120 | 3 | |
| Processing Check-list Processing Crew: | | | Time: 1350 | | |
| Processing Crew: | EP/CB | | Time: 1350 Date: 4/2) | | |
| Processing Crew: | EP/C-B d sample: [W | | Date: 4/27 | 7/2018 | |
| Processing Check-list Processing Crew: Photograph of unhomogenized Homogenization Start Time: | EP/C-B d sample: [W | | | 7/2018 | |
| Processing Crew: Photograph of unhomogenized Homogenization Start Time: Homogenize sample with padd | d sample: [W | or are uniform: [🄰 | Date: 4/27 | 7/2018 | |
| Processing Crew: Photograph of unhomogenized Homogenization Start Time: Homogenize sample with padd | d sample: [W 1350 dle until consisyency and color sample: [W | | Date: 4/27 | 7/2018 | |
| Processing Crew: Photograph of unhomogenized Homogenization Start Time: Homogenize sample with padd | d sample: [W 1350 dle until consisyency and color sample: [W | | Date: 4/27 | 7/2018 | |
| Processing Crew: | d sample: [W 1350 dle until consisyency and color sample: [W | | Date: 4/27 | 7/2018 | |
| Processing Crew: Photograph of unhomogenized Homogenization Start Time: Homogenize sample with padd | d sample: [W 1350 dle until consisyency and color sample: [W | | Date: 4/27 | 7/2018 | |
| Processing Crew: Photograph of unhomogenized Homogenization Start Time: Homogenize sample with padd | d sample: [W 1350 dle until consisyency and color sample: [W | | Date: 4/27 | 7/2018 | |
| Processing Crew: Photograph of unhomogenized Homogenization Start Time: Homogenize sample with pado Photograph of homogenized s Comments: | d sample: [W 1350 dle until consisyency and color sample: [W | | Date: 4/27 | 7/2018 | |
| Processing Crew: Photograph of unhomogenized Homogenization Start Time: Homogenize sample with padd | d sample: [W 1350 dle until consisyency and color sample: [W | | Date: 4/27 | 7/2018 | |
| Processing Crew: Photograph of unhomogenized Homogenization Start Time: Homogenize sample with pado Photograph of homogenized s Comments: | d sample: [W 1350 dle until consisyency and color sample: [W | | Date: 4/27 | 7/2018 | |
| Processing Crew: Photograph of unhomogenized Homogenization Start Time: Homogenize sample with pado Photograph of homogenized s Comments: | d sample: [W 1350 dle until consisyency and color sample: [W | | Date: 4/27 | 7/2018 | |
| Processing Crew: Photograph of unhomogenized Homogenization Start Time: Homogenize sample with pado Photograph of homogenized s Comments: | d sample: [W 1350 dle until consisyency and color sample: [W | | Date: 4/27 | 7/2018 | |
| Processing Crew: Photograph of unhomogenized Homogenization Start Time: Homogenize sample with pado Photograph of homogenized s Comments: | d sample: [W 1350 dle until consisyency and color sample: [W | | Date: 4/27 | 7/2018 | |
| Processing Crew: Photograph of unhomogenized Homogenization Start Time: Homogenize sample with padd | d sample: [W 1350 dle until consisyency and color sample: [W | | Date: 4/27 | 7/2018 | |
| Processing Crew: Photograph of unhomogenized Homogenization Start Time: Homogenize sample with padd | d sample: [W 1350 dle until consisyency and color sample: [W | | Date: 4/27 | 7/2018 | |
| Processing Crew: Photograph of unhomogenized Homogenization Start Time: Homogenize sample with pado Photograph of homogenized s Comments: | d sample: [W 1350 dle until consisyency and color sample: [W | | Date: 4/27 | 7/2018 | |
| Processing Crew: Photograph of unhomogenized Homogenization Start Time: Homogenize sample with padd | d sample: [W 1350 dle until consisyency and color sample: [W | | Date: 4/27 | 7/2018 | |



| Project Name: 51 | | Project No: CCC | 8-0103 Station | ID: SMAZ- | 56 |
|--------------------------------|---|------------------------|--------------------------|--------------|--------|
| | Crew: EP/B.7/SN | | | | |
| | Date: 4/30/2018 | | Sampling Method: Hud | Soule Folk | |
| Sampling Ve | | | | | |
| Subcontract | or(s): Murine San | nling Systems | Weather: | | |
| Station Coordin | tor(s): Macine San nates: N/Lat. 47, 213 | 6116 | | | |
| | E/Long. 123. 06 | | | | |
| Do | tum: NAD 83 / WGS 84 | | ''. | | |
| | | zone: | | | |
| | le ID: PDI-SMA2- | 10 100 12 | | | |
| Anal | ysis: Dioxins Furans / TBT / | | Other: | | |
| | (Circle Appropriate Ana | alyses) | Other: | | |
| ccecpted Grab | | | | | |
| lumber: _\ | Water Depth: | | Grab Recovery: 14 | cm Time: 103 | 9 |
| | Tide Level: | _ft. | Sample Interval:(O | _cm | |
| adiment Tune | Depth MLLW: | _ft. | | | |
| ediment Type: | Sediment Color: | Density: | Sediment Odor: | | sture: |
| | D.O. | Very soft/Loose | none H2S | none Dry | |
| ravel | gray | soft/loose | slight Petroleum | trace Dam | 1p |
| and C M F | black | mod dense/stiff | moderate other: | slight Mois | |
| ilt clay | brown | dense/stiff | strong | moderate Wet | * |
| rganic matter | brown surface | very dense/stiff | overwhelming | heavy | |
| Abundant GT Location? Yes 1 No | If yes | Temp: | pH: | Solinita: | |
| uplicate Station? Yes / N | | Temp. | Ipn. | Salinity: | |
| | rew: <u>EP/B5/SN</u> | | Time: 104 | 12018 | |
| hotograph of unhomoger | nized sample: [V Took | en in grab | 45 | | |
| Homogenization Start Ti | | | Homogenization End Time: | 1050 | |
| | | / | | | |
| omogenize sample with p | paddle until consisyency and | color are uniform: [\ | | | |
| | / | | | | |
| notograph of homogenize | ed sample: [\/ | | | | |
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| omments: | | | | | |
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| Jample V | lomoker, zen | 01 009 | T - | | |
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| Sampling Crew: 130 20 8 Sampling Wessel: 20 8 | Sampling C | - NII | Project No: 1000 | 8 03.0 | Station | ID: SMA | 2-5G |
|--|--|--------------------------------|------------------------|---|---------|--|---------------|
| Sampling Vessel: P 2 2 8 | | | | | | | |
| Station Coordinates: | | | | Sampling Method | HYDR | AULIC 6 | MAB |
| Station Coordinates: N/Lat. 47 2/3548 2 E/Long. 173, 0670 2 00 Datum: NAD 83/ (GS 84) zone: Sample ID: PDT SMA2 56-11- 80430 Analysis: Dioxins Furans / TBT / TOC / Cu / DGT (Circle Appropriate Analyses) Water Depth: | | | | _ | | | |
| Station Coordinates: N/Lat. L/7, 2/35588 E/Long. 173, 6670 92 Cu Datum: NAD 83 / V(SS 84) zone: Sample ID: PDT SAA2 SC-U- 60430 Analysis: Dioxins Furans / TBT / TOC / Cu / DGT (Circle Appropriate Analyses) Accepted Grab Number: 1 Tide Level: ft. Sample Interval: 0 cm Depth MLLW: ft. Sediment Odor: Sheen: Moisture: Sediment Type: Sediment Color: Density: Sediment Odor: Sheen: Moisture: Sheel D.O. Very soft/Loose slight Petroleum trace pamp and dense/stiff moderate other: slight moderate other: s | Subcontracto | r(s): Macine So | notion 5 stem | Weather | : | | |
| Datum: NAD 83 / VGS 84 zone: Sample ID: PDT - SM 2 - SC | Station Coordina | ites: N/Lat. 47, 213 | 54802 | _ | | | |
| Datum: NAD 83 / VGS 84 zone: Sample ID: PDT - SM + 2 - 5 C | | E/Long. 123, 01 | 67092°W | | | | |
| Sample ID: Analysis: Dioxins Furans / TBT / TOC / Cu / DGT (Circle Appropriate Analyses) Accepted Grab Number: 1 | Date | | | = 1 | | | |
| Analysis: Dioxins Furans / TBT / TOC / Cu / DGT Other: Circle Appropriate Analyses Other: Other: Other: | | | | | _ | | _ |
| (Circle Appropriate Analyses) Other: Comparison Circle Appropriate Analyses Other: | | | | Othor | | | |
| Accepted Grab Number: Water Depth: O ft. I/O Sample Interval: O cm | | | | | - | | |
| Number: Water Depth: Uft. Complete C | | Control Property (in | ,000/ | Other. | | | |
| Tide Level:ft | | Water Donthi (A) | 4 1 1 | Table Sales | 21 | | 0000 |
| Depth MLLW: ft. Sediment Type: Sediment Color: Density: Sediment Odor: Sheen: Moisture: Obbble pravel gray Sediment Color: Density: Sediment Odor: Sheen: Moisture: Obbble pravel gray Sediment Color: Sediment Odor: Sheen: Moisture: Obbble pravel gray Sediment Odor: Sheen: Obbble pravel gray Sheen: Obbble gray | Number:1 | | | | Las | | 08-10 |
| Sediment Type: Sediment Color: Density: Sediment Odor: Sheen: Moisture: Sobble D.O. Very soft/Loose soft/loose and C M F black brown dense/stiff dense/stiff very dense/stiff very dense/stiff Processing Check-list Processing Check-list Processing Crew: Homogenized sample: Homogenized sample: Homogenized sample: Density: Sediment Odor: Sheen: Moisture: Sediment Odor: Sheen: Moisture: Moist moderate slight Moist moderate other: slight Moist moderate strong werwhelming Noverwhelming Noverwhelming Noverwhelming Ph: Salinity: Time: Description Time: Descri | | | | Sample Interval: | 10 | cm | |
| Documents: Documents Doc | Sediment Type: | | | Sediment Oder | | lobare | To a constant |
| ravel gray band C M F black mod dense/stiff dense/stiff dense/stiff very d | | | | | H2S | | |
| moderate strong overwhelming ov | ravel | - | | | | | |
| brown brown brown brown brown surface Salinity: S | and C M F | | | 100000000000000000000000000000000000000 | | | |
| And the processing Check-list Processing Crew: | ilt clay | brown | | 111111111111111111111111111111111111111 | ouier. | Control of the Contro | |
| DGT Location? Yes / No Processing Check-list Processing Crew: FPB5/5N Time: 0950 Date: 4(39) 788 Homogenization Start Time: 0950 Comments: Time: 0950 Date: 4(39) 788 Homogenization End Time: 0851 The comments of homogenized sample: [V] The comments of homogenized sample: [V] Description: The comments of ho | organic matter | brown surface | | | | C. 40 D. 5 Jan. 8 | We |
| hotograph of unhomogenized sample: M Taken M g Made Homogenization Start Time: O950 Homogenize sample with paddle until consistency and color are uniform: [M notograph of homogenized sample: [M promogenize sample with paddle until consistency and color are uniform: [M promogenize sample with paddle until consistency and color are uniform: [M promogenized sample: | rocessing Check-li | st | | | | | |
| Thotograph of unhomogenized sample: M Taken IN 8 Miles Homogenization Start Time: O950 Homogenize sample with paddle until consisyency and color are uniform: [V] hotograph of homogenized sample: [V] omments: | | 1 | | | 0850 |) | |
| Homogenization Start Time: | | w: EP/B5/5N | | Time: | | | |
| Homogenization Start Time: | Processing Cre | , , | | | 11/- | 7018 | |
| hotograph of homogenized sample: [U | Processing Cre | , , | en in a road | | 11/- | 2018 | |
| hotograph of homogenized sample: [🕡 | Processing Cre | zed sample: M Take | en in grood | Date: | 4/30/ | 1.7.45 | |
| hotograph of homogenized sample: [🕡 | Processing Cre | zed sample: M Take | en in grand | Date: | 4/30/ | 1.7.45 | |
| omments: | Processing Cre hotograph of unhomogenization Start Tim | zed sample: M Take ne: 0950 | | Date: | 4/30/ | 1.7.45 | |
| | Processing Cre hotograph of unhomogenization Start Tim | zed sample: M Take ne: 0950 | | Date: | 4/30/ | 1.7.45 | |
| | Processing Cre hotograph of unhomogenic Homogenization Start Tim omogenize sample with pa | zed sample: M To ke | | Date: | 4/30/ | 1.7.45 | |
| Sample honger. Zeel on boad. | Processing Cre hotograph of unhomogeniz Homogenization Start Tim omogenize sample with pa | zed sample: M To ke | | Date: | 4/30/ | 1.7.45 | |
| Darribus Morridge Met all and | Processing Cre Thotograph of unhomogeniz Homogenization Start Tim omogenize sample with pathotograph of homogenized omments: | zed sample: [V] Ta ke ne: | color are uniform: [V] | Date: | 4/30/ | 1.7.45 | |
| | Processing Cre Thotograph of unhomogeniz Homogenization Start Tim omogenize sample with pathotograph of homogenized omments: | zed sample: [V] Ta ke ne: | color are uniform: [V] | Date: | 4/30/ | 1.7.45 | |
| | Processing Cre Photograph of unhomogenia Homogenization Start Tim Iomogenize sample with pathotograph of homogenized comments: | zed sample: [V] Ta ke ne: | color are uniform: [V] | Date: | 4/30/ | 1.7.45 | |
| | Processing Cre Photograph of unhomogenia Homogenization Start Tim Iomogenize sample with pathotograph of homogenized comments: | zed sample: [V] Ta ke ne: | color are uniform: [V] | Date: | 4/30/ | 1.7.45 | |
| | Processing Cre Photograph of unhomogenia Homogenization Start Tim Iomogenize sample with pathotograph of homogenized moments: | zed sample: [V] Ta ke ne: | color are uniform: [V] | Date: | 4/30/ | 1.7.45 | |
| | Processing Cre hotograph of unhomogeniz Homogenization Start Tim omogenize sample with pa hotograph of homogenized | zed sample: [V] Ta ke ne: | color are uniform: [V] | Date: | 4/30/ | 1.7.45 | |
| | Processing Cre hotograph of unhomogenia Homogenization Start Tim omogenize sample with pa notograph of homogenized | zed sample: [V] Ta ke ne: | color are uniform: [V] | Date: | 4/30/ | 1.7.45 | |
| | Processing Cre hotograph of unhomogenia Homogenization Start Tim omogenize sample with pa notograph of homogenized | zed sample: [V] Ta ke ne: | color are uniform: [V] | Date: | 4/30/ | 1.7.45 | |
| | Processing Cre hotograph of unhomogeniz Homogenization Start Tim omogenize sample with pa hotograph of homogenized | zed sample: [V] Ta ke ne: | color are uniform: [V] | Date: | 4/30/ | 1.7.45 | |
| | Processing Cre hotograph of unhomogeniz Homogenization Start Tim omogenize sample with pa hotograph of homogenized | zed sample: [V] Ta ke ne: | color are uniform: [V] | Date: | 4/30/ | 1.7.45 | |
| | Processing Cre Thotograph of unhomogeniz Homogenization Start Tim omogenize sample with pathotograph of homogenized omments: | zed sample: [V] Ta ke ne: | color are uniform: [V] | Date: | 4/30/ | 1.7.45 | |
| | Processing Cre hotograph of unhomogeniz Homogenization Start Tim omogenize sample with pa hotograph of homogenized | zed sample: [V] Ta ke ne: | color are uniform: [V] | Date: | 4/30/ | 1.7.45 | |
| | Processing Cre hotograph of unhomogeniz Homogenization Start Tim omogenize sample with pa hotograph of homogenized | zed sample: [V] Ta ke ne: | color are uniform: [V] | Date: | 4/30/ | 1.7.45 | |
| | Processing Cre Thotograph of unhomogeniz Homogenization Start Tim omogenize sample with pathotograph of homogenized omments: | zed sample: [V] Ta ke ne: | color are uniform: [V] | Date: | 4/30/ | 1.7.45 | |

Recorded by: RECORD



| Project Name: 5 | nelton Hartor | Project No: 1000 | 8 0103 Station | ID: SMA | 2-56 |
|--------------------------|------------------------------|---------------------------|--------------------------|-----------|-----------|
| Sampling | Crew: ED/B3/5N | | | | |
| | Date: 4/30/2018 | | Sampling Method: Hydr | avlic 6 | sal |
| | essel: Potes R | | | | |
| Subcontract | lor(s): Marine 500 | noling System | S Weather: | | |
| Station Coordin | nates: N/Lat. 47,213 | 33800 | | | |
| | E/Long. (23.08 | | | | |
| Da | tum: NAD 83 / WGS 84 | zone: | | | |
| | le ID: PDI - SMA2- | 56-12-180430 | | | |
| | ysis: Dioxins Furans / TBT / | | Other: | | |
| | (Circle Appropriate An | | Other: | | |
| Accecpted Grab | 3 | | | | |
| Number:\ | Water Depth: 8 | _ft. ~ B =+ | Grab Recovery: 30 | cm Time: | 1050 |
| | Tide Level: | _ft. | Sample Interval: (0 | cm | |
| | Depth MLLW: | _ft. | | | |
| Sediment Type: | Sediment Color: | Density: | Sediment Odor: | Sheen: | Moisture: |
| cobble gravel | D.O. | Very soft/Loose | (none) H2S | none | Dry |
| gravei sand C M F | (gray | soft/loose | slight Petroleum | trace | Damp |
| sand C M F | black | mod dense/stiff | moderate other: | slight | Moist |
| organic matter | brown | dense/stiff | strong | moderate | Wet |
| Comments: | brown surface | very dense/stiff | overwhelming | heavy | |
| Trace San | | Tomo | Lu | lo u u | |
| Ouplicate Station? Yes / | 7 | Temp: | pH: | Salinity: | |
| Processing Cr | | | Time: 0.34 | 12018 | |
| hotograph of unhomoger | nized sample: [V] Tu k | er in groot | 1/20 | 1003 | |
| Homogenization Start Ti | me: (030 | | Homogenization End Time: | 1031 | |
| omogenize sample with | paddle until consisyency and | color are uniform: I'd | | | |
| was a server and | / | serior and annionning [w] | | | |
| hotograph of homogenize | ed sample: (V | | | | |
| | 200 Call Film L VA | | | | |
| omments: | | | | | |
| 1 . 1 . | onoger.zed | on boat. | | | |
| Dample 11 | omegenze | 0.1 00.11 | | | |
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Recorded by: Recorded by:



| Sampling Crew: EVB SAN Sample Date: 182 183 Sampling Vessel: PTTEY R Subcontractor(s): MARANE SAMPLEND SYSTEMS Station Coordinates: NLLL 214 17.213360 0 E1009: T3.0674850 v Deturn: NAD 83 (MSS 8) zone: Sample ID: PDT-SMAT 25-13 of ROYSO Analysis: Dioxins Furans / TBT / TOC / Cu / DGT (Circle Appropriate Analyses) Wester Depth: 13 ft. 13 ft. 13 ft. 14 Depth: 13 ft. 15 Depth MLLW: ft. Sample Interval: 1 orn Depth MLLW: ft. Sample Interval: 1 o | Project Name: 540 | elten Harbos P | roject No: 1000 | Station | ID: SUA 2-SG1 |
|--|----------------------------|--|----------------------------|--|------------------|
| Sampling Vessel: Subcontractor(s): PARAME SAMPLES SALES SALES Station Coordinates: NAD 83 (MISS 8) Zone: Sample ID: PDT-SMA2 SCI3- MOUSO Analysis: Dioxins Furans / TBT / TOC / Cu / DGT (Circle Appropriate Analyses) Other: Coccepted Grab Number: Tide Level: Tide Level: Depth MLLW: Tide Level: Depth MLW: Tide Level: Depth MLW: Tide Level: Tide Level: Depth MLW: Tide Level: Depth MLW: Tide Level: Tide Level: Depth MLW: Tide Level: Tide Level: Tide Level: Tide Level: Depth MLW: Tide Level: Time: Damp Date: Washer: Weather: Weather: Weather: Weather: Weather: Weather: Weather: Weather: Other: O | | | | | |
| Subcontractor(s): MARINE SAMPLEND SYSTEMS Station Coordinates: N/Lat. 213 Y7, 213260 D Datum: NAD 83 (MSS) zone: Sample ID: PDT - SMAY - SC-13 BOU-30 Analysis: Dioxins Furans / TBT / TOC / Cu / DGT (Circle Appropriate Analyses) Other: Coccepted Grab Humber: Tide Level: ft. Sample Interval: 10 cm Depth MLLW: ft. Sediment Color: Density: Sediment Odor: Sheen: Moistu obble D.O. Very soft/Loose Silght Petroleum Irace Damp and C M F Dilack mod dense/stiff strong overwhelming heavy Domments: GT Location? Yes / 66 Processing Check-list Pr | | | | Sampling Method: HYD. | GRA3 |
| Station Coordinates: N/Lat. 27 47, 2133 60 0 E/Long: 12.0674 PISC U Datum: NAD 83 / WGS 34 zone: Sample ID: PDZ - SM A2 SCH 3 0 00430 Analysis: Dioxins Furans / TBT / TOC / Cu / DGT (Circle Appropriate Analyses) Circle Appropriate Analyses) Water Depth: 3 ft. 213 0 Grab Recovery: 20.5 cm Time: 0 81 Ide Level: ft. Sample Interval: 10 cm Depth MLLW: ft. Sample Interval: 10 cm Depth MLLW: ft. Sediment Odor: Sheen: Moistu obble D.O. Very soft/Loose flone 12S pone Dry soft/Joose Slight Petroleum trace Damp and C M F Dlack mod dense/stiff moderate other: slight moderate it clary brown dense/stiff strong moderate other: slight Moist moderate other: slight who will brown surface very dense/stiff overwhelming overwhelming heavy Forcessing Check-list Processing Check-list Processing Crew: EP/BS/S/N Time: 0830 Date: 4/3/2068 Homogenization Start Time: 0830 Date: 4/3/2068 Homogenization End Time: 0831 Moist moderate other: Salinity: West moderate of the salinity: West moderate of the salinity: West of the salinity of the s | | | | | |
| Datum: NAD 83 /WGS 94 zone: Sample ID: PDT - MAD - SG 13 | Subcontractor(| s): MARINE SAMPUN | 6 SYSTEMS | Weather: | |
| Datum: NAD 83 (MGS B) zone: Sample ID: PDT-SMA2 SCI3 MR0430 Analysis: Dioxinis Furans / TBT / TOC / Cu / DGT (Circle Appropriate Analyses) Water Depth: 3 ft. Sample Interval: 10 cm Tide Level: ft. Sample Interval: 10 cm Depth MLLW: ft. Sediment Type: Sediment Color: Density: Sediment Odor: Sheen: Moistur obble D.O. Very soft/Loose Silight Petroleum trace Jamp and C M F black mod dense/stiff dense/stiff dense/stiff strong overwhelming wery dense/stiff overwhelming were whelming were brown surface were processing Check-list Processing Crew: FPBS & Temp: pH: Salinity: Wet hotograph of unhomogenized sample: Managements: Wet hotograph of homogenized sample: Managements with paddle until consisyency and color are uniform: [V] hotograph of homogenized sample: [V] comments: Management on beautiff of homogenized sample: [V] comments: Management on beautiff o | Station Coordinate | | 3380°N | | |
| Datum: NAD 83 / MGS BA zone: Sample ID: PDT - SMA2 - SCI3 - M ROY30 Analysis: Dioxinis Furans / TBT / TOC / Cu / DGT | | E/Long. 173.08 | 74850 u! | | |
| Sample ID: PDT-SMA2-SGS - 180430 Analysis: Dioxins Furans / TBT / TOC / Cu / DGT Other: Other | Datun | | | _ | |
| Analysis: Dioxins Furans / TBT / TOC / Cu / DGT Other: Circle Appropriate Analyses | | | | 0 | |
| Circle Appropriate Analyses) Other: Circle Appropriate Analyses Circle Appropriate Ana | | | | | |
| Accepted Grab Number: | , analysis | | | A CONTRACTOR OF THE CONTRACTOR | |
| Water Depth: | | Y | , | Other. | |
| Tide Level:ft. Depth MLLW:ft. Sediment Type: | | Water Donth: 13 6 | 7.24 | 2012 | - 0820 |
| Depth MLLW: ft. Sediment Type: Sediment Color: Density: Sediment Odor: Sheen: Moisture State of the Sediment Color: Density: Sediment Odor: Sheen: Moisture State of the Sediment Color: Density: Sediment Odor: Sheen: Moisture State of the Sediment Odor: Sheen: Moisture Odor Sediment Odor Sediment Odor: Sheen: Moisture Odor Sediment Odor | Number: | | 213 | | |
| Sediment Type: Sediment Type: Sediment Type: Sediment Type: Sediment Type: Sediment Type: Sediment Odor: Sheen: Moistur Sheen: Moistur Soft/Loose Soft/Loo | | The state of the s | | Sample Interval | cm |
| Obble ravel gray Soft/Loose Soft/Loose Slight Petroleum trace Damp and C M F Dlack mod dense/stiff moderate other: slight moderate other: | Sediment Type: | | Density: | Sediment Odor: | Sheen: Moisture: |
| provesting Check-list Processing Check-list Processing Crew: FPBS & N Homogenization Start Time: OB 30 Damp Moist moderate other: slight moderate strong overwhelming overwhelming overwhelming Time: OB 30 Date: 4/30/20/8 Homogenization End Time: OB 31 Date: 4/30/20/8 Homogenized sample: [Vitable of the composition of the compo | | | | | |
| and C M F int clay brown brown brown surface Depth of the components: Depth of the components of th | ravel | | Harris Molecular Committee | | |
| brown brown surface Description Descrip | and C M F | | | 그리 (기술) [기기] | |
| Description of the processing Crew: FPB5 KN Time: O830 Processing Crew: FPB5 KN Date: 4/30/2018 Photograph of unhomogenized sample: [N Navadar Homogenization Start Time: O830 Photograph of homogenized sample: [N Navadar Homogenized sample: [N Navad | illt clay | brown | dense/stiff | | |
| DOT Location? Yes / 100 If yes Temp: pH: Salinity: Duplicate Station? Yes / 100 Processing Check-list Processing Crew: FP/B5/8/N Time: 0830 Date: H/30/20/8 Photograph of unhomogenized sample: [18] Navadar Homogenization Start Time: 0830 Homogenize sample with paddle until consisyency and color are uniform: [19] hotograph of homogenized sample: [19] formments: Sample Managerized on booth Unhomogenized photos have | organic matter | brown surface | very dense/stiff | | |
| Processing Check-list Processing Crew: FPB5BN Processing Crew: FPB5BN Date: 43020BB Homogenization Start Time: 0830 Homogenization Start Time: 0830 Homogenization End Time: 0831 Homogenization End Time: 0831 Processing Crew: FPB5BN Time: 0830 Date: 4130120BB Homogenization End Time: 0831 Processing Crew: FPB5BN Homogenization End Time: 0831 Processing Crew: FPB5BN Date: 4130120BB Homogenization End Time: 0831 Processing Crew: FPB5BN Date: 4130120BB Homogenization End Time: 0831 Processing Crew: FPB5BN Date: 4130120BB Homogenization End Time: 0831 Processing Crew: FPB5BN Date: 4130120BB Homogenization End Time: 0831 Processing Crew: FPB5BN Date: 4130120BB Homogenization End Time: 0831 Processing Crew: FPB5BN Date: 4130120BB Homogenization End Time: 0831 Processing Crew: FPB5BN Date: 4130120BB Homogenization End Time: 0831 | comments: | | | | |
| hotograph of unhomogenized sample: [W] Novation Homogenization Start Time: 0830 Homogenize sample with paddle until consistency and color are uniform: [V] hotograph of homogenized sample: [V] comments: Sample Memogenized on booth Unhomogenized phase for keeping and phase for keepi | | | | | |
| Photograph of unhomogenized sample: [18] Northward Homogenization Start Time: 0831 Homogenize sample with paddle until consistency and color are uniform: [4] Photograph of homogenized sample: [4] Photograph of homogenized sample: [4] Sample Managerized on boath. Unhomogenized photos for keeping the sample with paddle until consistency and color are uniform: [4] | Processing Crew | 1: 4/B3/B/V | | Time: 08 | 30 |
| Homogenization Start Time: | | AN No M | Spea | Date: 4/30 | 2018 |
| Hotograph of homogenized sample: [V Sample Managerized on bouth. Unhonogenized phato to ke | | | torico. | | |
| Sample Managerised on booth. Unhonogenized phato toke | Homogenization Start Time | 0830 | | Homogenization End Time: | 0831 |
| Sample Managerised on booth. Unhonogerized phato toke | | | ./ | | |
| Sample Manageristed on boath. Unhomogais ad photo torke | lomogenize sample with par | ddle until consisyency and cold | or are uniform: [4 | | |
| Sample Manageristed on boath. Unhomogais ad photo torke | hotograph of homogonized | | | | |
| Sample Managerised on boath. Unhonogerised photo toke | | | | | |
| Sample Managerised on booth. Unhomogerised photo toke | comments: | | | | |
| Sample memogranized on comm. Un novinger, 7 ad photo more | 1 1 1000 | and wed a. | hand 11 | 1 | 1.1 1.6 - |
| as and sampler. | Sample men | og an aca on | Cocia, VI | Noviega, 7 ad | broats various |
| as grat same. | | | | 9 | , |
| | | IN grat sa | mover. | | |
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| Sampling Vessel: Nation Coordinates: Nation Co | Other: Other: Other: Description Recovery: Other: Ot |
|--|--|
| Sampling Vessel: Subcontractor(s): N/Lat. 47, 213420 CDE / Long. (73,087780 CDE / LONg. (73,08780 | Other: Other: Other: Other: Discrete Country: Damp Salinity: Salinity: Time: D438 Date: |
| Subcontractor(s): Machine Sample (17, 21342.0°, 3) E/Long. (73,087780° W Datum: NAD 83 (NGS 84) zone: Sample ID: PDT - 3M-2 - 36-19 - 180430 Analysis: Dioxins Furans / TBT / TOC / Cu / DGT | Other: Other: Other: Description Recovery: |
| Station Coordinates: N/Lat. 47, 213420° N E/Long. 73,087720° W Datum: NAD 83 (MGS 84) zone: Sample ID: PDI - SM 2 - SC-14 - 180430 Analysis: Dioxins Furans / TBT / TOC / Cu / DGT Other: Circle Appropriate Analyses) Water Depth: ft. 8 / Grab Recovery: 2 Tide Level: ft. Sample Interval: 0 Depth MLLW: ft. Sediment Odor: Density: Sediment Odor: obbble D.O. Very soft/Loose slight petroleur moderate other: slit clay) brown dense/stiff strong overwhelming very dense/stiff overwhelming omments: GT Location? Yes / No If yes Temp: pH: Processing Check-list Processing Check-list Processing Check-list Processing Check-list Processing Start Time: Cf33 Homogenization End Time ontograph of homogenized sample: [W Texas Mag 64] Density: Sample Interval: 0 Time: Of7 Date: 4130 Homogenization End Time ontograph of homogenized sample: [W Texas Mag 64] Processing Check-list Homogenized sample: [W Texas Mag 64] Density: Sample Interval: 0 Time: Of7 Date: 4130 Homogenization End Time ontograph of homogenized sample: [W Texas Mag 64] Density: Sample Interval: 10 Sample Interval: | Other: Other: Other: Description Recovery: |
| Datum: NAD 83 (WGS 84) zone: Sample ID: PDT - SM-2 - SC-14 - 180430 Analysis: Dioxins Furans / TBT / TOC / Cu / DGT Other: Other: Ot | Other: b Recovery: 2 cm Time: 5928 nple Interval: cm liment Odor: Sheen: Moisture e) H2S |
| Datum: NAD 83 (WGS 84) zone: Sample ID: PDT - SM-2 - SC-14 - 80430 Analysis: Dioxins Furans / TBT / TOC / Cu / DGT Other: Other: Other: Other: Other: Other: Ot | Other: b Recovery: 2 cm Time: 5928 nple Interval: cm liment Odor: Sheen: Moisture e) H2S |
| Sample ID: PDT - SM-2 - SC-19 - 180930 Analysis: Dioxins Furans / TBT / TOC / Cu / DGT Other: (Circle Appropriate Analyses) Other: | Other: b Recovery: 2 cm Time: 5928 nple Interval: cm liment Odor: Sheen: Moisture e) H2S |
| Analysis: Dioxins Furans / TBT / TOC / Cu / DGT Other: Circle Appropriate Analyses | Other: b Recovery: 2 cm Time: 5928 nple Interval: cm liment Odor: Sheen: Moisture e) H2S |
| Analysis: Dioxins Furans / TBT / TOC / Cu / DGT | Other: b Recovery: 2 cm Time: 5928 nple Interval: cm liment Odor: Sheen: Moisture e) H2S |
| Accepted Grab Number: Water Depth: | Other: b Recovery: 2 cm Time: 5928 nple Interval: cm liment Odor: Sheen: Moisture e) H2S |
| Number: Water Depth: X ft. Ft. Sample Interval: Sample Interva | Iment Odor: Sheen: Moisture |
| Water Depth: X ft. Tide Level: ft. Sample Interval: Sample Interval: Depth MLLW: ft. Sediment Type: Sediment Color: Density: Sediment Odor: Very soft/Loose slight Petroleur mod dense/stiff strong overwhelming over | Iment Odor: Sheen: Moisture |
| Tide Level:ft. Depth MLLW:ft. Sediment Type: | Iment Odor: Sheen: Moisture |
| Depth MLLW: ft. Sediment Type: Sediment Color: Density: Sediment Odor: D.O. Very soft/Loose fone H2S sight Petroleur mod dense/stiff moderate other: silt clay brown dense/stiff strong overwhelming Depth MLLW: ft. Processing Check-list Processing Crew: EP/B5/5/V Homogenization Start Time: CH38 Depth MLLW: ft. Density: Sediment Odor: Very soft/Loose slight Petroleur moderate other: strong overwhelming Density: Sediment Odor: Very soft/Loose slight Petroleur moderate other: strong overwhelming Physical Start Fire: pH: Density: Sediment Odor: Density: Sediment Odor: Density: Sediment Odor: Petroleur moderate other: strong overwhelming Density: Sediment Odor: Density: Sediment Odor: Homogenize strong H2S Time: Density: Density: Sediment Odor: Density: Sediment Odor | liment Odor: By H2S None Dry Int Petroleum trace Damp derate other: slight moderate heavy Salinity: Time: 0938 Date: 4/30/2018 |
| brobble pravel gray soft/Loose slight Petroleur mod dense/stiff moderate other: strong overwhelming overwhelm | H2S none Dry trace Damp Slight Moist moderate heavy Time: 0938 Date: 4/30/2018 |
| probable gravel gray soft/Loose slight Petroleur moderate strong overwhelming overw | H2S none Dry trace Damp Slight Moist moderate heavy Time: 0938 Date: 4/30/2018 |
| pravel gray soft/loose mod dense/stiff moderate other: strong overwhelming overwhel | trace slight moderate heavy Damp Moist moderate heavy Salinity: Time: 0938 Date: 4/30/2018 |
| brown brown brown brown brown surface DGT Location? Yes / No If yes Temp: Duplicate Station? Yes / No If yes Temp: Processing Check-list Processing Crew: FP/B35/5 N Time: 097 Date: 4/30 Homogenization Start Time: C938 Homogenized sample: [V Taken in grad 6 Homogenization Start Time: C938 Homogenized sample: [V Taken in grad 6 Homogenization End Time Chotograph of homogenized sample: [V Taken in grad 6 Homogenization End Time Domination of homogenized sample: [V Taken in grad 6 Homogenization End Time Description of homogenized sample: [V Taken in grad 6 Homogenization End Time Description of homogenized sample: [V Taken in grad 6 Homogenization End Time 6 Homogenizati | derate other: slight moderate heavy Moist moderate heavy Salinity: Time: 0938 Date: 4/30/2018 |
| Processing Check-list Processing Crew: FP/B5/5N Photograph of unhomogenized sample: [V Token in give hotograph of homogenized sample: [V Token in | moderate heavy Salinity: Time: 0938 Date: 4/30/2018 |
| DGT Location? Yes / No If yes Temp: pH: Duplicate Station? Yes / No Processing Check-list Processing Crew: EP/35/5 N Photograph of unhomogenized sample: [V Taken Management of Union of Uni | Time: 0938 Date: 4/30/2018 |
| Processing Check-list Processing Crew: EP/35/5 N Photograph of unhomogenized sample: [V Taken Mark 6] Homogenization Start Time: C438 Homogenize sample with paddle until consisyency and color are uniform: [V hotograph of homogenized sample: [V comments: V comments: PH: PH: PH: PH: PH: PH: PH: PH: PH: PH | Time: 0938 Date: 4/30/2018 |
| Processing Crew: EP/B5/5 N Time: 097 Date: 4/30 Photograph of unhomogenized sample: [V To keep the grad 6 Homogenization Start Time: 093 Homogenization Start Time: 093 Homogenization End Time hotograph of homogenized sample: [V To keep the grad 6 Homogenization End Time hotograph of homogenized sample: [V To keep the grad 6 Homogenization End Time hotograph of homogenized sample: [V To keep the grad 6 Homogenization End Time | Date: 4/30/2018 |
| Processing Crew: EP/B5/5 N Photograph of unhomogenized sample: [V To keep the grad 6 Homogenization Start Time: C438 Homogenize sample with paddle until consisyency and color are uniform: [V Photograph of homogenized sample: [V Photograph of homogenized s | Date: 4/30/2018 |
| Photograph of unhomogenized sample: [V To keen in grafe Homogenization Start Time: C938 Homogenize sample with paddle until consisyency and color are uniform: [V Photograph of homogenized sample: | Date: 4/30/2018 |
| Homogenized sample: W (when in grade Homogenization Start Time: | 1100 |
| Homogenization Start Time: Homogenization End Time Homogenization End Time Homogenize sample with paddle until consisyency and color are uniform: [Whotograph of homogenized sample: [Whotograph of homogenized | omogenization End Time: 0939 |
| Iomogenize sample with paddle until consisyency and color are uniform: [W | onogenization End Time. |
| hotograph of homogenized sample: [V | |
| hotograph of homogenized sample: [V | |
| comments: | |
| omments: | |
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| Sample homogenized on bout | |
| Sample nomeger zea on boat | |
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Recorded by: Ali Watto



| Sampling Crew: | EP/GB | | | | | |
|--|---------------------------------|--------------------|------------------|------------|----------|-----------|
| Sample Date: | 4/27/2018 | | Sampling Method: | Hard C | rab | |
| Sampling Vessel: | | | | | | |
| Subcontractor(s): | | | Weather: | Clardy | 65°F | |
| Station Coordinates: | | | | 0 | | |
| | E / Long. | | 3 | | | |
| Datum: | NAD 83 / WGS 84 | zone: | _ | | | |
| | PDI-SMAZ-SG | | | | | |
| | Dioxins Furans / TBT / TOC | | Other: | | | |
| Allalysis. | (Circle Appropriate Analyses | | Other: | | | |
| | | • | | | | |
| ccecpted Grab | Water Depth:ft. | | Grab Recovery:_ | 0 | m Time: | 1304 |
| lumber:î | Tide Level:ft. | | Sample Interval: | 17 | om | |
| | Depth MLLW:ft. | | | | | |
| ediment Type: | Sediment Color: | Density: | Sediment Odor: | | Sheen: | Moisture: |
| obble | D.O. | Very soft/Loose | none | H2S | none | Dry |
| ravel | gray | soft/loose | slight | Petroleum | trace | Damp |
| and C M F | black | mod dense/stiff | moderate | other: | slight | Moist |
| ilt clay | brown | dense/stiff | strong | | moderate | Wet |
| organić matter Comments: | brown surface | very dense/stiff | overwhelming | | heavy | |
| Processing Check-list | | | Timb | NUZA | | |
| Processing Crew | EP/GIS | | | 4/27 | 12018 | |
| Photograph of unhomogenize | ed sample: [\] | | 12.7 | 11-1 | 1010 | |
| Homogenization Start Time | 2 12 2 | | Homogenization | n End Time | 1421 | |
| Homogemzation otalt mile. | 116 | / | | | - | |
| | | or are uniform: [9 | | | | |
| Homogenize sample with pad | idle until consisvency and cold | | | | | |
| Homogenize sample with pad | idle until consisyency and col | | | | | |
| | / | | | | | |
| | / | | | | | |
| Photograph of homogenized : | / | | | | | |
| Photograph of homogenized s | sample: [Y | ad | | | | |
| Photograph of homogenized s | sample: [Y | ed | | | | |
| Photograph of homogenized s | / | ed | | | | |
| Photograph of homogenized s | sample: [Y | ed | | | | |
| Photograph of homogenized s | sample: [Y | ed | | | | |
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| Photograph of homogenized s | sample: [Y | ed | | | | |
| Photograph of homogenized s | sample: [Y | ed | | | | |
| Photograph of homogenized s | sample: [Y | ed | | | | |
| Photograph of homogenized s | sample: [Y | ed | | | | |
| Photograph of homogenized s | sample: [Y | ed | | | | |
| Photograph of homogenized s | sample: [Y | ed | | | | |
| Photograph of homogenized s | sample: [Y | ed | | | | |
| Photograph of homogenized s | sample: [Y | ed | | | | |
| Homogenize sample with pad Photograph of homogenized s Comments: This Sample h | sample: [Y | ed | | | | |

Recorded by: " Ret Oa



| Sampling Vessel: Subcontractor(s): Station Coordinates: N / Lat. E / Long. Datum: NAD 83 / WGS 84 zone: Sample ID: PDT GG 7 ROSOZ Other Courses of Circle Appropriate Analyses) Accecpted Grab Number: Tide Level: ft. Grab Rec. Sample In Depth MLLW: ft. Sediment Type: Sediment Color: Density: Sediment Color of Course of Colors of | | d G-rub | |
|--|------------------|-----------|-----------|
| Sampling Vessel: Subcontractor(s): Station Coordinates: N / Lat. E / Long. Datum: NAD 83 / WGS 84 zone: Sample ID: PD | SN43-0 | 2 6726 | |
| Subcontractor(s): Station Coordinates: N / Lat. E / Long. Datum: NAD 83 / WGS 84 zone: Sample ID: PD Good Record Record | sn43-0 | | |
| Station Coordinates: N / Lat. E / Long. Datum: NAD 83 / WGS 84 zone: Sample ID: PDT GOOT ROSON Analysis: Dioxins Furans/ TBT / TOC / Cu / DGT Other (Circle Appropriate Analyses) Other Accecpted Grab Number: fit. Grab Rec. Sample In Depth MLLW: fit. Sample In Depth MLLW: fit. Depth MLLW: fit. Sediment Type: Sediment Color: Density: Sediment Type: Sediment Color: Density: Sediment Type: Sediment Color: Density: Sediment Type: Sediment Type: Sediment Color: Density: Sediment Color: Density: Sediment Type: Sediment Color: Density: Sediment Color: Density: Sediment Color: Density: Sediment Type: Sediment Color: Density: Sediment Co | sn43-0 | | |
| Datum: NAD 83 / WGS 84 zone: Sample ID: PDT GOT ROSOR Analysis: Dioxins Furans/ TBT / TOC / Cu / DGT Other (Circle Appropriate Analyses) Accepted Grab Number: fit. Grab Rec Sample In Depth MLLW: fit. Sample In Depth MLLW: fit. Sediment Type: Sediment Color: Density: Sediment Type: Sediment Color: Density: Sediment Type: Sediment Type: Sediment Color: Density: Sediment Color: Density: Sediment Type: Sediment Color: Density: Sediment Color: | | | |
| Datum: NAD 83 / WGS 84 zone: Sample ID: PDT GO | | | |
| Sample ID: Analysis: Dioxins Furans/ TBT / TOC / Cu / DGT Other (Circle Appropriate Analyses) Accepted Grab Number: Tide Level: Depth MLLW: Tide Level: Tide Level: Tide Level: Depth MLLW: Tide Level: Tide Leve | | | |
| Analysis: Dioxins Furans TBT / TOC / Cu / DGT Other (Circle Appropriate Analyses) Accepted Grab Water Depth:ft. | | | |
| Analysis: Dioxins Furans / TBT / TOC / Cu / DGT Other Other (Circle Appropriate Analyses) Accepted Grab Number: | er: | 00-18 | SOZ |
| Accecpted Grab Number: | | | |
| Number: | er: | | |
| Number: | | | |
| Tide Level:ft. Sample In | overy: | cm Time: | 1600 |
| Depth MLLW:ft. Sediment Type: | terval: | cmme. | |
| processing Check-list Processing Crew: Process | | | |
| gray soft/loose slight moderate strong overwhelm black brown brown surface brown surfa | Odor: | Sheen: | Moisture: |
| black brown black brown black brown brown surface brown surface brown brown brown surface brown brown brown surface brown brown brown surface brown brown brown surface brown brown brown brown surface brown br | H2S | none | Dry |
| progranic matter brown surface very dense/stiff very dens | Petroleur | m trace | Damp |
| Processing Check-list Processing Crew: Photograph of unhomogenized sample: [V] Homogenize sample with paddle until consisyency and color are uniform: [V] Photograph of homogenized sample: [V] Photograph of homogenized sample: [V] Photograph of homogenized sample: [V] | other: | slight | Moist |
| Comments: | | moderate | Wet |
| OGT Location? Yes / No If yes Temp: pH: Duplicate Station? Yes / No Processing Check-list Processing Crew: FP/JE Photograph of unhomogenized sample: [Homogenization Start Time: Homogenized sample: [Homogenized sa | ing | heavy | |
| Processing Check-list Processing Crew: Photograph of unhomogenized sample: [] Homogenization Start Time: Homogenize sample with paddle until consisyency and color are uniform: [] Photograph of homogenized sample: [] | | Salinity: | |
| Processing Crew: Proces | | Saimity: | |
| Homogenization Start Time: Homogenize sample with paddle until consisyency and color are uniform: Photograph of homogenized sample: Comments: | Time: 5/2 | 1018 16 | 00 |
| Photograph of homogenized sample: | - | | |
| Photograph of homogenized sample: | nization End Tim | ne: | |
| Photograph of homogenized sample: | | | |
| Photograph of homogenized sample: | | | |
| Comments: | | | |
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| Sample taken in dry. | | | |
| somple for our way. | | | |
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Recorded by: Al Prata



Project Name: Shelton Harbor Surface Sediment Collection and Processing Form SMA 3-5601 Project Name: Shelten Harbor Project No: 10008-01.03 Station ID: 5443-5600

| Sampling Crev | V. EP/BW/JA | | | | | |
|----------------------------------|---------------------------------|---------------------|-------------------|-------------|-----------|----------------|
| | : 4/26/2018 | | Sampling Method: | Pout 1 | 3106 | |
| Sampling Vesse | | | | | | |
| Subcontractor(s | | | Weather: | SUMMY | | |
| | | | _ weather. | 341114 | | |
| Station Coordinates | s: N/Lat. 47,2077637 | N | _ | | | |
| | E/Long. 123: 09434 | 7°W | | | | |
| Datum | : NAD 83 / WGS 84 | zone: | 3 | | | |
| | : PDI-SMA3-50 | | | | | |
| | | | Othor | | | |
| Analysis | : Dioxins Furans / TBT / TOC | | Other: | | | |
| | (Circle Appropriate Analyses | 5) | Other: | | | |
| ccecpted Grab | 27 3 7 V 2 2 3 3 | | | 20 | | IUM |
| lumber: | Water Depth:ft. | ~ 15 | Grab Recovery:_ | | | 1400 |
| | Tide Level:ft. | | Sample Interval:_ | 10 | cm | |
| | Depth MLLW:ft. | | | | | |
| ediment Type: | Sediment Color: | Density: | Sediment Odor: | | Sheen: | Moisture: |
| obble | D.O. | Very soft/Loose | none | H2S | none | Dry |
| avel | gray | soft/loose | slight | Petroleum | trace | Damp |
| and C M F | black | mod dense/stiff | moderate | other: | slight | Moist |
| It clay | brown | dense/stiff | strong | | moderate | (Wet) |
| | | | | | | 100 |
| ganic matter omments: | brown surface | very dense/stiff | overwhelming | | heavy | and the second |
| GT Location? Yes / No | If yes | Temp: | pH: | | Salinity: | |
| uplicate Station? Yes / No | 11. 700 | Tompi | IP. II | | 154 | |
| Processing Crew | , , | | Time: | 1410 | | |
| | ed sample: [4 taken | ila prate | Date: | 14 4/2 | 6/2018 | |
| hotograph of unhomogenize | ed sample: [V | 2 | | | ie.v. | |
| Homogenization Start Time | : 1410 | | Homogenizatio | n End Time: | : 1911 | |
| | | / | | | , | |
| omogenize sample with page | ddle until consisyency and colo | or are uniform: [\] | | | | |
| and decrease in the state of the | | | | | | |
| hotograph of homogenized | sample: 💜 | | | | | |
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| omments: | | ٨ | | | | |
| 0 111) 3 | (Sample ho | 10 mores 1 Zeed | as bout | - | | |
| Padole M. X 00 | 1 sample 10 | mager ou | con will | • | | |
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| | rew: EP/BW/54 | | | | | |
|--|--|-----------------------|------------------|-----------|----------|-----------|
| Sample D | Date: 4/26/20(8 | | Sampling Method: | Poiner | grat | |
| Sampling Ves | | | | | | |
| | r(s): MSS | | Weather: | SUNA | 14 | |
| Station Coordina | ites: N/Lat. 47, 2076 | 13°N | _ | | | |
| | E/Long. 123, 0935 | | | | | |
| Date | um: NAD 83 /WGS 84 | zone: | | | | |
| | ID: PDI-SMA3-S | | | | | |
| | sis: Dioxins Furans / TBT / T | | Other: | | | |
| , ,,,,,,, | (Circle Appropriate Analy | | Other: | | | |
| | (| ,, | 12.0.5 | | | |
| Accecpted Grab | Water Depth: | ft. will | Grab Recovery:_ | 21 0 | m Time: | 1397 |
| Number:(| | ft. | Sample Interval: | - ^ | om | 1367 |
| | | ft. | | | | 1000 |
| Sediment Type: | Sediment Golor: | Density: | Sediment Odor: | | Sheen: | Moisture: |
| obble | D.O. | Very soft/Loose | none | H2S (| none | Dry |
| gravel | gray | soft/loose | slight | Petroleum | trace | Damp |
| sand C M F | black | mod dense/stiff | moderate | other: | slight | Moist |
| silt clay | brown | dense/stiff | strong | | moderate | Wet |
| organic matter Comments: | brown surface | very dense/stiff | overwhelming | | heavy | |
| Wellands Chattano Will 16 | 1-1 | | | | | |
| ta in the same | | | | | | |
| Processing Check- | list | | | na fara | | |
| Processing Check- | | | Time: | 1400 | | |
| Processing Check- | ew: <u>FP/BW/5A</u> | inami | Time: | 1400 | 2018 | |
| Processing Check- | list ew: EP/BW/5A nized sample: W +a K | en for group | Date: | 4/24 | W. Carlo | |
| Processing Check- | list ew: EP/BW/5A nized sample: W +a K | en for group | -t. (1.174) | 4/24 | W. Carlo | |
| Processing Check- Processing Cr Photograph of unhomoger Homogenization Start Ti | ew: FP/BW/5A nized sample: W +a Ki me: 1400 | / | Date: | 4/24 | W. Carlo | |
| Processing Check- Processing Cr Photograph of unhomoger Homogenization Start Ti | list ew: EP/BW/5A nized sample: W +a K | / | Date: | 4/24 | W. Carlo | |
| Processing Check-l Processing Cr Photograph of unhomoger Homogenization Start Ti | ew: EP/BW/SA nized sample: W +9 Ki me: 1400 paddle until consisyency and | / | Date: | 4/24 | W. Carlo | |
| Processing Check-l Processing Cr Photograph of unhomoger Homogenization Start Ti | ew: EP/BW/SA nized sample: W +9 Ki me: 1400 paddle until consisyency and | / | Date: | 4/24 | W. Carlo | |
| Processing Check-l Processing Cr Photograph of unhomoger Homogenization Start Ti Homogenize sample with photograph of homogenize | ew: EP/BW/SA nized sample: W +9 Ki me: 1900 paddle until consisyency and i | color are uniform: [Ú | Date: | 4/24 | W. Carlo | |
| Processing Check-l Processing Cr Photograph of unhomoger Homogenization Start Ti Homogenize sample with photograph of homogenize | ew: EP/BW/SA nized sample: W +9 Ki me: 1900 paddle until consisyency and interest to the sample: [W] | color are uniform: [Ú | Date: | 4/24 | W. Carlo | |
| Processing Check-l Processing Cr Photograph of unhomoger Homogenization Start Ti Homogenize sample with photograph of homogenize | ew: EP/BW/SA nized sample: W +9 Ki me: 1900 paddle until consisyency and interest to the sample: [W] | color are uniform: [Ú | Date: | 4/24 | W. Carlo | |
| Processing Check-l Processing Cr Photograph of unhomoger Homogenization Start Ti Homogenize sample with photograph of homogenize | ew: EP/BW/SA nized sample: W +9 Ki me: 1400 paddle until consisyency and | color are uniform: [Ú | Date: | 4/24 | W. Carlo | |
| Processing Check-l Processing Cr Photograph of unhomoger Homogenization Start Ti Homogenize sample with photograph of homogenize | ew: EP/BW/SA nized sample: W +9 Ki me: 1900 paddle until consisyency and interest to the sample: [W] | color are uniform: [Ú | Date: | 4/24 | W. Carlo | |
| Processing Check-l Processing Cr Photograph of unhomoger Homogenization Start Ti Homogenize sample with photograph of homogenize | ew: EP/BW/SA nized sample: W +9 Ki me: 1900 paddle until consisyency and interest to the sample: [W] | color are uniform: [Ú | Date: | 4/24 | W. Carlo | |
| Processing Check-l Processing Cr Photograph of unhomoger Homogenization Start Ti Homogenize sample with photograph of homogenize | ew: EP/BW/SA nized sample: W +9 Ki me: 1900 paddle until consisyency and interest to the sample: [W] | color are uniform: [Ú | Date: | 4/24 | W. Carlo | |
| Processing Check-l Processing Cr Photograph of unhomoger Homogenization Start Ti Homogenize sample with photograph of homogenize | ew: EP/BW/SA nized sample: W +9 Ki me: 1900 paddle until consisyency and interest to the sample: [W] | color are uniform: [Ú | Date: | 4/24 | W. Carlo | |
| Processing Check-l Processing Cr Photograph of unhomoger Homogenization Start Ti Homogenize sample with photograph of homogenize | ew: EP/BW/SA nized sample: W +9 Ki me: 1900 paddle until consisyency and interest to the sample: [W] | color are uniform: [Ú | Date: | 4/24 | W. Carlo | |
| Processing Check-l Processing Cr Photograph of unhomoger Homogenization Start Ti Homogenize sample with photograph of homogenize | ew: EP/BW/SA nized sample: W +9 Ki me: 1900 paddle until consisyency and interest to the sample: [W] | color are uniform: [Ú | Date: | 4/24 | W. Carlo | |
| Processing Check-l Processing Cr Photograph of unhomoger Homogenization Start Ti Homogenize sample with photograph of homogenize | ew: EP/BW/SA nized sample: W +9 Ki me: 1900 paddle until consisyency and interest to the sample: [W] | color are uniform: [Ú | Date: | 4/24 | W. Carlo | |
| Processing Check-l Processing Cr Photograph of unhomoger Homogenization Start Ti Homogenize sample with photograph of homogenize | ew: EP/BW/SA nized sample: W +9 Ki me: 1900 paddle until consisyency and interest to the sample: [W] | color are uniform: [Ú | Date: | 4/24 | W. Carlo | |
| Processing Check-l Processing Cr Photograph of unhomoger Homogenization Start Ti Homogenize sample with photograph of homogenize | ew: EP/BW/SA nized sample: W +9 Ki me: 1900 paddle until consisyency and i | color are uniform: [Ú | Date: | 4/24 | W. Carlo | |
| Processing Check-l Processing Cr Photograph of unhomoger Homogenization Start Ti Homogenize sample with photograph of homogenize | ew: EP/BW/SA nized sample: W +9 Ki me: 1900 paddle until consisyency and i | color are uniform: [Ú | Date: | 4/24 | W. Carlo | |

Recorded by: Mi Pay



| Sampling | Crew: EP/BW/S | 4 | | |
|------------------------|-----------------------------|--------------------------------|-------------------------|------------------|
| | Date: 4/26/2018 | | Sampling Method: Power | - arab |
| | essel: Peter R | | | 3 |
| Subcontrac | tor(s): <u>M55</u> | | Weather: | |
| Station Coordi | nates: N / Lat. | | | |
| | E / Long. | | | |
| Da | tum: NAD 83 / WGS 84 | zone: | | |
| | le ID: PDI-SMA3- | | | |
| | lysis: Dioxins Furans / TBT | | Other: | |
| Alla | (Circle Appropriate Ar | | Other: | |
| | (On old / Appropriate / A | larysesy | | |
| Accecpted Grab | Water Daville | | 2012 | cm Time: 1200 |
| Number:t | Water Depth: | ft. ft. | | |
| | Depth MLLW: | it. ft. | Sample Interval: (0 | cm |
| Sediment Type: | Sediment Golor: | it. Density: | Sediment Odor: | Sheen: Moisture: |
| cobble | D.O. | Very soft/Loose | mone H2S | none Dry |
| gravel | gray | soft/loose | slight Petroleum | trace Damp |
| sand C M F | black | mod dense/stiff | moderate other: | slight Moist |
| silt clay | brown | | | |
| organic matter | brown surface | dense/stiff | strong | moderate Wet |
| Comments: | Drown sunace | very dense/stiff | overwhelming | heavy |
| Processing Check | | | | |
| Processing (| rew: EP/BW/ 5/ | 4 | Time: 1210 | |
| | 1.1. | 1 | Date: 4/26/ | 2018 |
| Photograph of unhomoge | enized sample: [W + | ken in gino | | |
| Homogenization Start | ime: | | Homogenization End Time | : [21] |
| | | / | | |
| domogenize sample with | paddle until consisyency ar | d color are uniform: [\vec{V} | | |
| Photograph of homogeni | | | | |
| riolograph of homogeni | red sample: [V] | | | |
| Comments: | | 10. | | |
| | honoger: 2 cd | 6.1 | | |
| Sumple | Monogeritica | ON 0001. | | |
| 9. | 3 | | | |
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| Project Name: She | | Project No: (1000 | D-01.03 Station | ID: SMA | 5-560 |
|----------------------------|--|--|--------------------------|------------|-----------|
| | rew: EP/BU / 5.4 Pate: 4/26/2016 | | Constitution 14-11-11 0. | e 1 | |
| | issel: Peler R | | Sampling Method: Power | 6196 | |
| Subcontracto | | | Woother St | | |
| | | 2/01 | Weather: Sunk | | |
| Station Coordina | ites: N/Lat. 47- 2071 | | _ | | |
| | E/Long. 123, 092 | 371W | | | |
| | um: NAD 83 / W/GS 84 | zone: | | | |
| | ID: PDI-SMA3-SC | The second secon | | | |
| Analys | sis: Dioxins Furans / TBT / (Circle Appropriate Ana | | Other: | | _ |
| | (Oncie Appropriate Ana | ilyses) | Other. | | |
| Accecpted Grab | Water Depth: | _ft. ~8' | Grab Recovery: 23 | cm Time: (| 0933 |
| vuilibei. | Tide Level: | | Sample Interval: 10 | cm | |
| | Depth MLLW: | _ft. | | | |
| Sediment Type: | Sediment Color: | Density: | Sediment Odor: | Sheen: | Moisture: |
| cobble | D.O. | Very soft/Loose | none H2S | none | Dry |
| gravel | gray | soft/loose | slight Petroleum | trace | Damp |
| sand C M F | black | mod dense/stiff | moderate other: | slight | Moist |
| silt clay | browp | dense/stiff | strong | moderate | Wet |
| organic matter | brown surface | very dense/stiff | overwhelming | heavy | |
| Ouplicate Station? Yes / N | è . | | | | |
| Processing Check-li | ist | | | | |
| Processing Cre | ew: EP/BW/JA | | Time: 093 | 7 | |
| | 1 | | Date: | | |
| hotograph of unhomogen | ized sample: 1 | a mano | | | |
| Homogenization Start Tir | ized sample: 1 to ke | | Homogenization End Time | 0940 | |
| | | / | | | |
| nomogenize sample with p | addle until consisyency and | color are uniform: | | | |
| Photograph of homogenize | ed sample: [] | | | | |
| comments: | | | | | |
| Triplicate 5 | tation; same | classification | for 56-1004 \$ | 56-100 | 4 |
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| 1004 | · · · · · · · · · · · · · · · | grap pholo? V | homeg phate? | / | |
| RCOEV: 27 T | ine. 0995 | 3, who brose . | homes provide | V | |
| 2004 | | | | 7 | |
| | Ťi | and de 1-2.1 | honey phote | 7./ | |
| Recov: 23 | Time: 1000 | grab photo?V | HONDY PHONE | . 0 | |
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Recorded by: Al Hade



| Sampling Crew | EP/BW/54 | | | |
|------------------------------|--------------------------------|-----------------------------|---------------------------|----------------------------|
| | 04/26/2018 | | Sampling Method: Porce | Grah |
| Sampling Vessel | | | 10/20 | - 140 |
| Subcontractor(s) | | | Weather: Suny | |
| | N/Lat. 47. 206 183 | ا ن | | |
| | E/Long. 123.092064 | | | |
| Datum | NAD 83 / WGS 84 | A Fortist | - | |
| | | zone: | | |
| | PDI-SMA3-560 | × | - 00 | |
| Analysis: | Dioxins Furans / TBT / TOC | | Other: | |
| | (Circle Appropriate Analyses | 5) | Other: | |
| Accecpted Grab | | | 700 00 00 00 | 10116 |
| Number: | Water Depth:ft. | ~ 10' | | cm Time: 1040 |
| | Tide Level:ft. | | Sample Interval: 10 | cm |
| Sediment Type: | Depth MLLW:ft. Sediment Color: | Donoit | Cadimant Odani | Johanni Juni |
| cobble | D.O. | Density: Very soft/Loose | Sediment Odor: | Sheen: Moisture: |
| gravel | gray | soft/loose | slight Petroleum | trace Dry |
| sand C M F | black | mod dense/stiff | moderate other: | trace Damp slight Moist |
| silt clay | brown | dense/stiff | strong | |
| organic matter | brown surface | very dense/stiff | overwhelming | moderate Wet |
| | | | | _ |
| | | | | |
| OGT Location? Yes / No | If yes | Temp: 119°C | pH: 7.16 | Salinity: |
| Ouplicate Station? Yes /No | | | *** | |
| | EP/BY/JA | - 1 | Time: 1050 | 2018 |
| Photograph of unhomogenized | sample: 11 taken | in 8 Mp | Jule: 4/20/3 | |
| Homogenization Start Time: | 1050 | | Homogenization End Time: | 1051 |
| Transferration State Finite. | 1000 | | riomogenization and rime. | (0.0) |
| Homogenize sample with pade | tle until consisvency and colo | r are uniform: [4 | | |
| | / | and dimenting [-1 | | |
| Photograph of homogenized s | ample: [V | | | |
| | 2.7 | | | |
| | | | | |
| Comments: | | | | |
| | missel on | hout | | |
| | genzed on | bout | | |
| Comments: Sample homo | genzed on | 6047 | | |
| | genized on | 6047 | | |
| | gerized on | bout | | |
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| | genzed on | 6047 | | |
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| | genzed on | bout | | |
| | genzed on | 6047 | | |
| | genized on | 6097 | | |
| | genzed on | 6097 | | |
| | genzed on | bout | | |



| Sampling Crev | VI EPIBUIJA | | | ID:SMAJ-SGGE |
|--|--|-----------------------------|---|----------------------------|
| Sample Date | e: 4/26/2015 | | Sampling Method: Power | Corals |
| Sampling Vesse | | | 1000 | 0.40 |
| Subcontractor(s |): MSS | | Weather: Sunnu | , |
| | s: N/Lat. 47. 20643 | 00.1 | Treation July 1 |) |
| Glation Goodmidles | | | _ | |
| 4 | E/Long. 123, 0917 | | - | |
| | : NAD 83 /WGS 84 | zone: | | |
| | PDI-50173-5 | | - | |
| Analysis | : Dioxins Furans / TBT / TO | | Other: | |
| | (Circle Appropriate Analyse | es) | Other: | |
| Accecpted Grab | | | | 1/02 |
| Number: | Water Depth:ft. | | | cm Time: <u>1623</u> |
| | Tide Level:ft. | | Sample Interval: | cm |
| Sediment Type: | Depth MLLW:ft. | | Codiment Oder | lot |
| obble | D.O. | Density: Very soft/Loose | Sediment Odor: | Sheen: Moisture: |
| ravel | gray) | soft/loose | none H2S stight Petroleum | |
| sand C M F | black | mod dense/stiff | moderate other: | trace Damp slight Moist |
| silt clay | brows | dense/stiff | strong | moderate Wet |
| organic matter | brown surface | very dense/stiff | overwhelming | heavy |
| Comments: | trace organics | | | 1 |
| OGT Location? Yes / No | If yes | Temp: | pH: | Salinity: |
| Processing Check-list | THE RESERVE AND ADDRESS OF THE PARTY OF THE | | Time: 1633 | |
| Processing Crew: | FIJONISA | 4.1 | ×11-1 | |
| | 1 / | 4h | Date: 4/26/ | 2018 |
| hotograph of unhomogenize | d sample: [\ w/g/ | 46 | Date: 4/26/ | 1/2018 |
| | d sample: [\ w/g/ | 46 | ×11-1 | :_1634 |
| Photograph of unhomogenize Homogenization Start Time: | d sample: [\ \ \ \ \ / \ \ \ / \ \ \ / \ \ / \ \ / \ \ / \ \ / \ \ / \ \ / \ \ / \ \ \ / \ \ \ \ \ \ \ \ \ \ \ \ | / | Date: 4/26/ | :_1634 |
| Photograph of unhomogenize Homogenization Start Time: | d sample: [\w/g/ | / | Date: 4/26/ | :_1634 |
| hotograph of unhomogenized Homogenization Start Time: omogenize sample with pade | d sample: [\w/5/ 633 \widelight\) | / | Date: 4/26/ | :_1634 |
| hotograph of unhomogenized Homogenization Start Time: comogenize sample with pade | d sample: [\w/5/ 633 \widelight\) | / | Date: 4/26/ | :_1634 |
| Photograph of unhomogenized Homogenize sample with pade thotograph of homogenized s | d sample: [\(\sum \) | or are uniform: [\v / | Date: 4/26/ | 1634 :1634 |
| Photograph of unhomogenized Homogenize sample with pade thotograph of homogenized s | d sample: [\(\sum \) | or are uniform: [\v / | Date: 4/26/ | 1634 :1634 |
| Photograph of unhomogenized Homogenize sample with pade thotograph of homogenized s | d sample: [\(\sum \) | or are uniform: [\v / | Date: 4/26/ | 1634 |
| Photograph of unhomogenized Homogenize sample with pade thotograph of homogenized s | d sample: [\(\sum \) | or are uniform: [\v / | Date: 4/26/ | 1634 |
| Photograph of unhomogenized Homogenize sample with pade thotograph of homogenized s | d sample: [\(\sum \) | or are uniform: [\v / | Date: 4/26/ | 1634 :_1634 |
| Photograph of unhomogenized Homogenize sample with pade thotograph of homogenized s | d sample: [\(\sum \) | or are uniform: [\v / | Date: 4/26/ | 1634 :_1634 |
| Photograph of unhomogenized Homogenization Start Time: lomogenize sample with pade hotograph of homogenized s | d sample: [\(\sum \) | or are uniform: [\v / | Date: 4/26/ | 1634 :_1634 |
| hotograph of unhomogenized Homogenize sample with pade hotograph of homogenized somments: Paddle - Mixe | d sample: [\(\sum \) | or are uniform: [\v / | Date: 4/26/ | 1634 |
| hotograph of unhomogenized Homogenize sample with pade hotograph of homogenized somments: Paddle - Mixe | d sample: [\(\sum \) | or are uniform: [\v / | Date: <u>4/26/</u> Homogenization End Time. | 1634 |
| Photograph of unhomogenized Homogenization Start Time: lomogenize sample with pade hotograph of homogenized s | d sample: [\(\sum \) | or are uniform: [\v / | Date: <u>4/26/</u> Homogenization End Time. | 1634 |
| Photograph of unhomogenized Homogenize sample with pade hotograph of homogenized somments: Paddle - Mixe | d sample: [\(\sum \) | or are uniform: [\v / | Date: <u>4/26/</u> Homogenization End Time. | 1634 |
| Photograph of unhomogenized Homogenize sample with pade thotograph of homogenized somments: Paddle - Mixe | d sample: [\(\sum \) | or are uniform: [\v / | Date: <u>4/26/</u> Homogenization End Time. | 1634 |
| Photograph of unhomogenized Homogenize sample with pade hotograph of homogenized somments: Paddle - Mixe | d sample: [\(\sum \) | or are uniform: [\v / | Date: <u>4/26/</u> Homogenization End Time. | 1634 |
| Photograph of unhomogenized Homogenize sample with pade hotograph of homogenized somments: Paddle - Mixe | d sample: [\(\sum \) | or are uniform: [\v / | Date: <u>4/26/</u> Homogenization End Time. | 1634 |



| Homogenize sample with paddle until consisyency and color are uniform: | |
|--|-----------|
| Sampling Vessel: PLAT Subcontractor(s): MSS Station Coordinates: N/Lat. 47.2c.74176/J El.Long. 123.294036 Datum: NAD 83 MGS 84 Datum: NAD 84 MGS 84 MGS 84 Datum: NAD 84 MGS 84 | |
| Subcontractor(s): MSS Station Coordinates: N/Lat. 47. 2c 7 417 °/J E/Long. 123_64036 v.; Datum: NAD 83 / MSS 84 zone: Sample ID DD1 - SMA3 - S&O 7 - 180426 Analysis: Dioxins Furans / TBT / TOC / Cu / DGT (Circle Appropriate Analyses) Other: Other | |
| Station Coordinates: N/ Lat. 47.207476/J E/Long. 123.091036 W Datum: NAD 83/VGS 84 zone: Sample ID: PDT - ShA 3 - Scot 7 - 180426 Analysis: Dioxins Furans / TBT / TCC / Cu / DGT (Circle Appropriate Analyses) Water Depth: ft. 44 Grab Recovery: Gram Time: Sample Interval: Common Time: Sediment Type: Sediment Color: Density: Sediment Odor: Sheen: Obble D.O. Very soft/Loose Sight Petroleum Trace and C M F black mod dense/stiff moderate other: slight moderate other: slight prown dense/stiff strong wery dense/stiff strong wery dense/stiff overwhelming heavy Processing Check-list Processing Check-list Processing Crew: EP/BW/SA Time: SS Salinity: Date: 426/2018 Homogenization Start Time: 1305 Homogenizes sample with paddle until consisyency and color are uniform: Moderate and Time: 1306 Processing Sample with paddle until consisyency and color are uniform: Moderate and Time: 1306 Processing Sample with paddle until consisyency and color are uniform: Moderate and Time: 1306 Processing Sample with paddle until consisyency and color are uniform: Moderate and Time: 1306 | |
| Datum: NAD 83 / WGS 84 zone: Sample ID: PDT - SMA - SCO 7 - 180426 Analysis: Dioxins Furans / TBT / TOC / Cu / DGT Other: (Circle Appropriate Analyses) Water Depth: ft. y / Grab Recovery: 1 cm Time: Sample Interval: 10 cm Time: 1 cm Time: | |
| Datum: NAD 83 / VGS 84 zone: Sample ID: DDT-S/NAS-SCOT-180426 Analysis: Dioxins Furans / TBT / TOC / Cu / DGT | |
| Sample ID: PDT - SNA3 - SCO 7 - 180926 Analysis: Dioxins Furans / TBT / TOC / Cu / DGT (Circle Appropriate Analyses) Accecpted Grab Number: | |
| Analysis: Dioxins Furans / TBT / TOC / Cu / DGT Other: |
| Circle Appropriate Analyses) Other: Compared Comp | |
| Water Depth:ftft | |
| Water Depth: ft. Tide Level:ft. Sample Interval: Cm | |
| Tide Level:ft. Depth MLLW:ft. Sediment Type: Sediment Color: Density: Sediment Odor: Sheen: Debth MLLW:ft. Sediment Type: Sediment Color: Density: Sediment Odor: Sheen: Doubble D.O. Very soft/Loose none H2S none gravel gray soft/Ioose slight Petroleum trace shand C M F black mod dense/stiff strong moderate other: slight brown dense/stiff strong moderate prognic matter brown surface very dense/stiff overwhelming overwhelming heavy DOST Location? (**Pet / No If yes Temp: 2.8°C pH: 7,6°9 Salinity: Processing Check-list Processing Crew: EP/BW SA Time: Soft Sof | 755 |
| Depth MLLW:ft. Sediment Type: | |
| D.O. Very soft/Loose none H2S none trace sight Petroleum trace sight moderate other: slight other: slight moderate other: slight oth | |
| ravel gray black black brown dense/stiff dense/stiff wery dense/stiff wery dense/stiff overwhelming brown surface | Moisture: |
| black brown black brown brown surface brown | Dry |
| dense/stiff very dense/ | Damp |
| Processing Crew: FP/BW/JA Processing Crew: FP/BW/JA Photograph of unhomogenized sample: [Vehotograph of homogenized sample: [Vehotograph | Moist |
| Comments: 0°/0 f sand OGT Location? (es / No If yes Temp: 2.8°C pH: 7,69 Salinity: Outplicate Station? Yes / Go Processing Check-list | Wei |
| DGT Location? (If yes Temp: 12.8 C pH: 7.69 Salinity: Duplicate Station? Yes / (If yes Temp: 12.8 C pH: 7.69 Salinity: Processing Check-list Processing Crew: FP/BW/JA Time: 1305 Date: 4/26/2018 Photograph of unhomogenized sample: 1305 Homogenization End Time: 1306 Photograph of homogenized sample: 1 Time: 1306 Homogenization End Time: 1306 | |
| Processing Crew: EP/BW/JA Photograph of unhomogenized sample: Taken in grab Homogenization Start Time: 1305 Homogenize sample with paddle until consisyency and color are uniform: Managements: Photograph of homogenized sample: [V | |
| Photograph of unhomogenized sample: Homogenization Start Time: 1305 Homogenize sample with paddle until consisyency and color are uniform: Moreover the sample with paddle until consisyency and color are uniform: Moreover the sample with paddle until consisyency and color are uniform: Moreover the sample with paddle until consisyency and color are uniform: Moreover the sample with paddle until consisyency and color are uniform: Moreover the sample with paddle until consisyency and color are uniform: Moreover the sample with paddle until consisyency and color are uniform: Moreover the sample with paddle until consisyency and color are uniform: Moreover the sample with paddle until consisyency and color are uniform: Moreover the sample with paddle until consisyency and color are uniform: Moreover the sample with paddle until consisyency and color are uniform: Moreover the sample with paddle until consisyency and color are uniform: Moreover the sample with paddle until consisyency and color are uniform. | |
| Homogenize sample with paddle until consisyency and color are uniform: | |
| Homogenize sample with paddle until consisyency and color are uniform: | |
| Homogenize sample with paddle until consisyency and color are uniform: | |
| Photograph of homogenized sample: [V | |
| Photograph of homogenized sample: [V | |
| Comments: | |
| Comments: | |
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| Paddle Mixell. Sample hanogerized on boat, | |
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Recorded by: Ali Charles



Recorded by: lel Ballo

Shelton Harbor Surface Sediment Collection and Processing Form

| Sampling Crew: | EP/BW/54 | | | | | |
|--|---|------------------|--------------------------------------|-------------|-----------|-----------|
| | 4/26/2018 | | Sampling Method: | Power | Grah | |
| Sampling Vessel: | | | | 1000 | 91110 | |
| Subcontractor(s): | | | Weather: | Bunz | 1 | |
| Station Coordinates: | | | - | |) | |
| A STATE OF THE PARTY OF THE PAR | E / Long. | | - | | | |
| Datum | NAD 83 / WGS 84 | zone: | ->: | | | |
| | | | <u> </u> | | | |
| | PDT-SM43-50 Dioxins Furans / TBT / TOC / | | Other: | | | |
| Arialysis. | (Circle Appropriate Analyses) | | Other: | | | _ |
| | (Circle Appropriate Arialyses) | | Other. | | | |
| Accecpted Grab | Mater Death, - 6 | | Out Design | 13 0 | m Time: _ | 1315 |
| Number:(| Water Depth:ft. Tide Level:ft. | | Grab Recovery:_ Sample Interval:_ | | | 010 |
| | Depth MLLW:ft. | | Sample interval. | 10 | cm | |
| Sediment Type: | Sediment Color: | Density: | Sediment Odor: | | Sheen: | Moisture: |
| cobble | D.O. | Very soft/Loose | none | H2S | none | Dry |
| gravel | gray | soft/loose | slight | Petroleum | trace | Damp |
| sand C M F | black | mod dense/stiff | moderate | other: | slight | Moist |
| silt clay | brown | dense/stiff | strong | | moderate | Wet |
| organic matter Comments: | brown surface | very dense/stiff | overwhelming | | heavy | |
| 20% soud for | | 1- 13/00 | In/ 70 | | 0.55 | |
| OGT Location? Yes / No Duplicate Station? Yes / No | If yes | Temp: 13.6°C | pH: 6.79 | | Salinity: | |
| | EP/BW/JA | | Time: Date: | 4/26/2 | 2018 | |
| Photograph of unhomogenized | d sample: [X] top ken . | with grat | | 7 | | |
| Homogenization Start Time: | | | Homogenizatio | n End Time: | | |
| lamananta annolo autori | ni | | | | | |
| nomogenize sample with page | dle until consisyency and color | are uniform: [V | | | | |
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| | ample: [| | | | | |
| Photograph of homogenized so | | | | | | |
| Photograph of homogenized s | | boark | | | | |
| Photograph of homogenized s | | boark | | | | |
| Photograph of homogenized s | ample: [V | beark | | | | |
| Photograph of homogenized s | | boat | | | | |
| Photograph of homogenized so | | boark | | | | |
| Photograph of homogenized so | | boat | | | | |
| Photograph of homogenized so | | beark | | | | |
| Photograph of homogenized so | | beark | | | | |
| Photograph of homogenized so | | boak | | | | |
| Photograph of homogenized so | | boat | | | | |
| Photograph of homogenized so | | beark | | | | |
| Photograph of homogenized so | | boat | | | | |
| Photograph of homogenized so | | boat | | | | |
| Photograph of homogenized s | | boat | | | | |



| Number: 2 Water Depth: ft. 72 Sample Interval: 6 Cm Time: 010 Cm Time: | Sampling Vessel: Policy Subcontractor(s): MSS Station Coordinates: NLat. 47, 206910 | Sampling Cre | W: EP/BW/JA | | | |
|--|--|--|---|--|--|--|
| Sampling Vessel: Peter & Subcontractor(s): MSS Station Coordinates: NLat. 47, 206910 | Sampling Vessel: Peter & Subcontractor(s): MSS Station Coordinates: NLat. 47, 206910 | Sample Dat | te: 4/26/2018 | | Sampling Method: Power | 6196 |
| Station Coordinates: N/Lat. 47, 20(511 %) E/Long. 173,0726 93 w/ Datum: NAD 83 / WGS 84 zone: Sample ID: P) T - 5M A3 - 569 - 1869 26 Analysis: Dioxins Furans / TBT / TOC/ Cu / DGT Other: (Circle Appropriate Analyses) Other: Accecpted Grab Number: 7 ft. 72 Grab Recovery: 4 cm Time: 09 (b) Number: 9 ft. Sample Interval: 0 cm Depth MLLW: - ft. Sample Interval: 0 cm Damp Interval: 0 cm Interval: 0 cm Damp Interval: 0 cm Interval: 0 | Station Coordinates: N/Lat. 47, 20(511 %) E/Long. 173,0726 93 w/ Datum: NAD 83 / WGS 84 zone: Sample ID: P) T - 5M A3 - 569 - 1869 26 Analysis: Dioxins Furans / TBT / TOC/ Cu / DGT Other: (Circle Appropriate Analyses) Other: Accecpted Grab Number: 7 ft. 72 Grab Recovery: 4 cm Time: 09 (b) Number: 9 ft. Sample Interval: 0 cm Depth MLLW: - ft. Sample Interval: 0 cm Damp Interval: 0 cm Interval: 0 cm Damp Interval: 0 cm Interval: 0 | Sampling Vess | el: Peter R | | | |
| Station Coordinates: N/Lat. 47, 2c.(511 % E/Long. 123,092693 v/ Datum: NAD 83 / VGS 84 zone: Sample ID: P) T - 5MA3 - 5C9 - 1809 26 Analysis: Dioxins Furans / TBT / TOC/ Cu / DGT Other: (Circle Appropriate Analyses) Accecpted Grab Number: | Station Coordinates: N/Lat. 47, 2c.(511 % E/Long. 123,092693 v/ Datum: NAD 83 / VGS 84 zone: Sample ID: P) T - 5MA3 - 5C9 - 1809 26 Analysis: Dioxins Furans / TBT / TOC/ Cu / DGT Other: (Circle Appropriate Analyses) Accecpted Grab Number: | Subcontractor(s | s): <u>M</u> SS | | Weather: 5471 | |
| Botum: NAD 83 / WGS 84 zone: Sample ID: PT SMA3-SGQ-ISCYZ6 Analysis: Dioxins Furans / TBT / TOC / Cu / DGT (Circle Appropriate Analyses) Water Depth: ft. vz Grab Recovery: 44 cm Time: 0910 Accepted Grab Number: 1 the Level: ft. Depth MILLY: | Botum: NAD 83 / WGS 84 zone: Sample ID: PT SMA3-SGQ-ISCYZ6 Analysis: Dioxins Furans / TBT / TOC / Cu / DGT (Circle Appropriate Analyses) Water Depth: ft. vz Grab Recovery: 44 cm Time: 0910 Accepted Grab Number: 1 the Level: ft. Depth MILLY: | Station Coordinate | es: N/Lat. 47, 2069 | (11°N | |) |
| Datum: NAD 83 / VFGS 84 zone: Sample ID: PDT - SMA3 - SCOQ - ISCY 26 Analysis: Dioxins Furans / TBT / TOC / Cu / DGT (Circle Appropriate Analyses) Other: O | Datum: NAD 83 / VFGS 84 zone: Sample ID: PDT - SMA3 - SCOQ - ISCY 26 Analysis: Dioxins Furans / TBT / TOC / Cu / DGT (Circle Appropriate Analyses) Other: O | | | S - 1 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 | | |
| Sample ID: PDT-SM3-SG-09-180426 Analysis: Dioxins Furans / TBT / TOC / Cu / DGT (Circle Appropriate Analyses) Accepted Grab Number: | Sample ID: PDT-SM3-SG-09-180426 Analysis: Dioxins Furans / TBT / TOC / Cu / DGT (Circle Appropriate Analyses) Accepted Grab Number: | Datum | | | _ | |
| Analysis: Dioxins Furans / TBT / TOC / Cu / DGT Other: Circle Appropriate Analyses | Analysis: Dioxins Furans / TBT / TOC / Cu / DGT Other: Circle Appropriate Analyses Other: | | | | | |
| Circle Appropriate Analyses Other: | Circle Appropriate Analyses Other: | | | | | |
| Accepted Grab Number: | Accepted Grab Number: | Analysis | | | | |
| Number: 2 Water Depth: ft. 72 Srab Recovery: 49 cm Time: 010 cm Time: | Number: 2 Water Depth: ft. 72 Srab Recovery: 49 cm Time: 010 cm Time: | | (Circle Appropriate Ana | alyses) | Otner: | |
| Number: 2 Water Depth: ft. 72 Sample Interval: 0 cm Time: 010 cm Time: | Number: 2 Water Depth: ft. 72 Sample Interval: 0 cm Time: 010 cm Time: | Accecpted Grab | Tanasaran E | | 24.4 | Antis |
| Depth MLLW:ft. Sediment Type: | Depth MLLW:ft. Sediment Type: | | | | | m Time: <u>0910</u> |
| Sediment Type: Sediment Color: Density: Sediment Odor: Sheen: Moisture: Cobble D.O. Very soft/Loose Slight Petroleum trace Damp SainD C M F Diack Dry Damp Silit clay Dry Dry Dry Dry Dry Dry Dry Dry Dry Dr | Sediment Type: Sediment Color: Density: Sediment Odor: Sheen: Moisture: Cobble D.O. Very soft/Loose Slight Petroleum trace Damp SainD C M F Diack Dry Damp Silit clay Dry Dry Dry Dry Dry Dry Dry Dry Dry Dr | | | | Sample Interval: | cm |
| DO Very soft/Loose slight Petroleum trace Damp soft/Loose slight Petroleum trace other: slight moderate other: sli | DO Very soft/Loose slight Petroleum trace Damp soft/Loose slight Petroleum trace other: slight moderate other: sli | Sodiment Type: | | | la | Taxon Taxon |
| gravel Sand C M F Silt clay Damp mod dense/stiff dense | gravel Sand C M F Silt clay Damp mod dense/stiff dense | | | | | |
| Samp C M F black mod dense/stiff dense/stiff dense/stiff very dense/stiff | Samp C M F black mod dense/stiff dense/stiff dense/stiff very dense/stiff | | | | | |
| dense/stiff very dense/ | dense/stiff very dense/ | | | | | |
| organic matter brown surface very dense/stiff overwhelming heavy DGT Location? Yes / 100 If yes Temp: pH: Salinity: Duplicate Station? Yes / 100 Processing Check-list Processing Crew: F BUJA Time: 0426 Date: 4242018 Homogenization Start Time: 0421 Photograph of homogenized sample: [U | Processing Check-list Processing Crew: Processing Crew: Processing Check-list Ohotograph of unhomogenized sample: Note that the processing Check of | | | Control of the Contro | | 20.00 Street 10.00 |
| Comments: Station? Yes / Processing Check-list Processing Crew: FM BUJSA | Comments: Station? Yes / Processing Check-list Processing Crew: FM BUJSA | THE PARTY OF THE P | | 2011001001 | The state of the s | |
| Processing Check-list Processing Crew: Free Buffa Time: 9720 Photograph of unhomogenized sample: 1 taken with grab Homogenization Start Time: 9720 Homogenize sample with paddle until consisyency and color are uniform: 1 who comments: | Processing Check-list Processing Crew: Free Buffa Time: 9720 Photograph of unhomogenized sample: 1 taken with grab Homogenization Start Time: 9720 Homogenize sample with paddle until consisyency and color are uniform: 1 who comments: | | | very derise/still | Overwhenting | neavy |
| Photograph of unhomogenized sample: Homogenization Start Time: O920 | Photograph of unhomogenized sample: Homogenization Start Time: O920 | Duplicate Station? Yes / No | | | | |
| Photograph of unhomogenized sample: Homogenization Start Time: O920 Homogenization End Time: O921 Homogenize sample with paddle until consisyency and color are uniform: [| Photograph of unhomogenized sample: Homogenization Start Time: O920 Homogenization End Time: O921 Homogenize sample with paddle until consisyency and color are uniform: [| Processing Check-lis | t | | 20. | |
| Homogenization Start Time: | Homogenization Start Time: | Processing Check-lis | t v: ENBW/JA | | | |
| Homogenize sample with paddle until consisyency and color are uniform: [] | Homogenize sample with paddle until consisyency and color are uniform: [] | Processing Check-lis Processing Crew | t v: ENBW/JA | er in arab | | |
| Photograph of homogenized sample: [U | Photograph of homogenized sample: [U | Processing Check-lis Processing Crew Photograph of unhomogenize | ed sample: M +a K- | en M grab | Date: 4/24 | 2018 |
| Photograph of homogenized sample: [U | Photograph of homogenized sample: [U | Processing Check-lis Processing Crew | ed sample: M +a K- | en in grab | Date: 4/24 | 2018 |
| Comments: | Comments: | Processing Check-lis Processing Crew Photograph of unhomogenize Homogenization Start Time | ed sample: 1 |) | Date: 4/24 | 2018 |
| Comments: | Comments: | Processing Check-lis Processing Crew Photograph of unhomogenize Homogenization Start Time | ed sample: 1 |) | Date: 4/24 | 2018 |
| | | Processing Check-lis Processing Crew Photograph of unhomogenize Homogenization Start Time Homogenize sample with pace | ed sample: A A K- e: 0920 ddle until consisyency and |) | Date: 4/24 | 2018 |
| | | Processing Check-lis Processing Crew Photograph of unhomogenize Homogenization Start Time Homogenize sample with pace | ed sample: A A K- e: 0920 ddle until consisyency and |) | Date: 4/24 | 2018 |
| Paddle mixed, Sample homogarten on boat | Paddle mixed, Sample hange after on boat | Processing Check-lis Processing Crew Photograph of unhomogenize Homogenization Start Time Homogenize sample with pace Photograph of homogenized | ed sample: A A K- e: 0920 ddle until consisyency and |) | Date: 4/24 | 2018 |
| | | Processing Check-lis Processing Crew Photograph of unhomogenize Homogenization Start Time Homogenize sample with pace Photograph of homogenized Comments: | ed sample: A Received and sample: [U/ | color are uniform: [\sqrt{1} | Date: <u> </u> | 2018 |
| | | Processing Check-lis Processing Crew Photograph of unhomogenize Homogenization Start Time Homogenize sample with pace Photograph of homogenized Comments: | ed sample: A Received and sample: [U/ | color are uniform: [\sqrt{1} | Date: <u> </u> | 2018 |
| | | Processing Check-lis Processing Crew Photograph of unhomogenize Homogenization Start Time Homogenize sample with pace Photograph of homogenized Comments: | ed sample: A Received and sample: [U/ | color are uniform: [\sqrt{1} | Date: <u> </u> | 2018 |
| | | Processing Check-lis Processing Crew Photograph of unhomogenize Homogenization Start Time Homogenize sample with pace Photograph of homogenized Comments: | ed sample: A Received and sample: [U/ | color are uniform: [\sqrt{1} | Date: <u> </u> | 2018 |
| | -1- | Processing Check-lis Processing Crew Photograph of unhomogenize Homogenization Start Time Homogenize sample with pace Photograph of homogenized Comments: | ed sample: A Received and sample: [U/ | color are uniform: [\sqrt{1} | Date: <u> </u> | 2018 |
| | | Processing Check-lis Processing Crew Photograph of unhomogenize Homogenization Start Time Homogenize sample with pace Photograph of homogenized Comments: | ed sample: A Received and sample: [U | color are uniform: [\sqrt{1} | Date: <u> </u> | 2018 |
| | | Processing Check-lis Processing Crew Photograph of unhomogenize Homogenization Start Time Homogenize sample with pace Photograph of homogenized Comments: | ed sample: A Received and sample: [U | color are uniform: [\sqrt{1} | Date: <u> </u> | 2018 |
| | | Processing Check-lis Processing Crew Photograph of unhomogenize Homogenization Start Time Homogenize sample with pace Photograph of homogenized Comments: | ed sample: A Received and sample: [U | color are uniform: [\sqrt{1} | Date: <u> </u> | 2018 |
| | | Processing Check-lis Processing Crew Photograph of unhomogenize Homogenization Start Time Homogenize sample with pace Photograph of homogenized Comments: | ed sample: A Received and sample: [U | color are uniform: [\sqrt{1} | Date: <u> </u> | 2018 |
| | | Processing Check-lis Processing Crew Photograph of unhomogenize Homogenization Start Time Homogenize sample with pace Photograph of homogenized Comments: | ed sample: A Received and sample: [U | color are uniform: [\sqrt{1} | Date: <u> </u> | 2018 |
| | | Processing Check-lis Processing Crew Photograph of unhomogenize Homogenization Start Time Homogenize sample with pace Photograph of homogenized Comments: | ed sample: A Received and sample: [U | color are uniform: [\sqrt{1} | Date: <u> </u> | 2018 |
| | | Processing Check-lis Processing Crew Photograph of unhomogenize Homogenization Start Time Homogenize sample with pace Photograph of homogenized Comments: | ed sample: A Received and sample: [U | color are uniform: [\sqrt{1} | Date: <u> </u> | 2018 |

Recorded by: MG DEATO



| Sampling (| mn/a . 1 . A | Project No: \(\(\text{\OOC}\) | | ID: SMA3-SG10 |
|--|---------------------------------|-------------------------------|--------------------------|------------------|
| | Date: 4/26/2018 | | Complian Mathed 0 | 1 1 |
| | essel: Peler R | | Sampling Method: Poice | Grab |
| | or(s): MSS | | | |
| | | 45.8 | Weather: Sunt | 2 |
| Station Coordin | ates: N/Lat. 47, 20655 | | _ |) |
| | E/Long. 123 0925 | 66°W | | |
| Dat | tum: NAD 83 / WGS 84) | zone: | 3" | |
| Sampl | e ID: POI-SMA3-50 | =10-180U21 | | |
| | ysis: Dioxins Furans / TBT / TO | | Other: | |
| | (Circle Appropriate Analys | | Other: | |
| | (- mail of a philade) and you | | Other. | |
| Accecpted Grab | W-4 D - II | | 200 | 141-1 |
| Number: | Water Depth:ft | | Grab Recovery: 22 | cm Time: 1017 |
| | Tide Level:ft | | Sample Interval: 10 | cm |
| De dies and Torre | Depth MLLW:ft. | | | |
| Sediment Type: | Sediment Color: | Density: | Sediment Odor: | Sheen: Moisture: |
| cobble | D.O. | Very soft/Loose | none H2S | none Dry |
| gravel | gray | soft/loose | slight Petroleum | trace Damp |
| sand C M F | black | mod dense/stiff | moderate other: | slight Moist |
| silt clay | brown | dense/stiff | strong | moderate (Vet |
| organic matter Comments: | brown surface | very dense/stiff | overwhelming | heavy |
| OGT Location? Yes / No Ouplicate Station? Yes / N | If yes | Temp: (1,932 | pH: 7.92 | Salinity: |
| Processing Cr | Tale 11- 1 | | Time: 02 | |
| | 1 1-61 | a de proch | Date: 4/26/20 | 7/8 |
| notograph of unhomoger | nized sample: N take | 1 101 8.00 | , 1 | To the second |
| Homogenization Start Ti | me: 1027 | | Homogenization End Time: | 1028 |
| | | / | | |
| domogenize sample with p | paddle until consisyency and co | lor are uniform: [[| | |
| | | | | |
| man and the second seco | ed sample: | | | |
| hotograph of homogenize | | | | |
| Photograph of homogenize | | | | |
| Comments: | 1 1 | 0 1 | | |
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| Comments: | noga? zed o | n boat. | | |
| Comments: | noga? zed o | n bont. | | |

Recorded by: Ali Ontie



| Project Name: She | | oject No: 1000 | 8-01-03 Statio | n ID: SMA | 3-56-1 |
|-----------------------------|-------------------------------------|--------------------|------------------------|-----------|------------|
| Sampling Cre | | | | | |
| Sample Dat | | | Sampling Method: Power | 1 Grab | |
| Sampling Vesse | | | | | |
| Subcontractor(s | | | Weather: | | |
| Station Coordinate | es: N/Lat. 47, 206645 | N | | | |
| | E/Long. 123. 09123 | | | | |
| Datum | n: NAD 83 / WGS 84 | zone: | - | | |
| | | | | | |
| | D: PDI-SMA3-SG-1 | 1-180426 | | | |
| Analysis | s: Dioxins Furans / TBT / TOC | | Other: | | |
| | (Circle Appropriate Analyses | >) | Other. | | |
| Accecpted Grab | WILL MALL STORY | | 7.2 | | 1107 |
| Number: | Water Depth:ft. | 10 - 55 L | Grab Recovery: 22 | | 1607 |
| | Tide Level:ft. | ~18 | Sample Interval: 0 | cm | |
| Sediment Type: | Depth MLLW:ft. Sediment Color: | Inansita: | Sadimont Oder | lebass | Matations |
| cobble | D.O. | Density: | Sediment Odor: | Sheen: | Moisture: |
| | gray | Very soft/Loose | none H2S | none | Dry |
| gravel | | (soft/loose) | slight Petroleu | | Damp |
| sand C M F | black | mod dense/stiff | moderate other: | slight | Moist |
| silt clay | brown | dense/stiff | strong | moderate | Wet |
| organic matter Comments: | brown surface | very dense/stiff | overwhelming | heavy | |
| Ouplicate Station? Yes / No | | | | | |
| Processing Check-lis | it | | | | |
| Processing Crev | v: EP/BW/5A | | Time: 1617 | 1 | |
| | , , | | Date: 4/2/ | | |
| Photograph of unhomogenize | ed sample: W taken u | 2/ grat | Jule. Heb | 12010 | |
| Homogenization Start Time | | 19. | Homogenization End Tin | 1619 | |
| nomogenization Start Time | . ALL | | nomogenization End Tin | ne: rag | |
| domogeniza cample with no | ddle until consisyency and colo | s are uniform [] 1 | | | |
| tomogenize sample with par | adie dritii corisisyericy arid colo | are dimoni. [\] | | | |
| Photograph of homogenized | sample: [V | | | | |
| | | | | | |
| Comments: | ed. Sample h | | 0 1 1 | | |
| Delle- not us | 1 Sumale 1 | omogen Zu | cel on beat | | |
| radule 1011 XE | | 0 | | | |
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Recorded by: About



| Project Name: She | Hen Houbar P | roject No: 1000 | 8-01.03 | Station | ID: SMA | 3-56- |
|--|--------------------------------|-----------------------------|----------------|--------------|-------------------|-----------|
| | W. EP/BU/JA | | - | 200 | 01 | 5 00 |
| Sample Date | e: 4/26/2018 | | Sampling Math | od: D | - 4.1 | |
| Sampling Vesse | | | Sampling Metho | ou Powe | GIGE | |
| Subcontractor(s | | | - Month | an / 101 | | |
| | s: N/Lat. 47, 206987 | - n1 | vveatn | er: 54114 | } | |
| | E/Long. 123, 091534 | | _ | | | |
| Detue | | | _ | - | | |
| | : NAD 83 / WGS 84 | zone: | | | | |
| | SPJ-SMA3-SU | | | | | |
| Analysis | Dioxins Furans / TBT / TOO | | Other: | | | |
| | (Circle Appropriate Analyse | es) | Other: | | | |
| Accepted Grab | ANTINESE IN THE SEC. | 0.41 | | ~ ~ ~ | | |
| Number: | Water Depth:ft. | 29' | Grab Recovery | | cm Time: | 1100 |
| | Tide Level:ft. | | Sample Interva | 1:_10 | cm | |
| Sediment Type: | Depth MLLW:ft. | Density | Sediment Oden | | Tou | Tee - |
| obbie | D.O. | Density: Very soft/Loose | Sediment Odor: | H2S | Sheen: | Moisture: |
| gravel | gray | soft/loose> | slight | Petroleum | none | Dry |
| sand C M F | black | mod dense/stiff | moderate | other: | trace | Damp |
| stit clay | brown | dense/stiff | strong | ouler. | slight | Moist |
| rganic matter | brown surface | very dense/stiff | overwhelming | | moderate heavy | Wet |
| OGT Location? Yes / No | If yes | Temp: (1.9°C | pH: \$68 | g | Salinity: — | |
| Ouplicate Station? Yes /No | 1) 0.0 | Tremp. 11. (| Ipn. 400 | | Salinity: — | |
| | EP/BW/5A | | Time | 110 | | |
| hotograph of unhomogenized Homogenization Start Time: | d sample: XI to Rec | in Buse | Homogenizati | on End Time: | 1111 | |
| omogenize sample with pado | fle until consisyency and colo | r are uniform: [\vec{V} | | | | |
| hotograph of homogenized sa | ample: [Y | | | | | |
| omments: | | | | | | |
| C 1 1 1 - 1 | royer zed c | · 6-27 | | | | |
| Jample nom | course our | 1 6011 . | | | | |
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Recorded by: At DIA



| Sampling | Crew: EP/BW/JA | | | |
|--|--|----------------------|---|------------------|
| Sample | | | Sampling Method: | Buch |
| | essel: Peter R | | - Camping Motion. Notice | 0140 |
| | or(s): MSS | | Weather: Sunn | |
| | nates: N/Lat. 47. 207 | 121100. | Weather. SUNN | 1 |
| Clation Coordii | | | _ | |
| | E/Long. 123. 09 | 1828°W | _ | |
| | tum: NAD 83 / WGS 84 | zone: | | |
| Samp | le ID: PDI-SMA3- | 56-13-180426 | | |
| Anal | ysis: Dioxins Furans / TBT / | TOC / Cu / DGT | Other: | |
| | (Circle Appropriate Ana | alyses) | Other: | |
| | | | | |
| Accecpted Grab Number: | Water Depth: | _ft. ~16 | Grab Recovery: 20 | cm Time: 1553 |
| variber. | Tide Level: | | 2 | cm |
| | Depth MLLW: | ft. | | |
| Sediment Type: | Sediment Color: | Density: | Sediment Odor: | Sheen: Moisture: |
| cobble | D.O. | Very soft/Loose | none H2S | none Dry |
| gravel | gray | soft/loose | slight Petroleum | trace Damp |
| sand C M F | black | mod dense/stiff | moderate other: | slight Moist |
| silt clay | brown | dense/stiff | strong | moderate Wet |
| organic matter Comments: | brown surface | very dense/stiff | overwhelming | heavy |
| | | Temp: | pH: | Salinity: |
| DGT Location? Yes / (10) Duplicate Station? Yes / (2) Processing Check- | Ng . | Temp: | ј рн: | Salinity: |
| Ouplicate Station? Yes / | Ng list | | | Salinity: |
| Ouplicate Station? Yes / | Ng . | | Time: | Salinity: |
| Processing Check- | ng ·list rew: <u>EP/BW/5</u> A | | | Salinity: |
| Processing Check- Processing C Processing C | NG -list rew: <u>EP/BW/5</u> / | | Time: Date: | |
| Ouplicate Station? Yes / | NG -list rew: <u>EP/BW/5/</u> -nized sample: [M | | Time: | |
| Processing Check- Processing C Processing C Processing C Photograph of unhomoge Homogenization Start T | rew: <u>FP/BW/5/</u> nized sample: [M | | Time: Date: | |
| Processing Check- Processing C Processing C Photograph of unhomoge Homogenization Start T | NG -list rew: <u>EP/BW/5</u> / | | Time: Date: | |
| Processing Check- Processing C Processing C Processing C Photograph of unhomoge Homogenization Start T | rew: FP/BW/5/ | | Time: Date: | |
| Processing Check- Processing C Processing C Processing C Photograph of unhomoge Homogenization Start T | rew: FP/BW/5/ | | Time: Date: | |
| Processing Check- Processing C Photograph of unhomoge Homogenization Start T Homogenize sample with Photograph of homogenize | rew: FP/BW/5/ | | Time: Date: | |
| Processing Check- Processing C Photograph of unhomoge Homogenization Start T Homogenize sample with Photograph of homogenize Comments: | rew: FP/BW/5/Pinized sample: [Mine: 1603] paddle until consisyency and red sample: [Mine: 1603] | color are uniform: [| Time: Date: | |
| Processing Check- Processing C Photograph of unhomoge Homogenization Start T Homogenize sample with Photograph of homogenize Comments: | rew: FP/BW/5/Pinized sample: [Mine: 1603] paddle until consisyency and red sample: [Mine: 1603] | color are uniform: [| Time: Date: | |
| Processing Check- Processing C Photograph of unhomoge Homogenization Start T Homogenize sample with Photograph of homogenize Comments: | rew: FP/BW/5/ | color are uniform: [| Time: Date: | |
| Processing Check- Processing C Photograph of unhomoge Homogenization Start T Homogenize sample with Photograph of homogenize Comments: | rew: FP/BW/5/Pinized sample: [Mine: 1603] paddle until consisyency and red sample: [Mine: 1603] | color are uniform: [| Time: Date: | |
| Processing Check- Processing C Photograph of unhomoge Homogenization Start T Homogenize sample with Photograph of homogenize Comments: | rew: FP/BW/5/Pinized sample: [Mine: 1603] paddle until consisyency and red sample: [Mine: 1603] | color are uniform: [| Time: Date: | |
| Processing Check- Processing C Photograph of unhomoge Homogenization Start T Homogenize sample with Photograph of homogenize Comments: | rew: FP/BW/5/Pinized sample: [Mine: 1603] paddle until consisyency and red sample: [Mine: 1603] | color are uniform: [| Time: Date: | |
| Processing Check- Processing C Photograph of unhomoge Homogenization Start T Homogenize sample with Photograph of homogenize Comments: | rew: FP/BW/5/Pinized sample: [Mine: 1603] paddle until consisyency and red sample: [Mine: 1603] | color are uniform: [| Time: Date: | |
| Processing Check- Processing C Photograph of unhomoge Homogenization Start T Homogenize sample with Photograph of homogenize Comments: | rew: FP/BW/5/Pinized sample: [Mine: 1603] paddle until consisyency and red sample: [Mine: 1603] | color are uniform: [| Time: Date: | |
| Processing Check- Processing C Photograph of unhomoge Homogenization Start T Homogenize sample with Photograph of homogenize Comments: | rew: FP/BW/5/Pinized sample: [Mine: 1603] paddle until consisyency and red sample: [Mine: 1603] | color are uniform: [| Time: Date: | |
| Processing Check- Processing C Photograph of unhomoge Homogenization Start T Homogenize sample with Photograph of homogenize Comments: | rew: FP/BW/5/Pinized sample: [Mine: 1603] paddle until consisyency and red sample: [Mine: 1603] | color are uniform: [| Time: Date: | |
| Processing Check- Processing C Photograph of unhomoge Homogenization Start T Homogenize sample with Photograph of homogenize Comments: | rew: FP/BW/5/Pinized sample: [Mine: 1603] paddle until consisyency and red sample: [Mine: 1603] | color are uniform: [| Time: Date: | |
| Processing Check- Processing C Photograph of unhomoge Homogenization Start T Homogenize sample with Photograph of homogenize Comments: | rew: FP/BW/5/Pinized sample: [Mine: 1603] paddle until consisyency and red sample: [Mine: 1603] | color are uniform: [| Time: Date: | |
| Processing Check- Processing C Photograph of unhomoge Homogenization Start T Homogenize sample with Photograph of homogenize Comments: | rew: FP/BW/5/Pinized sample: [Mine: 1603] paddle until consisyency and red sample: [Mine: 1603] | color are uniform: [| Time: Date: | |

Recorded by: 46 Rate



| Sampling Vessel: Subcontractor(s): Station Coordinates: Datum: Sample ID: | 4/26/2018 Peter R | | | |
|---|-------------------------------|------------------|-------------------------------|------------------|
| Sampling Vessel: Subcontractor(s): Station Coordinates: Datum: Sample ID: | Peter R MSS | | Sampling Method: Dowe | GNGE |
| Subcontractor(s): Station Coordinates: Datum: Sample ID: | M55 | | POWE | CF/ MD |
| Station Coordinates: Datum: Sample ID: | | | Weather: 544 | / |
| Datum: Sample ID: | | °,u | |) |
| Datum: Sample ID: | E/Long. 123, 092170 | | | |
| Sample ID: | NAD 83 / WGS 84) | | | |
| | | zone: | | |
| Analysis: | PDI-5443-56-14 | | | |
| | Dioxins Furans / TBT / TOC / | | Other: | |
| | (Circle Appropriate Analyses |) | Other: | |
| Accecpted Grab | | | 2 | 104 |
| Number: 1 | Water Depth:ft. | 410 | Action (Allery) and continues | cm Time: 1117 |
| | Tide Level:ft. | | Sample Interval: (0 | cm |
| | Depth MLLW:ft. | 15 | Ta | To to the second |
| | Sediment Color: | Density: | Sediment Odor: | Sheen: Moisture: |
| | D.O. | Very soft/Loose | none H2S | prone Dry |
| | gray | soft/loose | slight Petroleum | trace Damp |
| | black | mod dense/stiff | moderate other: | slight Moist |
| | brown | dense/stiff | strong | moderate Wet |
| organic matter to be comments: | brown surface | very dense/stiff | overwhelming | heavy |
| Processing Check-list | | | | |
| Processing Crew: | EP/BW/JA | | Time: 127 | |
| | 11 1 6 | No and | Date: 4/26/2 | 2018 |
| Photograph of unhomogenized | sample: Light +91 (Cer | 101 28.10 | | |
| Homogenization Start Time: | 1127 | | Homogenization End Time | 1128 |
| | | / | | |
| domogenize sample with paddle | e until consisyency and color | are uniform: [\] | | |
| N | / | | | |
| Photograph of homogenized sar | mple: [🗸 | | | |
| | £(| | | |
| Comments: | recized on | bornt | | |
| Comments: | 390017 00 051 | | | |
| Symple home | 194 | | | |
| Sumple home | - | | | |
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| Symple Nome | | | | |

Recorded by: Si Hono



| Number: Water Depth: ft. Sample Interval: Com Time: Sample Interval: Com Time: Sample Interval: Com Com Time: Sample Interval: Com C | Sample Date: Sampling Vessel: Subcontractor(s): Station Coordinates: Datum: NA Sample ID: Analysis: Did Date: Analysis: Analysis: Analysis: Sample ID: Analysis: Analysis: Sample ID: Analysis: Analysis: Sample ID: Analysis: Analysis: Sample ID: Analysis: Analysis | 1/26/2018 Peter R MSS /Lat. 47, 206056 /Long. 123, 64248 AD 83/WGS 842 | 5 | | |
|--|--|---|------------------|-------------------------|------------------|
| Sampling Vessel: Poly R Subcontractor(s): MSS Station Coordinates: N/Lat. 47, 206056 4 2 E/Long. (23 c/24/85 Datum: NAD 83 / WS 84 2 zone: Sample ID: PDT - M3 - SC-15 - K0426 Analysis: Dioxins Furans / TBT / TOC / Cu / DGT (Circle Appropriate Analyses) Water Depth: ft. Tide Level: ft. Sample Interval: 10 cm Depth MLLW: ft. Sediment Odor: Sample Interval: 10 cm Depth MLLW: ft. Sediment Odor: Sheen: Moisture: 10 cm Depth MLLW: ft. Sediment Odor: Sheen: Moisture: 10 cm Depth MLLW: ft. Sediment Odor: Sheen: Moisture: 10 cm Depth MLLW: ft. Sediment Odor: Sheen: Moisture: 10 cm Depth MLLW: ft. Sediment Odor: Sheen: Moisture: 10 cm Depth MLLW: ft. Sediment Odor: Sheen: Moisture: 10 cm Depth MLLW: ft. Sediment Odor: Sheen: Moisture: 10 cm Depth MLLW: ft. Sediment Odor: Sheen: Moisture: 10 cm Depth MLLW: ft. Sediment Odor: Sheen: Moisture: 10 cm Depth MLLW: ft. Sediment Odor: Sheen: Moisture: 10 cm Depth MLLW: ft. Sediment Odor: Sheen: Moisture: 10 cm Depth MLLW: ft. Sediment Odor: Sheen: Moisture: 10 cm Depth MLLW: ft. Sediment Odor: Sheen: Moisture: 10 cm Depth MLLW: ft. Sediment Odor: Sheen: Moisture: 10 cm Depth MLLW: ft. Sediment Odor: Sheen: Moisture: 10 cm Depth MLLW: ft. Sediment Odor: Sheen: Moisture: 10 cm Depth MLLW: ft. Sediment Odor: Sheen: Moisture: 10 cm Depth MLLW: ft. Sediment Odor: Sheen: Moisture: 10 cm Depth MLLW: ft. Sediment Odor: Sheen: Moisture: 10 cm Depth MLLW: ft. Sheen: Moisture: 10 cm Depth MLLW: ft. Sediment Odor: Sheen: Moisture: 10 cm Depth MLLW: ft. Sheen: Moisture: 10 cm Depth MLLW: ft | Sampling Vessel: Subcontractor(s): Station Coordinates: N Datum: NA Sample ID: Analysis: Dic | Peter R MSS /Lat. 47, 206056 /Long. 123, 54248 AD 83/WGS 842 | 5 | | |
| Subcontractor(s): MSS Station Coordinates: N/Lst. 47, 206056 4 E/Long. [23 c 92465 Datum: NAD 83 / W58 84 zone: Sample ID: PDT-SM3-5C/15-R0426 Analysis: Dioxins Furans / TBT / TOC / Cu / DGT Other: Other: Other: Other: Ot | Subcontractor(s): Station Coordinates: N E Datum: NA Sample ID: Analysis: Dic | NSS /Lat. 47, 206056 /Long. 123, こ9248 AD 83/WGS 842 | 5 | Weather: Sunn | |
| Station Coordinates: N/Lat. 47, 206056 J E/Long. [23, 292485] Datum: NAD 83/W68 84 zone: Sample ID: PDT_SM43-56/5- 80426 Analysis: Dioxins Furans / TBT / TOC / Cu / DGT (Circle Appropriate Analyses) Other: Ot | Station Coordinates: N E Datum: NA Sample ID: Analysis: Dic | /Lat. 47, 206056 /Long. 123, 59248 AD 83/WGS 842 | 5 | weather. Jann | |
| Datum: NAD 83 / 1/6/2 84 zone: Sample ID: PDT - S/M 3 - SC 15 - 1/6/12/6 Analysis: Dioxins Furans / TBT / TOC / Cu / DGT Other: (Circle Appropriate Analyses) Water Depth: | Datum: NA Sample ID: Analysis: Did | /Long. 123. 69248 AD 83/WGS 84 | 5 | | 4 |
| Datum: NAD 83 / WGS 84 zone: Sample ID: PDT SM43-5C 15 - ROY 26 Analysis: Dioxins Furans / TBT / TOC / Cu / DGT (Circle Appropriate Analyses) Other: Accecpted Grab Number: Tide Level: ft. Depth MLLW: ft. Depth MLLW: ft. Sediment Type: Sediment Color: Density: Sediment Odor: Sheen: Moisture: Depth MLLW: ft. Sediment Type: Sediment Color: Density: Sediment Odor: Sheen: Moisture: Depth MLLW: ft. Sediment Type: Sediment Color: Density: Sediment Odor: Sheen: Moisture: Sediment Odor: Sheen: Shee | Datum: NA Sample ID: P | AD 83 / W/GS 84 | 4.5-4 | | |
| Sample ID: PDT-SM3-5C/15-(R0426 Analysis: Dioxins Furans / TBT / TOC / Cu / DGT (Circle Appropriate Analyses) Accepted Grab Number: Tide Level: ft. Sample Interval: cm Depth MLLW: ft. Sample Interval: cm Depth MLLW: ft. Sediment Color: Density: Sediment Odor: Sheen: Moisture: Depth MLLW: ft. Sediment Color: Density: Sediment Color: Sheen: Moisture: Density: De | Sample ID: P | | ZODA: | | |
| Analysis: Dioxins Furans / TBT / TOC / Cu / DGT Other: Circle Appropriate Analyses Other: Other: Other: | Analysis: Did | DI-SMA3-50 | 2016. | | |
| Circle Appropriate Analyses Other: | | | 15-180426 | | |
| Accepted Grab Number: | (Ci | oxins Furans / TBT / TOC / | Cu / DGT | Other: | |
| Number: Water Depth: ft. Sample Interval: Com Time: S2 Sample Interval: Com Time: Com Time | 1 | ircle Appropriate Analyses) | | Other: | |
| Number: Water Depth: ft. Sample Interval: Com Time: S2 Sample Interval: Com Time: Com Time | | | | | |
| Tide Level:ft. | | ater Depth:ft. | 1914 | Grab Recovery: 19 | cm Time: 1523 |
| Depth MLLW:ft. Sediment Type: | 101110011 | | 14 | | |
| D.O. Very soft/Loose soft/Sose slight petroleum trace slight moderate other: slight moderate other: slight moderate strong overwhelming very dense/stiff very dense/stiff overwhelming very dense/stiff overwhelming very dense/stiff overwhelming very dense/stiff overwhelming very dense/stiff very dense/stiff overwhelming very dense/stiff very dense/stiff very dense/stiff overwhelming very dense/s | De | pth MLLW:ft. | | 20. 24. F (1870) | |
| Very soft/Loose slight Petroleum trace Dry Damp and C M F black brown dense/stiff dense/stiff strong overwhelming very dense/stiff very dense/stiff very dense/stiff overwhelming very dense/stiff strong overwhelming very dense/stiff very dense/stiff very dense/stiff overwhelming very dense/stiff | | diment Color: | | Sediment Odor: | Sheen: Moisture: |
| black brown dense/stiff dense/ | | | | none H2S | |
| brown brown dense/stiff very dense/stiff | | iy | soft/loose | slight Petroleum | trace Damp |
| Processing Check-list Processing Crew: FP/BW/5A Photograph of unhomogenized sample: [W] Homogenization Start Time: 1533 Photograph of homogenized sample: [W] | | ick | mod dense/stiff | moderate other: | slight Moist |
| Processing Check-list Processing Crew: FPBW/5A Photograph of unhomogenized sample: [W] Homogenization Start Time: 1533 Homogenizes sample with paddle until consisyency and color are uniform: [W] Protograph of homogenized sample: [W] | | | dense/stiff | strong | moderate Wet |
| DGT Location? Yes / No | | wn surface) | very dense/stiff | overwhelming | |
| Processing Crew: EP/BW/5A Time: 1533 Date: 4/26/2016 Photograph of unhomogenized sample: [W Homogenization Start Time: 1533 Homogenize sample with paddle until consisyency and color are uniform: [W Photograph of homogenized sample: [W Comments: | | es | Temp: | pH: | Salinity: |
| Photograph of unhomogenized sample: [\frac{1533}{1533}] Homogenization Start Time: \frac{1533}{1533} Homogenize sample with paddle until consisyency and color are uniform: [\frac{1534}{1533}] Photograph of homogenized sample: [\frac{1534}{1533}] | Processing Check list | | | | |
| Photograph of unhomogenized sample: [V] Homogenization Start Time: 1533 Homogenize sample with paddle until consisyency and color are uniform: [V] Photograph of homogenized sample: [V] Comments: | | =D/Rell=A | | - 1600 | |
| Photograph of unhomogenized sample: [W Homogenization Start Time: 1534 Homogenize sample with paddle until consisyency and color are uniform: [W Photograph of homogenized sample: [W Comments: | Processing Crew: | JY BW/ SH | | 1.100 | 120:1 |
| Homogenization Start Time: 1533 Homogenization End Time: 1534 Homogenize sample with paddle until consistency and color are uniform: [4] Photograph of homogenized sample: [4] | Photograph of cuba acceptant | | | Date: 4/26 | 10016 |
| Homogenize sample with paddle until consisyency and color are uniform: | | | | | 1500 |
| Photograph of homogenized sample: [V | Homogenization Start Time: | 15.33 | | Homogenization End Time | : 1534 |
| Photograph of homogenized sample: [V | | | ./ | | |
| Comments: | lomogenize sample with paddle u | intil consisyency and color a | are uniform: [4 | | |
| Comments: | | | | | |
| | notograph of homogenized samp | ile: [Q | | | |
| | Comments: | | | | |
| | lefter assessment from | | | | |
| | Padole - n'xo | CA Sumple | Ma Maria | JUL IAA COUL | |

Recorded by: Al: PHO



| Sampling C | rew: EP/BW/ SA | | | |
|--|---|-------------------------|--|----------------------|
| Sample D | Date: 4/26/2018 | | Sampling Method: Pour | pr Grab |
| | ssel: Peter R | | | 00170 |
| | or(s): M55 | | Weather: 5a/ | 144 |
| Station Coordina | ates: N/Lat. 47, 20784 | 7 %) | | 3 |
| | E/Long. 123 . 090 | | | |
| Date | um: NAD 83 / WGS 84 | zone: | | |
| | ID: PDI-SMA3-5 | 10.04 To 10.00 | | |
| | sis: Dioxins Furans / TBT / TO | | | |
| , and y | (Circle Appropriate Analys | | Other: | |
| | (On the Appropriate Allary, | 363) | Other. | |
| Accecpted Grab | Water Danks | int. | 2/1 | (573) |
| Number: | Water Depth:f Tide Level:f | | Grab Recovery: 24 | cm Time: <u>1538</u> |
| | Depth MLLW: - fi | | Sample Interval: | cm |
| Sediment Type: | Sediment Color: | Density: | Sediment Odor: | Sheen: Moisture: |
| cobble | D.O. | Very soft/Loose | none H2S | Sheen: Moisture: |
| gravel | gray | soft/loose | slight Petrole | |
| sand C M F | black | mod dense/stiff | moderate other: | slight Moist |
| silt clay | brown | dense/stiff | strong | moderate (Wet) |
| organic matter | brown surface | very dense/stiff | overwhelming | heavy |
| OGT Location? Yes / No | If yes | Temp: | pH: | Salinity: |
| Ouplicate Station? Yes / N | 6 | Transpire . | 16.00 | Caminy. |
| Duplicate Station? Yes / (| | Transfer and the second | The state of the s | Joanning. |
| Ouplicate Station? Yes / () Processing Check-li | st | | | |
| Ouplicate Station? Yes / () Processing Check-li | | | Time: \sum_{S^1} | 16 |
| Processing Check-li Processing Cre | ew: <u>FP/BW/5A</u> | | Time: \sum_{S^1} | |
| Processing Check-li Processing Cre Processing Cre Photograph of unhomogen | ew: FP/BW/5A | | Time: \(\sum \) Date: \(\frac{4}{2} \) | 16 |
| Processing Check-li Processing Cre | ew: EP/BW/5A | | Time: \sum_{S^1} | 16 |
| Processing Check-li Processing Cre Processing Cre Photograph of unhomogenication Start Tin | ist ew: FP/BW/5A ized sample: [V ne: | | Time: \(\sum \) Date: \(\frac{4}{2} \) | 16 |
| Processing Check-li Processing Cre Processing Cre Photograph of unhomogenication Start Tin | ew: FP/BW/5A | | Time: \(\sum \) Date: \(\frac{4}{2} \) | 16 |
| Processing Check-li Processing Cre Processing Cre Photograph of unhomogeni Homogenization Start Tin Iomogenize sample with p | ized sample: [4] ne: S48 addle until consisyency and co | | Time: \(\sum \) Date: \(\frac{4}{2} \) | 16 |
| Processing Check-li Processing Cre Processing Cre Photograph of unhomogenication Start Tin | ized sample: [4] ne: S48 addle until consisyency and co | | Time: \(\sum \) Date: \(\frac{4}{2} \) | 16 |
| Processing Check-li Processing Cre Processing Cre Photograph of unhomogeni Homogenization Start Tin Homogenize sample with p Photograph of homogenize Comments: | ized sample: [\frac{1}{348}] addle until consisyency and co | olor are uniform: [🏏 | Time: \(\sum \) Date: \(\frac{4}{2} \) | 16 |
| Processing Check-li Processing Cre Processing Cre Photograph of unhomogeni Homogenization Start Tin Homogenize sample with p Photograph of homogenize Comments: | ized sample: [\frac{1}{348}] addle until consisyency and co | olor are uniform: [🏏 | Time: \(\sum \) Date: \(\frac{4}{2} \) | 16 |
| Processing Check-li Processing Cre Processing Cre Photograph of unhomogeni Homogenization Start Tin Homogenize sample with p Photograph of homogenize Comments: | ized sample: [4] ne: S48 addle until consisyency and co | olor are uniform: [🏏 | Time: \(\sum \) Date: \(\frac{4}{2} \) | 16 |
| Processing Check-li Processing Cre Processing Cre Photograph of unhomogeni Homogenization Start Tin Homogenize sample with p Photograph of homogenize Comments: | ized sample: [\frac{1}{348}] addle until consisyency and co | olor are uniform: [🏏 | Time: \(\sum \) Date: \(\frac{4}{2} \) | 16 |
| Processing Check-li Processing Cre Processing Cre Photograph of unhomogeni Homogenization Start Tin Homogenize sample with p Photograph of homogenize Comments: | ized sample: [\frac{1}{348}] addle until consisyency and co | olor are uniform: [🏏 | Time: \(\sum \) Date: \(\frac{4}{2} \) | 16 |
| Processing Check-li Processing Cre Processing Cre Photograph of unhomogeni Homogenization Start Tin Homogenize sample with p Photograph of homogenize Comments: | ized sample: [\frac{1}{348}] addle until consisyency and co | olor are uniform: [🏏 | Time: \(\sum \) Date: \(\frac{4}{2} \) | 16 |
| Processing Check-li Processing Cre Processing Cre Photograph of unhomogeni Homogenization Start Tin Homogenize sample with p Photograph of homogenize Comments: | ized sample: [\frac{1}{348}] addle until consisyency and co | olor are uniform: [🏏 | Time: \(\sum \) Date: \(\frac{4}{2} \) | 16 |
| Processing Check-li Processing Cre Processing Cre Photograph of unhomogeni Homogenization Start Tin Homogenize sample with p Photograph of homogenize Comments: | ized sample: [\frac{1}{348}] addle until consisyency and co | olor are uniform: [🏏 | Time: \(\sum \) Date: \(\frac{4}{2} \) | 16 |
| Processing Check-li Processing Cre Processing Cre Photograph of unhomogeni Homogenization Start Tin Homogenize sample with p Photograph of homogenize Comments: | ized sample: [\frac{1}{348}] addle until consisyency and co | olor are uniform: [🏏 | Time: \(\sum \) Date: \(\frac{4}{2} \) | 16 |
| Processing Check-li Processing Cre Processing Cre Photograph of unhomogeni Homogenization Start Tin Homogenize sample with p Photograph of homogenize Comments: | ized sample: [\frac{1}{348}] addle until consisyency and co | olor are uniform: [🏏 | Time: \(\sum \) Date: \(\frac{4}{2} \) | 16 |
| Processing Check-li Processing Cre Photograph of unhomogeni Homogenization Start Tin Iomogenize sample with p Photograph of homogenize Comments: | ized sample: [\frac{1}{348}] addle until consisyency and co | olor are uniform: [🏏 | Time: \(\sum \) Date: \(\frac{4}{2} \) | 16 |
| Processing Check-li Processing Cre Processing Cre Photograph of unhomogeni Homogenization Start Tin Homogenize sample with p Photograph of homogenize Comments: | ized sample: [\frac{1}{348}] addle until consisyency and co | olor are uniform: [🏏 | Time: \(\sum \) Date: \(\frac{4}{2} \) | 16 |
| Processing Check-li Processing Cre Photograph of unhomogeni Homogenization Start Tin Iomogenize sample with p Photograph of homogenize Comments: | ized sample: [\frac{1}{348}] addle until consisyency and co | olor are uniform: [🏏 | Time: \(\sum \) Date: \(\frac{4}{2} \) | 16 |
| Processing Check-li Processing Cre Processing Cre Photograph of unhomogeni Homogenization Start Tin Homogenize sample with p Photograph of homogenize Comments: | ized sample: [\frac{1}{348}] addle until consisyency and co | olor are uniform: [🏏 | Time: \(\sum \) Date: \(\frac{4}{2} \) | 16 |

Recorded by: Recorded by:



| Number: Water Depth: ft. 717 Grab Recovery: 25 cm Time: 505 | Sample Date: 4/26/ Sampling Vessel: 6/47 Subcontractor(s): 6/45 Station Coordinates: N/Lat. 6/45 Station Coordinates: N/Lat. 6/45 E/Long. Datum: NAD 83/ Sample ID: PDT- Analysis: Dioxins F (Circle Application of Coordinates) Accecpted Grab Number: 1 | 77.208167° F. (77.208167° F. (77.208 | zone: G17-180426 C1Cu1DGT es) Density: Very soft/Loose soft/loose mod dense/stiff very dense/stiff | Other: Other: Other: Other: Sample Interval Sediment Odor: None slight moderate strong overwhelming | H2S Petroleum | Sheen: none trace slight moderate heavy | Moisture: Dry Damp Moist |
|--|--|--|---|--|------------------|--|-----------------------------------|
| Sampling Vessel: Station Coordinates: N/Lat. 47,208197° p E/Long. (123, 0973302° w Datum: NAD 83 / WS 84 zone: Sample ID: PDT SMA3 SG17 80426 Analysis: Dioxins Furans / TBT / TOC / Cu / DGT Other: (Circle Appropriate Analyses) Other: Weather: Sample ID: DT SMA3 SG17 80426 Analysis: Dioxins Furans / TBT / TOC / Cu / DGT Other: (Circle Appropriate Analyses) Other: Sample Interval: 0 cm Time: 1505 Sediment Type: Sediment Color: Density: Sediment Odor: Sheen: Moisture: Density: Density: Sheen: Moisture: Density: Sheen: Density: Sheen: Moistu | Sampling Vessel: Start Subcontractor(s): MSS Station Coordinates: N/Lat. E/Long. Datum: NAD 83 / Sample ID: PDT- Analysis: Dioxins F (Circle Al Accecpted Grab Number: Water De Tide Leve Depth ML Sediment Type: Sediment Sobble Gravel Sand C M F Silt Clay brown Drown brown sur Comments: Valle Saud, Free gravel DGT Location? Yes / No Processing Check-list Processing Crew: FP/F Photograph of unhomogenized sample: [Water December 1] Comogenize sample with paddle until contact the contact of | R 97.208167° F 123.09330; 1WGS 84 | zone: G17-180426 C/Cu/DGT es) Density: Very soft/Loose soft/loose mod dense/stiff very dense/stiff | Other: Other: Other: Other: Sample Interval Sediment Odor: None slight moderate strong overwhelming | H2S Petroleum | Sheen: none trace slight moderate heavy | Moisture: Dry Damp Moist |
| Subcontractor(s): MSS Weather: Station Coordinates: N/Lat. 17,208] 61° P E/Long. (23, 093302° W Datum: NAD 83/W5834 zone: Sample ID: PDT SMA3 SGT - 80420 Other: Other | Subcontractor(s): M55 Station Coordinates: N / Lat. E / Long. Datum: NAD 83 / Sample ID: PDT-Analysis: Dioxins F (Circle Apple of Circle App | 97.208167° F (23. 09330; /WGS 84 - SMA3 - SC Furans / TBT / TOO ppropriate Analyse apth: | zone: G17-180426 C/Cu/DGT es) Density: Very soft/Loose soft/loose mod dense/stiff very dense/stiff | Other: Other: Other: Other: Grab Recovery: Sample Interval Sediment Odor: none slight moderate strong overwhelming pH: | H2S Petroleum | Sheen: none trace slight moderate heavy | Moisture: Dry Damp Moist |
| Station Coordinates: N/Lat. 17/L00167 E/Long. (23. 093302 °w Datum: NAD 83/WGS34 zone: Sample ID: PDT-SMA3-SG17-R0426 Other: Oth | Station Coordinates: N / Lat. E / Long. Datum: NAD 83 / Sample ID: PDT-Analysis: Dioxins F (Circle Apple Accepted Grab Number: Sediment Type: Sediment Type | TWGS 84 SMA3 SC Furans / TBT / TOC ppropriate Analyse epth: | zone: G17-180426 C/Cu/DGT es) Density: Very soft/Loose soft/loose mod dense/stiff very dense/stiff | Other: Other: Other: Other: Grab Recovery: Sample Interval Sediment Odor: none slight moderate strong overwhelming pH: | H2S Petroleum | Sheen: none trace slight moderate heavy | Moisture: Dry Damp Moist |
| Datum: NAD 83 / WGS 34 zone: Sample ID: PDT SMA3 SGT NOTOC Cu / DGT Other: Circle Appropriate Analyses) Water Depth: ft. 17 ' Grab Recovery: 23 cm Time: 1505 Number: 1 Tide Level: ft. Sample Interval: 0 cm Depth MLLW: ft. Sediment Odor: Sheen: Moisture: Sobble D.O. Very soft/Loose signavel of the black mod dense/stiff strong overwhelming overwhelming overwhelming overwhelming overwhelming overwhelming heavy DGT Location? Yes / No If yes Temp: PH: Salinity: Processing Crew: FPBW/SA Time: S15 Date: 4 26/2018 Processing Crew: FPBW/SA Time: S15 Date: 4 26/2018 Processing Crew: FPBW/SA Time: S15 Date: 4 26/2018 Photograph of unhomogenized sample: [V With Q ft b hotograph of | Datum: NAD 83 / Sample ID: PDT-Analysis: Dioxins F (Circle Aparagraph of unhomogenized sample: [Value and content of thotograph of homogenized sample: [Value and content of the content o | TWGS 84 SMA3 SC Furans / TBT / TOC ppropriate Analyse epth: | zone: G17-180426 C/Cu/DGT es) Density: Very soft/Loose soft/loose mod dense/stiff very dense/stiff | Other: Ot | H2S Petroleum | Sheen: none trace slight moderate heavy | Moisture: Dry Damp Moist |
| Datum: NAD 83 / WGS 84 zone: Sample ID: PDT SMASSCIT- ROYLL Analysis: Dioxins Furans / TBT / TOC / Cu / DGT Other: | Sample ID: PDI- Analysis: Dioxins F (Circle Apple ID: Analysis: Dioxins F (Circle Apple ID: Analysis: Dioxins F (Circle Apple ID: Analysis: Dioxins F (Circle Apple IT Ide Leve Depth ML Sediment Type: Sediment IT Ide Leve Depth ML Sediment Type: Sediment ID: Sediment ID: ID: Ide Leve Depth ML Sediment Type: Sediment ID: ID: Ide Leve Depth ML Sediment Type: Sediment ID: Ide Leve ID: | JWGS 84 SMA3 - SC Furans / TBT / TOO ppropriate Analyse apth:ft. el:ft. t Color: fface | zone: G-17-18-0426 C/Cu/DGT es) Density: Very soft/Loose soft/loose mod dense/stiff dense/stiff very dense/stiff | Other: Ot | H2S Petroleum | Sheen: none trace slight moderate heavy | Moisture: Dry Damp Moist |
| Sample ID: PDT SMA3 SCIT 18 0426 Analysis: Dioxins Furans / TBT / TOC / Cu / DGT (Circle Appropriate Analyses) Accecpted Grab Number: 1 Tide Level: ft. Sample Interval: 0 cm Tide Level: ft. Sample Interval: 0 cm Sediment Type: Sediment Color: Density: Sediment Color: Sheen: Moisture: pobble D.O. Very soft/Loose fone) H2S (none) Dry gravel gravel gravel still dense/stiff moderate other: slight moderate other: | Sample ID: Analysis: Dioxins F (Circle Al Accecpted Grab Number: Tide Leve Depth MI Sediment Type: Sediment Cobble Gravel Sand C M F Silt clay Somments: Trace Seminer Sediment Type Sediment Type Sediment Type Sediment Type Sediment Type: Sedimen | Furans / TBT / TOO ppropriate Analyse epth:ft. el:ft. tt Color: | Density: Very soft/Loose soft/loose mod dense/stiff dense/stiff very dense/stiff | Other: Ot | H2S Petroleum | Sheen: none trace slight moderate heavy | Moisture: Dry Damp Moist |
| Analysis: Dioxins Furans / TBT / TOC / Cu / DGT Other: Sample Interval: Io cm Sample Interval: Io cm Sample Interval: Io cm Interval: Interval: Io cm Interval: Interval: Interval: Interval: Io cm Interval: In | Analysis: Dioxins F (Circle Ap Accecpted Grab Number: | Furans / TBT / TOC ppropriate Analyse epth:ft. el:ft. t Color: fface | Density: Very soft/Loose soft/loose mod dense/stiff very dense/stiff | Other: Ot | H2S Petroleum | Sheen: none trace slight moderate heavy | Moisture: Dry Damp Moist |
| Circle Appropriate Analyses Other: | Accecpted Grab Number: Water De Tide Leve Depth ML Sediment Type: Sediment Cobble gravel sand C M F Silt clay brown Droganic matter Comments: Trace Seuth Arme grown DGT Location? Yes / No Duplicate Station? Yes / No Processing Check-list Processing Crew: F) Photograph of unhomogenized sample: [Homogenization Start Time: S Duplicate sample with paddle until con Photograph of homogenized sample: [Whotograph of homogenized sample: [Wh | ppropriate Analyse epth:ft. el:ft. LLW:ft. t Color: | Density: Very soft/Loose soft/loose mod dense/stiff dense/stiff very dense/stiff | Grab Recovery: Sample Interval Sediment Odor: none slight moderate strong overwhelming pH: | H2S Petroleum | Sheen: none trace slight moderate heavy | Moisture: Dry Damp Moist |
| Accepted Grab Number: | Accecpted Grab Number: | epth:ft. el:ft. LLW:ft. t Color: | Density: Very soft/Loose soft/loose mod dense/stiff dense/stiff very dense/stiff | Grab Recovery: Sample Interval Sediment Odor: none slight moderate strong overwhelming pH: | H2S Petroleum | Sheen: none trace slight moderate heavy | Moisture: Dry Damp Moist |
| Number: Water Depth: ft. Tide Level: ft. Sample Interval: O cm Time: 505 | Number: Water De Tide Leve Depth ML Sediment Type: Sediment Cobble | el:ft. LLW:ft. t Color: fface | Density: Very soft/Loose soft/loose mod dense/stiff dense/stiff very dense/stiff | Sediment Odor: none slight moderate strong overwhelming pH: | H2S Petroleum | Sheen: none trace slight moderate heavy | Moisture: Dry Damp Moist |
| Tide Level: ft. Depth MLLW: ft. Sample Interval: | Tide Leve Depth ML Sediment Type: Sediment Sediment Sediment D.O. Gravel Gravel Sediment Sediment D.O. Gravel Seand C M F Silt clay brown brown sure Comments: Trace Seath, Trace grown of the Seath, Tr | el:ft. LLW:ft. t Color: fface | Density: Very soft/Loose soft/loose mod dense/stiff dense/stiff very dense/stiff | Sediment Odor: none slight moderate strong overwhelming pH: | H2S Petroleum | Sheen: none trace slight moderate heavy | Moisture: Dry Damp Moist |
| Depth MLLW:ft. Sediment Type: | Depth ML Sediment Type: Sediment Cobble Gravel Sand C M F Silt clay Depth ML Sediment Type: Sediment Sediment Sediment DO. Gravel Sand C M F Silt clay Depth ML Sediment Sedim | t Color: fface | Very soft/Loose soft/loose mod dense/stiff dense/stiff very dense/stiff | Sediment Odor: none slight moderate strong overwhelming pH: | H2S Petroleum | Sheen: none trace slight moderate heavy | Dry Damp Moist |
| Sediment Type: Sediment Color: Density: Sediment Odor: Sheen: Moisture: Cobble D.O. Very soft/Loose Stight Petroleum trace Damp sand C M F black mod dense/stiff moderate other: slight Moist strong moderate brown surface very dense/stiff very dense/stiff overwhelming very dense/stiff very dense/stiff processing Check-list Processing Crew: FPBW/5A Time: SSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSS | Sediment Type: Sediment Sediment Scobble Scobble Gravel Sand C M F Silt clay Disparic matter Comments: Face Sand, Face growel OGT Location? Yes / No Displicate Station? Yes / No Processing Check-list Processing Crew: Homogenization Start Time: Silt clay Some processing Check-list Silt clay Start Sand Star | t Color: | Very soft/Loose soft/loose mod dense/stiff dense/stiff very dense/stiff | slight moderate strong overwhelming pH: | H2S Petroleum | none trace slight moderate heavy | Dry Damp Moist |
| Processing Check-list | processing Check-list Processing Crew: Processing Crew: Processing Check-list Processing Crew: Pr | rface 3W/5A | Very soft/Loose soft/loose mod dense/stiff dense/stiff very dense/stiff | slight moderate strong overwhelming pH: | H2S Petroleum | none trace slight moderate heavy | Dry Damp Moist |
| paravel gravel black gravel black gravel gravel black gravel grav | pravel gray black sand C M F black brown black brown brown surplements: Trace send, trace gravel, bottograph of unhomogenized sample: [Monogenize sample with paddle until control of thotograph of homogenized sample: [Monogenize sample in the control of thotograph of homogenized sample: [Monogenize sample in the control of thotograph of homogenized sample: [Monogenize sample in the control of thotograph of homogenized sample: [Monogenized sample in the control of the | 3W/5A | mod dense/stiff dense/stiff very dense/stiff | slight moderate strong overwhelming pH: | Petroleum | trace slight moderate heavy | Damp Moist |
| Saint C M F black mod dense/stiff dense/stiff dense/stiff dense/stiff dense/stiff dense/stiff wery dense/stiff wery dense/stiff very dense/stiff were gravel, DGT Location? Yes I No lif yes Temp: pH: Salinity: Processing Check-list Processing Crew: FPBWSA Photograph of unhomogenized sample: [W with grab denogenized sample with paddle until consisyency and color are uniform: [w denogenized sample: [w dense/stiff dense | black black black brown brown sur br | 3W/5A | mod dense/stiff dense/stiff very dense/stiff | moderate strong overwhelming pH: | | slight moderate heavy | Moist |
| dense/stiff very dense/ | Processing Check-list Processing Crew: | 3W/5A | dense/stiff very dense/stiff | strong overwhelming pH: | | moderate heavy | |
| Processing Check-list Processing Crew: FPBWSA Photograph of unhomogenized sample: [W With grab Homogenization Start Time: S15 Photograph of homogenized sample: [W With grab Homogenized sample with paddle until consisyency and color are uniform: [V] Protograph of homogenized sample: [W With grab Photograph of hom | Processing Check-list Processing Crew: | 3W/5A | very dense/stiff | overwhelming pH: | | heavy | |
| Comments: trace south, frace growel, Digit Location? Yes / No | Processing Check-list Processing Crew: FP/E Photograph of unhomogenized sample: [S] Homogenization Start Time: S] Homogenize sample with paddle until control of the co | 3W/5A | | рН: | | | |
| Displicate Station? Yes / No Processing Check-list Processing Crew: EP/BW/SA Photograph of unhomogenized sample: [W With grab Homogenization Start Time: S15 Inhotograph of homogenized sample: [W With grab Homogenized sample with paddle until consisyency and color are uniform: [W With graph Homogenized sample with paddle until consisyency and color are uniform: [W With graph Homogenized sample with paddle until consisyency and color are uniform: [W With graph Homogenized sample with paddle until consisyency and color are uniform: [W With graph Homogenized sample with paddle until consisyency and color are uniform: [W With graph Homogenized sample with paddle until consisyency and color are uniform: [W With graph Homogenized sample with paddle until consisyency and color are uniform: [W With graph Homogenized sample with paddle until consisyency and color are uniform: [W With graph Homogenized sample with paddle until consisyency and color are uniform: [W With graph Homogenized sample with paddle until consisyency and color are uniform: [W With graph Homogenized sample with paddle until consisyency and color are uniform: [W With graph Homogenized sample with paddle until consisyency and color are uniform with graph Homogenized sample with paddle until consisyency and color are uniform with graph Homogenized sample with paddle until consisyency and color are uniform with graph Homogenized sample with paddle until consisyency and color are uniform with graph Homogenized sample with graph Homogenized sample with paddle until consisyency and color are uniform with graph Homogenized sample with graph | Processing Check-list Processing Crew: FP/E Photograph of unhomogenized sample: [Homogenization Start Time: S Indicate Station? Yes / No Processing Crew: FP/E Photograph of unhomogenized sample: [Indicate Station? Yes / No Processing Crew: FP/E Photograph of unhomogenized sample: [Indicate Station? Yes / No Processing Crew: FP/E Photograph of homogenized sample: [Indicate Station? Yes / No Processing Check-list Processing Crew: FP/E Photograph of unhomogenized sample: [Indicate Station? Yes / No Processing Check-list Processing Crew: FP/E Photograph of unhomogenized sample: [Indicate Station? Yes / No Processing Check-list Processing Crew: FP/E Photograph of unhomogenized sample: [Indicate Station? Yes / No Processing Check-list Processing Crew: FP/E Photograph of unhomogenized sample: [Indicate Station? Yes / No Processing Check-list Processing Crew: FP/E Photograph of unhomogenized sample: [Indicate Station | 3W/5A | Temp: | , and the second | | Salinity: | |
| hotograph of unhomogenized sample: [\(\text{With grab} \) Homogenization Start Time: \(\frac{1515}{1515} \) Homogenize sample with paddle until consisyency and color are uniform: [\(\text{V} \) hotograph of homogenized sample: [\(\text{V} \) omments: | hotograph of unhomogenized sample: [Homogenization Start Time: S] omogenize sample with paddle until conhotograph of homogenized sample: [V] | / | | | 1011 | | |
| Photograph of unhomogenized sample: [\(\sum \) \(\su | Homogenization Start Time: SI | w with a | | 7.44 m (M. 1987) | | 01/25 | |
| Homogenization Start Time: 1515 Homogenization End Time: 1516 Homogenization End Time: 1516 Photograph of homogenized sample: [V] | Homogenization Start Time: SI Homogenize sample with paddle until core Photograph of homogenized sample: [V | W WITH DE | ra b | Date | : 4/20/2 | 218 | |
| Photograph of homogenized sample: [V] | Homogenize sample with paddle until cor | | | Hemanatak | | 1<11 | |
| Photograph of homogenized sample: [V | Photograph of homogenized sample: [\} | 2 | | - Homogenizati | on End Time: | 1316 | |
| Photograph of homogenized sample: [V | Photograph of homogenized sample: [\} | nsisvency and cold | or are uniform: IV | | | | |
| Comments: | | / | are uniform. [•] | | | | |
| Comments: | | | | | | | |
| | ommente: | | | | | | |
| Paddle-nixed. Sample homogerized as bout | omments. | | | | | | |
| rada le-m. xed . Sample volveger zer an con l | 0 101 | 5 -20 h | 11.00.5 | a hout | | | |
| | rada le-mixed. | Jampie Ve | magai Lac | an oou | | | |
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| Sampling Crew: EP/RW 34 Sampling Vessel: P2 & C Subcontractor(s): M35 Station Coordinates: N/Lat. 47.201976 20 E/Long. 123.693824 20ne: Datum: NAD 83/WG8 84 20ne: Sample ID: PDT SMA 3-56-13-180426 Analysis: Dioxins Furans / TBT / TOC / Cu / DGT (Circle Appropriate Analyses) Other: Accepted Grab Number: | Project Name: She l | ten Herter Pr | oject No:) lace | 8-01-03 Station | ID: SMA3-SC-18 |
|--|-----------------------------|--|--|-------------------------|------------------|
| Sample Date: 4/26/2978 Sampling Wessel: Poder R Subcontractor(s): M.55 Station Coordinates: N/Lat. 47, 207976 N E/Long. 123, 693826 Coop. Datum: NAD 83/WGS 84 Zone: Sample ID: PDT-SMA 3-56-13-180426 Analysis: Dioxins Furans / TBT / TOC / Cu / DGT Other: (Circle Appropriate Analyses) Other: Circle Appropriate Analyses) Other: Tide Level: ft. Sample Interval: 0 cm Depth MLLW: ft. Sediment Odor: Sheen: Moisture Sediment Type: Sediment Color: Density: Sediment Odor: Sheen: Moisture Softilosse Station Proving Sediment Color: Sight Petroleum trace Damp mod afficial Station Proving Sediment Strong moderate other: slight Moist West Sediment Color: Sight Petroleum trace Damp moderate other: slight Moist Sediment Color: Sheen: Moisture Softilosse Station Proving Sediment Color: Sheen: Softilosse Station Sediment Color: Sheen: Softilosse Station Sediment Color: Sheen: Softilosse Station Sediment Color: Sheen: Softilo | Sampling Crev | | | | |
| Sampling Vessel: Poter R Subcontractor(s): M35 Station Coordinates: N/Lat. 47.201976 P El Long. 123.69826 P Batum: NAD 88/WGS 84 zone: Sample ID: PDT-SMA 3-56-18-180426 Analysis: Dioxins Furans / TBT / TOC / Cu / DGT (Circle Appropriate Analyses) Water Depth: ft (4' Grab Recovery: 7/D cm Time: 123.7 Naccecpted Grab Number: | Sample Date | 4/26/1913 | | Sampling Method: Q. 10 | (man) |
| Subconfractor(s): MSS Weather: Sunny Station Coordinates: N/Lat. 47, 2079716 N E/Long. 123. 693824 2 20ne: Sample ID: PDT-SMA 3-56-13-180426 Analysis: Dioxins Furans / TBT / TOC / Cu / DGT Other: Other: Ot | | | | Company member 1647C | CAGE |
| Station Coordinates: N/Lat. 47.201976 DE/Long. 123.293822 Delature: NAD 83/WGS 84 Zone: Sample ID: PDT SMA 3 - 56 8 - 180426 Analysis: Dioxins Furans / TBT / TOC / Cu / DGT Other: Corrected Grab | | | | Weather: Suna | , |
| Datum: NAD 88 WGS 84 zone: Sample ID: PD T - SMA | | | ,) | - Troubles Sunt | 3 |
| Sample ID: PDT-SMA 3-SC-18-180426 Analysis: Dioxins Furans / TBT / TOC / Cu / DGT Other: Circle Appropriate Analyses) Other: Accecpted Grab Number: | | Ellon 127 1-9797 | 14.3 | _ | |
| Sample ID: PDT-SMA 3-SC-18-180426 Analysis: Dioxins Furans / TBT / TOC / Cu / DGT Other: Accepted Grab Water Depth: | B-1 | | | _ | |
| Analysis: Dioxins Furans / TBT / TOC / Cu / DGT Other: Accecpted Grab Number: | | | | * | |
| (Circle Appropriate Analyses) Other: Accepted Grab Number: | | | | | |
| Accepted Grab Number: | Analysis | | | | |
| Number: Water Depth: ft. Tide Level: ft. Depth MLLW: ft. Sample Interval: I/O cm Time: I/O ft. Sample Interval: I/O cm Time: I/O cm Density: Sediment Odor: Sheen: Moisture Dobble D.O. Very soft/Loose (none) H2S (none) Dry sand C M F (none) Dry soft/Loose (none) H2S (none) Dry sand C M F (none) Dry soft/Incose (none) H2S (none) Dry sand C M F (none) Dry soft/Incose (none) H2S (n | | (Circle Appropriate Analyses | 5) | Other: | |
| Tide Level:ft | Accecpted Grab | W-1-5-4 | - 107 | 2/2 | - 1727 |
| Depth MLLW:ft. Sediment Type: | Number:\ | | 14 | | |
| Sediment Type: Sediment Color: Density: Sadiment Odor: Sheen: Moisture Sobble D.O. Very soft/Loose Sight Petroleum trace Damp Sight Sight Moist | | | | Sample Interval: 10 | _cm |
| D.O. Very soft/Loose fine H2S none Dry Damp soft/Loose soft/Loose Sight Petroleum trace Damp sand C M F black moderate other: slight mode | Sediment Type: | | Density: | Sediment Odor | Sheen: Moieture: |
| paravel gray black mod dense/stiff dense/s | | 2. | The Control of the Co | | |
| black brown black brown dense/stiff dense/ | gravel | - | | | |
| Description of homogenized sample: [Very dense] strong overwhelming ov | sand C M F | | | | 12.00 |
| Processing Check-list Processing Crew: EP/BWJA Photograph of unhomogenized sample: IX + Alex IN g Not Photograph of homogenized sample: IX | | brown | dense/stiff | ACCURAGE STATES | 10.80 |
| DGT Location? (res) No If yes Temp: Z O°C pH: 6.97 Salinity: Duplicate Station? Yes I Ro Processing Check-list Processing Crew: EP/BW/JA Time: Z Y 7 Date: Y/26/2018 Photograph of unhomogenized sample: X +a Kuen IN g Not Homogenization Start Time: Z Y 7 Homogenization Start Time: Z Y 7 Homogenization End Time: Z Y 8 Photograph of homogenized sample: X Photograph of homogenized | | brown surface | very dense/stiff | overwhelming | |
| Processing Crew: EP/BWJJA Photograph of unhomogenized sample: IX +a Kusa IN gNt Homogenization Start Time: 1247 Homogenize sample with paddle until consisyency and color are uniform: IX Photograph of homogenized sample: IX Photograph of homogenized sample: IX | | If yes | Temp: 20°C | pH: 6.9 7 | Salinity: |
| Photograph of unhomogenized sample: A taken in gret | | | | | |
| Homogenize sample with paddle until consisyency and color are uniform: | | | ngrob | -/-/ | 9,40,50 |
| Photograph of homogenized sample: [V | Homogenization Start Time: | 1297 | | Homogenization End Time | 1248 |
| Prominate: | domogenize sample with pade | tle until consisyency and color | r are uniform: [V | | |
| Paddle mixed. Sumple hongs Gited on bout | Photograph of homogenized s | ample: [| | | |
| Paddle nixed. Sumple homograted on bout | Comments: | 7 | E | | |
| Padale Mires Bright | DALLE MYP | d. Samole No. | nog Crited | on boat | |
| | Padale mire | or some | 9 | | |
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| Sampling Vessel: Subcontractor(s): Station Coordinates: N / Lat. 47, 208539 E / Long. 123. 04361500 Datum: NAD 83 / VGS 84 zone: Sample ID: Analysis: Dioxins Furans / TBT / TOC / Cu / DGT (Circle Appropriate Analyses) Other: Accecpted Grab Number: Tide Level: Depth MLLW: Tide Level: Depth MLLW: Tide Level: Depth MLLW: Sediment Type: Sediment Color: Density: Sediment Odor: Very soft/Loose Gray Weather: Sample Interval: Cobble Grave Density: Sediment Odor: Peters Number: Sediment Odor: Peters Sediment Odor: Peters Sediment Odor: Peters Signification Sediment Odor: Peters Sample Interval: Sediment Odor: Peters Sediment Odor: Sediment Odor: Peters Sediment Odor: | | | |
|--|-----------|-----------|-----------|
| Subcontractor(s): Station Coordinates: N/Lat. 147, 200539 CD E/Long. 123.07361500 Datum: NAD 83/166884 zone: Sample ID: Analysis: Dioxins Furans / TBT / TOC / Cu / DGT Other: Circle Appropriate Analyses) Water Depth: ft. Sample Interval: Coecepted Grab lumber: ft. Sample Interva | Power | Grab | |
| Subcontractor(s): Station Coordinates: N/Lat. 147, 200539 CD E/Long. 123.07361500 Datum: NAD 83/166884 zone: Sample ID: Analysis: Dioxins Furans / TBT / TOC / Cu / DGT Other: Circle Appropriate Analyses) Water Depth: ft. Sample Interval: Coecepted Grab lumber: ft. Sample Interva | | | |
| Station Coordinates: N/Lat. 47, 206539 CD E/Long. 123.093615000 Datum: NAD 83/VGS 84 zone: Sample ID: PDI-SMA3 S619-18092U Analysis: Dioxins Furans / TBT / TOC / Cu / DGT Other: Other: Other: Dioxins Furans / TBT / TOC / Cu / DGT Other: O | 54114 | < | |
| Datum: NAD 83 / NGS 84 zone: Sample ID: DT S M A S G 19 - 8092L Analysis: Dioxins Furans / TBT / TOC / Cu / DGT (Circle Appropriate Analyses) Other: Coccepted Grab umber: | |) | |
| Datum: NAD 83 / MGS 84 zone: Sample ID: PD | | | |
| Sample ID: DI SMA3 SA 19 - 180920 Analysis: Dioxins Furans / TBT / TOC / Cu / DGT Other: Coccepted Grab lumber: ft. Tide Level: ft. Depth MLLW: ft. Sample Interval: 6 Sample Interval: | | | |
| Analysis: Dioxins Furans / TBT / TOC / Cu / DGT Other: Coccepted Grab Water Depth:ft | | | |
| Circle Appropriate Analyses) Other: Coecypted Grab Water Depth:ftft | | | |
| Water Depth:ft | | | |
| water Depth: | | | |
| Tide Level:ft. Depth MLLW:ft. ediment Type: Sediment Color: Density: Sediment Odor: Debble | 9 0 | om Time: | 1720 |
| Depth MLLW:fit. ediment Type: | | cm | |
| D.O. Very soft/Loose ravel and C M F black brown dense/stiff ganic matter frown surface GT Location? Yes / No Uplicate Station? Yes / No If yes Temp: 12 C Date: Yes Homogenization En Tomogenized sample: [V Introduction of homogenized | | | |
| ravel and C M F black brown ganic matter gray black brown ganic matter brown surface Temp: 12 C pH: 7 Y publicate Station? Yes / No processing Check-list Processing Crew: Processing Crew | | Sheen: | Moisture: |
| and C M F It clay It | 2S | none | Dry |
| ganic matter brown surface brown s | etroleum | trace | Damp |
| rganic matter frown surface very dense/stiff overwhelming fromments: O % f Sand | ther: | slight | Moist |
| omments: 0% f sand GT Location? Yes / No | | moderate | Wet |
| GT Location? Yes / No If yes Temp: 12 C pH: 7.19 Processing Check-list Processing Crew: F/BU/5A Time: Date: 4 Homogenization Start Time: Z30 | | heavy | _ |
| Processing Crew: FNBU/5A Time: Date: 4 Homogenization Start Time: 1230 Time: Date: 4 Homogenization End of homogenized sample: Whomogenized sample: IV Time: Date: 4 Homogenization End of homogenized sample: IV Time: Date: 4 Homogenization End of homogenized sample: IV | | Salinity: | |
| Photograph of unhomogenized sample: 1250 Homogenization Start Time: 1250 Homogenize sample with paddle until consisyency and color are uniform: 1250 Photograph of homogenized sample: 146 | | | |
| Photograph of unhomogenized sample: 100 to 300 Homogenization Start Time: 1230 Homogenization Endowed Sample with paddle until consisyency and color are uniform: 100 Photograph of homogenized sample: 100 Photograph of homo | 230 | | |
| Homogenize sample with paddle until consisyency and color are uniform: | 1/26/2 | 2018 | |
| Homogenize sample with paddle until consisyency and color are uniform: | , , | | |
| hotograph of homogenized sample: [| End Time: | · [23] | |
| Photograph of homogenized sample: [| | | |
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| Paddle nixed. Sample hamagerited an 60 | | | |
| Paddle nixed. Sample homogerized an 60 | - | | |
| Paddle Mixed, Shingshe veragon Level | ant | | |
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| Project Name: She | | | | | | |
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| | W. EP/BW/34 | | | | | |
| | e: 4/26/2016 | | Sampling Method | 1: Powe | Grab | |
| Sampling Vesse | al: Pater R | | | d 11 1 | | |
| Subcontractor(s | | | Weather | Sunny | | |
| Station Coordinate | s: N/Lat. 47, 208121 | "LI | | |) | |
| | E/Long. 123.09464 | | | | | |
| Datum | : NAD 83 / WGS 84 | zone: | | | | |
| | : PDI-SMA3-56: | | | | | |
| | Dioxins Furans / TBT / TOC | | Other: | | | |
| | (Circle Appropriate Analyses | | Other: | - | | |
| | | | | | | |
| Accecpted Grab | Water Depth:ft. | ~131 | Grab Recovery: | 25 | cm Time: | 1420 |
| Number: | Tide Level: ft. | ~13 | Sample Interval: | | cm inne | 1 (|
| | Depth MLLW: - ft. | | Cample Interval. | 10 | om | |
| Sediment Type: | Sediment Color: | Density: | Sediment Odor: | | Sheen: | Moisture: |
| cobble | D.O. | Very soft/Loose | none | H2S (| none | Dry |
| gravel | gray | soft/loose | slight | Petroleum | trace | Damp |
| sand C M F | black | mod dense/stiff | moderate | other: | slight | Moist |
| silt clay | brown | dense/stiff | strong | | moderate | Wet |
| organić matter Comments: | brown surface | very dense/stiff | overwhelming | | heavy | |
| | If yes | Temp: | pH: | | Salinity: | |
| Duplicate Station? Yes / No | | Temp: | pH: | | Salinity: | |
| Processing Check-list | | Temp: | | luzo | Salinity: | |
| Duplicate Station? Yes / No | 1 | Temp: | Time: | 110 | | |
| Processing Check-list Processing Crew | EP/BW/JA | | Time: | 1430 | | |
| Processing Check-list Processing Crew Processing Crew Photograph of unhomogenize | EP/BW/JA | | Time: | 4/26/ | 2016 | |
| Processing Check-list Processing Crew | EP/BW/JA | | Time: | 4/26/ | 2016 | |
| Processing Check-list Processing Crew Processing Crew Photograph of unhomogenize Homogenization Start Time | EP/BW/JA ed sample: [W/ taken | in grab | Time: | 4/26/ | 2016 | |
| Processing Check-list Processing Crew Processing Crew Photograph of unhomogenize Homogenization Start Time | EP/BW/JA | in grab | Time: | 4/26/ | 2016 | |
| Processing Check-list Processing Crew Photograph of unhomogenize Homogenization Start Time | t EP/BW/JA ed sample: [W taken 1430 Idle until consisyency and color | in grab | Time: | 4/26/ | 2016 | |
| Processing Check-list Processing Crew Photograph of unhomogenize Homogenization Start Time | t EP/BW/JA ed sample: [W taken 1430 Idle until consisyency and color | in grab | Time: | 4/26/ | 2016 | |
| Processing Check-list Processing Crew Photograph of unhomogenize Homogenization Start Time Homogenize sample with pad Photograph of homogenized s | t EP/BW/JA ed sample: [W taken 1430 Idle until consisyency and color | in grab | Time: | 4/26/ | 2016 | |
| Processing Check-list Processing Crew Photograph of unhomogenize Homogenization Start Time Homogenize sample with pad Photograph of homogenized sample with pad | EP/BW/JA ed sample: [W talken 1430 Idle until consisyency and color sample: [W | IN BNA6 | Time: | 4/26/ | 2016 | |
| Photograph of unhomogenize Homogenization Start Time Homogenize sample with pad Photograph of homogenized : Comments: | EP/BW/JA ed sample: [W talken 1430 Idle until consisyency and color sample: [W | IN BNA6 | Time: | 4/26/ | 2016 | |
| Processing Check-list Processing Crew Photograph of unhomogenize Homogenization Start Time Homogenize sample with pad Photograph of homogenized second | t EP/BW/JA ed sample: [W taken 1430 Idle until consisyency and color | IN BNA6 | Time: | 4/26/ | 2016 | |
| Processing Check-list Processing Crew Photograph of unhomogenize Homogenization Start Time Homogenize sample with pad Photograph of homogenized second | EP/BW/JA ed sample: [W talken 1430 Idle until consisyency and color sample: [W | IN BNA6 | Time: | 4/26/ | 2016 | |
| Processing Check-list Processing Crew Photograph of unhomogenize Homogenization Start Time Homogenize sample with pad Photograph of homogenized sample with pad | EP/BW/JA ed sample: [W talken 1430 Idle until consisyency and color sample: [W | IN BNA6 | Time: | 4/26/ | 2016 | |
| Processing Check-list Processing Crew Photograph of unhomogenize Homogenization Start Time Homogenize sample with pad Photograph of homogenized second | EP/BW/JA ed sample: [W talken 1430 Idle until consisyency and color sample: [W | IN BNA6 | Time: | 4/26/ | 2016 | |
| Processing Check-list Processing Crew Photograph of unhomogenize Homogenization Start Time Homogenize sample with pad Photograph of homogenized second | EP/BW/JA ed sample: [W talken 1430 Idle until consisyency and color sample: [W | IN BNA6 | Time: | 4/26/ | 2016 | |
| Processing Check-list Processing Crew Photograph of unhomogenize Homogenization Start Time Homogenize sample with pad Photograph of homogenized second | EP/BW/JA ed sample: [W talken 1430 Idle until consisyency and color sample: [W | IN BNA6 | Time: | 4/26/ | 2016 | |
| Processing Check-list Processing Crew Photograph of unhomogenize Homogenization Start Time Homogenize sample with pad Photograph of homogenized second | EP/BW/JA ed sample: [W talken 1430 Idle until consisyency and color sample: [W | IN BNA6 | Time: | 4/26/ | 2016 | |
| Processing Check-list Processing Crew Photograph of unhomogenize Homogenization Start Time Homogenize sample with pad Photograph of homogenized sample with pad | EP/BW/JA ed sample: [W talken 1430 Idle until consisyency and color sample: [W | IN BNA6 | Time: | 4/26/ | 2016 | |
| Processing Check-list Processing Crew Photograph of unhomogenize Homogenization Start Time Homogenize sample with pad Photograph of homogenized second | EP/BW/JA ed sample: [W talken 1430 Idle until consisyency and color sample: [W | IN BNA6 | Time: | 4/26/ | 2016 | |
| Processing Check-list Processing Crew Photograph of unhomogenize Homogenization Start Time Homogenize sample with pad Photograph of homogenized second | EP/BW/JA ed sample: [W talken 1430 Idle until consisyency and color sample: [W | IN BNA6 | Time: | 4/26/ | 2016 | |
| Processing Check-list Processing Crew Photograph of unhomogenize Homogenization Start Time Itomogenize sample with pad Photograph of homogenized second | EP/BW/JA ed sample: [W talken 1430 Idle until consisyency and color sample: [W | IN BNA6 | Time: | 4/26/ | 2016 | |
| Processing Check-list Processing Crew Photograph of unhomogenize Homogenization Start Time Homogenize sample with pad Photograph of homogenized second | EP/BW/JA ed sample: [W talken 1430 Idle until consisyency and color sample: [W | IN BNA6 | Time: | 4/26/ | 2016 | |

Recorded by: M. harm