

**Brunswick Harbor Modification Project
Jekyll Island Fishing Pier Shoreline Nourishment
Glynn County, Georgia
Final Supplemental Environmental Assessment and Finding of No
Significant Impact**

Appendix J

2021 Tier III Sediment Testing Report

**U.S. ARMY CORPS OF ENGINEERS
SAVANNAH DISTRICT
100 WEST OGLETHORPE AVENUE
SAVANNAH, GEORGIA 31401
March 2024**



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**ENVIRONMENTAL SITE INVESTIGATION REPORT
FOR THE DESIGN SERVICES IN SUPPORT OF THE
BRUNSWICK HARBOR MODIFICATION STUDY
GLYNN COUNTY, GEORGIA**
W912HN-17-D-0005

Prepared for:



**U.S. Army Corps of Engineers
Savannah District
Georgia**

March 2021

Prepared by:



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ACRONYMS/ABBREVIATIONS

Acronyms/Abbreviations	Definition
%Ds	Percent Differences
%Rs	Percent Recoveries
bgs	below ground surface
ASV	Acute Screening Value
CCV	Continuing Calibration Verification
CSV	Chronic Screening Value
DoD	Department of Defense
DPT	Direct Push Technology
EDL	Estimated Detection Limit (Dioxins and Furans)
ESV	Ecological Screening Value
GEPD	Georgia Environmental Protection Division
HSRA	Hazardous Site Response Act
ICV	Initial Calibration Verification
IDW	Investigative Derived Waste
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
LOQ	Limit of Quantitation
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
NC	Notification Concentration
NSBLD	New Savannah Bluff Lock and Dam
PAHs	Polynuclear Aromatic Hydrocarbons
PCBs	Polychlorinated Biphenyls
QC	Quality Control
QSM	Quality Services Manual

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ACRONYMS/ABBREVIATIONS (continued)

Acronyms/Abbreviations	Definition
RCRA	Resource Conservation and Recovery Act
RPD	Relative Percent Difference
SESD	Science and Ecosystem Support Division
SOP	Standard Operating Procedure
SVOC	Semi-Volatile Organic Compounds
Tetra Tech - AAI	Tetra Tech, Inc. Ardaman & Associates, Inc.
TEC	Toxic Equivalent Concentration to 2,3,7,8-TCDD
TEF	Toxic Equivalency Factor
TEL	Threshold Effect Level
TEQ	Toxic Equivalency Quotient
TestAmerica	Eurofins Test America Laboratories, Inc.
USACE	United States Army Corps of Engineers
USEPA	Environmental Protection Agency



Ardaman & Associates, Inc.

Geotechnical, Environmental, and
Materials Consultants

A Tetra Tech Company

March 4, 2021
File Number 20-13-0122

U.S. Army Engineer District, Savannah
100 West Oglethorpe Avenue
Savannah, GA 31402

Attention: Mr. Michael R. Loveland, P.G.

Subject: Environmental Site Investigation Report
Brunswick Harbor Modification Study
Glynn County, Georgia
Contract No. W912HN-17-D-0005

Dear Mr. Loveland:

As authorized, we have completed sampling and analysis of sediments, surface water and generated elutriate samples for the Brunswick Harbor Modification Study in Glynn County, Georgia. The purpose of performing this exploration was to characterize sediments and surface water that are located within the boundaries of the proposed Brunswick Harbor Modification project, and to evaluate potential concerns related to disturbance of the sediments during conventional dredging for the project.

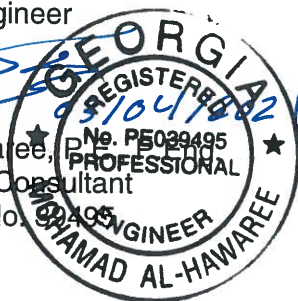
We appreciate the opportunity of assisting the U.S. Army Corps of Engineers on this interesting project and look forward to working with you on future projects. If you have any questions or comments, please contact the undersigned.

Very truly yours,
ARDAMAN & ASSOCIATES, INC.
A Tetra Tech Company

Carl R. Stephens, P.E.
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CRS/MH/APC

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EXECUTIVE SUMMARY

Navigation channel improvements are proposed at the channel Turning Basin and Bend Widener areas as part of the Brunswick harbor modification study. These areas are proposed to be conventionally dredged to Elevation -36 feet (MLLW) with a 2-foot over-depth. Tetra Tech was tasked by the U.S. Army Corps of Engineers (USACE), Savannah District to perform subsurface exploration for the Brunswick Harbor modification study under Corps of Engineers Contract Number W912HN-17- D-0005 and Delivery Order W912HN20F2042.

Tetra Tech – AAI conducted an Environmental Site Investigation consisting of sediment and surface water characterization and generation and analysis of elutriate samples. The investigation was conducted in support of the Brunswick Harbor Modification study that proposes conventional dredging to widen a channel bend and expand a turning basin. Field sampling was conducted between November 3 and 8, 2020. A total of 22 sediment samples, including two duplicates, were obtained for characterization at the 20 geotechnical boring locations. Two surface water samples were obtained for characterization, one from the Turning Basin area and one from the Bend Widener area. An equipment blank was also obtained for analysis. Eight composite sediment samples, including a duplicate, and sufficient surface water from each project section were also obtained for generation of elutriate using the Modified Elutriate Test Method. The supernatant was split into total and dissolved (centrifuged) fractions. The sediment, surface water and elutriate fractions were analyzed for dioxins and furans, RCRA metals, Chlorinated Pesticides, PCBs and PAHs.

Sediment sample analytical results were compared to TEL screening values listed in the NOAA SQuiRTs tables as well as the ESVs listed in USEPA Region IV Ecological Risk Assessment Supplemental Guidance, updated March 2018. Six of the 22 sediment samples had estimated 2,3,7,8-TCDD TEQs in excess of the NOAA SQuiRTs TEQ TEL. The TELs and ESVs for arsenic, cadmium and mercury were exceeded by sample BR-SD-TB-B10-0-2. Chlorinated pesticides, Total PCBs, PAHs and Total PAHs were below the TELs and ESVs for all for the 22 collected sediment samples.

The analytical results from the collected surface water samples were compared to the Marine Surface Water Acute Screening Values referenced in the NOAA SQuiRTs Quick Reference Tables and the USEPA Region 4 Saltwater Acute Screening Values to determine background concentrations of regulated substances in surface water used for the modified elutriate tests. The concentrations of RCRA metals, Chlorinated pesticides, Total PCBs and PAHs were below the ASVs for the 2 collected surface water samples and the equipment blank.

The Marine Surface Water Acute Screening Values referenced in the NOAA SQuiRTs Quick Reference Tables, and the USEPA Region IV Saltwater ASVs were used to evaluate if regulated substances detected in the 16 modified elutriate fraction samples indicate disturbance of the sediments by dredging are a potential ecological risk. No 2,3,7,8-TCDD TEQ ASVs are listed for comparison of dioxin and furan results. The analytical results for the RCRA metals, Chlorinated pesticides, Total PCBs and PAHs were below the ASVs for the 16 elutriate fraction samples.

We understand the dredged material will be placed in a designated, upland, confined disposal area. Laboratory analysis indicates that dioxins and furans are relatively widely distributed in the Brunswick River which is an industrial harbor.

1.0 INTRODUCTION AND SCOPE OF WORK

Environmental data relative to contaminant concentrations in sediment and surface water was obtained in support of the Brunswick Harbor Modification study which proposes conventional dredging to widen a channel bend and expand a turning basin. The environmental data will be used to determine the presence of contaminants of concern in the channel widener and turning basin expansion areas. Sediment and surface water samples were obtained and analyzed to characterize and explore the presence of contaminants within the project limits. Elutriate samples were generated and analyzed to evaluate potential concerns related to disturbance of the sediments during dredging for the project. Our services were conducted for the Department of the Army, Savannah District, Corps of Engineers Contract Number (No.) W912HN-17-D-0005 and Delivery Order W912HN20F2042.

The environmental sampling program was conducted between November 3 and 8, 2020. Sediment and surface water samples were collected at the same locations as the 20 boring/coring locations designated by the USACE.

Tetra Tech - Ardaman & Associates, Inc. (Tetra Tech – AAI) was retained to perform the following tasks on this phase of the project:

- Locate boring/sampling locations using a Trimble Geo7X or a Trimble R2 antenna;
- Obtain one sediment sample from the upper 2 feet of sediment at each boring location (20 total);
- Obtain 2 field duplicate sediment samples from randomly chosen boring locations for QA/QC purposes;
- Obtain 1 water sample from the Turning Basin area and 1 water sample from the Bend Widener area;
- Generate 1 equipment blank sample for water analysis QA/QC purposes;
- Collect site water and sediment samples (each composited from 3 adjacent borings) to generate 5 elutriate samples from the Turning Basin and 2 elutriate samples from the Bend Widener area;
- Collect site water and sediment duplicate sample from 1 randomly selected elutriate sampling location (composited from 3 adjacent borings) for elutriate analysis QA/QC purposes;
- Generate 5 elutriate samples from the Turning Basin composite water and sediment samples, 2 elutriate samples from the Bend Widener composite water and sediment samples, and 1 duplicate elutriate sample using the Modified Elutriate Test Method. Siphon off the supernatant creating the total fraction (8 samples) and centrifuge a portion of the supernatant creating the dissolved fraction (8 samples);

- Conduct laboratory analytical testing on the 20 sediment samples, 2 field duplicate sediment samples and 2 QA/QC samples consisting of Dioxins (EPA Method 1613B or equivalent), RCRA Metals (EPA Method 6020B or equivalent) + Mercury (EPA Method 7474 or equivalent), PAHs (EPA Method 8270E or equivalent), Organochlorine Pesticides (EPA Method 8081B or equivalent) and PCBs (EPA Method 8082A or equivalent);
- Conduct laboratory analytical testing on the 7 elutriate total fraction samples, 1 field duplicate elutriate total fraction sample and 3 QA/QC elutriate total fraction samples consisting of Dioxins (EPA Method 1613B or equivalent), RCRA Metals (EPA Method 6020B or equivalent) + Mercury (EPA Method 7474 or equivalent), PAHs (EPA Method 8270E or equivalent), Organochlorine Pesticides (EPA Method 8081B or equivalent) and PCBs (EPA Method 8082A or equivalent);
- Conduct laboratory analytical testing on the 7 elutriate dissolved fraction samples, 1 field duplicate elutriate dissolved fraction sample and 3 QA/QC elutriate dissolved fraction samples consisting of Dioxins (EPA Method 1613B or equivalent), RCRA Metals (EPA Method 6020B or equivalent) + Mercury (EPA Method 7474 or equivalent), PAHs (EPA Method 8270E or equivalent), Organochlorine Pesticides (EPA Method 8081B or equivalent) and PCBs (EPA Method 8082A or equivalent);
- Conduct laboratory analytical testing on the 2 water samples, and 1 equipment blank water sample consisting of Dioxins (EPA Method 1613B or equivalent), RCRA Metals (EPA Method 6020B or equivalent) + Mercury (EPA Method 7474 or equivalent), PAHs (EPA Method 8270E or equivalent), Organochlorine Pesticides (EPA Method 8081B or equivalent) and PCBs (EPA Method 8082A or equivalent); and
- Provide an environmental sampling report that will include the sampling locations and procedures and laboratory testing results.

The purpose of this report is to present the results of the field investigation activities that occurred onsite from November 3 through November 8, 2020. This Site Investigation Report presents the characterization activities performed by Tetra Tech-AAI and the analytical results for the samples collected during the field effort as detailed in the approved Work Plan for the Design Services in support of the Brunswick Harbor Modifications.

2.0 ENVIRONMENTAL SAMPLING AND ANALYSIS PROGRAM

The environmental sampling program consisted of obtaining 20 sediment samples, 2 duplicate sediment samples, 2 surface water samples and sufficient sediment and surface water to generate 7 elutriate samples composited from sediments from 3 designated, adjacent boring locations, and 1 duplicate elutriate composited sample. The boring location plan for the Brunswick Harbor Modification study is presented as in Figure 1. Section A (Turning Basin area) boring locations are presented at a larger scale on Figure 2. Similarly, the Section B (Bend Widener area) borings are shown on Figure 3.

2.1 Sediment Characterization Sampling

Tetra Tech - AAI was on-site between November 3 and November 8, 2020 to collect sediment samples from the twenty designated boring locations. The sediment sampling locations designated, BR-SD-TB-B-01-0-2 through BR-SD-TB-B-15-0-2, and BR-SD-BW-B-01-0-2 through BR-SD-BW-B-05.

Collection of the sediment samples required the use of a boat. All personnel on board the boat wore United States Coast Guard approved life preservers and following all protocols outlined in the approved Accident Prevention Plan and Site Safety and Health Plan.

Once in position at each sampling location, as confirmed with a Trimble Geo7X hand-held GPS which has a typical accuracy of 1 foot, sediment samples were collected from the upper two feet of sediment using a stainless-steel PONAR grab sampler. A PONAR grab sampler is a bottom sampling device used on vessels to collect bottom sediments of a lake or river. The grab sampler provides a means to obtain a somewhat quantitative and undisturbed sample of the bottom material by capturing a known surface area and penetration depth, provided that the bottom material is neither too hard or nor too soft. The PONAR grab sampler consists of two opposing semi-circular jaws that are normally held open by a trigger mechanism. The sampler is lowered to the bottom where contact with the bottom sets off the trigger and a strong spring snaps the jaws shut trapping a sample of the bottom inside. Fine stainless-steel screen covers the top of the jaws so that the trapped material will not wash out as the sampler is retrieved.

Upon retrieval of the PONAR device from the Brunswick River bottom, the collected sediment samples were immediately transferred to a decontaminated stainless-steel pan to be photographed and placed in the proper laboratory supplied sample containers. After the collection of each sediment sample, the PONAR sampler, stainless-steel pan and all scoops, spoons, etc. were decontaminated by scrubbing with a brush using deionized water and Liqui-Nox (or equivalent non-phosphate detergent). The sampler was then rinsed with deionized water prior to moving to the next sampling location. Sample collection for sediment followed the protocol outlined in USEPA Region 4 LSASD SOP, Sediment Sampling LSASDPROC-200-R4, February 23, 2020 as well as the Guidance for Sampling and Analysis of Sediments, Water and Tissues for Dredged Material Evaluations (USACE 1995).

All collected sediment samples were preserved as specified in USEPA Document SW-846, transported to the TestAmerica service center in Savannah, Georgia, and then shipped to TestAmerica in Pittsburgh, Pennsylvania for analysis. The sediment samples were analyzed for the following constituents:

- Dioxins and Furans by USEPA EPA Method 1613B
- RCRA 8-Metals by USEPA Methods 6020B and 7471B (Mercury)
- Polychlorinated Biphenyls (PCBs) by USEPA Method 8082A
- Organochlorine Pesticides by USEPA Method 8081B LL
- Polynuclear Aromatic Hydrocarbons (PAHs) by USEPA Method 8270E LL

The sediment sample analytical results are presented in Table 1 and discussed in further detail in Section 3.1. Laboratory analytical reports for the sediment samples are provided in Appendix A. Daily Field Reports for the sampling program are provided in Appendix B.

2.2 Surface Water Characterization Sampling

Two surface water samples were obtained for laboratory analysis on November 4, 2020 by Tetra Tech - AAI. One sample was obtained from the Turning Basin area, and one surface water sample was obtained from the Bend Widener area.

The surface water samples were collected using a peristaltic pump with flexible thermoplastic tubing (Tygon) and new, unused polyethylene tubing. Rollers in the pump head create suction in the flexible tubing by compressing the flexible tubing through peristaltic action. The polyethylene tubing is inserted into the suction end of the flexible tubing to provide a means to convey water from the sampling location and depth to the surface. The polyethylene tubing was attached with plastic zip-ties to a telescopic 18-foot aluminum pole. The tubing was secured with a 1.5-foot section extended past the bottom of the pole so that the sampling point can be controlled. The end of the tubing was lowered to approximately 2/3rds the water depth at the sampling location. The Peristaltic pump was then used to flush a minimum of 10 tubing volumes (minimum 2 gallons flushed) prior to collection of the surface water samples using the laboratory-provided containers. Samples were collected up current of the boat to ensure cross contamination from any material attached to the vessel is not encountered. Upon completion of surface water sampling in each section, the Tygon and polyethylene tubing was discarded and replaced with new, unused tubing. Sample collection for surface water samples followed the protocol outlined in USEPA Region 4 SESD SOP, Surface Water Sampling SESDPROC-201-R4, December 14, 2016 as well as the Guidance for Sampling and Analysis of Sediments, Water and Tissues for Dredged Material Evaluations (USACE 1995).

An aqueous equipment blank (BR-EQUIP BLANK) was also generated by pumping analyte-free water provided by the analytical laboratory through 5 feet of new, unused polyethylene tubing and 1 foot of Tygon tubing using the peristaltic pump. The tubing was flushed with approximately 0.5 gallons of the analyte-free water before pumping the equipment blank sample directly into the laboratory sample container.

All collected surface water samples were preserved as specified in USEPA Document SW-846, transported to the TestAmerica service center in Savannah, Georgia, and then shipped to TestAmerica in Pittsburgh, Pennsylvania for analysis. The surface water and equipment blank samples were analyzed for the following constituents:

- Dioxins and Furans by USEPA Method 1613B
- RCRA 8-Metals by USEPA Methods 6020B and 7470A (Mercury)
- Polychlorinated Biphenyls (PCBs) by USEPA Method 8082A
- Organochlorine Pesticides by USEPA Method 8081B LL
- Polynuclear Aromatic Hydrocarbons (PAHs) by USEPA Method 8270E LL

The surface water sample analytical results are presented in Table 2 and discussed in further detail in Section 3.2. Laboratory analytical reports for the surface water samples are provided in Appendix A. Daily Field Reports for the sampling program are provided in Appendix B.

2.3 Elutriate Generation and Analysis

Additional sediment and surface water sample was obtained from the Turning Basin area and Bend Widener area to generate elutriate samples. The additional sediment samples were obtained in the same manner described in Section 2.2, and the surface water for the elutriate generation was obtained in the same manner as described in Section 2.3.

Composite samples were created from aliquots obtained from requested adjacent boring locations at Turning Basin area (Section A) and the Bend Widener area (Section B) Borings as summarized in Table A.

Table A: Elutriate Sediment Compositing Scheme

Section (Location)	Boring Designation/Sediment Sampling Location	Georgia East State Plane Coordinates (feet, NAD83)		Composite Sediment Sample ID for Elutriate Sample Generation
		X	Y	
Section A (Turning Basin)	TB-B-01	853,758.940	412,901.714	BR-EL-SD-TB-CS01-0-2
	TB-B-02	854,190.465	412,727.036	
	TB-B-03	854,512.562	412,484.082	
	TB-B-04	854,900.483	412,439.745	BR-EL-SD-TB-CS02-0-2
	TB-B-05	855,208.904	412,236.729	
	TB-B-06	855,651.284	412,135.970	
	TB-B-07	855,945.650	411,984.168	BR-EL-SD-TB-CS03-0-2
	TB-B-08	856,149.757	411,858.036	
	TB-B-09	856,326.372	411,995.821	
	TB-B-10	856,538.597	411,873.012	BR-EL-SD-TB-CS04-0-2
	TB-B-11	856,811.465	411,922.603	
	TB-B-12	856,910.122	411,743.851	
	TB-B-13	857,184.242	411,847.650	BR-EL-SD-TB-CS05-0-2
	TB-B-14	857,437.021	411,962.239	
	TB-B-15	857,423.721	411,666.079	
Section B (Bend Widener)	BW-B-01	879,421.271	402,882.491	BR-EL-SD-BW-CS06-0-2
	BW-B-02	879,676.753	402,625.515	
	BW-B-03	880,159.299	402,830.866	
	BW-B-01	879,421.271	402,882.491	BR-EL-SD-BW-CS06-0-2 DUP
	BW-B-02	879,676.753	402,625.515	
	BW-B-03	880,159.299	402,830.866	BR-EL-SD-BW-CS07-0-2
	BW-B-04	880,498.999	402,570.802	
	BW-B-05	880,809.295	402,792.509	

The water sample fractions for the elutriate testing were collected from the Turning Basin area for the Turning Basin elutriate samples, and from the Bend Widener area for the Bend Widener area elutriate samples.

The composite sediment samples were created for elutriate generation by thoroughly mixing aliquots from the designated sampling locations. The sediment subsample from each of the three boring/sediment sampling locations, as summarized in Table A, was placed in a separate decontaminated stainless-steel pan. The pans were covered with aluminum foil and placed in a cooler with ice. After all three sediment subsamples were obtained from the three adjacent

borings, equal volume aliquots were obtained with a stainless steel spoon from each of the three pans and placed in a fourth decontaminated stainless steel pan. The aliquots were then photographed, thoroughly mixed with a stainless-steel spoon in the stainless-steel pan. The composited sample was then transferred to the proper laboratory supplied sample container which was labeled, logged on the chain of custody form and placed in cooler on ice to preserve the sample to maintain a temperature of 4°C. The composite samples and the surface water samples for elutriate generation were transported to the TestAmerica service center in Savannah, Georgia, and then shipped to TestAmerica in Pittsburgh, Pennsylvania for elutriate generation using the Modified Elutriate Test Method. Surface water from the Turning Basin area were used with the composite samples from the Turning Basin area, and surface water from the Bend Widener was used with the composite sample from the Bend Widener area to generate the elutriate samples. The elutriate supernatant was siphoned off from each of the 8 samples creating the total fraction. A portion of the total fraction from each elutriate sample was centrifuged creating the 8 dissolved fraction samples.

The Total and Dissolved elutriate sample fractions were analyzed for the following laboratory analyses:

- Dioxins and Furans by USEPA Method 1613B
- RCRA 8-Metals by USEPA Methods 6020B and 7470A (Mercury)
- Polychlorinated Biphenyls (PCBs) by USEPA Method 8082A
- Organochlorine Pesticides by USEPA Method 8081B LL
- Polynuclear Aromatic Hydrocarbons (PAHs) by USEPA Method 8270E LL

The Total and Dissolved elutriate sample fraction analytical results are presented in Table 3 and discussed in further detail in Section 3.3. Laboratory analytical reports for the elutriate sample fractions are provided in Appendix A. Daily Field Reports for the sampling program are provided in Appendix B.

3.0 LABORATORY ANALYTICAL RESULTS

This section provides a detailed comparison of the analytical results from the samples collected to an applicable environmental screening standard for each type of environmental media sampled during site characterization activities.

3.1 *Sediment Characterization Analytical Results*

Between November 3 and November 8, 2020, Tetra Tech -AAI collected 22 sediment samples including two duplicates from the 20 boring/sediment sampling locations, BR-SD-TB-B-01-0-2 through BR-SD-TB-B-15-0-2 and BR-SD-BW-B-01-0-2 through BR-SD-BW-B-05-0-2, plus duplicate samples BR-SD-TB-B-15-0-2 DUP and BR-SD-BW-B-04-0-2 DUP.

The analytical results from the collected sediment samples were compared to the Threshold Effect Level (TEL) referenced in the NOAA SQuiRTs Quick Reference Tables (NOAA, 2008), and the USEPA Region IV Ecological Screening Values (ESVs) referenced in United States Environmental Protection Agency Region IV Ecological Risk Assessment Supplemental Guidance, March 2018 Update (USEPA, 2018) to determine if detections of regulated substances in sediments are a potential ecological risk. TELs are benchmark levels calculated as geometric means of toxic sample concentrations from a database of studies. The TELs do

not use non-toxic sample results. According to the USEPA Region IV, "Ecological screening values are based on chemical concentrations associated with a low probability of unacceptable risks to ecological receptors. Since these numbers are based on conservative endpoints and sensitive ecological effects data, they represent a preliminary screening of site chemical concentrations to determine the need to conduct further investigations at the site. ESVs are not recommended for use as remediation levels" (USEPA Region IV, 2018). In general, TELs and ESVs values are approximately equal for contaminants that have both TELs and ESVs.

3.1.1 Dioxins and Furans

The dioxin and furan concentrations were multiplied by the NOAA SQuiRTs Toxic Equivalency Factors (TEF) for fish to calculate the Toxic Equivalency Concentration (TEC) for each dioxin and furan relative to 2,3,7,8-TCDD. The TECs for each dioxin and furan was summed to calculate the Toxic Equivalency Quotient (TEQ). TECs for dioxin and furan concentrations below the Estimated Detection Level (EDL) were assigned a value of 0.0 to exclude them from the TEQ calculation (Sum of TECs). TEC values for dioxins and furans that were also present in the laboratory blank (designated with data qualifier B) were also assigned a value of 0.0 so that they are also excluded from the TEQ calculation. The TEQ for each sample was compared to the NOAA SQuiRTs TEQ (0.00085 µg/Kg) for 2,3,7,8-TCDD. There is no corresponding EPA Region IV ESV for 2,3,7,8-TCDD.

The NOAA SQuiRTs marine sediment TEL for 2,3,7,8-TCDD was exceeded by the estimated TEQ values of 6 of the 22 sediment samples. As shown in Table 1, the TEL was exceeded by the estimated TEQs of samples BR-SD-TB-B-01-0-2, BR-SD-TB-B-06-0-2, BR-SD-TB-B-10-0-2, BR-SD-TB-B-11-0-2, BR-SD-TB-B-12-0-2 and BR-SD-TB-B-14-0-2.

Please note that the dioxin and furan concentrations are extremely low, in the parts per trillion range, and often close to the lower detection limits. Consequently, the TEQ values should be considered as estimated values.

The remaining TEQs calculated from the analytical results for the dioxins and furans analyzed via USEPA Method 1613B were below the NOAA SQuiRTs TEQ for the collected sediments samples.

3.1.2 RCRA-8 Metals

An exceedance of the TEL for arsenic (7.24 mg/Kg) and the ESV for arsenic (7.24 mg/Kg) was exceeded by sample BR-SD-TB-B10-0-2 (9.2 mg/Kg), as shown in Table 1.

An exceedance of the TEL for cadmium (0.68 mg/Kg) and the ESV for cadmium (7.24 mg/Kg) was exceeded by sample BR-SD-TB-B10-0-2 (13 mg/Kg), as shown in Table 1.

An exceedance of the TEL for mercury (0.13 mg/Kg) and the ESV for mercury (0.13 mg/Kg) was exceeded by sample BR-SD-TB-B10-0-2 (0.23 mg/Kg), as shown in Table 1.

The remaining analytical results for the RCRA-8 metals analyzed via USEPA Method 6020B and USEPA Method 7471B were below the TELs and ESVs for the collected sediments samples.

3.1.3 Pesticides

Analytical results for Pesticides analyzed via USEPA Method 8081B LL were below the NOAA SQUIRTs TELs and USEPA Region IV ESVs for all the 22 collected sediment samples, including two duplicate samples.

3.1.4 Poly-Chlorinated Biphenyls (PCBs)

The 22 collected sediment samples, including two duplicates, were analyzed for PCBs by USEPA Method 8082A. The sum of the PCB concentrations for each sample was compared to the Total PCBs TEL and ESV (21.6 µg/Kg). Only results that exceeded the Method Detection Level (MDL) were used to calculate the Total PCBs concentration for each sample. The NOAA SQUIRTs tables also list a 63.3 mg/Kg TEL for PCB 1254. Analytical results for PCBs were below the TELs and ESVs for the 22 collected sediment samples.

3.1.5 Polynuclear Aromatic Hydrocarbons (PAHs)

The 22 collected sediment samples, including two duplicates, were analyzed for Polynuclear Aromatic Hydrocarbons (PAHs) by USEPA Method 8270E LL. The PAH concentrations for each of the 22 samples were compared to the TELs and ESVs for each PAH. The sum of the PAH concentrations for each sample was also compared to the Total PAHs TEL and ESV. Only results that exceeded the Method Detection Level (MDL) were used to calculate the Total PCBs concentration for each sample. Analytical results for PAHs were below the TELs and ESVs for all PAHs and Total PAHs for the 22 collected sediment samples, including the two duplicate samples.

The sediment sample analytical results are presented in Table 1. Laboratory analytical reports for the sediment samples are provided in Appendix A. Daily Field Reports for the sampling program are provided in Appendix B.

3.2 Surface Water Characterization Analytical Results

Between November 3 and November 8, 2020, Tetra Tech -AAI collected 2 surface water samples, one from the Turning Basin area (BR-SW-TB) and one from the Bend Widener area (BR-SW-BW), for laboratory analysis. An aqueous equipment blank (BR-EQUIP BLANK) was also generated by pumping analyte-free water provided by the analytical laboratory through new, unused tubing directly into the laboratory sample container using the peristaltic pump.

The analytical results from the collected surface water samples were compared to the Marine Surface Water Acute Screening Value (ASV) referenced in the NOAA SQUIRTs Quick Reference Tables (NOAA, 2008), and the Saltwater Acute Screening Value (ASV) referenced in United States Environmental Protection Agency Region IV Ecological Risk Assessment Supplemental Guidance, March 2018 Update (USEPA, 2018) to determine potential interferences from background surface water concentrations in the modified elutriate sample fraction analyses, discussed below.

3.2.1 Dioxins and Furans

The dioxin and furan concentrations were multiplied by the NOAA SQUIRTs Toxic Equivalency Factors (TEF) for fish to calculate the Toxic Equivalency Concentration (TEC) for each dioxin and furan relative to 2,3,7,8-TCDD. The TECs for each dioxin and furan was summed to

calculate the Toxic Equivalency Quotient (TEQ). TECs for dioxin and furan concentrations below the Estimated Detection Level (EDL) were assigned a value of 0.0 to exclude them from the TEQ calculation (Sum of TECs). TEC values for dioxins and furans that were also present in the laboratory blank (designated with data qualifier B) were also assigned a value of 0.0 so that they are also excluded from the TEQ calculation.

No 2,3,7,8-TCDD TEQ ASV is listed for Marine Surface Water in the NOAA SQuiRTs tables. Similarly, no acute screening value is listed for Saltwater in the USEPA Region IV Ecological Risk Assessment Supplemental Guidance, March 2018 Update (USEPA, 2018).

The TEQs calculated from the analytical results for the dioxins and furans analyzed via USEPA Method 1613B are presented in Table 2. No acute screening values are listed for comparison of results in the NOAA SQuiRTs or the USEPA Region IV ASV Tables for Saltwater.

3.2.2 RCRA-8 Metals

The analytical results for the RCRA-8 metals analyzed via USEPA Method 6020B and USEPA Method 7470A were below the ASVs as shown in Table 2.

3.2.3 Pesticides

Analytical results for Pesticides analyzed via USEPA Method 8081B LL were below the NOAA SQuiRTs and USEPA Region IV ASVs for the 2 collected surface water samples and the equipment blank.

3.2.4 Poly-Chlorinated Biphenyls (PCBs)

The two collected surface water samples and the equipment blank were analyzed for PCBs by USEPA Method 8082A. The sum of the PCB concentrations for each sample was compared to the Total PCBs ASVs (0.033 µg/L) listed in the NOAA SQuiRTs tables and in the USEPA Region IV screening value tables for surface waters. Only results that exceeded the Method Detection Level (MDL) were used to calculate the Total PCBs concentration for each sample. Analytical results for Total PCBs analyzed via USEPA Method 8082B LL were below the NOAA SQuiRTs and USEPA Region IV ASVs for the 2 collected surface water samples and the equipment blank.

3.2.5 Polynuclear Aromatic Hydrocarbons (PAHs)

The two collected surface water samples were analyzed for PAHs by USEPA Method 8270E. The PCB concentrations for each sample that exceeded the Method Detection Level (MDL) was compared to the ASVs listed in the NOAA SQuiRTs tables and in the USEPA Region IV screening value tables for Marine/Saltwater surface waters. Analytical results for Total PAHs analyzed via USEPA Method 8082B LL were below the NOAA SQuiRTs and USEPA Region IV ASVs for the 2 collected surface water samples and the equipment blank.

The two collected surface water samples and the equipment blank were analyzed for Polynuclear Aromatic Hydrocarbons (PAHs) by USEPA Method 8270E LL. The PAH concentrations for each of the samples were compared to the ASVs for each PAH. The sum of the PAH concentrations for each sample was also compared to the Total PAHs ASVs. Only results that exceeded the Method Detection Level (MDL) were used to calculate the Total PCBs

concentration for each sample. Analytical results for PAHs were below the ASVs for all PAHs and Total PAHs for the 2 collected surface water samples and the equipment blank.

The surface water and equipment blank sample analytical results are presented in Table 2. Laboratory analytical reports for the surface water samples are provided in Appendix A. Daily Field Reports for the sampling program are provided in Appendix B.

3.3 *Elutriate Sample Analytical Results*

The elutriate samples were generated using the Modified Elutriate Test Method by TestAmerica in Pittsburgh, Pennsylvania on November 13, 2020 using the sediment composite samples and surface water samples obtained by Tetra Tech -AAI between November 4 and November 8, 2020. Surface water from the Turning Basin area were used with the 5 composite samples from the Turning Basin area, and surface water from the Bend Widener was used with the 3 composite sample from the Bend Widener area, including a duplicate composite sample, to generate the elutriate samples. The elutriate supernatant was siphoned off from each of the 8 samples creating the total fraction. A portion of the total fraction from each elutriate sample was centrifuged creating the 8 dissolved fraction samples.

The elutriate results represent a very temporary condition as a result of dredging operations. The analytical results from the 16 elutriate sample fractions were therefore compared to the Marine Surface Water Acute Screening Value (ASV) referenced in the NOAA SQuiRTs Quick Reference Tables (NOAA, 2008), and the Saltwater Acute Screening Value referenced in USEPA, 2018 to determine if detections of regulated substances in elutriate samples indicate disturbance of the sediments by dredging are a potential ecological risk.

3.3.1 Dioxins and Furans

The dioxin and furan concentrations were multiplied by the NOAA SQuiRTs Toxic Equivalency Factors (TEF) for fish to calculate the Toxic Equivalency Concentration (TEC) for each dioxin and furan relative to 2,3,7,8-TCDD. The TECs for each dioxin and furan was summed to calculate the Toxic Equivalency Quotient (TEQ). TECs for dioxin and furan concentrations below the Estimated Detection Level (EDL) were assigned a value of 0.0 to exclude them from the TEQ calculation (Sum of TECs). TEC values for dioxins and furans that were also present in the laboratory blank (designated with data qualifier B) were also assigned a value of 0.0 so that they are also excluded from the TEQ calculation.

No 2,3,7,8-TCDD TEQ ASV is listed for Marine Surface Water in the NOAA SQuiRTs tables. Similarly, no TEQ ASV is listed for Saltwater in the USEPA Region IV Ecological Risk Assessment Supplemental Guidance, March 2018 Update (USEPA, 2018).

The TEQs calculated from the analytical results for the dioxins and furans analyzed via USEPA Method 1613B are presented in Table 3. No acute screening values are listed for comparison of results in the NOAA SQuiRTs or the USEPA Region IV ASV Tables for Saltwater.

3.3.2 RCRA-8 Metals

The 8 Total and 8 Dissolved elutriate samples were analyzed for RCRA-8 metals by USEPA Methods 6020B and 7470A. No RCRA-8 metals concentrations exceeding the NOAA SQuiRTs or USEPA Region IV ASVs were detected in the 16 sample fractions, as shown in Table 3.

3.3.3 Pesticides

The 8 Total and 8 Dissolved elutriate samples were analyzed for Organochlorine Pesticides by USEPA Method 8081B LL. Analytical results for Chlorinated Pesticides were below the NOAA SQuiRTs ASVs.

3.3.4 Poly-Chlorinated Biphenyls (PCBs)

The 8 Total and 8 Dissolved elutriate samples were analyzed for PCBs by USEPA Method 8082A. The sum of the PCB concentrations for each sample was compared to the Total PCBs ASV (0.033 µg/L) listed in the NOAA SQuiRTs tables and in the USEPA Region IV acute screening value tables for surface waters. Only results that exceeded the Method Detection Level (MDL) were used to calculate the Total PCBs concentration for each sample. Analytical results for Total PCBs analyzed via USEPA Method 8082B LL were below the NOAA SQuiRTs ASVs and USEPA Region IV ASVs for the 16 elutriate sample fractions.

3.3.5 Polynuclear Aromatic Hydrocarbons (PAHs)

The 8 Total and 8 Dissolved elutriate samples were analyzed for PAHs by USEPA Method 8270E. The PAH concentrations for each of the samples were compared to the ASVs for each PAH. Only results that exceeded the Method Detection Level (MDL) were compared to ASVs. Analytical results for PAHs were below the ASVs for all PAHs for the 16 elutriate sample fractions.

The elutriate fraction sample analytical results are presented in Table 3. Laboratory analytical reports for the sediment samples are provided in Appendix Daily Field Reports for the sampling program are provided in Appendix B.

4.0 CONCLUSIONS AND DISCUSSION

4.1 Conclusions

Navigation channel improvements are proposed at the channel Turning Basin and Bend Widener areas as part of the Brunswick harbor modification study. These areas are proposed to be conventionally dredged to Elevation -36 feet (MLLW) with a 2-foot over-depth. Tetra Tech was tasked by the U.S. Army Corps of Engineers (USACE), Savannah District to perform subsurface exploration for the Brunswick Harbor modification study.

Tetra Tech – AAI conducted an Environmental Site Investigation consisting of sediment and surface water characterization and generation and analysis of elutriate samples to support the Brunswick Harbor Modification study. Field sampling was conducted between November 3 and 8, 2020. A total of 22 sediment samples, including two duplicates, were obtained for characterization at the 20 geotechnical boring locations. Two surface water samples were obtained for characterization, one from the Turning Basin area and one from the Bend Widener area. An equipment blank was also obtained for analysis. Eight composite sediment samples, including a duplicate, and sufficient surface water from each project section were also obtained for generation of elutriate using the Modified Elutriate Test Method. The supernatant was split into total and dissolved (centrifuged) fractions. The sediment, surface water and elutriate fractions were analyzed for dioxins and furans, RCRA metals, Chlorinated Pesticides, PCBs and PAHs.

Analytical results of the sediment samples were compared to NOAA SQuiRTs TELs and USEPA Region IV ESVs. Six of the 22 sediment samples had estimated 2,3,7,8-TCDD TEQs in excess of the NOAA SQuiRTs TEL. The NOAA SQuiRTs TELs and Region IV ESVs for arsenic, cadmium and mercury were exceeded by sample BR-SD-TB-B10-0-2. Chlorinated pesticides, Total PCBs, PAHs and Total PAHs were below the TELs and ESVs for all for the 22 collected sediment samples.

The analytical results from the collected surface water samples were compared to the NOAA SQuiRTs Marine Surface Water ASVs and the USEPA Region 4 Saltwater ASVs to determine background concentrations of regulated substances in surface water used for modified elutriate tests. No marine surface water screening values were available for dioxins and furans. The RCRA metals, Chlorinated pesticides, Total PCBs and PAHs were below the ASVs for the 2 collected surface water samples and the equipment blank.

The NOAA SQuiRTs Marine Surface Water ASVs and the USEPA Region IV Saltwater ASVs were used to evaluate if detections of regulated substances in the 16 elutriate fraction samples indicate disturbance of the sediments by dredging are a potential ecological risk. No 2,3,7,8-TCDD TEQ AVSs are listed for comparison of dioxin and furan results. The analytical results for the RCRA metals, Chlorinated pesticides, Total PCBs and PAHs were below the ASVs for the 16 elutriate fraction samples.

4.2 Discussion

We understand the dredged material will be placed in a designated, upland, confined disposal area. Laboratory analysis indicates that dioxins and furans are relatively widely distributed in the Brunswick River which is an industrial harbor.

5.0 REFERENCES

USACE, 1995. Guidance for Sampling and Analysis of Sediments, Water and Tissues for Dredged Material Evaluations.

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NOAA, 2008. Screening Quick Reference Tables (SQuiRTs).

USEPA R4, 2018. United States Environmental Protection Agency Region IV Ecological Risk Assessment Supplemental Guidance, March 2018 Update.



N

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SCALE: 1"=3000'

NOTE
STATE PLANE GEORGIA EAST.
DATED 11/10/2019, BY USDA

LEGEND

● SPT BORING

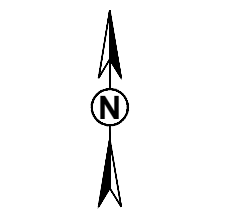
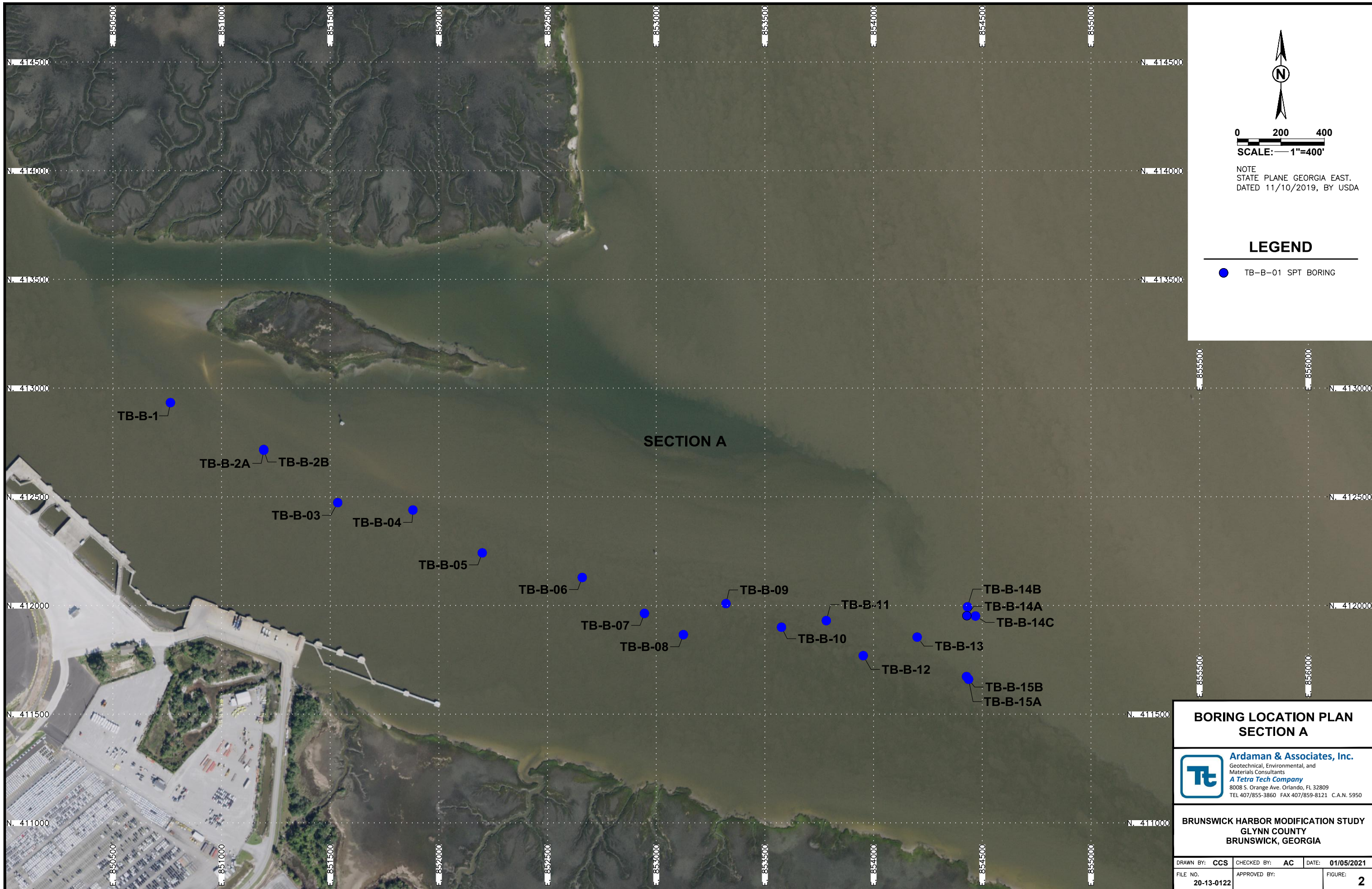
**BORING LOCATION PLAN
SECTIONS A AND B**



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**BRUNSWICK HARBOR MODIFICATION STUDY
GLYNN COUNTY
BRUNSWICK, GEORGIA**

DRAWN BY: CSS	CHECKED BY: AC	DATE: 01/11/2021
FILE NO. 20-13-0122	APPROVED BY:	FIGURE: 1



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SCALE: 1"=400'

NOTE
STATE PLANE GEORGIA EAST.
DATED 11/10/2019, BY USDA

LEGEND

- TB-B-01 SPT BORING

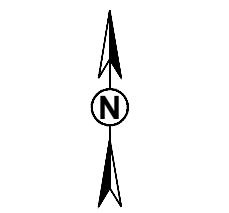
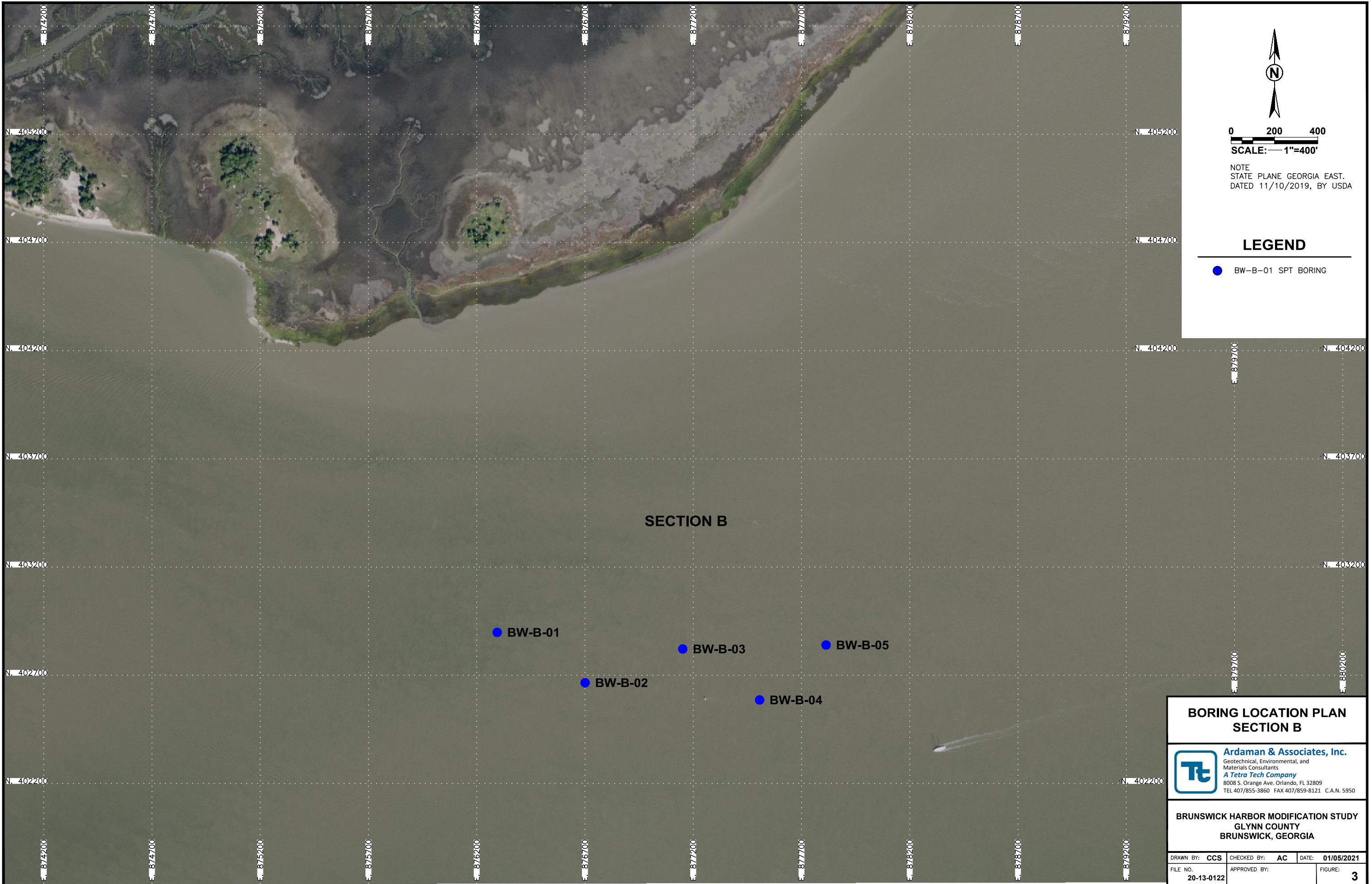
SECTION A

**BORING LOCATION PLAN
SECTION A**

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**BRUNSWICK HARBOR MODIFICATION STUDY
GLYNN COUNTY
BRUNSWICK, GEORGIA**

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FILE NO. 20-13-0122	APPROVED BY:	FIGURE: 2



0 200 400
SCALE: 1"=400'

NOTE
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DATED 11/10/2019, BY USDA

LEGEND

● BW-B-01 SPT BORING

SECTION B

● BW-B-01

● BW-B-03

● BW-B-05

● BW-B-02

● BW-B-04

**BORING LOCATION PLAN
SECTION B**

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**BRUNSWICK HARBOR MODIFICATION STUDY
GLYNN COUNTY
BRUNSWICK, GEORGIA**

DRAWN BY: CCS	CHECKED BY: AC	DATE: 01/05/2021
FILE NO. 20-13-0122	APPROVED BY:	FIGURE: 3

**Table 1
Sediment Analytical Results**

Analyte	NOAA SQUIRTs Marine Sediments TEL (2008) ¹	EPA Region IV Marine/Estuarine ESV (2018) ²	NOAA SQUIRTs 1998 Fish TEF (2005) ¹	Units	BR-SD-TB-B-01-0-2			BR-SD-TB-B-02-0-2			BR-SD-TB-B-03-0-2			BR-SD-TB-B-04-0-2			BR-SD-TB-B-05-0-2			BR-SD-TB-B-06-0-2			BR-SD-TB-B-07-0-2			BR-SD-TB-B-08-0-2		
					11/4/2020	Qualifiers	TEC	11/4/2020	Qualifiers	TEC	11/4/2020	Qualifiers	TEC	11/4/2020	Qualifiers	TEC	11/4/2020	Qualifiers	TEC	11/4/2020	Qualifiers	TEC	11/5/2020	Qualifiers	TEC	11/5/2020	Qualifiers	TEC
Dioxins and Furans																												
1,2,3,4,6,7,8-HpCDD	--	--	0.001	µg/Kg	0.061	B	0.000000	0.0096	B	0.000000	0.033	B	0.000000	0.0066	B	0.000000	0.031	B	0.000000	0.11	B	0.000000	0.0023	J	0.000002	0.015	B	0.000000
1,2,3,4,6,7,8-HpCDF	--	--	0.01	µg/Kg	0.0035	J B	0.000000	0.0006	J B	0.000000	0.002	J B	0.000000	0.00041	J B	0.000000	0.0018	J B	0.000000	0.0059	B	0.000000	0.00016	J q	0.000002	0.00072	J q B	0.000000
1,2,3,4,7,8,9-HpCDF	--	--	0.01	µg/Kg	0.00026	J B	0.000000	0.000045	U	0.000000	0.00011	J q B	0.000000	0.00003	U	0.000000	0.0001	J q B	0.000000	0.00033	J B	0.000000	0.000024	U	0.000000	0.000071	J q B	0.000000
1,2,3,4,7,8-HxCDD	--	--	0.5	µg/Kg	0.0012	J B	0.000000	0.00026	J q B	0.000000	0.00068	J B	0.000000	0.00023	J B	0.000000	0.0008	J B	0.000000	0.0025	J B	0.000000	0.000074	U	0.000000	0.00038	J B	0.000000
1,2,3,4,7,8-HxCDF	--	--	0.1	µg/Kg	0.0014	J	0.000140	0.00017	J q	0.000017	0.00076	J	0.000076	0.00015	J q	0.000015	0.00071	J	0.000071	0.0021	J	0.000210	0.000037	U	0.000000	0.00022	J q	0.000022
1,2,3,6,7,8-HxCDD	--	--	0.01	µg/Kg	0.0024	J B	0.000000	0.00033	J B	0.000000	0.0009	J q B	0.000000	0.00022	J q B	0.000000	0.00095	J B	0.000000	0.0034	J B	0.000000	0.00007	U	0.000000	0.00049	J q B	0.000000
1,2,3,6,7,8-HxCDF	--	--	0.1	µg/Kg	0.00038	J q	0.000038	0.000044	U	0.000000	0.00026	J	0.000026	0.000037	J q	0.000004	0.00021	J	0.000021	0.00074	J	0.000074	0.00004	U	0.000000	0.000094	J q	0.000009
1,2,3,7,8,9-HxCDD	--	--	0.01	µg/Kg	0.0053		0.000053	0.00072	J q	0.000007	0.0025	J	0.000025	0.00049	J	0.000005	0.0024	J	0.000024	0.0086		0.000086	0.000068	U	0.000000	0.0013	J	0.000013
1,2,3,7,8,9-HxCDF	--	--	0.1	µg/Kg	0.00038	U	0.000000	0.000054	U	0.000000	0.000054	U	0.000000	0.000043	U	0.000000	0.000053	U	0.000000	0.00088	U	0.000000	0.00005	U	0.000000	0.00041	U	0.000000
1,2,3,7,8-PeCDD	--	--	1.0	µg/Kg	0.00073	J q B	0.000000	0.00013	J q B	0.000000	0.00036	J B	0.000000	0.00026	U	0.000000	0.00029	J B	0.000000	0.0013	J B	0.000000	0.00006	U	0.000000	0.00016	J q B	0.000000
1,2,3,7,8-PeCDF	--	--	0.05	µg/Kg	0.00047	J q	0.000024	0.000055	U	0.000000	0.00034	J	0.000017	0.000053	U	0.000000	0.00029	J	0.000015	0.00087	J	0.000044	0.000071	U	0.000000	0.00017	J q	0.000009
2,3,4,6,7,8-HxCDF	--	--	0.1	µg/Kg	0.00081	J	0.000081	0.000047	U	0.000000	0.00035	J	0.000035	0.000093	J q	0.000009	0.0004	J	0.000040	0.0011	J	0.000110	0.000041	U	0.000000	0.00015	J q	0.000015
2,3,4,7,8-PeCDF	--	--	0.5	µg/Kg	0.00047	J	0.000235	0.000048	U	0.000000	0.00022	J q	0.000110	0.000049	U	0.000000	0.00013	J q	0.000065	0.00069	J	0.000345	0.000063	U	0.000000	0.00011	J q	0.000055
2,3,7,8-TCDD	--	--	1.0	µg/Kg	0.00038	J	0.000380	0.000062	U	0.000000	0.00018	J	0.000180	0.00006	J q	0.000060	0.00014	J q	0.000140	0.00043	J q	0.000430	0.00005	U	0.000000	0.000082	U	0.000000
2,3,7,8-TCDF	--	--	0.05	µg/Kg	0.0014	q	0.000070	0.00017	J q	0.000009	0.00058	J	0.000029	0.00013	J q	0.000007	0.0007	J	0.000035	0.0023		0.000115	0.000058	U	0.000000	0.00035	J	0.000018
OCDD	--	--	0.0001	µg/Kg	0.72	B	0.000000	0.12	B	0.000000	0.37	B	0.000000	0.074	B	0.000000	0.37	B	0.000037	1.3	B	0.000000	0.029		0.000003	0.19	B	0.000000
OCDF	--	--	0.0001	µg/Kg	0.0036	J B	0.000000	0.00049	J B	0.000000	0.0026	J B	0.000000	0.00041	J B	0.000000	0.0022	J B	0.000000	0.0063	J B	0.000000	0.00012	J q	0.000000	0.00077	J B	0.000000
Dioxins and Furans TEQ	0.00085	--	--				0.001021						0.000498						0.000448			0.001414			0.000007			0.000140
Total HpCDD	--	--	--	µg/Kg	0.21	B		0.032	B		0.12	B		0.022	B		0.11	B		0.37	B		0.0081			0.051	B	
Total HpCDF	--	--	--	µg/Kg	0.0077	B		0.00092	J q B		0.0047	J q B		0.00078	J q B		0.0042	J q B		0.013	B		0.0003	J q		0.0018	J q B	
Total HxCDD	--	--	--	µg/Kg	0.12	B		0.017	q B		0.06	q B		0.012	q B		0.056	q B		0.2	q B		0.0042	J q		0.027	q B	
Total HxCDF	--	--	--	µg/Kg	0.012	l q		0.0014	J l q		0.0058	l q		0.0014	J l q		0.0057	l q		0.019	l q		0.00011	J q		0.0024	J q	
Total PeCDD	--	--	--	µg/Kg	0.021	q B		0.0028	J q B		0.0095	q B		0.0015	J q B		0.009	q B		0.031	q B		0.00049	J q		0.0035	J q B	
Total PeCDF	--	--	--	µg/Kg	0.0089	l q		0.00065	J q		0.0037	J l q		0.0005	J q		0.0032	J l q		0.015	l q		0.0018	U		0.0018	J l q	
Total TCDD	--	--	--	µg/Kg	0.01	q		0.0011	q		0.006	q		0.0007	J q		0.0053	q		0.015	q		0.00028	J q		0.0019	q	
Total TCDF	--	--	--	µg/Kg	0.0097	l q		0.00096	J q		0.0062	q		0.00081	J q		0.0048	q		0.016	l q		0.0018	U		0.0018	l q	

Table 1 (continued)
Sediment Analytical Results

Analyte	NOAA SQUIRTs Marine Sediments TEL (2008) ¹	EPA Region IV Marine/Estuarine ESV (2018) ²	Units	BR-SD-TB-B-01-0-2		BR-SD-TB-B-02-0-2		BR-SD-TB-B-03-0-2		BR-SD-TB-B-04-0-2		BR-SD-TB-B-05-0-2		BR-SD-TB-B-06-0-2		BR-SD-TB-B-07-0-2		BR-SD-TB-B-08-0-2	
				11/4/2020	Qualifiers	11/4/2020	Qualifiers	11/4/2020		11/4/2020	Qualifiers	11/4/2020	Qualifiers	11/4/2020	Qualifiers	11/4/2020	Qualifiers	11/5/2020	Qualifiers
Metals																			
Arsenic	7.24	7.24	mg/Kg	2.9		1.0		1.3		0.70		2.7		3.6		1.1		0.94	
Barium	130.1	--	mg/Kg	7.5		4.2		3.5		2.4		7.1		8.5		2.6		2.6	
Cadmium	0.68	0.68	mg/Kg	0.049	J	0.041	J	0.025	J	0.031	J	0.045	J	0.052	J	0.031	J	0.033	J
Chromium	52.3	52.3	mg/Kg	8.6		3.1		3.6		2.5		8.6		12		2.2		2.1	
Lead	30.2	30.2	mg/Kg	4.0		1.6		1.8		0.99		3.9		5.2		0.87		0.78	
Mercury	0.13	0.13	mg/Kg	0.046		0.013	U	0.018	J	0.013	U	0.036		0.051		0.012	U	0.014	U
Selenium	--	--	mg/Kg	0.16	J	0.078	U	0.085	U	0.076	U	0.12	J	0.17	J	0.072	U	0.078	U
Silver	0.73	0.73	mg/Kg	0.022	U	0.018	U	0.020	U	0.017	U	0.024	U	0.03	U	0.017	U	0.018	U
Pesticides																			
4,4'-DDD	1.22	1.2	µg/Kg	0.15	U	0.023	U	0.025	U	0.022	U	0.15	U	0.19	U	0.021	U	0.023	U
4,4'-DDE	2.07	2.1	µg/Kg	0.070	U	0.011	U	0.012	U	0.011	U	0.074	U	0.092	U	0.010	U	0.011	U
4,4'-DDT	1.19	--	µg/Kg	0.25	U	0.038	U	0.043	U	0.037	U	0.26	U	0.32	U	0.036	U	0.038	U
Aldrin	--	0.1	µg/Kg	0.11	U	0.017	U	0.018	U	0.016	U	0.11	U	0.14	U	0.016	U	0.016	U
alpha-BHC	--	1.3	µg/Kg	0.084	U	0.013	U	0.015	U	0.013	U	0.089	U	0.11	U	0.012	U	0.013	U
beta-BHC	--	--	µg/Kg	0.094	U	0.015	U	0.016	U	0.014	U	0.099	U	0.12	U	0.014	U	0.015	U
cis-Chlordane	--	2.7	µg/Kg	0.086	U	0.013	U	0.015	U	0.013	U	0.090	U	0.11	U	0.013	U	0.013	U
delta-BHC	--	--	µg/Kg	0.11	U	0.017	U	0.019	U	0.016	U	0.11	U	0.14	U	0.016	U	0.017	U
Dieldrin	0.72	0.1	µg/Kg	0.086	U	0.013	U	0.015	U	0.013	U	0.090	U	0.11	U	0.013	U	0.013	U
Endosulfan I	--	0.1	µg/Kg	0.093	U	0.014	U	0.016	U	0.014	U	0.098	U	0.12	U	0.014	U	0.014	U
Endosulfan II	--	0.14	µg/Kg	0.076	U	0.012	U	0.013	U	0.011	U	0.080	U	0.099	U	0.011	U	0.012	U
Endosulfan sulfate	--	0.11	µg/Kg	0.089	U	0.014	U	0.015	U	0.014	U	0.094	U	0.12	U	0.013	U	0.014	U
Endrin	--	0.12	µg/Kg	0.064	U	0.010	U	0.011	U	0.0097	U	0.068	U	0.14	J	0.050		0.0099	U
Endrin aldehyde	--	--	µg/Kg	0.12	U F1	0.019	U	0.021	U	0.019	U	0.13	U	0.16	U	0.018	U	0.019	U
Endrin ketone	--	0.12	µg/Kg	0.047	U	0.0074	U	0.0082	U	0.0072	U	0.050	U	0.062	U	0.0069	U	0.0073	U
gamma-BHC (Lindane)	0.32	0.6	µg/Kg	0.088	U	0.014	U	0.015	U	0.013	U	0.093	U	0.12	U	0.013	U	0.014	U
Heptachlor	--	1.5	µg/Kg	0.11	U	0.017	U	0.019	U	0.016	U	0.11	U	0.14	U	0.016	U	0.017	U
Heptachlor epoxide	--	0.14	µg/Kg	0.088	U	0.014	U	0.015	U	0.013	U	0.092	U	0.11	U	0.013	U	0.014	U
Methoxychlor	--	2.1	µg/Kg	0.19	J p	0.021	U	0.023	U	0.020	U	0.14	U	0.18	U	0.019	U	0.021	U
Toxaphene	0.1	0.15	µg/Kg	9.3	U	1.4	U	1.6	U	1.4	U	9.8	U	12	U	1.4	U	1.4	U
trans-Chlordane	--	2.7	µg/Kg	0.080	U	0.012	U	0.014	U	0.012	U	0.084	U	0.10	U	0.012	U	0.012	U

Table 1 (continued)
Sediment Analytical Results

Analyte	NOAA SQuiRTs Marine Sediments TEL (2008) ¹	EPA Region IV Marine/Estuarine ESV (2018) ²	Units	BR-SD-TB-B-01-0-2		BR-SD-TB-B-02-0-2		BR-SD-TB-B-03-0-2		BR-SD-TB-B-04-0-2		BR-SD-TB-B-05-0-2		BR-SD-TB-B-06-0-2		BR-SD-TB-B-07-0-2		BR-SD-TB-B-08-0-2	
				11/4/2020	Qualifiers	11/4/2020	Qualifiers	11/4/2020	Qualifiers	11/4/2020	Qualifiers	11/4/2020	Qualifiers	11/4/2020	Qualifiers	11/5/2020	Qualifiers	11/5/2020	Qualifiers
Poly-Chlorinated Biphenyls (PCBs)																			
PCB-1016	--	--	µg/Kg	0.22	U	0.17	U	0.19	U	0.17	U	0.23	U	0.29	U	0.16	U	0.17	U
PCB-1221	--	--	µg/Kg	0.24	U	0.19	U	0.21	U	0.18	U	0.25	U	0.32	U	0.18	U	0.19	U
PCB-1232	--	--	µg/Kg	0.16	U	0.13	U	0.14	U	0.13	U	0.17	U	0.22	U	0.12	U	0.13	U
PCB-1242	--	--	µg/Kg	0.097	U	0.077	U	0.085	U	0.076	U	0.10	U	0.13	U	0.074	U	0.078	U
PCB-1248	--	--	µg/Kg	0.16	U	0.13	U	0.14	U	0.13	U	0.17	U	0.22	U	0.12	U	0.13	U
PCB-1254	63.3	--	µg/Kg	0.20	U	0.16	U	0.18	U	0.15	U	0.21	U	0.27	U	0.15	U	0.16	U
PCB-1260	--	--	µg/Kg	0.19	U	0.15	U	0.17	U	0.15	U	0.20	U	0.26	U	0.14	U	0.15	U
PCB-1262	--	--	µg/Kg	0.23	U	0.19	U	0.21	U	0.18	U	0.25	U	0.32	U	0.18	U	0.19	U
PCB-1268	--	--	µg/Kg	9.7		1.0		1.5		1.1		9.0		8.6		0.26	J	1.6	
Total PCBs	21.6	21.6	µg/Kg	9.7		1.0		1.5		1.1		9.0		8.6		0.26		1.6	
Polycyclic Aromatic Hydrocarbons (PAHs)																			
Acenaphthene	6.71	6.7	µg/Kg	3.1	U	4.9	U	5.5	U	4.7	U	3.3	U	4.2	U	4.6	U	4.9	U
Acenaphthylene	5.87	5.9	µg/Kg	2.4	U	3.7	U	4.2	U	3.6	U	2.5	U	3.2	U	3.5	U	3.7	U
Anthracene	46.9	47	µg/Kg	2.8	U	4.4	U	4.9	U	4.3	U	3.0	U	3.7	U	4.2	U	4.4	U
Benzo[a]anthracene	74.8	75	µg/Kg	4.9	U	7.7	U	8.6	U	7.5	J	5.2	U	6.5	U	7.2	U	7.6	U
Benzo[a]pyrene	88.8	89	µg/Kg	4.7	U	7.4	U	8.2	U	7.3	J	5.0	U	6.3	U	6.9	U	7.3	U
Benzo[b]fluoranthene	--	--	µg/Kg	3.4	J	4.2	U	4.7	U	8.9	J	4.9	J	6.4	J	3.9	U	4.2	U
Benzo[g,h,i]perylene	--	310	µg/Kg	2.4	U	3.7	U	4.1	U	5.3	J	3.4	J	3.8	J	3.5	U	3.7	U
Benzo[k]fluoranthene	--	--	µg/Kg	3.3	U	5.1	U	5.7	U	4.9	U	3.5	U	4.3	U	4.8	U	5.1	U
Chrysene	108	108	µg/Kg	6.1	U	9.5	U	11	U	9.1	U	6.4	U	8.0	U	8.9	U	9.4	U
Dibenz[a,h]anthracene	6.22	6.2	µg/Kg	7.0	U	11	U	12	U	11	U	7.4	U	9.2	U	10	U	11	U
Fluoranthene	113	113	µg/Kg	4.2	J	4.5	U	5.0	U	15	J	4.8	J	7.4	J	4.2	U	4.5	U
Fluorene	21.2	21	µg/Kg	2.1	U	3.4	U	3.7	U	3.2	U	2.3	U	2.8	U	3.1	U	3.3	U
Indeno[1,2,3-cd]pyrene	--	340	µg/Kg	5.4	U	8.5	U	9.4	U	8.2	U	5.8	U	7.2	U	8.0	U	8.4	U
Naphthalene	34.6	35	µg/Kg	2.1	U	3.3	U	3.7	U	3.2	U	2.3	U	2.8	U	3.1	U	3.3	U
Phenanthrene	86.7	87	µg/Kg	2.9	U	4.6	U	5.1	U	8.4	J	3.1	U	3.9	U	4.3	U	4.5	U
Pyrene	153	153	µg/Kg	4.0	J	4.1	U	4.5	U	14	J	4.3	J	6.7	J	3.8	U	4.0	U
Total PAHs	1684	1684	µg/Kg	11.6		0.0		0.0		66.4		17.4		24.3		0.0		0.0	

Table 1 (continued)
Sediment Analytical Results

Analyte	NOAA SQUIRTs Marine Sediments TEL (2008) ¹	EPA Region IV Marine/Estuarine ESV (2018) ²	NOAA SQUIRTs 1998 Fish TEF (2005) ¹	Units	BR-SD-TB-B-09-0-2			BR-SD-TB-B-10-0-2			BR-SD-TB-B-11-0-2			BR-SD-TB-B-12-0-2			BR-SD-TB-B-13-0-2			BR-SD-TB-B-14-0-2			BR-SD-TB-B-15-0-2			BR-SD-TB-B-15DUP-0-2		
					11/5/2020	Qualifiers	TEC	11/5/2020	Qualifiers	TEC	11/5/2020	Qualifiers	TEC	11/6/2020	Qualifiers	TEC	11/6/2020	Qualifiers	TEC	11/6/2020	Qualifiers	TEC	11/6/2020	Qualifiers	TEC	11/6/2020	Qualifiers	TEC
Dioxins and Furans																												
1,2,3,4,6,7,8-HpCDD	--	--	0.001	µg/Kg	0.0023	J q B	0.000000	0.1	B	0.000000	0.094	B	0.000000	0.09		0.000090	0.02	q	0.000020	0.046		0.000046	0.0087		0.000009	0.007		0.000007
1,2,3,4,6,7,8-HpCDF	--	--	0.01	µg/Kg	0.00016	J q B	0.000000	0.006	B	0.000000	0.0057	B	0.000000	0.0066	B	0.000000	0.0012	J B	0.000000	0.0025	J B	0.000000	0.0005	J q B	0.000000	0.00041	J B	0.000000
1,2,3,4,7,8,9-HpCDF	--	--	0.01	µg/Kg	0.000043	U	0.000000	0.00028	J q B	0.000000	0.00033	J B	0.000000	0.00038	J	0.000004	0.000095	J	0.000001	0.00017	J q	0.000002	0.000027	U	0.000000	0.000055	U	0.000000
1,2,3,4,7,8-HxCDD	--	--	0.5	µg/Kg	0.000056	U	0.000000	0.0023	J B	0.000000	0.0019	J q B	0.000000	0.0022	J	0.001100	0.00055	J q	0.000275	0.00095	J q	0.000475	0.00031	J	0.000155	0.00017	J q	0.000085
1,2,3,4,7,8-HxCDF	--	--	0.1	µg/Kg	0.000038	U	0.000000	0.0022	J	0.000220	0.002	J	0.000200	0.0023	J	0.000230	0.00043	J	0.000043	0.00092	J	0.000092	0.00017	J q	0.000017	0.000059	U	0.000000
1,2,3,6,7,8-HxCDD	--	--	0.01	µg/Kg	0.000055	U	0.000000	0.0034	J B	0.000000	0.003	J B	0.000000	0.0034	J	0.000034	0.00078	J	0.000008	0.0015	J	0.000015	0.00027	J q	0.000003	0.00018	J q	0.000002
1,2,3,6,7,8-HxCDF	--	--	0.1	µg/Kg	0.000041	U	0.000000	0.00072	J	0.000072	0.00066	J	0.000066	0.00088	J	0.000088	0.00016	J	0.000016	0.00029	J I	0.000029	0.000045	U	0.000000	0.000059	U	0.000000
1,2,3,7,8,9-HxCDD	--	--	0.01	µg/Kg	0.00019	J q	0.000002	0.0085		0.000085	0.0075		0.000075	0.0077		0.000077	0.0017	J	0.000017	0.0035	J	0.000035	0.0008	U	0.000008	0.00069	J	0.000007
1,2,3,7,8,9-HxCDF	--	--	0.1	µg/Kg	0.000051	U	0.000000	0.000085	J q	0.000009	0.000094	J q	0.000009	0.000065	U	0.000000	0.00004	U	0.000000	0.00005	U	0.000000	0.00006	U	0.000000	0.000073	U	0.000000
1,2,3,7,8-PeCDD	--	--	1.0	µg/Kg	0.000029	U	0.000000	0.0012	J B	0.000000	0.0011	J q B	0.000000	0.0011	J q	0.001100	0.00025	J	0.000250	0.00056	J q	0.000560	0.000064	U	0.000000	0.000069	U	0.000000
1,2,3,7,8-PeCDF	--	--	0.05	µg/Kg	0.000046	U	0.000000	0.00092	J q	0.000046	0.00078	J	0.000039	0.00094	J	0.000047	0.00017	J	0.000009	0.0003	J q	0.000015	0.000043	U	0.000000	0.000048	U	0.000000
2,3,4,6,7,8-HxCDF	--	--	0.1	µg/Kg	0.000043	U	0.000000	0.0013	J	0.000130	0.0011	J	0.000110	0.0012	J	0.000120	0.00019	J q	0.000019	0.00041	J q	0.000041	0.000051	U	0.000000	0.000057	U	0.000000
2,3,4,7,8-PeCDF	--	--	0.5	µg/Kg	0.000044	U	0.000000	0.00054	J q	0.000270	0.00067	J	0.000335	0.00076	J q	0.000380	0.00012	J q	0.000060	0.00027	J q	0.000135	0.000036	U	0.000000	0.000043	U	0.000000
2,3,7,8-TCDD	--	--	1.0	µg/Kg	0.000065	U	0.000000	0.00043	J	0.000430	0.00032	J q	0.000320	0.0005	J q	0.000500	0.000038	J q	0.000038	0.00021	J	0.000210	0.000055	U	0.000000	0.000062	U	0.000000
2,3,7,8-TCDF	--	--	0.05	µg/Kg	0.000078	U	0.000000	0.002	q	0.000100	0.0019		0.000095	0.0017		0.000085	0.00042	J	0.000021	0.00069	J q	0.000035	0.00018	J	0.000009	0.000061	U	0.000000
OCDD	--	--	0.0001	µg/Kg	0.028	B	0.000000	1.1	B	0.000000	1.1	B	0.000000	0.97	B	0.000000	0.24	B	0.000000	0.53	B	0.000000	0.11	B	0.000000	0.085	B	0.000000
OCDF	--	--	0.0001	µg/Kg	0.00013	J q B	0.000000	0.006	J B	0.000000	0.0056	J B	0.000000	0.0059	J B	0.000000	0.0012	J B	0.000000	0.0026	J q B	0.000000	0.00048	J q B	0.000000	0.00045	J q B	0.000000
Dioxins and Furans TEQ	0.00085	--	--				0.000002			0.001362			0.001249			0.003855			0.000776			0.001689			0.000200			0.000101
Total HpCDD	--	--	--	µg/Kg	0.0083	q B		0.37	B		0.33	B		0.36			0.081	q		0.15			0.03			0.027		
Total HpCDF	--	--	--	µg/Kg	0.0003	J q B		0.014	q B		0.012	B		0.014	B		0.0025	J B		0.0054	q B		0.001	J q B		0.00084	J B	
Total HxCDD	--	--	--	µg/Kg	0.0039	J q B		0.19	B		0.18	q B		0.19	q		0.045	q		0.087	q		0.018	q		0.013	q	
Total HxCDF	--	--	--	µg/Kg	0.000051	U		0.019	I q		0.018	I q		0.022	I q		0.0045	I q		0.0086	I q		0.0012	J I q		0.00093	J q	
Total PeCDD	--	--	--	µg/Kg	0.00046	J q B		0.029	q B		0.029	q B		0.029	B q		0.0063	B q		0.013	q B		0.0017	J q B		0.0019	J q B	
Total PeCDF	--	--	--	µg/Kg	0.000046	U		0.013	I q		0.013	I q		0.016	I q		0.0025	J I q		0.0054	q		0.00057	J q		0.0004	J q	
Total TCDD	--	--	--	µg/Kg	0.00016	J q		0.013	q		0.014	q		0.013	q		0.0031	q		0.0061	q		0.00088	q		0.00088	q	
Total TCDF	--	--	--	µg/Kg	0.000078	U		0.014	I q		0.013	I q		0.017	I q		0.0032	q		0.0057	q		0.001	q		0.00053	J q	

Table 1 (continued)
Sediment Analytical Results

Analyte	NOAA SQuiRTs Marine Sediments TEL (2008) ¹	EPA Region IV Marine/Estuarine ESV (2018) ²	Units	BR-SD-TB-B-09-0-2		BR-SD-TB-B-10-0-2		BR-SD-TB-B-11-0-2		BR-SD-TB-B-12-0-2		BR-SD-TB-B-13-0-2		BR-SD-TB-B-14-0-2		BR-SD-TB-B-15-0-2		BR-SD-TB-B-15DUP-0-2	
				11/5/2020	Qualifiers	11/5/2020	Qualifiers	11/5/2020	Qualifiers	11/6/2020	Qualifiers	11/6/2020	Qualifiers	11/6/2020	Qualifiers	11/6/2020	Qualifiers	11/6/2020	Qualifiers
Metals																			
Arsenic	7.24	7.24	mg/Kg	1.1		9.2		2.7		1.7		1.7		1.9		1.3		1.3	
Barium	130.1	--	mg/Kg	3.2		0.069	J	6.1		8.9		12		5.2		6.4		7.1	
Cadmium	0.68	0.68	mg/Kg	0.040	J	13		0.064	J	0.072		0.042	J	0.036	J	0.093		0.077	
Chromium	52.3	52.3	mg/Kg	2.5		5.6		6.6		5.0		3.7		6.0		3.7		3.4	
Lead	30.2	30.2	mg/Kg	1.1		0.046		2.7		1.6		1.4		2.5		0.92		0.85	
Mercury	0.13	0.13	mg/Kg	0.013	U	0.23	J	0.021	J	0.014	U	0.014	U	0.016	U	0.012	U	0.013	U
Selenium	--	--	mg/Kg	0.080	U	0.024	U	0.13	J	0.11	J	0.094	J	0.095	J	0.11	J	0.097	J
Silver	0.73	0.73	mg/Kg	0.018	U			0.023	U	0.020	U	0.018	U	0.021	U	0.017	U	0.018	U
Pesticides																			
4,4'-DDD	1.22	1.2	µg/Kg	0.023	U	0.031	U	0.030	U	0.026	U	0.024	U	0.026	U	0.11	U	0.023	U
4,4'-DDE	2.07	2.1	µg/Kg	0.011	U	0.015	U	0.014	U	0.012	U	0.011	U	0.018	J	0.052	U	0.011	U
4,4'-DDT	1.19	--	µg/Kg	0.039	U	0.052	U	0.050	U	0.044	U	0.039	U	0.044	U	0.18	U	0.039	U
Aldrin	--	0.1	µg/Kg	0.017	U	0.023	U	0.021	U	0.019	U	0.017	U	0.019	U	0.079	U	0.017	U
alpha-BHC	--	1.3	µg/Kg	0.013	U	0.018	U	0.017	U	0.015	U	0.014	U	0.015	U	0.062	U	0.013	U
beta-BHC	--	--	µg/Kg	0.015	U	0.020	U	0.019	U	0.017	U	0.015	U	0.017	U	0.070	U	0.015	U
cis-Chlordane	--	2.7	µg/Kg	0.014	U	0.018	U	0.017	U	0.015	U	0.014	U	0.015	U	0.064	U	0.014	U
delta-BHC	--	--	µg/Kg	0.017	U	0.023	U	0.022	U	0.019	U	0.017	U	0.019	U	0.080	U	0.017	U
Dieldrin	0.72	0.1	µg/Kg	0.014	U	0.018	U	0.017	U	0.015	U	0.014	U	0.015	U	0.064	U	0.014	U
Endosulfan I	--	0.1	µg/Kg	0.015	U	0.020	U	0.019	U	0.016	U	0.015	U	0.017	U	0.069	U	0.015	U
Endosulfan II	--	0.14	µg/Kg	0.012	U	0.016	U	0.015	U	0.013	U	0.012	U	0.014	U	0.056	U	0.012	U
Endosulfan sulfate	--	0.11	µg/Kg	0.014	U	0.019	U	0.018	U	0.016	U	0.014	U	0.016	U	0.066	U	0.014	U
Endrin	--	0.12	µg/Kg	0.010	U	0.014	U	0.013	U	0.011	U	0.010	U	0.011	U	0.047	U	0.010	U
Endrin aldehyde	--	--	µg/Kg	0.020	U	0.026	U	0.025	U	0.022	U	0.020	U	0.022	U	0.091	U	0.019	U
Endrin ketone	--	0.12	µg/Kg	0.0075	U	0.010	U	0.0095	U	0.0084	U	0.0076	U	0.0085	U	0.035	U	0.0075	U
gamma-BHC (Lindane)	0.32	0.6	µg/Kg	0.014	U	0.019	U	0.018	U	0.016	U	0.014	U	0.016	U	0.065	U	0.014	U
Heptachlor	--	1.5	µg/Kg	0.017	U	0.023	U	0.022	U	0.019	U	0.017	U	0.019	U	0.079	U	0.017	U
Heptachlor epoxide	--	0.14	µg/Kg	0.014	U	0.019	U	0.018	U	0.016	U	0.014	U	0.016	U	0.065	U	0.014	U
Methoxychlor	--	2.1	µg/Kg	0.021	U	0.028	U	0.027	U	0.024	U	0.021	U	0.024	U	0.099	U	0.021	U
Toxaphene	0.1	0.15	µg/Kg	1.5	U	2.0	U	1.9	U	1.6	U	1.5	U	1.7	U	6.9	U	1.5	U
trans-Chlordane	--	2.7	µg/Kg	0.013	U	0.017	U	0.016	U	0.014	U	0.013	U	0.014	U	0.059	U	0.013	U

Table 1 (continued)
Sediment Analytical Results

Analyte	NOAA SQUIRTs Marine Sediments TEL (2008) ¹	EPA Region IV Marine/Estuarine ESV (2018) ²	Units	BR-SD-TB-B-09-0-2		BR-SD-TB-B-10-0-2		BR-SD-TB-B-11-0-2		BR-SD-TB-B-12-0-2		BR-SD-TB-B-13-0-2		BR-SD-TB-B-14-0-2		BR-SD-TB-B-15-0-2		BR-SD-TB-B-15DUP-0-2	
				11/5/2020	Qualifiers	11/5/2020	Qualifiers	11/5/2020	Qualifiers	11/6/2020	Qualifiers	11/6/2020	Qualifiers	11/6/2020	Qualifiers	11/6/2020	Qualifiers	11/6/2020	Qualifiers
Poly-Chlorinated Biphenyls (PCBs)																			
PCB-1016	--	--	µg/Kg	0.18	U	0.24	U	0.22	U	0.20	U	0.18	U	0.20	U	0.17	U	0.18	U
PCB-1221	--	--	µg/Kg	0.19	U	0.26	U	0.25	U	0.22	U	0.20	U	0.22	U	0.18	U	0.19	U
PCB-1232	--	--	µg/Kg	0.13	U	0.18	U	0.17	U	0.15	U	0.14	U	0.15	U	0.13	U	0.13	U
PCB-1242	--	--	µg/Kg	0.080	U	0.11	U	0.10	U	0.090	U	0.081	U	0.089	U	0.075	U	0.080	U
PCB-1248	--	--	µg/Kg	0.13	U	0.18	U	0.17	U	0.15	U	0.13	U	0.15	U	0.12	U	0.13	U
PCB-1254	63.3	--	µg/Kg	0.16	U	0.22	U	0.21	U	0.18	U	0.17	U	0.18	U	0.15	U	0.16	U
PCB-1260	--	--	µg/Kg	0.16	U	0.21	U	0.20	U	0.18	U	0.16	U	0.17	U	0.15	U	0.16	U
PCB-1262	--	--	µg/Kg	0.19	U	0.26	U	0.24	U	0.22	U	0.19	U	0.22	U	0.18	U	0.19	U
PCB-1268	--	--	µg/Kg	0.58		11		7.4		3.4		1.5		3.0		1.2		0.074	U
Total PCBs	21.6	21.6	µg/Kg	0.58		11		7.4		3.4		1.5		3.0		1.2		0.00	
Polycyclic Aromatic Hydrocarbons (PAHs)																			
Acenaphthene	6.71	6.7	µg/Kg	5.0	U	8.4	U	7.8	U	7.0	U	5.1	U	5.6	U	4.7	U	5.0	U
Acenaphthylene	5.87	5.9	µg/Kg	3.8	U	6.4	U	6.0	U	5.3	U	3.9	U	4.3	U	3.6	U	3.8	U
Anthracene	46.9	47	µg/Kg	4.5	U	7.6	U	7.1	U	6.3	U	4.6	U	5.1	U	4.3	U	4.5	U
Benzo[a]anthracene	74.8	75	µg/Kg	7.8	U	13	U	12	U	11	U	8.0	U	8.8	U	7.4	U	7.8	U
Benzo[a]pyrene	88.8	89	µg/Kg	7.5	U	13	U	12	U	11	U	7.7	U	8.5	U	7.1	U	7.5	U
Benzo[b]fluoranthene	--	--	µg/Kg	4.3	U	10	J	6.7	U	6.0	U	4.3	U	4.8	U	4.0	U	4.3	U
Benzo[g,h,i]perylene	--	310	µg/Kg	3.7	U	6.3	U	5.9	U	5.3	U	3.8	U	4.2	U	3.5	U	3.7	U
Benzo[k]fluoranthene	--	--	µg/Kg	5.2	U	8.7	U	8.2	U	7.3	U	5.3	U	5.9	U	4.9	U	5.2	U
Chrysene	108	108	µg/Kg	9.6	U	16	U	15	U	14	U	9.8	U	11	U	9.1	U	9.6	U
Dibenz[a,h]anthracene	6.22	6.2	µg/Kg	11	U	19	U	17	U	16	U	11	U	12	U	10	U	11	U
Fluoranthene	113	113	µg/Kg	4.6	U	9.6	J	7.2	U	6.4	U	4.7	U	5.2	U	4.3	U	4.6	U
Fluorene	21.2	21	µg/Kg	3.4	U	5.7	U	5.4	U	4.8	U	3.5	U	3.8	U	3.2	U	3.4	U
Indeno[1,2,3-cd]pyrene	--	340	µg/Kg	8.6	U	15	U	14	U	12	U	8.8	U	9.7	U	8.2	U	8.6	U
Naphthalene	34.6	35	µg/Kg	3.4	U	5.7	U	5.3	U	4.8	U	3.4	U	3.8	U	3.2	U	3.4	U
Phenanthrene	86.7	87	µg/Kg	4.7	U	7.8	U	7.3	U	6.6	U	4.7	U	5.2	U	4.4	U	4.7	U
Pyrene	153	153	µg/Kg	4.1	U	7.6	J	6.5	U	5.8	U	4.2	U	4.6	U	3.9	U	4.1	U
Total PAHs	1684	1684	µg/Kg	0.0		27.2		0.0		0.0		0.0		0.0		0.0		0.0	

Table 1
Sediment Analytical Results

Analyte	NOAA SQuIRTS Marine Sediments TEL (2008) ¹	EPA Region IV Marine/Estuarine ESV (2018) ²	NOAA SQuIRTS 1998 Fish TEF (2005) ¹	Units	BR-SD-BW-B-01-0-2			BR-SD-BW-B-02-0-2			BR-SD-BW-B-03-0-2			BR-SD-BW-B-03DUP-0-2			BR-SD-BW-B-04-0-2			BR-SD-BW-B-05-0-2		
					11/7/2020	Qualifiers	TEC	11/7/2020	Qualifiers	TEC	11/7/2020	Qualifiers	TEC	11/7/2020	Qualifiers	TEC	11/8/2020	Qualifiers	TEC	11/8/2020	Qualifiers	TEC
Dioxins and Furans																						
1,2,3,4,6,7,8-HpCDD	--	--	0.001	µg/Kg	0.0067		0.000007	0.0038		0.000004	0.003	q	0.000003	0.0042		0.000004	0.026		0.000026	0.021		0.000021
1,2,3,4,6,7,8-HpCDF	--	--	0.01	µg/Kg	0.00021	J B q	0.000000	0.00016	J B q	0.000000	0.00013	J B q	0.000000	0.00015	J B q	0.000000	0.001	J B	0.000000	0.00069	J B	0.000000
1,2,3,4,7,8,9-HpCDF	--	--	0.01	µg/Kg	0.000027	J q	0.000000	0.000031	U	0.000000	0.00002	U	0.000000	0.000034	U	0.000000	0.000061	U	0.000000	0.000035	U	0.000000
1,2,3,4,7,8-HxCDD	--	--	0.5	µg/Kg	0.00016	J q	0.000080	0.00013	J q	0.000065	0.00013	J	0.000065	0.00011	J q	0.000055	0.00078	J	0.000390	0.00054	J	0.000270
1,2,3,4,7,8-HxCDF	--	--	0.1	µg/Kg	0.000031	U	0.000000	0.000029	U	0.000000	0.000025	U	0.000000	0.000049	U	0.000000	0.00034	J q	0.000034	0.0002	J	0.000020
1,2,3,6,7,8-HxCDD	--	--	0.01	µg/Kg	0.00029	J	0.000003	0.00015	J q	0.000002	0.00014	J q	0.000001	0.00015	J	0.000002	0.00082	J q	0.000008	0.00069	J q	0.000007
1,2,3,6,7,8-HxCDF	--	--	0.1	µg/Kg	0.000034	U	0.000000	0.000031	U	0.000000	0.000027	U	0.000000	0.000051	U	0.000000	0.000085	U	0.000000	0.000041	U	0.000000
1,2,3,7,8,9-HxCDD	--	--	0.01	µg/Kg	0.00057	J	0.000006	0.00034	J q	0.000003	0.00028	J q	0.000003	0.00042	J q	0.000004	0.0022	J	0.000022	0.0017	J	0.000017
1,2,3,7,8,9-HxCDF	--	--	0.1	µg/Kg	0.000046	U	0.000000	0.000042	U	0.000000	0.000036	U	0.000000	0.000067	U	0.000000	0.00012	U	0.000000	0.000056	U	0.000000
1,2,3,7,8-PeCDD	--	--	1.0	µg/Kg	0.00011	J	0.000110	0.000035	U	0.000000	0.000052	U	0.000000	0.000073	U	0.000000	0.00024	J q	0.000240	0.00025	J	0.000250
1,2,3,7,8-PeCDF	--	--	0.05	µg/Kg	0.000042	U	0.000000	0.000039	U	0.000000	0.000038	U	0.000000	0.000047	U	0.000000	0.00017	J q	0.000009	0.000071	U	0.000000
2,3,4,6,7,8-HxCDF	--	--	0.1	µg/Kg	0.000036	U	0.000000	0.000033	U	0.000000	0.000084	J q	0.000008	0.000076	J q	0.000008	0.000091	U	0.000000	0.00012	J q	0.000012
2,3,4,7,8-PeCDF	--	--	0.5	µg/Kg	0.000038	U	0.000000	0.000035	U	0.000000	0.000035	U	0.000000	0.000044	U	0.000000	0.000095	J q	0.000048	0.00006	U	0.000000
2,3,7,8-TCDD	--	--	1.0	µg/Kg	0.000044	U	0.000000	0.000041	U	0.000000	0.000049	U	0.000000	0.0001	U	0.000000	0.00011	U	0.000000	0.00007	U	0.000000
2,3,7,8-TCDF	--	--	0.05	µg/Kg	0.00012	J q	0.000006	0.00005	U	0.000000	0.000049	U	0.000000	0.00014	J	0.000007	0.00036	J q	0.000018	0.00021	J q	0.000011
OCDD	--	--	0.0001	µg/Kg	0.077	B	0.000000	0.043	B	0.000000	0.04	B	0.000000	0.047	B	0.000000	0.32	B	0.000000	0.25	B	0.000000
OCDF	--	--	0.0001	µg/Kg	0.0003	J B	0.000000	0.00017	J B	0.000000	0.00016	J B q	0.000000	0.00024	J B	0.000000	0.0013	J B q	0.000000	0.00055	J B q	0.000000
Dioxins and Furans TEQ	0.00085	--	--				0.000212			0.000074			0.000081			0.000080			0.000794			0.000607
Total HpCDD	--	--	--	µg/Kg	0.024			0.015			0.012	q		0.016			0.099			0.076	q	
Total HpCDF	--	--	--	µg/Kg	0.00048	J B q		0.0003	J B q		0.00027	J B q		0.00026	J B q		0.0022	J B		0.0013	J B q	
Total HxCDD	--	--	--	µg/Kg	0.014	q		0.0078	q		0.0072	q		0.0098	q		0.057	q		0.044	q	
Total HxCDF	--	--	--	µg/Kg	0.00026	J q		0.00028	J q		0.00035	J q		0.00057	J q		0.0024	J q		0.0015	J q	
Total PeCDD	--	--	--	µg/Kg	0.002	J B q		0.00086	J B q		0.00099	J B q		0.0016	J B q		0.0089	B q		0.0062	B q	
Total PeCDF	--	--	--	µg/Kg	0.0002	J		0.000039	U		0.00012	J q		0.00018	J q		0.0021	J l q		0.001	J q	
Total TCDD	--	--	--	µg/Kg	0.0052			0.00029	J q		0.00054	J q		0.0012	q		0.0044	q		0.003	q	
Total TCDF	--	--	--	µg/Kg	0.00058	J q		0.000081	J		0.00015	J q		0.00046	J q		0.0035	q		0.0014	q	

Table 1
Sediment Analytical Results

Analyte	NOAA SQuiRTs Marine Sediments TEL (2008) ¹	EPA Region IV Marine/Estuarine ESV (2018) ²	Units	BR-SD-BW-B-01-0-2		BR-SD-BW-B-01-0-2		BR-SD-BW-B-03-0-2		BR-SD-BW-B-03DUP-0-2		BR-SD-BW-B-04-0-2		BR-SD-BW-B-05-0-2	
				11/7/2020	Qualifiers	11/7/2020	Qualifiers	11/7/2020	Qualifiers	11/7/2020	Qualifiers	11/8/2020	Qualifiers	11/8/2020	Qualifiers
Metals															
Arsenic	7.24	7.24	mg/Kg	3.5		6.8		2.3		2.2		4.2		4.5	
Barium	130.1	--	mg/Kg	6.0		4.0		2.7		3.7		7.0		4.3	
Cadmium	0.68	0.68	mg/Kg	0.075		0.045	J	0.072		0.085		0.050	J	0.034	J
Chromium	52.3	52.3	mg/Kg	8.0		5.1		2.5		3.3		8.7		5.5	
Lead	30.2	30.2	mg/Kg	2.9	B	2.0	B	0.83	B	0.99	B	3.3	B	2.0	B
Mercury	0.13	0.13	mg/Kg	0.014	U	0.015	U	0.013	U	0.012	U	0.017	U	0.016	U
Selenium	--	--	mg/Kg	0.17	J	0.092	U	0.18	J	0.077	J	0.17	J	0.11	J
Silver	0.73	0.73	mg/Kg	0.018	U	0.021	U	0.017	U	0.016	U	0.023	U	0.022	U
Pesticides															
4,4'-DDD	1.22	1.2	µg/Kg	0.023	U	0.027	U	0.021	U	0.021	U	0.030	U	0.028	U
4,4'-DDE	2.07	2.1	µg/Kg	0.011	U	0.013	U	0.010	U	0.010	U	0.014	U	0.014	U
4,4'-DDT	1.19	--	µg/Kg	0.039	U	0.045	U	0.036	U	0.036	U	0.050	U	0.047	U
Aldrin	--	0.1	µg/Kg	0.017	U	0.020	U	0.015	U	0.016	U	0.022	U	0.021	U
alpha-BHC	--	1.3	µg/Kg	0.013	U	0.015	U	0.012	U	0.012	U	0.017	U	0.016	U
beta-BHC	--	--	µg/Kg	0.015	U	0.017	U	0.16		0.014	U	0.019	U	0.018	U
cis-Chlordane	--	2.7	µg/Kg	0.014	U	0.016	U	0.013	U	0.013	U	0.017	U	0.017	U
delta-BHC	--	--	µg/Kg	0.017	U	0.020	U	0.016	U	0.016	U	0.022	U	0.021	U
Dieldrin	0.72	0.1	µg/Kg	0.014	U	0.016	U	0.013	U	0.013	U	0.017	U	0.017	U
Endosulfan I	--	0.1	µg/Kg	0.015	U	0.017	U	0.014	U	0.014	U	0.019	U	0.018	U
Endosulfan II	--	0.14	µg/Kg	0.012	U	0.014	U	0.011	U	0.011	U	0.015	U	0.015	U
Endosulfan sulfate	--	0.11	µg/Kg	0.014	U	0.016	U	0.013	U	0.013	U	0.018	U	0.017	U
Endrin	--	0.12	µg/Kg	0.010	U	0.012	U	0.0093	U	0.0094	U	0.013	U	0.012	U
Endrin aldehyde	--	--	µg/Kg	0.019	U	0.022	U	0.018	U	0.018	U	0.025	U	0.024	U
Endrin ketone	--	0.12	µg/Kg	0.0075	U	0.0087	U	0.0069	U	0.0069	U	0.0096	U	0.0091	U
gamma-BHC (Lindane)	0.32	0.6	µg/Kg	0.014	U	0.016	U	0.013	U	0.013	U	0.018	U	0.017	U
Heptachlor	--	1.5	µg/Kg	0.025	Jp	0.020	U	0.016	U	0.016	U	0.022	U	0.021	U
Heptachlor epoxide	--	0.14	µg/Kg	0.014	U	0.016	U	0.013	U	0.013	U	0.018	U	0.017	U
Methoxychlor	--	2.1	µg/Kg	0.021	U	0.025	U	0.019	U	0.020	U	0.027	U	0.026	U
Toxaphene	0.1	0.15	µg/Kg	1.5	U	1.7	U	1.4	U	1.4	U	1.9	U	1.8	U
trans-Chlordane	--	2.7	µg/Kg	0.013	U	0.015	U	0.012	U	0.012	U	0.016	U	0.015	U

Table 1
Sediment Analytical Results

Analyte	NOAA SQUIRTs Marine Sediments TEL (2008) ¹	EPA Region IV Marine/Estuarine ESV (2018) ²	Units	BR-SD-BW-B-01-0-2		BR-SD-BW-B-01-0-2		BR-SD-BW-B-03-0-2		BR-SD-BW-B-03DUP-0-2		BR-SD-BW-B-04-0-2		BR-SD-BW-B-05-0-2	
				11/7/2020	Qualifiers	11/7/2020	Qualifiers	11/7/2020	Qualifiers	11/7/2020	Qualifiers	11/8/2020	Qualifiers	11/8/2020	Qualifiers
Poly-Chlorinated Biphenyls (PCBs)															
PCB-1016	--	--	µg/Kg	0.18	U	0.20	U	0.16	U	0.16	U	0.22	U	0.21	U
PCB-1221	--	--	µg/Kg	0.19	U	0.22	U	0.18	U	0.17	U	0.25	U	0.23	U
PCB-1232	--	--	µg/Kg	0.13	U	0.15	U	0.12	U	0.12	U	0.17	U	0.16	U
PCB-1242	--	--	µg/Kg	0.080	U	0.091	U	0.073	U	0.072	U	0.10	U	0.096	U
PCB-1248	--	--	µg/Kg	0.13	U	0.15	U	0.12	U	0.12	U	0.17	U	0.16	U
PCB-1254	63.3	--	µg/Kg	0.16	U	0.19	U	0.15	U	0.15	U	0.21	U	0.20	U
PCB-1260	--	--	µg/Kg	0.16	U	0.18	U	0.14	U	0.14	U	0.20	U *3	0.47	J
PCB-1262	--	--	µg/Kg	0.19	U	0.22	U	0.18	U	0.17	U	0.24	U *3	0.23	U
PCB-1268	--	--	µg/Kg	1.1		18		0.76		0.78		2.3	*3	0.088	U
Total PCBs	21.6	21.6	µg/Kg	1.1		18		0.76		0.78		2.3		0.47	
Polycyclic Aromatic Hydrocarbons (PAHs)															
Acenaphthene	6.71	6.7	µg/Kg	5.0	U	5.8	U	4.5	U	4.5	U	6.5	U	6.1	U
Acenaphthylene	5.87	5.9	µg/Kg	3.8	U	4.4	U	3.4	U	3.4	U	4.9	U	4.6	U
Anthracene	46.9	47	µg/Kg	4.5	U	5.3	U	4.1	U	4.1	U	5.8	U	5.5	U
Benzo[a]anthracene	74.8	75	µg/Kg	7.9	U	9.1	U	7.1	U	7.1	U	10	U	9.5	U
Benzo[a]pyrene	88.8	89	µg/Kg	7.6	U	8.8	U	6.8	U	6.8	U	9.7	U	9.2	U
Benzo[b]fluoranthene	--	--	µg/Kg	4.3	U	5.0	U	3.9	U	3.9	U	5.5	U	5.2	U
Benzo[g,h,i]perylene	--	310	µg/Kg	3.8	U	4.4	U	3.4	U	3.4	U	4.8	U	4.6	U
Benzo[k]fluoranthene	--	--	µg/Kg	5.2	U	6.1	U	4.7	U	4.7	U	6.7	U	6.3	U
Chrysene	108	108	µg/Kg	9.7	U	11	U	8.7	U	8.7	U	12	U	12	U
Dibenz(a,h)anthracene	6.22	6.2	µg/Kg	11	U	13	U	10	U	10	U	14	U	14	U
Fluoranthene	113	113	µg/Kg	4.6	U	5.4	U	4.2	U	4.2	U	5.9	U	5.6	U
Fluorene	21.2	21	µg/Kg	3.4	U	4.0	U	3.1	U	3.1	U	4.4	U	4.1	U
Indeno[1,2,3-cd]pyrene	--	340	µg/Kg	8.7	U	10	U	7.8	U	7.8	U	11	U	11	U
Naphthalene	34.6	35	µg/Kg	3.4	U	4.0	U	3.1	U	3.1	U	4.4	U	4.1	U
Phenanthrene	86.7	87	µg/Kg	4.7	U	5.4	U	4.2	U	4.2	U	6.0	U	5.7	U
Pyrene	153	153	µg/Kg	4.1	U	4.8	U	3.7	U	3.7	U	5.3	U	5.0	U
Total PAHs	1684	1684	µg/Kg	0.0		0.0		0.0		0.0		0.0		0.0	

Notes:

1. Threshold Effect Level referenced in NOAA SQUIRTs Quick Reference Tables (2008)
2. Ecological Screening Values referenced in United States Environmental Protection Agency Region IV Ecological Risk Assessment Supplemental Guidance, March 2018 Update
3. 2005 TEF as referenced in NOAA SQUIRTs Quick Reference Tables (2008)

Values highlighted in yellow exceed a screening value for that analyte.

-- No Value referenced

U - The analyte was analyzed for, but was not detected above the concentration shown (MDL or EDL).

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

q - The reported result is the estimated maximum possible concentration of this analyte.

B - Compound was found in the blank and sample.

*3 - ISTD response or retention time outside acceptable limits.

MDL - Method Detection Limit

RL - Reporting Limit or Requested Limit (Radiochemistry).

EDL - Estimated Detection Limit (Dioxin)

TEF - Toxicity Equivalent Factor (Dioxin)

TEC - Toxicity Equivalent Quotient (Dioxin)

TEL - Threshold Effect Level

ESV - Ecological Screening Value

Table 2
Surface Water and Equipment Blank Analytical Results

Analyte	NOAA SQuiRTs Marine Acute Screening Value (2008) ¹	EPA Region IV Saltwater Acute Screening Value (2018) ²	NOAA SQuiRTs 1998 Fish TEF (2005) ¹	BR-SW-TB			BR-SW-BW			BR-EQUIP BLANK			
				Units	11/6/2020	Qualifiers	TEC	11/9/2020	Qualifiers	TEC	11/9/2020	Qualifiers	TEC
Dioxins and Furans													
1,2,3,4,6,7,8-HpCDD	--	--	0.001	µg/L	0.000011	U	0.000000	0.00000072	J q	0.000000	0.000001	U	0.000000
1,2,3,4,6,7,8-HpCDF	--	--	0.01	µg/L	0.00055	U	0.000000	0.00035	U	0.000000	0.00038	U	0.000000
1,2,3,4,7,8,9-HpCDF	--	--	0.01	µg/L	0.00063	U	0.000000	0.00046	U	0.000000	0.00048	U	0.000000
1,2,3,4,7,8-HxCDD	--	--	0.5	µg/L	0.00041	U	0.000000	0.00059	U	0.000000	0.0015	J B	0.000000
1,2,3,4,7,8-HxCDF	--	--	0.1	µg/L	0.00038	U	0.000000	0.00028	U	0.000000	0.00058	U	0.000000
1,2,3,6,7,8-HxCDD	--	--	0.01	µg/L	0.0004	U	0.000000	0.00064	U	0.000000	0.00043	U	0.000000
1,2,3,6,7,8-HxCDF	--	--	0.1	µg/L	0.00044	U	0.000000	0.0003	U	0.000000	0.00065	U	0.000000
1,2,3,7,8,9-HxCDD	--	--	0.01	µg/L	0.00039	U	0.000000	0.00059	U	0.000000	0.00042	U	0.000000
1,2,3,7,8,9-HxCDF	--	--	0.1	µg/L	0.00053	U	0.000000	0.00043	U	0.000000	0.00079	U	0.000000
1,2,3,7,8-PeCDD	--	--	1.0	µg/L	0.00016	U	0.000000	0.00025	U	0.000000	0.00033	U	0.000000
1,2,3,7,8-PeCDF	--	--	0.05	µg/L	0.00039	U	0.000000	0.00031	U	0.000000	0.00047	U	0.000000
2,3,4,6,7,8-HxCDF	--	--	0.1	µg/L	0.00045	U	0.000000	0.0003	U	0.000000	0.00065	U	0.000000
2,3,4,7,8-PeCDF	--	--	0.5	µg/L	0.00034	U	0.000000	0.00029	U	0.000000	0.00042	U	0.000000
2,3,7,8-TCDD	--	--	1.0	µg/L	0.00053	U	0.000000	0.00053	U	0.000000	0.00088	U	0.000000
2,3,7,8-TCDF	--	--	0.05	µg/L	0.00066	U	0.000000	0.00046	U	0.000000	0.00072	U	0.000000
OCDD	--	--	0.0001	µg/L	0.017	J B	0.000000	0.014	J B	0.000000	0.0018	J B q	0.000000
OCDF	--	--	0.0001	µg/L	0.00034	U	0.000000	0.00059	J B	0.000000	0.00039	U	0.000000
Dioxins and Furans TEQ	--	--	--	µg/L			0.000000			0.000000			0.000000
Total HpCDD	--	--	--	µg/L	0.0033	J q		0.0038	J q		0.001	U	
Total HpCDF	--	--	--	µg/L	0.00063	U		0.00046	U		0.00048	U	
Total HxCDD	--	--	--	µg/L	0.0022	J B		0.00064	U		0.0015	J B	
Total HxCDF	--	--	--	µg/L	0.00053	U		0.00043	U		0.00079	U	
Total PeCDD	--	--	--	µg/L	0.00016	U		0.00025	U		0.00033	U	
Total PeCDF	--	--	--	µg/L	0.00039	U		0.00031	U		0.00047	U	
Total TCDD	--	--	--	µg/L	0.00053	U		0.00053	U		0.00088	U	
Total TCDF	--	--	--	µg/L	0.00066	U		0.00046	U		0.00072	U	

Table 2 (continued)
Surface Water and Equipment Blank Analytical Results

Analyte	NOAA SQUIRTs Marine Acute Screening Value (2008) ¹	EPA Region IV Saltwater Acute Screening Value (2018) ²	BR-SW-TB		BR-SW-BW		BR-EQUIP BLANK		
			Units	11/6/2020	Qualifiers	11/9/2020	Qualifiers	11/9/2020	Qualifiers
Metals (unfiltered)									
Arsenic	69	69	µg/L	3.2	J	3.1	U	0.31	U
Barium	1000	110	µg/L	21	U	18	J	1.6	U
Cadmium	40	33	µg/L	3	U	2.2	U	0.22	U
Chromium (total)	-	1100	µg/L	15	U	15	U	1.5	U
Lead	210	210	µg/L	1.3	U	1.3	U	0.13	U
Mercury	1.8	1.8	µg/L	0.13	U	0.13	U	0.13	U
Selenium	290	290	µg/L	15	U	15	U	1.5	U
Silver	0.95	1.9	µg/L	1.8	U	1.8	U	0.18	U
Pesticides									
4,4'-DDD	3.6	0.35	µg/L	0.00051	U	0.00051	U	0.00051	U
4,4'-DDE	14	0.7	µg/L	0.00028	U	0.00028	U	0.00028	U
4,4'-DDT	0.065	0.13	µg/L	0.00028	U	0.00028	U	0.00028	U
Aldrin	0.65	1.3	µg/L	0.00034	U	0.00034	U	0.00034	U
alpha-BHC	--	--	µg/L	0.00023	U	0.00023	U	0.00023	U
beta-BHC	--	--	µg/L	0.00035	U	0.00035	U	0.00035	U
cis-Chlordane	--	--	µg/L	0.00043	J p	0.00035	U	0.00035	U
delta-BHC	--	--	µg/L	0.00061	U	0.00061	U	0.00061	U
Dieldrin	0.335	0.71	µg/L	0.00026	U	0.00026	U	0.00026	U
Endosulfan I	0.017	0.03	µg/L	0.00065	U	0.00065	U	0.00065	U
Endosulfan II	0.017	0.03	µg/L	0.00030	U	0.00030	U	0.00030	U
Endosulfan sulfate	--	0.03	µg/L	0.00061	U	0.00061	U	0.00061	U
Endrin	0.0185	0.04	µg/L	0.00022	U	0.00022	U	0.00022	U
Endrin aldehyde	--	--	µg/L	0.00049	U	0.00049	U	0.00049	U
Endrin ketone	--	--	µg/L	0.00038	U	0.00038	U	0.00038	U
gamma-BHC (Lindane)	0.08	0.16	µg/L	0.00028	U	0.00065	J p	0.00028	U
Heptachlor	0.0265	0.05	µg/L	0.0012	U	0.00050	J p	0.00043	U
Heptachlor epoxide	0.0265	0.05	µg/L	0.00032	U	0.00032	U	0.00032	U
Methoxychlor	--	--	µg/L	0.00074	U	0.00074	U	0.00074	U
Toxaphene	0.21	0.21	µg/L	0.047	U	0.047	U	0.047	U
trans-Chlordane	--	--	µg/L	0.00039	U	0.00039	U	0.00039	U

Table 2 (continued)
Surface Water and Equipment Blank Analytical Results

Analyte	NOAA SQUIRTs Marine Acute Screening Value (2008) ¹	EPA Region IV Saltwater Acute Screening Value (2018) ²	BR-SW-TB			BR-SW-BW		BR-EQUIP BLANK	
			Units	11/6/2020	Qualifiers	11/9/2020	Qualifiers	11/9/2020	Qualifiers
Poly-Chlorinated Biphenyls (PCBs)									
PCB-1016	--	--	µg/L	0.0045	U	0.0045	U	0.0045	U
PCB-1221	--	--	µg/L	0.0054	U	0.0054	U	0.0054	U
PCB-1232	--	--	µg/L	0.0050	U	0.0050	U	0.0050	U
PCB-1242	--	--	µg/L	0.0034	U	0.0034	U	0.0034	U
PCB-1248	--	--	µg/L	0.0028	U	0.0028	U	0.0028	U
PCB-1254	--	--	µg/L	0.0043	U	0.0043	U	0.0043	U
PCB-1260	--	--	µg/L	0.0037	U	0.0037	U	0.0037	U
PCB-1262	--	--	µg/L	0.0068	U	0.0068	U	0.0068	U
PCB-1268	--	--	µg/L	0.0043	U	0.0043	U	0.0043	U
Total PCBs	0.033	0.03	µg/L	0.000		0.000		0.000	
Polycyclic Aromatic Hydrocarbons (PAHs)									
Acenaphthene	970	320	µg/L	0.063	U	0.060	U	0.060	U
Acenaphthylene	300	291	µg/L	0.063	U	0.060	U	0.060	U
Anthracene	300	1.8	µg/L	0.047	U	0.045	U	0.045	U
Benzo[a]anthracene	300	4.6	µg/L	0.072	U	0.069	U	0.069	U
Benzo[a]pyrene	300	0.64	µg/L	0.051	U	0.049	U	0.049	U
Benzo[b]fluoranthene	300	1.4	µg/L	0.093	U	0.090	U	0.090	U
Benzo[g,h,i]perylene	300	0.19	µg/L	0.066	U	0.064	U	0.064	U
Benzo[k]fluoranthene	300	1.3	µg/L	0.085	U	0.081	U	0.081	U
Chrysene	300	4.2	µg/L	0.078	U	0.075	U	0.075	U
Dibenz(a,h)anthracene	300	0.28	µg/L	0.069	U	0.067	U	0.067	U
Fluoranthene	40	3.4	µg/L	0.058	U	0.057	J	0.056	U
Fluorene	300	82	µg/L	0.066	U	0.064	U	0.064	U
Indeno[1,2,3-cd]pyrene	300	0.27	µg/L	0.082	U	0.079	U	0.079	U
Naphthalene	2350	780	µg/L	0.057	U	0.055	U	0.055	U
Phenanthrene	7.7	7.7	µg/L	0.053	U	0.081	J	0.051	U
Pyrene	300	0.45	µg/L	0.052	U	0.05	U	0.050	U
Total PAHs	300	--	µg/L	0.000		0.138		0.000	

Notes:

1. Threshold Effect Level referenced in NOAA SQUIRTs Quick Reference Tables (2008)
2. Ecological Screening Values referenced in United States Environmental Protection Agency Region IV Ecological Risk Assessment Supplemental Guidance, March 2018 Update
3. 2005 TEF as referenced in NOAA SQUIRTs Quick Reference Tables (2008)

Values highlighted in yellow exceed a screening value for that analyte.

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MDL - Method Detection Limit

RL - Reporting Limit or Requested Limit (Radiochemistry).

EDL - Estimated Detection Limit (Dioxin)

TEF - Toxicity Equivalent Factor (Dioxin)

TEC - Toxicity Equivalent Quotient (Dioxin)

TEL - Threshold Effect Level

ESV - Ecological Screening Value

Table 3
Elutriate Sample Analytical Results

Analyte	NOAA SQUIRTs Marine Acute Screening Value (2008) ¹	EPA Region IV Saltwater Acute Screening Value (2018) ²	NOAA SQUIRTs 1998 Fish TEF (2005) ¹	Units	BR-EL-SD-TB-CS01-0-2 Total			BR-EL-SD-TB-CS01-0-2 Dissolved			BR-EL-SD-TB-CS02-0-2 Total			BR-EL-SD-TB-CS02-0-2 Dissolved			BR-EL-SD-TB-CS03-0-2 Total			BR-EL-SD-TB-CS03-0-2 Dissolved			BR-EL-SD-TB-CS04-0-2 Total			BR-EL-SD-TB-CS04-0-2 Dissolved		
					11/13/2020	Qualifiers	TEC	11/13/2020	Qualifiers	TEC	11/13/2020	Qualifiers	TEC	11/13/2020	Qualifiers	TEC	11/13/2020	Qualifiers	TEC	11/13/2020	Qualifiers	TEC	11/13/2020	Qualifiers	TEC	11/13/2020	Qualifiers	TEC
Dioxins and Furans																												
1,2,3,4,6,7,8-HpCDD	--	--	0.001	µg/L	0.000022	J	0.000000	0.000005	J	0.000000	0.000063	J	0.000000	0.0000056	J q	0.000000	0.000018	J	0.000000	0.0000023	J q	0.000000	0.000026	J	0.000000	0.0000084	J	0.000000
1,2,3,4,6,7,8-HpCDF	--	--	0.01	µg/L	0.0011	J q	0.000011	0.00021	U	0.000000	0.0037	J q	0.000037	0.00044	J q	0.000004	0.0012	J	0.000012	0.00036	U	0.000000	0.0018	J	0.000018	0.00056	J q	0.000006
1,2,3,4,7,8,9-HpCDF	--	--	0.01	µg/L	0.00065	U	0.000000	0.00026	U	0.000000	0.0012	U	0.000000	0.00033	U	0.000000	0.0003	U	0.000000	0.00049	U	0.000000	0.00052	U	0.000000	0.00037	U	0.000000
1,2,3,4,7,8-HxCDD	--	--	0.5	µg/L	0.0014	J B	0.000000	0.00082	J B	0.000000	0.003	J q B	0.000000	0.00093	U	0.000000	0.0011	J q B	0.000000	0.00063	J q B	0.000000	0.00051	U	0.000000	0.00055	J q B	0.000000
1,2,3,4,7,8-HxCDF	--	--	0.1	µg/L	0.00052	J q	0.000052	0.00017	U	0.000000	0.0009	U	0.000000	0.0013	U	0.000000	0.0003	J q	0.000030	0.00014	U	0.000000	0.00027	U	0.000000	0.00022	J q	0.000022
1,2,3,6,7,8-HxCDD	--	--	0.01	µg/L	0.00077	J q	0.000008	0.00029	U	0.000000	0.0023	J q	0.000023	0.00086	U	0.000000	0.00062	J	0.000006	0.00038	U	0.000000	0.00054	U	0.000000	0.00044	U	0.000000
1,2,3,6,7,8-HxCDF	--	--	0.1	µg/L	0.00026	J q	0.000026	0.00018	U	0.000000	0.00098	U	0.000000	0.0015	U	0.000000	0.00027	J q	0.000027	0.00016	U	0.000000	0.00031	U	0.000000	0.00015	U	0.000000
1,2,3,7,8,9-HxCDD	--	--	0.01	µg/L	0.0011	J	0.000011	0.00027	U	0.000000	0.0038	J S	0.000038	0.00085	U	0.000000	0.0015	J q	0.000015	0.00036	U	0.000000	0.0015	J	0.000015	0.00082	J	0.000008
1,2,3,7,8,9-HxCDF	--	--	0.1	µg/L	0.00028	U	0.000000	0.00022	U	0.000000	0.0012	U	0.000000	0.0016	U	0.000000	0.00033	J q	0.000033	0.0002	U	0.000000	0.00038	U	0.000000	0.00018	U	0.000000
1,2,3,7,8-PeCDD	--	--	1.0	µg/L	0.00019	U	0.000000	0.00033	J q	0.000330	0.00075	U	0.000000	0.00021	U	0.000000	0.00048	J	0.000480	0.00017	U	0.000000	0.00024	U	0.000000	0.0002	U	0.000000
1,2,3,7,8-PeCDF	--	--	0.05	µg/L	0.00023	U	0.000000	0.00022	U	0.000000	0.00074	U	0.000000	0.00067	U	0.000000	0.00021	U	0.000000	0.00021	U	0.000000	0.00023	U	0.000000	0.00026	U	0.000000
2,3,4,6,7,8-HxCDF	--	--	0.1	µg/L	0.00025	U	0.000000	0.00019	U	0.000000	0.00087	U	0.000000	0.0014	U	0.000000	0.0002	U	0.000000	0.00025	U	0.000000	0.00034	U	0.000000	0.00016	U	0.000000
2,3,4,7,8-PeCDF	--	--	0.5	µg/L	0.00022	U	0.000000	0.0002	U	0.000000	0.00071	U	0.000000	0.00059	U	0.000000	0.00018	U	0.000000	0.00024	U	0.000000	0.00022	U	0.000000	0.00023	U	0.000000
2,3,7,8-TCDD	--	--	1.0	µg/L	0.00019	U	0.000000	0.0004	U	0.000000	0.001	U	0.000000	0.0014	U	0.000000	0.00029	U	0.000000	0.00031	U	0.000000	0.0004	U	0.000000	0.00029	U	0.000000
2,3,7,8-TCDF	--	--	0.05	µg/L	0.00026	U	0.000000	0.00026	U	0.000000	0.001	U	0.000000	0.001	U	0.000000	0.00022	U	0.000000	0.0003	U	0.000000	0.00036	U	0.000000	0.00021	U	0.000000
OCDD	--	--	0.0001	µg/L	0.5	B	0.000000	0.065	J B	0.000000	0.98	B	0.000000	0.054	J B	0.000000	0.36	B	0.000000	0.036	J B	0.000000	0.75	B	0.000000	0.12	B	0.000000
OCDF	--	--	0.0001	µg/L	0.003	J B	0.000000	0.00069	J q B	0.000000	0.004	J q B	0.000000	0.00038	U	0.000000	0.0018	J q B	0.000000	0.0007	J q B	0.000000	0.0027	J B	0.000000	0.00075	J B	0.000000
Dioxins and Furans TEQ	--	--	--	µg/L			0.000108			0.000330			0.000098			0.000004			0.000603			0.000000			0.000033			0.000036
Total HpCDD	--	--	--	µg/L	0.075			0.016	J q		0.26			0.014	J q		0.065			0.0078	J q		0.094			0.028	J	
Total HpCDF	--	--	--	µg/L	0.0026	J q		0.00026	U		0.0082	J q		0.00044	J q		0.0028	J		0.00049	U		0.003	J q		0.00056	J q	
Total HxCDD	--	--	--	µg/L	0.027	J q B		0.0085	J q B		0.095	q S B		0.0062	J q B		0.033	J q B		0.0036	J q B		0.031	J q B		0.011	J q B	
Total HxCDF	--	--	--	µg/L	0.0033	J q		0.00022	U		0.0055	J		0.0016	U		0.0045	J l q		0.00025	U		0.0016	J q		0.001	J q	
Total PeCDD	--	--	--	µg/L	0.0015	J q B		0.0013	J q B		0.0042	J q B		0.00021	U		0.0039	J q B		0.00017	U		0.0026	J q B		0.0002	U	
Total PeCDF	--	--	--	µg/L	0.00023	U		0.00022	U		0.00074	U		0.00067	U		0.00051	J q B		0.00024	U		0.00023	U		0.00026	U	
Total TCDD	--	--	--	µg/L	0.00089	J		0.0004	U		0.0038	J		0.0014	U		0.0006	J q		0.00031	U		0.0004	U		0.00029	U	
Total TCDF	--	--	--	µg/L	0.00042	J q		0.00026	U		0.0023	J		0.001	U		0.0004	J q		0.0003	U		0.00036	U		0.00021	U	

Table 3 (continued)
Elutriate Sample Analytical Results

Analyte	NOAA SQUIRTs Marine Acute Screening Value (2008) ¹	EPA Region IV Saltwater Acute Screening Value (2018) ²	Units	BR-EL-SD-TB-CS01-0-2 Total		BR-EL-SD-TB-CS01-0-2 Dissolved		BR-EL-SD-TB-CS02-0-2 Total		BR-EL-SD-TB-CS02-0-2 Dissolved		BR-EL-SD-TB-CS03-0-2 Total		BR-EL-SD-TB-CS03-0-2 Dissolved		BR-EL-SD-TB-CS04-0-2 Total		BR-EL-SD-TB-CS04-0-2 Dissolved	
				1/13/2020	Qualifiers	1/13/2020	Qualifiers	1/13/2020	Qualifiers	1/13/2020	Qualifiers	11/4/2020	Qualifiers	1/13/2020	Qualifiers	1/13/2020	Qualifiers	1/13/2020	Qualifiers
Metals (unfiltered)																			
Arsenic	69	69	µg/L	1.4		1.3		3.1		1.1		2.1		1.8		3.0		3.5	
Barium	1000	110	µg/L	22		22		28		23		24		22		21		21	
Cadmium	40	33	µg/L	0.22	U	0.22	U	0.22	U	0.22	U	0.22	U	0.22	U	0.22	U	0.22	U
Chromium (total)	-	1100	µg/L	1.5	U	1.5	U	6.2		1.5	U	2.1		1.5	U	1.5	U	1.5	U
Lead	210	210	µg/L	0.46	J	0.13	U	2.8		0.13	U	0.74	J	0.13	U	0.46	J	0.13	U
Mercury	1.8	1.8	µg/L	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U
Selenium	290	290	µg/L	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U
Silver	0.95	1.9	µg/L	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U
Pesticides																			
4,4'-DDD	3.6	0.35	µg/L	0.00050	U	0.00050	U	0.00051	U	0.00051	U	0.00050	U	0.00028	U	0.00050	U	0.00050	U
4,4'-DDE	14	0.7	µg/L	0.00028	U	0.00028	U	0.00028	U	0.00028	U	0.00028	U	0.00028	U	0.00028	U	0.00028	U
4,4'-DDT	0.065	0.13	µg/L	0.00028	U	0.00028	U	0.00028	U	0.00028	U	0.00028	U	0.00034	U	0.00028	U	0.00028	U
Aldrin	0.65	1.3	µg/L	0.00034	U	0.00034	U	0.00034	U	0.00034	U	0.00034	U	0.00022	U	0.00034	U	0.00034	U
alpha-BHC	--	--	µg/L	0.00022	U	0.00022	U	0.00023	U	0.00023	U	0.00022	U	0.00035	U	0.00022	U	0.00022	U
beta-BHC	--	--	µg/L	0.00035	U	0.00035	U	0.00035	U	0.00035	U	0.00035	U	0.00035	U	0.00035	U	0.00035	U
cis-Chlordane	--	--	µg/L	0.00035	U	0.00035	U	0.00035	U	0.00035	U	0.00035	U	0.00061	U	0.00035	U	0.00035	U
delta-BHC	--	--	µg/L	0.00061	U	0.00061	U	0.00061	U	0.00061	U	0.00061	U	0.00026	U	0.00061	U	0.00061	U
Dieldrin	0.335	0.71	µg/L	0.00026	U	0.00026	U	0.00026	U	0.00026	U	0.00026	U	0.00065	U	0.00026	U	0.00026	U
Endosulfan I	0.017	0.03	µg/L	0.00065	U	0.00065	U	0.00065	U	0.00065	U	0.00065	U	0.00030	U	0.00065	U	0.00065	U
Endosulfan II	0.017	0.03	µg/L	0.00030	U	0.00030	U	0.00030	U	0.00030	U	0.00030	U	0.00060	U	0.00030	U	0.00030	U
Endosulfan sulfate	--	0.03	µg/L	0.00060	U	0.00060	U	0.00061	U	0.00061	U	0.00060	U	0.00060	U	0.00060	U	0.00060	U
Endrin	0.0185	0.04	µg/L	0.00022	U	0.00049	U	0.00022	U	0.00072	Jp	0.00022	U	0.00074	Jp	0.00022	U	0.00049	U
Endrin aldehyde	--	--	µg/L	0.00049	U	0.00037	U	0.00049	U	0.00038	U	0.00049	U	0.00037	U	0.00063	Jp	0.00037	U
Endrin ketone	--	--	µg/L	0.00037	U	0.00022	U	0.00038	U	0.00022	U	0.00037	U	0.00022	U	0.00037	U	0.00022	U
gamma-BHC (Lindane)	0.08	0.16	µg/L	0.00028	U	0.00028	U	0.00042	Jp	0.00028	U	0.00028	U	0.00028	U	0.00028	U	0.00028	U
Heptachlor	0.0265	0.05	µg/L	0.00043	U	0.00032	U	0.00043	U	0.00032	U	0.00043	U	0.00032	U	0.00087	J	0.00032	U
Heptachlor epoxide	0.0265	0.05	µg/L	0.00032	U	0.00043	U	0.00032	U	0.00090	J	0.00032	U	0.00052	Jp	0.00032	U	0.00043	U
Methoxychlor	--	--	µg/L	0.00073	U	0.00073	U	0.00074	U	0.0013		0.00073	U	0.00073	U	0.00073	U	0.00073	U
Toxaphene	0.21	0.21	µg/L	0.046	U	0.046	U	0.047	U	0.047	U	0.046	U	0.046	U	0.046	U	0.046	U
trans-Chlordane	--	--	µg/L	0.00039	U	0.00039	U	0.00039	U	0.00039	U	0.00039	U	0.00039	U	0.00039	U	0.00039	U

Table 3 (continued)
Elutriate Sample Analytical Results

Analyte	NOAA SQUIRTs Marine Acute Screening Value (2008) ¹	EPA Region IV Saltwater Acute Screening Value (2018) ²	Units	BR-EL-SD-TB-CS01-0-2 Total		BR-EL-SD-TB-CS01-0-2 Dissolved		BR-EL-SD-TB-CS02-0-2 Total		BR-EL-SD-TB-CS02-0-2 Dissolved		BR-EL-SD-TB-CS03-0-2 Total		BR-EL-SD-TB-CS03-0-2 Dissolved		BR-EL-SD-TB-CS04-0-2 Total		BR-EL-SD-TB-CS04-0-2 Dissolved	
				1/13/2020	Qualifiers	1/13/2020	Qualifiers	1/13/2020	Qualifiers	1/13/2020	Qualifiers	11/4/2020	Qualifiers	1/13/2020	Qualifiers	1/13/2020	Qualifiers	1/13/2020	Qualifiers
Poly-Chlorinated Biphenyls (PCBs)																			
PCB-1016	--	--	µg/L	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
PCB-1221	--	--	µg/L	0.0054	U	0.0054	U	0.0054	U	0.0054	U	0.0054	U	0.0054	U	0.0054	U	0.0054	U
PCB-1232	--	--	µg/L	0.0049	U	0.0049	U	0.0050	U	0.0050	U	0.0049	U	0.0049	U	0.0049	U	0.0049	U
PCB-1242	--	--	µg/L	0.0034	U	0.0034	U	0.0034	U	0.0034	U	0.0034	U	0.0034	U	0.0034	U	0.0034	U
PCB-1248	--	--	µg/L	0.0028	U	0.0028	U	0.0028	U	0.0028	U	0.0028	U	0.0028	U	0.0028	U	0.0028	U
PCB-1254	--	--	µg/L	0.0043	U	0.0043	U	0.0043	U	0.0043	U	0.0043	U	0.0043	U	0.0043	U	0.0043	U
PCB-1260	--	--	µg/L	0.0037	U	0.0037	U	0.0037	U	0.0037	U	0.0037	U	0.0037	U	0.0037	U	0.0037	U
PCB-1262	--	--	µg/L	0.0067	U	0.0067	U	0.0068	U	0.0068	U	0.0067	U	0.0067	U	0.0067	U	0.0067	U
PCB-1268	--	--	µg/L	0.0043	U	0.0043	U	0.0043	U	0.0043	U	0.0043	U	0.0043	U	0.0043	U	0.0043	U
Total PCBs	0.033	0.03	µg/L	0.0000		0.0000		0.0000		0.0000		0.0000		0.0000		0.0000		0.0000	
Polycyclic Aromatic Hydrocarbons (PAHs)																			
Acenaphthene	970	320	µg/L	0.060	U	0.060	U	0.060	U	0.060	U	0.060	U	0.060	U	0.060	U	0.060	U
Acenaphthylene	300	291	µg/L	0.060	U	0.060	U	0.060	U	0.060	U	0.060	U	0.060	U	0.060	U	0.060	U
Anthracene	300	1.8	µg/L	0.045	U	0.045	U	0.045	U	0.045	U	0.045	U	0.045	U	0.045	U	0.045	U
Benzo[a]anthracene	300	4.6	µg/L	0.069	U	0.069	U	0.069	U	0.069	U	0.069	U	0.069	U	0.069	U	0.069	U
Benzo[a]pyrene	300	0.64	µg/L	0.049	U	0.049	U	0.049	U	0.049	U	0.049	U	0.049	U	0.049	U	0.049	U
Benzo[b]fluoranthene	300	1.4	µg/L	0.090	U	0.090	U	0.090	U	0.090	U	0.090	U	0.090	U	0.090	U	0.090	U
Benzo[g,h,i]perylene	300	0.19	µg/L	0.064	U	0.064	U	0.064	U	0.064	U	0.064	U	0.064	U	0.064	U	0.064	U
Benzo[k]fluoranthene	300	1.3	µg/L	0.081	U	0.081	U	0.081	U	0.081	U	0.081	U	0.081	U	0.081	U	0.081	U
Chrysene	300	4.2	µg/L	0.075	U	0.075	U	0.075	U	0.075	U	0.075	U	0.075	U	0.075	U	0.075	U
Dibenz(a,h)anthracene	300	0.28	µg/L	0.067	U	0.067	U	0.067	U	0.067	U	0.067	U	0.067	U	0.067	U	0.067	U
Fluoranthene	40	3.4	µg/L	0.056	U	0.056	U	0.056	U	0.056	U	0.056	U	0.056	U	0.056	U	0.056	U
Fluorene	300	82	µg/L	0.064	U	0.064	U	0.064	U	0.064	U	0.064	U	0.064	U	0.064	U	0.064	U
Indeno[1,2,3-cd]pyrene	300	0.27	µg/L	0.079	U	0.079	U	0.079	U	0.079	U	0.079	U	0.079	U	0.079	U	0.079	U
Naphthalene	2350	780	µg/L	0.055	U	0.055	U	0.055	U	0.055	U	0.055	U	0.055	U	0.055	U	0.055	U
Phenanthrene	7.7	7.7	µg/L	0.059	J	0.051	U	0.051	U	0.051	U	0.051	U	0.051	U	0.051	U	0.051	U
Pyrene	300	0.45	µg/L	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U
Total PAHs	300	--	µg/L	0.059		0.000		0.000		0.000		0.000		0.000		0.000		0.000	

Table 3 (continued)
Elutriate Sample Analytical Results

Analyte	NOAA SQUIRTs Marine Acute Screening Value (2008) ¹	EPA Region IV Saltwater Acute Screening Value (2018) ²	NOAA SQUIRTs 1998 Fish TEF (2005) ¹	Units	BR-EL-SD-TB-CS05-0-2 Total			BR-EL-SD-TB-CS05-0-2 Dissolved			BR-EL-SD-BW-CS06-0-2 Total			BR-EL-SD-BW-CS06-0-2 Dissolved			BR-EL-SD-BW-CS06-0-2 DUP Total			BR-EL-SD-BW-CS06-0-2 DUP Dissolved			BR-EL-SD-BW-CS07-0-2 Total			BR-EL-SD-BW-CS07-0-2 Dissolved		
					11/13/2020	Qualifiers	TEC	11/13/2020	Qualifiers	TEC	11/13/2020	Qualifiers	TEC	11/13/2020	Qualifiers	TEC	11/13/2020	Qualifiers	TEC	11/13/2020	Qualifiers	TEC	11/13/2020	Qualifiers	TEC	11/13/2020	Qualifiers	TEC
Dioxins and Furans																												
1,2,3,4,6,7,8-HpCDD	--	--	0.001	µg/L	0.000016	J	0.000000	0.0000044	J q	0.000000	0.0000069	J q	0.000000	0.0000014	U	0.000000	0.0000082	J	0.000000	0.0000086	U	0.000000	0.000015	J	0.000000	0.0000014	U	0.000000
1,2,3,4,6,7,8-HpCDF	--	--	0.01	µg/L	0.00084	U	0.000000	0.00044	U	0.000000	0.00083	U	0.000000	0.0005	U	0.000000	0.00096	U	0.000000	0.00054	U	0.000000	0.0013	J q	0.000013	0.0013	U	0.000000
1,2,3,4,7,8,9-HpCDF	--	--	0.01	µg/L	0.0011	U	0.000000	0.00061	U	0.000000	0.0011	U	0.000000	0.00061	U	0.000000	0.0012	U	0.000000	0.00071	U	0.000000	0.001	U	0.000000	0.0016	U	0.000000
1,2,3,4,7,8-HxCDD	--	--	0.5	µg/L	0.0022	U	0.000000	0.00095	U	0.000000	0.0011	U	0.000000	0.00085	J q	0.000425	0.0008	U	0.000000	0.0012	J	0.000600	0.0014	J	0.000700	0.00066	U	0.000000
1,2,3,4,7,8-HxCDF	--	--	0.1	µg/L	0.00058	U	0.000000	0.00039	U	0.000000	0.00044	U	0.000000	0.00041	U	0.000000	0.00056	U	0.000000	0.00032	U	0.000000	0.00096	U	0.000000	0.00065	U	0.000000
1,2,3,6,7,8-HxCDD	--	--	0.01	µg/L	0.0022	U	0.000000	0.00088	U	0.000000	0.0012	U	0.000000	0.00056	U	0.000000	0.00083	U	0.000000	0.00036	U	0.000000	0.00052	U	0.000000	0.00065	U	0.000000
1,2,3,6,7,8-HxCDF	--	--	0.1	µg/L	0.00069	U	0.000000	0.00043	U	0.000000	0.00048	U	0.000000	0.00048	U	0.000000	0.00059	U	0.000000	0.00037	U	0.000000	0.0011	U	0.000000	0.00069	U	0.000000
1,2,3,7,8,9-HxCDD	--	--	0.01	µg/L	0.0021	U	0.000000	0.00087	U	0.000000	0.0011	U	0.000000	0.00051	U	0.000000	0.00078	U	0.000000	0.00032	U	0.000000	0.0012	J q	0.000012	0.00062	U	0.000000
1,2,3,7,8,9-HxCDF	--	--	0.1	µg/L	0.00084	U	0.000000	0.00053	U	0.000000	0.00056	U	0.000000	0.00061	U	0.000000	0.00075	U	0.000000	0.00046	U	0.000000	0.0013	U	0.000000	0.00081	U	0.000000
1,2,3,7,8-PeCDD	--	--	1.0	µg/L	0.00089	U	0.000000	0.00059	U	0.000000	0.00038	U	0.000000	0.00043	U	0.000000	0.00078	U	0.000000	0.00031	U	0.000000	0.00062	U	0.000000	0.00026	U	0.000000
1,2,3,7,8-PeCDF	--	--	0.05	µg/L	0.00071	U	0.000000	0.00049	U	0.000000	0.00064	U	0.000000	0.00056	U	0.000000	0.00079	U	0.000000	0.00048	U	0.000000	0.00067	U	0.000000	0.00058	U	0.000000
2,3,4,6,7,8-HxCDF	--	--	0.1	µg/L	0.00063	U	0.000000	0.00045	U	0.000000	0.00045	U	0.000000	0.00047	U	0.000000	0.00057	U	0.000000	0.00036	U	0.000000	0.001	U	0.000000	0.00067	U	0.000000
2,3,4,7,8-PeCDF	--	--	0.5	µg/L	0.00067	U	0.000000	0.00046	U	0.000000	0.0006	U	0.000000	0.00052	U	0.000000	0.00073	U	0.000000	0.00042	U	0.000000	0.00064	U	0.000000	0.00054	U	0.000000
2,3,7,8-TCDD	--	--	1.0	µg/L	0.0011	U	0.000000	0.0012	U	0.000000	0.00067	U	0.000000	0.00086	U	0.000000	0.0013	U	0.000000	0.00058	U	0.000000	0.0012	U	0.000000	0.0012	U	0.000000
2,3,7,8-TCDF	--	--	0.05	µg/L	0.0011	U	0.000000	0.00088	U	0.000000	0.00099	U	0.000000	0.00082	U	0.000000	0.001	U	0.000000	0.00058	U	0.000000	0.0011	U	0.000000	0.0013	U	0.000000
OCDD	--	--	0.0001	µg/L	0.44	B	0.000000	0.06	J B	0.000000	0.19	B	0.000000	0.025	J B	0.000000	0.19	B	0.000000	0.019	J q B	0.000000	0.52	B	0.000000	0.067	J B	0.000000
OCDF	--	--	0.0001	µg/L	0.0031	J B	0.000000	0.0005	U	0.000000	0.00035	J q B	0.000000	0.00078	J q B	0.000000	0.0012	J q B	0.000000	0.00086	U	0.000000	0.00097	U	0.000000	0.0011	J q B	0.000000
Dioxins and Furans TEQ	--	--	--	µg/L			0.000000			0.000000			0.000000			0.000425			0.000000			0.000600			0.000725			0.000000
Total HpCDD	--	--	--	µg/L	0.052			0.013	J q		0.024	J q		0.003	J q		0.022	J q		0.0042	J		0.047			0.01	J q	
Total HpCDF	--	--	--	µg/L	0.0011	U		0.00053	U		0.0011	U		0.00061	U		0.0012	U		0.00071	U		0.0013	J q		0.0016	U	
Total HxCDD	--	--	--	µg/L	0.01	J q		0.0009	J		0.0069	J		0.0019	J q		0.0061	J q		0.0023	J q		0.023	J q		0.0066	J	
Total HxCDF	--	--	--	µg/L	0.00084	U		0.00053	U		0.00056	U		0.00061	U		0.00075	U		0.00046	U		0.0013	U		0.00081	U	
Total PeCDD	--	--	--	µg/L	0.0013	U		0.00059	U		0.00078	J q B		0.001	J q B		0.00078	U		0.00031	U		0.0017	J q B		0.00083	J B	
Total PeCDF	--	--	--	µg/L	0.00071	U		0.00049	U		0.00064	U		0.00056	U		0.00079	U		0.00048	U		0.00067	U		0.00058	U	
Total TCDD	--	--	--	µg/L	0.0011	U		0.0012	U		0.00067	U		0.00086	U		0.0013	U		0.00058	U		0.0012	U		0.0012	U	
Total TCDF	--	--	--	µg/L	0.0011	U		0.00088	U		0.00099	U		0.00082	U		0.001	U		0.00058	U		0.0011	U		0.0013	U	

Table 3 (continued)
Elutriate Sample Analytical Results

Analyte	NOAA SQUIRTs Marine Acute Screening Value (2008) ¹	EPA Region IV Saltwater Acute Screening Value (2018) ²	Units	BR-EL-SD-TB-CS05-0-2 Total		BR-EL-SD-TB-CS05-0-2 Dissolved		BR-EL-SE-BW-CS06-0-2 Total		BR-EL-SE-BW-CS06-0-2 Dissolved		BR-EL-SD-BW-CS06-0-2 DUP Total		BR-EL-SD-BW-CS06-0-2 DUP Dissolved		BR-EL-SD-BW-CS07-0-2 Total		BR-EL-SD-BW-CS07-0-2 Dissolved	
				11/13/2020	Qualifiers	11/13/2020	Qualifiers	11/13/2020	Qualifiers	11/13/2020	Qualifiers	11/13/2020	Qualifiers	11/13/2020	Qualifiers	11/13/2020	Qualifiers	11/13/2020	Qualifiers
Metals (unfiltered)																			
Arsenic	69	69	µg/L	3.1	U	3.1	U	3.1	U	3.1	U	3.1	U	3.1	U	3.1	U	3.1	U
Barium	1000	110	µg/L	21	J	17	J	19	J	16	J	17	J	18	J	17	J	18	J
Cadmium	40	33	µg/L	2.2	U	2.2	U	2.2	U	2.2	U	2.2	U	2.2	U	2.2	U	2.2	U
Chromium	-	1100	µg/L	15	U	15	U	15	U	15	U	15	U	15	U	15	U	15	U
Lead	210	210	µg/L	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U
Mercury	1.8	1.8	µg/L	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U	0.13	U
Selenium	290	290	µg/L	15	U	15	U	15	U	15	U	15	U	15	U	15	U	15	U
Silver	0.95	1.9	µg/L	1.8	U	1.8	U	1.8	U	1.8	U	1.8	U	1.8	U	1.8	U	1.8	U
Pesticides																			
4,4'-DDD	3.6	0.35	µg/L	0.00050	U	0.00050	U	0.00051	U	0.00051	U	0.00051	U	0.00050	U	0.00051	U	0.00050	U
4,4'-DDE	14	0.7	µg/L	0.00028	U	0.00028	U	0.00028	U	0.00028	U	0.00028	U	0.00087	Jp	0.00028	U	0.00028	U
4,4'-DDT	0.065	0.13	µg/L	0.00028	U	0.00028	U	0.00028	U	0.00028	U	0.00028	U	0.00096	J	0.00028	U	0.00028	U
Aldrin	0.65	1.3	µg/L	0.00034	U	0.00034	U	0.00034	U	0.00050	J	0.00034	U	0.00034	U	0.00034	U	0.00034	U
alpha-BHC	--	--	µg/L	0.00022	U	0.00022	U	0.00023	U	0.00023	U	0.00023	U	0.00022	U	0.00023	U	0.00022	U
beta-BHC	--	--	µg/L	0.00035	U	0.00035	U	0.00035	U	0.00035	U	0.00035	U	0.00035	U	0.00035	U	0.00035	U
cis-Chlordane	--	--	µg/L	0.00035	U	0.00035	U	0.00035	U	0.00035	U	0.00035	U	0.00035	U	0.00035	U	0.00035	U
delta-BHC	--	--	µg/L	0.00061	U	0.00061	U	0.00061	U	0.00061	U	0.00061	U	0.00061	U	0.00061	U	0.00061	U
Dieldrin	0.335	0.71	µg/L	0.00026	U	0.00026	U	0.00026	U	0.00026	U	0.00026	U	0.00026	U	0.00026	U	0.00026	U
Endosulfan I	0.017	0.03	µg/L	0.00065	U	0.00065	U	0.00065	U	0.00065	U	0.00065	U	0.00065	U	0.00065	U	0.00065	U
Endosulfan II	0.017	0.03	µg/L	0.00030	U	0.00030	U	0.00030	U	0.00030	U	0.00030	U	0.00030	U	0.00030	U	0.00030	U
Endosulfan sulfate	--	0.03	µg/L	0.00060	U	0.00060	U	0.00061	U	0.00061	U	0.00061	U	0.00060	U	0.00061	U	0.00060	U
Endrin	0.0185	0.04	µg/L	0.00022	U	0.00022	U	0.00022	U	0.00049	U	0.00022	U	0.00049	U	0.00022	U	0.00094	J
Endrin aldehyde	--	--	µg/L	0.00064	Jp	0.00049	U	0.00049	U	0.00038	U	0.0011	J	0.00037	U	0.00049	U	0.00037	U
Endrin ketone	--	--	µg/L	0.00037	U	0.00037	U	0.00038	U	0.00022	U	0.00038	U	0.00022	U	0.00038	U	0.00022	U
gamma-BHC (Lindane)	0.08	0.16	µg/L	0.00028	U	0.00071	Jp	0.0011	J	0.0013		0.00028	U	0.0012		0.0015		0.0021	
Heptachlor	0.0265	0.05	µg/L	0.00095	J	0.00043	U	0.00043	U	0.00032	U	0.00062	J	0.00032	U	0.00043	U	0.00032	U
Heptachlor epoxide	0.0265	0.05	µg/L	0.00032	U	0.00032	U	0.00032	U	0.00063	J	0.00032	U	0.00043	U	0.00032	U	0.00043	U
Methoxychlor	--	--	µg/L	0.00073	U	0.00073	U	0.00074	U	0.00074	U	0.00074	U	0.00073	U	0.00074	U	0.00073	U
Toxaphene	0.21	0.21	µg/L	0.046	U	0.046	U	0.047	U	0.047	U	0.047	U	0.046	U	0.047	U	0.046	U
trans-Chlordane	--	--	µg/L	0.00039	U	0.00039	U	0.00039	U	0.00039	U	0.00039	U	0.00039	U	0.00039	U	0.00039	U

Table 3 (continued)
Elutriate Sample Analytical Results

Analyte	NOAA SQUIRTs Marine Acute Screening Value (2008) ¹	EPA Region IV Saltwater Acute Screening Value (2018) ²	Units	BR-EL-SD-TB-CS05-0-2 Total		BR-EL-SD-TB-CS05-0-2 Dissolved		BR-EL-SE-BW-CS06-0-2 Total		BR-EL-SE-BW-CS06-0-2 Dissolved		BR-EL-SD-BW-CS06-0-2 DUP Total		BR-EL-SD-BW-CS06-0-2 DUP Dissolved		BR-EL-SD-BW-CS07-0-2 Total		BR-EL-SD-BW-CS07-0-2 Dissolved	
				11/13/2020	Qualifiers	11/13/2020	Qualifiers	11/13/2020	Qualifiers	11/13/2020	Qualifiers	11/13/2020	Qualifiers	11/13/2020	Qualifiers	11/13/2020	Qualifiers	11/13/2020	Qualifiers
Poly-Chlorinated Biphenyls (PCBs)																			
PCB-1016	--	--	µg/L	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
PCB-1221	--	--	µg/L	0.0054	U	0.0054	U	0.0054	U	0.0054	U	0.0054	U	0.0054	U	0.0054	U	0.0054	U
PCB-1232	--	--	µg/L	0.0049	U	0.0049	U	0.0050	U	0.0050	U	0.0050	U	0.0049	U	0.0050	U	0.0049	U
PCB-1242	--	--	µg/L	0.0034	U	0.0034	U	0.0034	U	0.0034	U	0.0034	U	0.0034	U	0.0034	U	0.0034	U
PCB-1248	--	--	µg/L	0.0028	U	0.0028	U	0.0028	U	0.0028	U	0.0028	U	0.0028	U	0.0028	U	0.0028	U
PCB-1254	--	--	µg/L	0.0043	U	0.0043	U	0.0043	U	0.0043	U	0.0043	U	0.0043	U	0.0043	U	0.0043	U
PCB-1260	--	--	µg/L	0.0037	U	0.0037	U	0.0037	U	0.0037	U	0.0037	U	0.0037	U	0.0037	U	0.0037	U
PCB-1262	--	--	µg/L	0.0067	U	0.0067	U	0.0068	U	0.0068	U	0.0068	U	0.0067	U	0.0068	U	0.0067	U
PCB-1268	--	--	µg/L	0.0043	U	0.0043	U	0.0043	U	0.0043	U	0.0043	U	0.0043	U	0.0043	U	0.0043	U
Total PCBs	0.033	0.03	µg/L	0.0000		0.0000		0.0000		0.0000		0.0000		0.0000		0.0000		0.0000	
Polycyclic Aromatic Hydrocarbons (PAHs)																			
Acenaphthene	970	320	µg/L	0.060	U	0.060	U	0.060	U	0.060	U	0.060	U	0.060	U	0.060	U	0.060	U
Acenaphthylene	300	291	µg/L	0.060	U	0.060	U	0.060	U	0.060	U	0.060	U	0.060	U	0.060	U	0.060	U
Anthracene	300	1.8	µg/L	0.045	U	0.045	U	0.045	U	0.045	U	0.045	U	0.045	U	0.045	U	0.045	U
Benzo[a]anthracene	300	4.6	µg/L	0.069	U	0.069	U	0.069	U	0.069	U	0.069	U	0.069	U	0.069	U	0.069	U
Benzo[a]pyrene	300	0.64	µg/L	0.049	U	0.049	U	0.049	U	0.049	U	0.049	U	0.049	U	0.049	U	0.049	U
Benzo[b]fluoranthene	300	1.4	µg/L	0.090	U	0.090	U	0.090	U	0.090	U	0.090	U	0.090	U	0.090	U	0.090	U
Benzo[g,h,i]perylene	300	0.19	µg/L	0.064	U	0.064	U	0.064	U	0.064	U	0.064	U	0.064	U	0.064	U	0.064	U
Benzo[k]fluoranthene	300	1.3	µg/L	0.081	U	0.081	U	0.081	U	0.081	U	0.081	U	0.081	U	0.081	U	0.081	U
Chrysene	300	4.2	µg/L	0.075	U	0.075	U	0.075	U	0.075	U	0.075	U	0.075	U	0.075	U	0.075	U
Dibenz(a,h)anthracene	300	0.28	µg/L	0.067	U	0.067	U	0.067	U	0.067	U	0.067	U	0.067	U	0.067	U	0.067	U
Fluoranthene	40	3.4	µg/L	0.056	U	0.056	U	0.056	U	0.056	U	0.056	U	0.056	U	0.056	U	0.056	U
Fluorene	300	82	µg/L	0.064	U	0.064	U	0.064	U	0.064	U	0.064	U	0.064	U	0.064	U	0.064	U
Indeno[1,2,3-cd]pyrene	300	0.27	µg/L	0.079	U	0.079	U	0.079	U	0.079	U	0.079	U	0.079	U	0.079	U	0.079	U
Naphthalene	2350	780	µg/L	0.055	U	0.055	U	0.055	U	0.055	U	0.055	U	0.055	U	0.055	U	0.055	U
Phenanthrene	7.7	7.7	µg/L	0.058	J	0.051	U	0.051	U	0.051	U	0.051	U	0.062	J	0.057	J	0.051	U
Pyrene	300	0.45	µg/L	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U
Total PAHs	300	--	µg/L	0.058		0.000		0.000		0.000		0.000		0.062		0.057		0.000	

Notes:

1. Threshold Effect Level referenced in NOAA SQUIRTs Quick Reference Tables (2008)
2. Ecological Screening Values referenced in United States Environmental Protection Agency Region IV Ecological Risk Assessment Supplemental Guidance, March 2018 Update
3. 2005 TEF as referenced in NOAA SQUIRTs Quick Reference Tables (2008)

Values highlighted in yellow exceed a screening value for that analyte.

-- No Value referenced

U - The analyte was analyzed for, but was not detected above the concentration shown (MDL or EDL).

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

q - The reported result is the estimated maximum possible concentration of this analyte.

B - Compound was found in the blank and sample.

MDL - Method Detection Limit

RL - Reporting Limit or Requested Limit (Radiochemistry).

EDL - Estimated Detection Limit (Dioxin)

TEF - Toxicity Equivalent Factor (Dioxin)

TEC - Toxicity Equivalent Quotient (Dioxin)

TEL - Threshold Effect Level

ESV - Ecological Screening Value

APPENDIX A

Laboratory Analytical Reports

(Available upon request)

APPENDIX B

Daily Field Reports

(Available upon request)