CHEMICAL ANALYSIS
OF A MARINE SEDIMENT:

Dredging by Yachting Solutions and the City of Rockland in Inner Rockland Harbor
Tier III Sediment Evaluation
Rockland, ME

New England District Corps of Engineers
Application Number: NAE-2018-01522

Prepared For:

Eco-Analysts, Inc.
P.O. Box 224
Bath, ME 04530

Prepared By:

EnviroSystems, Incorporated
One Lafayette Road
Hampton, New Hampshire 03842

EnviroSystems, Inc. Sample Deliver Group Reference 31466

Study Specific Reference 31466

LABORATORY STANDARDS STATEMENT

This study was performed by EnviroSystems, Incorporated at its facility in Hampton, New Hampshire. EnviroSystems' laboratory is accredited by the State of New Hampshire under the National Environmental Laboratory Accreditation (NELAC) program. Additionally, ESI is accredited under the Department of Defense (DoD) ELAP program, ISO/IEC 17025:2005, Certificate Number L2340. All testing conducted by EnviroSystems as part of this program was compliant with NELAC guidelines and standards. Additionally, this study was conducted in accordance with guidelines presented in the 2004 version of the New England District's Regional Implementation Manual (RIM) for Evaluation of Dredged Material Proposed for Disposal In New England Waters. Any deviations from specific elements of the RIM are detailed in the Protocol Deviation Section of this Report.

For EnviroSystems, Inc. January 17, 2019

Kirk Cram
Technical Director

Date

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1.0 SAMPLE COLLECTION, PRESERVATION AND STORAGE

Sediment samples for chemical and physical analysis were provided by Eco-Analysts Inc. from locations specified within the project work plan. Samples were received under chain of custody in sample containers appropriate for the specified analysis. Upon arrival at the laboratory, all samples received an internal sample control number and were logged into the project sample control system. Samples were placed in a secure sample holding location and stored at a temperature of 4±2°C until analysis.

2.0 ANALYSIS

Sample analysis was carried out following methods and protocol specified in the project Sample Analysis Plan by EnviroSystems, Inc. at its Hampton, NH facility. Review of the data report document showed that all sample holding times were met, unless otherwise qualified, that the analytical methods used in the analysis were appropriate for the parameter and sample matrix and met New England District Regional Implementation Manual requirements. Review of supporting quality assurance data documented that, except where qualified, all data collected meet all of the requirements of NELAC, for all NELAC accredited parameters.

3.0 RESULTS

Analytical methods used in the analysis of sediment samples were analyzed using protocol recommended in Tables 2 and 3 of the New England District RIM document with appropriate updates related to current methods. Trace metals were evaluated using EPA Method 6020, Inductively Coupled Plasma - Mass Spectrometry (ICP-MS), mercury was evaluated using EPA Method 245.7, Cold Vapor Atomic Fluorescence Spectrometry. PCB Congeners and PAH compounds were analyzed by EPA Method 8270C - SIM. Pesticides were analyzed by EPA Method 8081B. In cases where dilution of the sample extract was required the final reporting limit remained above the RIM document specified limits and did not result in artificial "Non Detects."

A review of QC data documented one incidence where the %R fell outside of acceptable limits. There were five incidences of the %RR exceeding the acceptable limit in a spike duplicate. There was one incidence of the duplicate %RR exceeding the acceptable limit and one incidence of the laboratory control duplicate %RR exceeding acceptable limits. There were two incidences were the surrogate %R was below acceptable limits. There were four incidences of an analyte being present in the laboratory blank.

A full copy of the analytical report is included in the following data appendix

TABLE OF CONTENTS

Report No: 31466 SDG:
Project: Yachting Solutions

Sample ID: YS-1
Matrix: Solid
Sampled: 12/19/18 1100

Parameter		Result	Quant Limit	Units	Date Prepared	Date of Analysis	INIT/Method/Reference
Percent Solids	31466-001	67.2	0.1	%	12/26/18 1100	12/27/18 0900	RK /160.3 EPA 600/4/79/020
Arsenic, total	31466-001	19.3	0.2	ug/g dry wt	12/26/18 1300	12/28/18 1710	JLH/SW846 3rd Ed. 6020
Cadmium, total	31466-001	0.12	0.08	ug/g dry wt	12/26/18 1300	12/28/18 1710	JLH/SW846 3rd Ed. 6020
Chromium, total	31466-001	50.9	0.2	ug/g dry wt	12/26/18 1300	12/28/18 1710	JLH/SW846 3rd Ed. 6020
Copper, total	31466-001	30.2	0.4	ug/g dry wt	12/26/18 1300	12/28/18 1710	JLH/SW846 3rd Ed. 6020
Lead, total	31466-001	18.3	0.2	ug/g dry wt	12/26/18 1300	12/28/18 1710	JLH/SW846 3rd Ed. 6020
Mercury, total	31466-001	0.028	0.004	ug/g dry wt	12/26/18 1300	12/28/18 1050	JLH/EPA 245.7
Nickel, total	31466-001	51.1	0.4	ug/g dry wt	12/26/18 1300	12/28/18 1710	JLH/SW846 3rd Ed. 6020
Zinc, total	31466-001	106	2	ug/g dry wt	12/26/18 1300	12/28/18 1710	JLH/SW846 3rd Ed. 6020

Notes:

Report No: 31466 SDG:
Project: Yachting Solutions

Sample ID: YS-2
Matrix: Solid
Sampled: 12/19/18 1100

Parameter		Result	Quant Limit	Units	Date Prepared	Date of Analysis	INIT/Method/Reference
Percent Solids	31466-002	74.2	0.1	%	12/26/18 1100	12/27/18 0900	RK /160.3 EPA 600/4/79/020
Arsenic, total	31466-002	18.4	0.2	ug/g dry wt	12/26/18 1300	12/28/18 1729	JLH/SW846 3rd Ed. 6020
Cadmium, total	31466-002	0.094	0.09	ug/g dry wt	12/26/18 1300	12/28/18 1729	JLH/SW846 3rd Ed. 6020
Chromium, total	31466-002	48.8	0.2	ug/g dry wt	12/26/18 1300	12/28/18 1729	JLH/SW846 3rd Ed. 6020
Copper, total	31466-002	28.0	0.4	ug/g dry wt	12/26/18 1300	12/28/18 1729	JLH/SW846 3rd Ed. 6020
Lead, total	31466-002	14.5	0.2	ug/g dry wt	12/26/18 1300	12/28/18 1729	JLH/SW846 3rd Ed. 6020
Mercury, total	31466-002	0.011	0.004	ug/g dry wt	12/26/18 1300	12/28/18 1050	JLH/EPA 245.7
Nickel, total	31466-002	51.3	0.4	ug/g dry wt	12/26/18 1300	12/28/18 1729	JLH/SW846 3rd Ed. 6020
Zinc, total	31466-002	84.0	2	ug/g dry wt	12/26/18 1300	12/28/18 1729	JLH/SW846 3rd Ed. 6020

Notes:

Report No: 31466 SDG:
Project: Yachting Solutions

Sample ID: YS-3
Matrix: Solid
Sampled: 12/19/18 1100

Parameter		Result	Quant Limit	Units	Date Prepared	Date of Analysis	INIT/Method/Reference
Percent Solids	31466-003	73.4	0.1	%	12/26/18 1100	12/27/18 0900	RK /160.3 EPA 600/4/79/020
Arsenic, total	31466-003	14.4	0.2	ug/g dry wt	12/26/18 1300	12/28/18 1736	JLH/SW846 3rd Ed. 6020
Cadmium, total	31466-003	0.14	0.08	ug/g dry wt	12/26/18 1300	12/28/18 1736	JLH/SW846 3rd Ed. 6020
Chromium, total	31466-003	33.2	0.2	ug/g dry wt	12/26/18 1300	12/28/18 1736	JLH/SW846 3rd Ed. 6020
Copper, total	31466-003	20.6	0.4	ug/g dry wt	12/26/18 1300	12/28/18 1736	JLH/SW846 3rd Ed. 6020
Lead, total	31466-003	18.6	0.2	ug/g dry wt	12/26/18 1300	12/28/18 1736	JLH/SW846 3rd Ed. 6020
Mercury, total	31466-003	0.037	0.004	ug/g dry wt	12/26/18 1300	12/28/18 1050	JLH/EPA 245.7
Nickel, total	31466-003	30.6	0.4	ug/g dry wt	12/26/18 1300	12/28/18 1736	JLH/SW846 3rd Ed. 6020
Zinc, total	31466-003	76.5	2	ug/g dry wt	12/26/18 1300	12/28/18 1736	JLH/SW846 3rd Ed. 6020

Notes:

Report No: 31466 SDG:
Project: Yachting Solutions

Sample ID: YS-4
Matrix: Solid
Sampled: 12/19/18 1100

Parameter		Result	Quant Limit	Units	Date Prepared	Date of Analysis	INIT/Method/Reference
Percent Solids	31466-004	44.8	0.1	%	12/26/18 1100	12/27/18 0900	RK /160.3 EPA 600/4/79/020
Arsenic, total	31466-004	18	0.4	ug/g dry wt	12/26/18 1300	12/28/18 1742	JLH/SW846 3rd Ed. 6020
Cadmium, total	31466-004	0.56	0.1	ug/g dry wt	12/26/18 1300	12/28/18 1742	JLH/SW846 3rd Ed. 6020
Chromium, total	31466-004	52.3	0.4	ug/g dry wt	12/26/18 1300	12/28/18 1742	JLH/SW846 3rd Ed. 6020
Copper, total	31466-004	56.6	0.7	ug/g dry wt	12/26/18 1300	12/28/18 1742	JLH/SW846 3rd Ed. 6020
Lead, total	31466-004	52.9	0.4	ug/g dry wt	12/26/18 1300	12/28/18 1742	JLH/SW846 3rd Ed. 6020
Mercury, total	31466-004	0.212	0.007	ug/g dry wt	12/26/18 1300	12/28/18 1050	JLH/EPA 245.7
Nickel, total	31466-004	37.2	0.7	ug/g dry wt	12/26/18 1300	12/28/18 1742	JLH/SW846 3rd Ed. 6020
Zinc, total	31466-004	165	3	ug/g dry wt	12/26/18 1300	12/28/18 1742	JLH/SW846 3rd Ed. 6020

Notes:

Report No: 31466 SDG:
Project: Yachting Solutions

Sample ID: YS-5
Matrix: Solid
Sampled: 12/19/18 1100

Parameter		Result	Quant Limit	Units	Date Prepared	Date of Analysis	INIT/Method/Reference
Percent Solids	31466-005	60.1	0.1	%	12/26/18 1100	12/27/18 0900	RK /160.3 EPA 600/4/79/020
Arsenic, total	31466-005	14.4	0.3	ug/g dry wt	12/26/18 1300	12/28/18 1749	JLH/SW846 3rd Ed. 6020
Cadmium, total	31466-005	0.59	0.1	ug/g dry wt	12/26/18 1300	12/28/18 1749	JLH/SW846 3rd Ed. 6020
Chromium, total	31466-005	49.8	0.3	ug/g dry wt	12/26/18 1300	12/28/18 1749	JLH/SW846 3rd Ed. 6020
Copper, total	31466-005	47.3	0.5	ug/g dry wt	12/26/18 1300	12/28/18 1749	JLH/SW846 3rd Ed. 6020
Lead, total	31466-005	58.9	0.3	ug/g dry wt	12/26/18 1300	12/28/18 1749	JLH/SW846 3rd Ed. 6020
Mercury, total	31466-005	0.257	0.005	ug/g dry wt	12/26/18 1300	12/28/18 1050	JLH/EPA 245.7
Nickel, total	31466-005	27.5	0.5	ug/g dry wt	12/26/18 1300	12/28/18 1749	JLH/SW846 3rd Ed. 6020
Zinc, total	31466-005	168	2	ug/g dry wt	12/26/18 1300	12/28/18 1749	JLH/SW846 3rd Ed. 6020

Notes:

Report No: 31466 SDG:
Project: Yachting Solutions

Sample ID: YS-6
Matrix: Solid
Sampled: 12/19/18 1100

Parameter		Result	Quant Limit	Units	Date Prepared	Date of Analysis	INIT/Method/Reference
Percent Solids	31466-006	70.5	0.1	%	12/26/18 1100	12/27/18 0900	RK /160.3 EPA 600/4/79/020
Arsenic, total	31466-006	18.9	0.2	ug/g dry wt	12/26/18 1300	12/28/18 1755	JLH/SW846 3rd Ed. 6020
Cadmium, total	31466-006	0.14	0.09	ug/g dry wt	12/26/18 1300	12/28/18 1755	JLH/SW846 3rd Ed. 6020
Chromium, total	31466-006	51.0	0.2	ug/g dry wt	12/26/18 1300	12/28/18 1755	JLH/SW846 3rd Ed. 6020
Copper, total	31466-006	32.7	0.4	ug/g dry wt	12/26/18 1300	12/28/18 1755	JLH/SW846 3rd Ed. 6020
Lead, total	31466-006	19.2	0.2	ug/g dry wt	12/26/18 1300	12/28/18 1755	JLH/SW846 3rd Ed. 6020
Mercury, total	31466-006	0.035	0.004	ug/g dry wt	12/26/18 1300	12/28/18 1050	JLH/EPA 245.7
Nickel, total	31466-006	50.8	0.4	ug/g dry wt	12/26/18 1300	12/28/18 1755	JLH/SW846 3rd Ed. 6020
Zinc, total	31466-006	95.1	2	ug/g dry wt	12/26/18 1300	12/28/18 1755	JLH/SW846 3rd Ed. 6020

Notes:

Report No: 31466 SDG:
Project: Yachting Solutions

Sample ID: YS-7
Matrix: Solid
Sampled: 12/19/18 1600

Parameter		Result	Quant Limit	Units	Date Prepared	Date of Analysis	INIT/Method/Reference
Percent Solids	31466-007	63.3	0.1	%	12/26/18 1100	12/27/18 0900	RK /160.3 EPA 600/4/79/020
Arsenic, total	31466-007	17.3	0.3	ug/g dry wt	12/26/18 1300	12/28/18 1802	JLH/SW846 3rd Ed. 6020
Cadmium, total	31466-007	0.23	0.1	ug/g dry wt	12/26/18 1300	12/28/18 1802	JLH/SW846 3rd Ed. 6020
Chromium, total	31466-007	52.1	0.3	ug/g dry wt	12/26/18 1300	12/28/18 1802	JLH/SW846 3rd Ed. 6020
Copper, total	31466-007	38.0	0.5	ug/g dry wt	12/26/18 1300	12/28/18 1802	JLH/SW846 3rd Ed. 6020
Lead, total	31466-007	29.3	0.3	ug/g dry wt	12/26/18 1300	12/28/18 1802	JLH/SW846 3rd Ed. 6020
Mercury, total	31466-007	0.123	0.005	ug/g dry wt	12/26/18 1300	12/28/18 1050	JLH/EPA 245.7
Nickel, total	31466-007	47.6	0.5	ug/g dry wt	12/26/18 1300	12/28/18 1802	JLH/SW846 3rd Ed. 6020
Zinc, total	31466-007	112	2	ug/g dry wt	12/26/18 1300	12/28/18 1802	JLH/SW846 3rd Ed. 6020

Notes:

Report No: 31466 SDG:
Project: Yachting Solutions

Sample ID: YS-8
Matrix: Solid
Sampled: 12/20/18 1200

Parameter		Result	Quant Limit	Units	Date Prepared	Date of Analysis	INIT/Method/Reference
Percent Solids	31466-008	69.5	0.1	%	12/26/18 1100	12/27/18 0900	RK /160.3 EPA 600/4/79/020
Arsenic, total	31466-008	9.48	0.2	ug/g dry wt	12/26/18 1300	12/28/18 1808	JLH/SW846 3rd Ed. 6020
Cadmium, total	31466-008	0.51	0.09	ug/g dry wt	12/26/18 1300	12/28/18 1808	JLH/SW846 3rd Ed. 6020
Chromium, total	31466-008	30.5	0.2	ug/g dry wt	12/26/18 1300	12/28/18 1808	JLH/SW846 3rd Ed. 6020
Copper, total	31466-008	38.5	0.5	ug/g dry wt	12/26/18 1300	12/28/18 1808	JLH/SW846 3rd Ed. 6020
Lead, total	31466-008	58.7	0.2	ug/g dry wt	12/26/18 1300	12/28/18 1808	JLH/SW846 3rd Ed. 6020
Mercury, total	31466-008	0.176	0.005	ug/g dry wt	12/26/18 1300	12/28/18 1050	JLH/EPA 245.7
Nickel, total	31466-008	15.3	0.5	ug/g dry wt	12/26/18 1300	12/28/18 1808	JLH/SW846 3rd Ed. 6020
Zinc, total	31466-008	195	2	ug/g dry wt	12/26/18 1300	12/28/18 1808	JLH/SW846 3rd Ed. 6020

Notes:

Report No: 31466 SDG:
Project: Yachting Solutions

Sample ID: YS-9
Matrix: Solid
Sampled: 12/20/18 1200

Parameter		Result	Quant Limit	Units	Date Prepared	Date of Analysis	INIT/Method/Reference
Percent Solids	31466-009	66.7	0.1	%	12/26/18 1100	12/27/18 0900	RK /160.3 EPA 600/4/79/020
Arsenic, total	31466-009	8.56	0.2	ug/g dry wt	12/26/18 1300	12/28/18 1814	JLH/SW846 3rd Ed. 6020
Cadmium, total	31466-009	0.72	0.08	ug/g dry wt	12/26/18 1300	12/28/18 1814	JLH/SW846 3rd Ed. 6020
Chromium, total	31466-009	43.7	0.2	ug/g dry wt	12/26/18 1300	12/28/18 1814	JLH/SW846 3rd Ed. 6020
Copper, total	31466-009	47.5	0.4	ug/g dry wt	12/26/18 1300	12/28/18 1814	JLH/SW846 3rd Ed. 6020
Lead, total	31466-009	142	0.2	ug/g dry wt	12/26/18 1300	12/28/18 1814	JLH/SW846 3rd Ed. 6020
Mercury, total	31466-009	0.332	0.004	ug/g dry wt	12/26/18 1300	12/28/18 1050	JLH/EPA 245.7
Nickel, total	31466-009	21.9	0.4	ug/g dry wt	12/26/18 1300	12/28/18 1814	JLH/SW846 3rd Ed. 6020
Zinc, total	31466-009	187	2	ug/g dry wt	12/26/18 1300	12/28/18 1814	JLH/SW846 3rd Ed. 6020

Notes:

Report No: 31466 SDG:
Project: Yachting Solutions

Sample ID: YS-10
Matrix: Solid
Sampled: 12/20/18 1200

Parameter		Result	Quant Limit	Units	Date Prepared	Date of Analysis	INIT/Method/Reference
Percent Solids	31466-010	53.2	0.1	%	12/26/18 1100	12/27/18 0900	RK /160.3 EPA 600/4/79/020
Arsenic, total	31466-010	17.4	0.3	ug/g dry wt	12/26/18 1300	12/28/18 1821	JLH/SW846 3rd Ed. 6020
Cadmium, total	31466-010	0.93	0.1	ug/g dry wt	12/26/18 1300	12/28/18 1821	JLH/SW846 3rd Ed. 6020
Chromium, total	31466-010	82.4	0.3	ug/g dry wt	12/26/18 1300	12/28/18 1821	JLH/SW846 3rd Ed. 6020
Copper, total	31466-010	60.6	0.6	ug/g dry wt	12/26/18 1300	12/28/18 1821	JLH/SW846 3rd Ed. 6020
Lead, total	31466-010	106	0.3	ug/g dry wt	12/26/18 1300	12/28/18 1821	JLH/SW846 3rd Ed. 6020
Mercury, total	31466-010	0.449	0.006	ug/g dry wt	12/26/18 1300	12/28/18 1050	JLH/EPA 245.7
Nickel, total	31466-010	30.3	0.6	ug/g dry wt	12/26/18 1300	12/28/18 1821	JLH/SW846 3rd Ed. 6020
Zinc, total	31466-010	208	2	ug/g dry wt	12/26/18 1300	12/28/18 1821	JLH/SW846 3rd Ed. 6020

Notes:

Report No: 31466 SDG:
Project: Yachting Solutions

Sample ID: YS-11
Matrix: Solid
Sampled: 12/20/18 1200

Parameter		Result	Quant Limit	Units	Date Prepared	Date of Analysis	INIT/Method/Reference
Percent Solids	31466-011	72.4	0.1	%	12/26/18 1100	12/27/18 0900	RK /160.3 EPA 600/4/79/020
Arsenic, total	31466-011	18.7	0.2	ug/g dry wt	12/26/18 1300	12/28/18 1827	JLH/SW846 3rd Ed. 6020
Cadmium, total	31466-011	0.095	0.09	ug/g dry wt	12/26/18 1300	12/28/18 1827	JLH/SW846 3rd Ed. 6020
Chromium, total	31466-011	49.7	0.2	ug/g dry wt	12/26/18 1300	12/28/18 1827	JLH/SW846 3rd Ed. 6020
Copper, total	31466-011	28.2	0.4	ug/g dry wt	12/26/18 1300	12/28/18 1827	JLH/SW846 3rd Ed. 6020
Lead, total	31466-011	14.8	0.2	ug/g dry wt	12/26/18 1300	12/28/18 1827	JLH/SW846 3rd Ed. 6020
Mercury, total	31466-011	0.014	0.004	ug/g dry wt	12/26/18 1300	12/28/18 1050	JLH/EPA 245.7
Nickel, total	31466-011	48.5	0.4	ug/g dry wt	12/26/18 1300	12/28/18 1827	JLH/SW846 3rd Ed. 6020
Zinc, total	31466-011	83.3	2	ug/g dry wt	12/26/18 1300	12/28/18 1827	JLH/SW846 3rd Ed. 6020

Notes:

Report No: 31466 SDG:
Project: Yachting Solutions

Sample ID: YS-12
Matrix: Solid
Sampled: 12/20/18 1200

Parameter		Result		Quant Limit	Units	Date Prepared	Date of Analysis	INIT/Method/Reference
Percent Solids	31466-012	73.4		0.1	%	12/26/18 1100	12/27/18 0900	RK /160.3 EPA 600/4/79/020
Arsenic, total	31466-012	18.2		0.2	ug/g dry wt	12/26/18 1300	12/28/18 1632	JLH/SW846 3rd Ed. 6020
Cadmium, total	31466-012	0.102		0.08	ug/g dry wt	12/26/18 1300	12/28/18 1632	JLH/SW846 3rd Ed. 6020
Chromium, total	31466-012	48.9		0.2	ug/g dry wt	12/26/18 1300	12/28/18 1632	JLH/SW846 3rd Ed. 6020
Copper, total	31466-012	29.1		0.4	ug/g dry wt	12/26/18 1300	12/28/18 1632	JLH/SW846 3rd Ed. 6020
Lead, total	31466-012	13.9		0.2	ug/g dry wt	12/26/18 1300	12/28/18 1632	JLH/SW846 3rd Ed. 6020
Mercury, total	31466-012	0.009		0.004	ug/g dry wt	12/26/18 1300	12/28/18 1050	JLH/EPA 245.7
Nickel, total	31466-012	49.2	J5	0.4	ug/g dry wt	12/26/18 1300	12/28/18 1632	JLH/SW846 3rd Ed. 6020
Zinc, total	31466-012	80.1		2	ug/g dry wt	12/26/18 1300	12/28/18 1632	JLH/SW846 3rd Ed. 6020

Notes:

J5 = MS %R below limit

Report No: 31466 SDG:
Project: Yachting Solutions

Sample ID: YS-13
Matrix: Solid
Sampled: 12/20/18 1600

Parameter		Result	Quant Limit	Units	Date Prepared	Date of Analysis	INIT/Method/Reference
Percent Solids	31466-013	64.1	0.1	%	12/26/18 1100	12/27/18 0900	RK /160.3 EPA 600/4/79/020
Arsenic, total	31466-013	24.1	0.2	ug/g dry wt	12/26/18 1300	12/28/18 1847	JLH/SW846 3rd Ed. 6020
Cadmium, total	31466-013	0.326	0.1	ug/g dry wt	12/26/18 1300	12/28/18 1847	JLH/SW846 3rd Ed. 6020
Chromium, total	31466-013	52.3	0.2	ug/g dry wt	12/26/18 1300	12/28/18 1847	JLH/SW846 3rd Ed. 6020
Copper, total	31466-013	47.4	0.5	ug/g dry wt	12/26/18 1300	12/28/18 1847	JLH/SW846 3rd Ed. 6020
Lead, total	31466-013	31.4	0.2	ug/g dry wt	12/26/18 1300	12/28/18 1847	JLH/SW846 3rd Ed. 6020
Mercury, total	31466-013	0.144	0.005	ug/g dry wt	12/26/18 1300	12/28/18 1050	JLH/EPA 245.7
Nickel, total	31466-013	36.1	0.5	ug/g dry wt	12/26/18 1300	12/28/18 1847	JLH/SW846 3rd Ed. 6020
Zinc, total	31466-013	108	2	ug/g dry wt	12/26/18 1300	12/28/18 1847	JLH/SW846 3rd Ed. 6020

Notes:

PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	31466-001
Sample Designation:	YS-1
Date Sampled:	12/19/18 1100
Date Extracted:	01/10/19 1130
Date Analyzed:	01/17/19
Matrix:	Solid
Moisture (%):	33
Sample Amount (g):	15
Final Volume (mL)	1.0
Dilution Factor:	5

Congener Number	PCB Congener	Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	1.0	U
18	2,2',5-trichlorobiphenyl	1.0	U
28	2,4,4'-trichlorobiphenyl	1.0	U
44	2,2',3,5'-tetrachlorobiphenyl	1.0	U
49	2,2',4,5'-tetrachlorobiphenyl	3.3	B
52	2,2',5,5'-tetrachlorobiphenyl	1.0	U
66	2,3',4,4'-tetrachlorobiphenyl	1.0	U
77	3,3',4,4'-tetrachlorobiphenyl	1.0	U
87	2,2',3,4,5'-pentachlorobiphenyl	1.4	B
101	2,2',4,5,5'-pentachlorobiphenyl	1.0	U
105	2,3,3',4,4'-pentachlorobiphenyl	1.0	U
118	2,3',4,4',5-pentachlorobiphenyl	1.0	U
126	3,3',4,4',5-pentachlorobiphenyl	1.0	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	1.0	U
138	2,2',3,4,4',5'-hexachlorobiphenyl	1.0	U
153	2,2',4,4',5,5'-hexachlorobiphenyl	1.0	U
156	2,3,3',4,4',5-hexachlorobiphenyl		
169	3,3',4,4',5,5'-hexachlorobiphenyl		
170	2,2',3,3',4,4',5-heptachlorobiphenyl	1.0	U
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	1.0	U
183	2,2',3,4,4',5',6-heptachlorobiphenyl	1.1	
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	1.0	U,B
187	2,2',3,4',5,5',6-heptachlorobiphenyl	1.0	U, J7
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	1.0	U
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	1.0	U
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	1.0	U

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	86	30 - 150

U = Not detected at value reported
B = Compound was found in the blank.
J7 = MSD %RR above limit.

PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	31466-002
Sample Designation:	YS-2
Date Sampled:	12/19/18 1100
Date Extracted:	01/10/19 1130
Date Analyzed:	01/16/19
Matrix:	Solid
Moisture (%):	26
Sample Amount (g):	13
Final Volume (mL)	1.0
Dilution Factor:	1

Congener Number	PCB Congener	Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	1.0	U
18	2,2',5-trichlorobiphenyl	1.0	U
28	2,4,4'-trichlorobiphenyl	1.0	U
44	2,2',3,5'-tetrachlorobiphenyl	1.0	U
49	2,2',4,5'-tetrachlorobiphenyl	1.1	B
52	2,2',5,5'-tetrachlorobiphenyl	1.0	U
66	2,3',4,4'-tetrachlorobiphenyl	1.0	U
77	3,3',4,4'-tetrachlorobiphenyl	1.0	U
87	2,2',3,4,5'-pentachlorobiphenyl	1.0	U, B
101	2,2',4,5,5'-pentachlorobiphenyl	1.0	U
105	2,3,3',4,4'-pentachlorobiphenyl	1.0	U
118	2,3',4,4',5-pentachlorobiphenyl	1.0	U
126	3,3',4,4',5-pentachlorobiphenyl	1.0	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	1.0	U
138	2,2',3,4,4',5'-hexachlorobiphenyl	1.0	U
153	2,2',4,4',5,5'-hexachlorobiphenyl	1.0	U
156	2,3,3',4,4',5-hexachlorobiphenyl		
169	3,3',4,4',5,5'-hexachlorobiphenyl		
170	2,2',3,3',4,4',5-heptachlorobiphenyl	1.0	U
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	1.0	U
183	2,2',3,4,4',5',6-heptachlorobiphenyl	1.0	U
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	1.0	U,B
187	2,2',3,4',5,5',6-heptachlorobiphenyl	1.0	U
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	1.0	U
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	1.0	U
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	1.0	U

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	76	30 - 150

U = Not detected at value reported
B = Compound was found in the blank.

PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	31466-003
Sample Designation:	YS-3
Date Sampled:	12/19/18 1100
Date Extracted:	01/10/19 1130
Date Analyzed:	01/16/19
Matrix:	Solid
Moisture (%):	27
Sample Amount (g):	14
Final Volume (mL)	1.0
Dilution Factor:	1

Congener Number	PCB Congener	Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	0.97	U
18	2,2',5-trichlorobiphenyl	0.97	U
28	2,4,4'-trichlorobiphenyl	0.97	U
44	2,2',3,5'-tetrachlorobiphenyl	0.97	U
49	2,2',4,5'-tetrachlorobiphenyl	0.97	U,B
52	2,2',5,5'-tetrachlorobiphenyl	0.97	U
66	2,3',4,4'-tetrachlorobiphenyl	0.97	U
77	3,3',4,4'-tetrachlorobiphenyl	0.97	U
87	2,2',3,4,5'-pentachlorobiphenyl	0.97	U,B
101	2,2',4,5,5'-pentachlorobiphenyl	0.97	U
105	2,3,3',4,4'-pentachlorobiphenyl	0.97	U
118	2,3',4,4',5-pentachlorobiphenyl	0.97	U
126	3,3',4,4',5-pentachlorobiphenyl	0.97	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	0.97	U
138	2,2',3,4,4',5'-hexachlorobiphenyl	0.97	U
153	2,2',4,4',5,5'-hexachlorobiphenyl	0.97	U
156	2,3,3',4,4',5-hexachlorobiphenyl		
169	3,3',4,4',5,5'-hexachlorobiphenyl		
170	2,2',3,3',4,4',5-heptachlorobiphenyl	0.97	U
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	0.97	U
183	2,2',3,4,4',5',6-heptachlorobiphenyl	0.97	U
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	0.97	U,B
187	2,2',3,4',5,5',6-heptachlorobiphenyl	0.97	U
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	0.97	U
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	0.97	U
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	0.97	U

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	62	30 - 150

U = Not detected at value reported
B = Compound was found in the blank.

PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	31466-004
Sample Designation:	YS-4
Date Sampled:	12/19/18 1100
Date Extracted:	01/10/19 1130
Date Analyzed:	01/16/19
Matrix:	Solid
Moisture (%):	55
Sample Amount (g):	22
Final Volume (mL)	1.0
Dilution Factor:	1

Congener Number	PCB Congener	Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	1.0	U
18	2,2',5-trichlorobiphenyl	1.0	U
28	2,4,4'-trichlorobiphenyl	1.0	U
44	2,2',3,5'-tetrachlorobiphenyl	1.0	U
49	2,2',4,5'-tetrachlorobiphenyl	1.0	U.B
52	2,2',5,5'-tetrachlorobiphenyl	1.0	U
66	2,3',4,4'-tetrachlorobiphenyl	1.0	U
77	3,3',4,4'-tetrachlorobiphenyl	1.0	U
87	2,2',3,4,5'-pentachlorobiphenyl	1.0	U,B
101	2,2',4,5,5'-pentachlorobiphenyl	1.0	U
105	2,3,3',4,4'-pentachlorobiphenyl	1.0	U
118	2,3',4,4',5-pentachlorobiphenyl	1.0	U
126	3,3',4,4',5-pentachlorobiphenyl	1.0	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	1.0	U
138	2,2',3,4,4',5'-hexachlorobiphenyl	1.0	U
153	2,2',4,4',5,5'-hexachlorobiphenyl	1.1	
156	2,3,3',4,4',5-hexachlorobiphenyl		
169	3,3',4,4',5,5'-hexachlorobiphenyl		
170	2,2',3,3',4,4',5-heptachlorobiphenyl	1.0	U
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	1.0	U
183	2,2',3,4,4',5',6-heptachlorobiphenyl	1.0	U
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	1.0	U,B
187	2,2',3,4',5,5',6-heptachlorobiphenyl	1.0	U
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	1.0	U
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	1.0	U
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	1.0	U

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	69	30 - 150

U = Not detected at value reported
B = Compound was found in the blank.

PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	31466-005
Sample Designation:	YS-5
Date Sampled:	12/19/18 1100
Date Extracted:	01/10/19 1130
Date Analyzed:	01/16/19
Matrix:	Solid
Moisture (%):	40
Sample Amount (g):	17
Final Volume (mL)	1.0
Dilution Factor:	1

Congener Number	PCB Congener	Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	1.0	U
18	2,2',5-trichlorobiphenyl	1.0	U
28	2,4,4'-trichlorobiphenyl	1.0	U
44	2,2',3,5'-tetrachlorobiphenyl	1.0	U
49	2,2',4,5'-tetrachlorobiphenyl	1.0	U,B
52	2,2',5,5'-tetrachlorobiphenyl	1.4	
66	2,3',4,4'-tetrachlorobiphenyl	1.0	U
77	3,3',4,4'-tetrachlorobiphenyl	1.0	U
87	2,2',3,4,5'-pentachlorobiphenyl	1.7	B
101	2,2',4,5,5'-pentachlorobiphenyl	3.4	
105	2,3,3',4,4'-pentachlorobiphenyl	1.8	
118	2,3',4,4',5-pentachlorobiphenyl	3.5	
126	3,3',4,4',5-pentachlorobiphenyl	1.0	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	1.0	U
138	2,2',3,4,4',5'-hexachlorobiphenyl	3.1	
153	2,2',4,4',5,5'-hexachlorobiphenyl	3.5	
156	2,3,3',4,4',5-hexachlorobiphenyl		
169	3,3',4,4',5,5'-hexachlorobiphenyl		
170	2,2',3,3',4,4',5-heptachlorobiphenyl	1.0	U
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	1.4	
183	2,2',3,4,4',5',6-heptachlorobiphenyl	1.0	U
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	1.0	U,B
187	2,2',3,4',5,5',6-heptachlorobiphenyl	1.0	U
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	1.0	U
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	1.0	U
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	1.0	U

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	49	30 - 150

U = Not detected at value reported
B = Compound was found in the blank.

PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	31466-006
Sample Designation:	YS-6
Date Sampled:	12/19/18 1100
Date Extracted:	01/10/19 1130
Date Analyzed:	01/16/19
Matrix:	Solid
Moisture (%):	30
Sample Amount (g):	14
Final Volume (mL)	1.0
Dilution Factor:	1

Congener Number	PCB Congener	Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	1.0	U
18	2,2',5-trichlorobiphenyl	1.0	U
28	2,4,4'-trichlorobiphenyl	1.0	U
44	2,2',3,5'-tetrachlorobiphenyl	1.0	U
49	2,2',4,5'-tetrachlorobiphenyl	1.0	U,B
52	2,2',5,5'-tetrachlorobiphenyl	1.0	U
66	2,3',4,4'-tetrachlorobiphenyl	1.0	U
77	3,3',4,4'-tetrachlorobiphenyl	1.0	U
87	2,2',3,4,5'-pentachlorobiphenyl	1.0	U,B
101	2,2',4,5,5'-pentachlorobiphenyl	1.4	
105	2,3,3',4,4'-pentachlorobiphenyl	1.0	U
118	2,3',4,4',5-pentachlorobiphenyl	1.1	
126	3,3',4,4',5-pentachlorobiphenyl	1.0	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	1.0	U
138	2,2',3,4,4',5'-hexachlorobiphenyl	1.0	
153	2,2',4,4',5,5'-hexachlorobiphenyl	1.1	
156	2,3,3',4,4',5-hexachlorobiphenyl		
169	3,3',4,4',5,5'-hexachlorobiphenyl		
170	2,2',3,3',4,4',5-heptachlorobiphenyl	1.0	U
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	1.0	U
183	2,2',3,4,4',5',6-heptachlorobiphenyl	1.0	U
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	1.0	U,B
187	2,2',3,4',5,5',6-heptachlorobiphenyl	1.0	U
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	1.0	U
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	1.0	U
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	1.0	U

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	69	30 - 150

U = Not detected at value reported
B = Compound was found in the blank.

PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	31466-007
Sample Designation:	YS-7
Date Sampled:	12/19/18 1600
Date Extracted:	01/10/19 1130
Date Analyzed:	01/17/19
Matrix:	Solid
Moisture (%):	37
Sample Amount (g):	16
Final Volume (mL)	1.0
Dilution Factor:	5

Congener Number	PCB Congener	Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	1.0	U
18	2,2',5-trichlorobiphenyl	1.0	U
28	2,4,4'-trichlorobiphenyl	1.0	U
44	2,2',3,5'-tetrachlorobiphenyl	1.0	U
49	2,2',4,5'-tetrachlorobiphenyl	1.0	U,B
52	2,2',5,5'-tetrachlorobiphenyl	1.0	U
66	2,3',4,4'-tetrachlorobiphenyl	1.0	U
77	3,3',4,4'-tetrachlorobiphenyl	1.0	U
87	2,2',3,4,5'-pentachlorobiphenyl	1.0	U,B
101	2,2',4,5,5'-pentachlorobiphenyl	1.0	U
105	2,3,3',4,4'-pentachlorobiphenyl	1.0	U
118	2,3',4,4',5-pentachlorobiphenyl	1.0	U
126	3,3',4,4',5-pentachlorobiphenyl	1.0	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	1.0	U
138	2,2',3,4,4',5'-hexachlorobiphenyl	1.4	
153	2,2',4,4',5,5'-hexachlorobiphenyl	1.0	U
156	2,3,3',4,4',5-hexachlorobiphenyl		
169	3,3',4,4',5,5'-hexachlorobiphenyl		
170	2,2',3,3',4,4',5-heptachlorobiphenyl	1.0	U
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	1.0	U
183	2,2',3,4,4',5',6-heptachlorobiphenyl	1.0	U
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	1.0	U,B
187	2,2',3,4',5,5',6-heptachlorobiphenyl	1.0	U
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	1.0	U
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	1.0	U
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	1.0	U

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	87	30 - 150

U = Not detected at value reported
B = Compound was found in the blank.

PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	31466-008
Sample Designation:	YS-8
Date Sampled:	12/20/18 1200
Date Extracted:	01/10/19 1130
Date Analyzed:	01/17/19
Matrix:	Solid
Moisture (%):	31
Sample Amount (g):	14
Final Volume (mL)	1.0
Dilution Factor:	5

Congener Number	PCB Congener	Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	1.0	U
18	2,2',5-trichlorobiphenyl	1.0	U
28	2,4,4'-trichlorobiphenyl	1.0	U
44	2,2',3,5'-tetrachlorobiphenyl	1.0	U
49	2,2',4,5'-tetrachlorobiphenyl	1.0	U,B
52	2,2',5,5'-tetrachlorobiphenyl	1.0	U
66	2,3',4,4'-tetrachlorobiphenyl	1.0	U
77	3,3',4,4'-tetrachlorobiphenyl	1.0	U
87	2,2',3,4,5'-pentachlorobiphenyl	1.0	U,B
101	2,2',4,5,5'-pentachlorobiphenyl	1.4	
105	2,3,3',4,4'-pentachlorobiphenyl	1.0	U
118	2,3',4,4',5-pentachlorobiphenyl	1.2	
126	3,3',4,4',5-pentachlorobiphenyl	1.0	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	1.0	U
138	2,2',3,4,4',5'-hexachlorobiphenyl	2.2	
153	2,2',4,4',5,5'-hexachlorobiphenyl	1.7	
156	2,3,3',4,4',5-hexachlorobiphenyl		
169	3,3',4,4',5,5'-hexachlorobiphenyl		
170	2,2',3,3',4,4',5-heptachlorobiphenyl	1.0	U
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	2.4	
183	2,2',3,4,4',5',6-heptachlorobiphenyl	1.0	U
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	1.0	U,B
187	2,2',3,4',5,5',6-heptachlorobiphenyl	1.3	
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	1.0	U
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	1.5	
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	1.0	U

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	71	30 - 150

U = Not detected at value reported
B = Compound was found in the blank.

PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	31466-009
Sample Designation:	YS-9
Date Sampled:	12/20/18 1200
Date Extracted:	01/10/19 1130
Date Analyzed:	01/17/19
Matrix:	Solid
Moisture (%):	33
Sample Amount (g):	15
Final Volume (mL)	1.0
Dilution Factor:	5

Congener Number	PCB Congener	Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	1.0	U
18	2,2',5-trichlorobiphenyl	1.0	U
28	2,4,4'-trichlorobiphenyl	1.0	U
44	2,2',3,5'-tetrachlorobiphenyl	1.3	
49	2,2',4,5'-tetrachlorobiphenyl	1.2	B
52	2,2',5,5'-tetrachlorobiphenyl	2.5	
66	2,3',4,4'-tetrachlorobiphenyl	1.2	
77	3,3',4,4'-tetrachlorobiphenyl	1.0	U
87	2,2',3,4,5'-pentachlorobiphenyl	2.8	B
101	2,2',4,5,5'-pentachlorobiphenyl	5.6	
105	2,3,3',4,4'-pentachlorobiphenyl	1.5	
118	2,3',4,4',5-pentachlorobiphenyl	3.9	
126	3,3',4,4',5-pentachlorobiphenyl	1.0	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	2.1	
138	2,2',3,4,4',5'-hexachlorobiphenyl	8.7	
153	2,2',4,4',5,5'-hexachlorobiphenyl	3.7	
156	2,3,3',4,4',5-hexachlorobiphenyl		
169	3,3',4,4',5,5'-hexachlorobiphenyl		
170	2,2',3,3',4,4',5-heptachlorobiphenyl	1.8	
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	3.3	
183	2,2',3,4,4',5',6-heptachlorobiphenyl	1.2	
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	1.0	U,B
187	2,2',3,4',5,5',6-heptachlorobiphenyl	1.4	
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	1.0	U
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	1.0	U
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	1.0	U

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	87	30 - 150

U = Not detected at value reported
B = Compound was found in the blank.

PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	31466-010
Sample Designation:	YS-10
Date Sampled:	12/20/18 1200
Date Extracted:	01/10/19 1130
Date Analyzed:	01/16/19
Matrix:	Solid
Moisture (%):	47
Sample Amount (g):	19
Final Volume (mL)	1.0
Dilution Factor:	1

Congener Number	PCB Congener	Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	1.0	U
18	2,2',5-trichlorobiphenyl	1.0	U
28	2,4,4'-trichlorobiphenyl	1.0	U
44	2,2',3,5'-tetrachlorobiphenyl	2.2	
49	2,2',4,5'-tetrachlorobiphenyl	1.8	B
52	2,2',5,5'-tetrachlorobiphenyl	7.4	
66	2,3',4,4'-tetrachlorobiphenyl	1.8	
77	3,3',4,4'-tetrachlorobiphenyl	1.0	U
87	2,2',3,4,5'-pentachlorobiphenyl	4.3	B
101	2,2',4,5,5'-pentachlorobiphenyl	8.6	
105	2,3,3',4,4'-pentachlorobiphenyl	3.7	
118	2,3',4,4',5-pentachlorobiphenyl	8.3	
126	3,3',4,4',5-pentachlorobiphenyl	1.0	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	2.0	
138	2,2',3,4,4',5'-hexachlorobiphenyl	7.9	
153	2,2',4,4',5,5'-hexachlorobiphenyl	7.5	
156	2,3,3',4,4',5-hexachlorobiphenyl		
169	3,3',4,4',5,5'-hexachlorobiphenyl		
170	2,2',3,3',4,4',5-heptachlorobiphenyl	1.7	
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	3.3	
183	2,2',3,4,4',5',6-heptachlorobiphenyl	1.0	
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	1.0	U,B
187	2,2',3,4',5,5',6-heptachlorobiphenyl	1.6	
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	1.0	U
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	1.0	U
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	1.0	U

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	60	30 - 150

U = Not detected at value reported
B = Compound was found in the blank.

PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	31466-011
Sample Designation:	YS-11
Date Sampled:	12/20/18 1200
Date Extracted:	01/10/19 1130
Date Analyzed:	01/16/19
Matrix:	Solid
Moisture (%):	28
Sample Amount (g):	14
Final Volume (mL)	1.0
Dilution Factor:	1

Congener Number	PCB Congener	Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	1.0	U
18	2,2',5-trichlorobiphenyl	1.0	U
28	2,4,4'-trichlorobiphenyl	1.0	U
44	2,2',3,5'-tetrachlorobiphenyl	1.0	U
49	2,2',4,5'-tetrachlorobiphenyl	1.0	U,B
52	2,2',5,5'-tetrachlorobiphenyl	1.0	U
66	2,3',4,4'-tetrachlorobiphenyl	1.0	U
77	3,3',4,4'-tetrachlorobiphenyl	1.0	U
87	2,2',3,4,5'-pentachlorobiphenyl	1.0	U,B
101	2,2',4,5,5'-pentachlorobiphenyl	1.0	U
105	2,3,3',4,4'-pentachlorobiphenyl	1.0	U
118	2,3',4,4',5-pentachlorobiphenyl	1.0	U
126	3,3',4,4',5-pentachlorobiphenyl	1.0	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	1.0	U
138	2,2',3,4,4',5'-hexachlorobiphenyl	1.0	U
153	2,2',4,4',5,5'-hexachlorobiphenyl	1.0	U
156	2,3,3',4,4',5-hexachlorobiphenyl		
169	3,3',4,4',5,5'-hexachlorobiphenyl		
170	2,2',3,3',4,4',5-heptachlorobiphenyl	1.0	U
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	1.0	U
183	2,2',3,4,4',5',6-heptachlorobiphenyl	1.0	U
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	1.0	U,B
187	2,2',3,4',5,5',6-heptachlorobiphenyl	1.0	U
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	1.0	U
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	1.0	U
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	1.0	U

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	56	30 - 150

U = Not detected at value reported
B = Compound was found in the blank.

PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	31466-012
Sample Designation:	YS-12
Date Sampled:	12/20/18 1200
Date Extracted:	01/10/19 1130
Date Analyzed:	01/16/19
Matrix:	Solid
Moisture (%):	27
Sample Amount (g):	14
Final Volume (mL)	1.0
Dilution Factor:	1

Congener Number	PCB Congener	Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	1.0	U
18	2,2',5-trichlorobiphenyl	1.0	U
28	2,4,4'-trichlorobiphenyl	1.0	U
44	2,2',3,5'-tetrachlorobiphenyl	1.0	U
49	2,2',4,5'-tetrachlorobiphenyl	1.0	U,B
52	2,2',5,5'-tetrachlorobiphenyl	1.0	U
66	2,3',4,4'-tetrachlorobiphenyl	1.0	U
77	3,3',4,4'-tetrachlorobiphenyl	1.0	U
87	2,2',3,4,5'-pentachlorobiphenyl	1.0	U,B
101	2,2',4,5,5'-pentachlorobiphenyl	1.0	U
105	2,3,3',4,4'-pentachlorobiphenyl	1.0	U
118	2,3',4,4',5-pentachlorobiphenyl	1.0	U
126	3,3',4,4',5-pentachlorobiphenyl	1.0	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	1.0	U
138	2,2',3,4,4',5'-hexachlorobiphenyl	1.0	U
153	2,2',4,4',5,5'-hexachlorobiphenyl	1.0	U
156	2,3,3',4,4',5-hexachlorobiphenyl		
169	3,3',4,4',5,5'-hexachlorobiphenyl		
170	2,2',3,3',4,4',5-heptachlorobiphenyl	1.0	U
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	1.0	U
183	2,2',3,4,4',5',6-heptachlorobiphenyl	1.0	U
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	1.0	U,B
187	2,2',3,4',5,5',6-heptachlorobiphenyl	1.0	U
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	1.0	U
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	1.0	U
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	1.0	U

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	63	30 - 150

U = Not detected at value reported
B = Compound was found in the blank.

PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	31466-013
Sample Designation:	YS-13
Date Sampled:	12/20/18 1600
Date Extracted:	01/10/19 1130
Date Analyzed:	01/17/19
Matrix:	Solid
Moisture (%):	36
Sample Amount (g):	16
Final Volume (mL)	1.0
Dilution Factor:	5

Congener Number	PCB Congener	Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	1.0	U
18	2,2',5-trichlorobiphenyl	1.0	U
28	2,4,4'-trichlorobiphenyl	1.0	U
44	2,2',3,5'-tetrachlorobiphenyl	1.0	U
49	2,2',4,5'-tetrachlorobiphenyl	1.0	U,B
52	2,2',5,5'-tetrachlorobiphenyl	1.0	U
66	2,3',4,4'-tetrachlorobiphenyl	1.0	U
77	3,3',4,4'-tetrachlorobiphenyl	1.0	U
87	2,2',3,4,5'-pentachlorobiphenyl	8.4	B
101	2,2',4,5,5'-pentachlorobiphenyl	1.2	
105	2,3,3',4,4'-pentachlorobiphenyl	18	
118	2,3',4,4',5-pentachlorobiphenyl	1.1	
126	3,3',4,4',5-pentachlorobiphenyl	1.0	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	1.0	U
138	2,2',3,4,4',5'-hexachlorobiphenyl	1.6	
153	2,2',4,4',5,5'-hexachlorobiphenyl	1.2	
156	2,3,3',4,4',5-hexachlorobiphenyl		
169	3,3',4,4',5,5'-hexachlorobiphenyl		
170	2,2',3,3',4,4',5-heptachlorobiphenyl	1.0	U
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	1.0	U
183	2,2',3,4,4',5',6-heptachlorobiphenyl	1.0	U
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	1.0	U,B
187	2,2',3,4',5,5',6-heptachlorobiphenyl	1.0	U
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	1.0	U
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	1.0	U
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	1.0	U

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	81	30 - 150

U = Not detected at value reported
B = Compound was found in the blank.

Polynuclear Aromatic Hydrocarbons in Sediment
SW 846 8270/EPA 680 modified

Lab Number:	31466-001
Sample Designation:	YS-1
Date Sampled:	12/19/18 1100
Date Extracted:	01/14/19 1100
Date Analyzed:	01/16/19
Matrix:	Solid
Moisture (%):	33
Sample Amount (g):	15.0
Final Volume (mL)	1.00
Dilution Factor:	1

Compound	Concentration (ug/Kg)	Qualifier
naphthalene	9	J
acenaphthylene	13	
acenaphthene	8	J
fluorene	19	
phenanthrene	181	B
anthracene	50	
fluoranthene	203	
pyrene	202	
benzo[a]anthracene	142	
chrysene	115	
benzo[b]fluoranthene	80	
benzo[k]fluoranthene	76	
benzo[a]pyrene	101	
indeno[1,2,3-cd]pyrene	47	
dibenz[a,h]anthracene	24	
benzo[g,h,i]perylene	47	

Surrogate Standards	Recovery (%)	Advisory Limits (%)
2-fluorobiphenyl	31	30 - 150
o-terphenyl	91	30 - 150

U = Not detected at the reporting limit.
B = Compound found in the blank at a concentration of 14 ug/Kg.
J = Below reporting limit, but above MDL.

Polynuclear Aromatic Hydrocarbons in Sediment
SW 846 8270/EPA 680 modified

Lab Number:	31466-002
Sample Designation:	YS-2
Date Sampled:	12/19/18 1100
Date Extracted:	01/14/19 1100
Date Analyzed:	01/15/19
Matrix:	Solid
Moisture (%):	26
Sample Amount (g):	13.0
Final Volume (mL)	1.00
Dilution Factor:	1

Compound	Concentration (ug/Kg)	Qualifier
naphthalene	30	
acenaphthylene	17	
acenaphthene	60	
fluorene	85	
phenanthrene	671	B
anthracene	180	
fluoranthene	648	
pyrene	583	
benzo[a]anthracene	330	
chrysene	255	
benzo[b]fluoranthene	178	
benzo[k]fluoranthene	199	
benzo[a]pyrene	229	
indeno[1,2,3-cd]pyrene	175	
dibenz[a,h]anthracene	79	
benzo[g,h,i]perylene	164	

Surrogate Standards	Recovery (%)	Advisory Limits (%)
2-fluorobiphenyl	43	30 - 150
o-terphenyl	102	30 - 150

U = Not detected at the reporting limit.
B = Compound found in the blank at a concentration of 14 ug/Kg.

Polynuclear Aromatic Hydrocarbons in Sediment
SW 846 8270/EPA 680 modified

Lab Number:	31466-003
Sample Designation:	YS-3
Date Sampled:	12/19/18 1100
Date Extracted:	01/14/19 1100
Date Analyzed:	01/16/19
Matrix:	Solid
Moisture (%):	27
Sample Amount (g):	14.0
Final Volume (mL)	1.00
Dilution Factor:	2

Compound	Concentration (ug/Kg)	Qualifier
naphthalene	19	J
acenaphthylene	42	
acenaphthene	14	J
fluorene	41	
phenanthrene	444	B
anthracene	93	
fluoranthene	549	
pyrene	551	
benzo[a]anthracene	336	
chrysene	292	
benzo[b]fluoranthene	229	
benzo[k]fluoranthene	189	
benzo[a]pyrene	241	
indeno[1,2,3-cd]pyrene	107	
dibenz[a,h]anthracene	53	
benzo[g,h,i]perylene	102	

Surrogate Standards	Recovery (%)	Advisory Limits (%)
2-fluorobiphenyl	37	30 - 150
o-terphenyl	89	30 - 150

U = Not detected at the reporting limit.
B = Compound found in the blank at a concentration of 14 ug/Kg.
J = Below reporting limit, but above MDL.

Polynuclear Aromatic Hydrocarbons in Sediment
SW 846 8270/EPA 680 modified

Lab Number:	31466-004
Sample Designation:	YS-4
Date Sampled:	12/19/18 1100
Date Extracted:	01/14/19 1100
Date Analyzed:	01/16/19
Matrix:	Solid
Moisture (%):	55
Sample Amount (g):	22.0
Final Volume (mL)	1.00
Dilution Factor:	2

Compound	Concentration (ug/Kg)	Qualifier
naphthalene	17	J
acenaphthylene	39	
acenaphthene	15	J
fluorene	36	
phenanthrene	354	B
anthracene	89	
fluoranthene	478	
pyrene	492	
benzo[a]anthracene	337	
chrysene	288	
benzo[b]fluoranthene	245	
benzo[k]fluoranthene	279	
benzo[a]pyrene	277	
indeno[1,2,3-cd]pyrene	98	
dibenz[a,h]anthracene	51	
benzo[g,h,i]perylene	91	

Surrogate Standards	Recovery (%)	Advisory Limits (%)
2-fluorobiphenyl	29,J17	30 - 150
o-terphenyl	67	30 - 150

U = Not detected at the reporting limit.
B = Compound found in the blank at a concentration of 14 ug/Kg.
J = Below reporting limit, but above MDL.
J17 = Surrogate %R below limit.

Polynuclear Aromatic Hydrocarbons in Sediment
SW 846 8270/EPA 680 modified

Lab Number:	31466-005
Sample Designation:	YS-5
Date Sampled:	12/19/18 1100
Date Extracted:	01/14/19 1100
Date Analyzed:	01/16/19
Matrix:	Solid
Moisture (%):	40
Sample Amount (g):	17.0
Final Volume (mL)	1.00
Dilution Factor:	2

Compound	Concentration (ug/Kg)	Qualifier
naphthalene	28	
acenaphthylene	87	
acenaphthene	25	
fluorene	71	
phenanthrene	695	B
anthracene	169	
fluoranthene	1030	
pyrene	1060	
benzo[a]anthracene	670	
chrysene	604	
benzo[b]fluoranthene	578	
benzo[k]fluoranthene	608	
benzo[a]pyrene	557	
indeno[1,2,3-cd]pyrene	167	
dibenz[a,h]anthracene	90	
benzo[g,h,i]perylene	156	

Surrogate Standards	Recovery (%)	Advisory Limits (%)
2-fluorobiphenyl	24, J17	30 - 150
o-terphenyl	69	30 - 150

U = Not detected at the reporting limit.
B = Compound found in the blank at a concentration of 14 ug/Kg.
J17 = Surrogate %R below limit.

Polynuclear Aromatic Hydrocarbons in Sediment
SW 846 8270/EPA 680 modified

Lab Number:	31466-006
Sample Designation:	YS-6
Date Sampled:	12/19/18 1100
Date Extracted:	01/14/19 1100
Date Analyzed:	01/16/19
Matrix:	Solid
Moisture (%):	30
Sample Amount (g):	14.0
Final Volume (mL)	1.00
Dilution Factor:	1

Compound	Concentration (ug/Kg)	Qualifier
naphthalene	6	J
acenaphthylene	13	
acenaphthene	10	U
fluorene	11	
phenanthrene	120	B
anthracene	29	
fluoranthene	188	J8
pyrene	181	
benzo[a]anthracene	127	
chrysene	106	
benzo[b]fluoranthene	116	
benzo[k]fluoranthene	81	
benzo[a]pyrene	97	
indeno[1,2,3-cd]pyrene	31	
dibenz[a,h]anthracene	18	
benzo[g,h,i]perylene	26	

Surrogate Standards	Recovery (%)	Advisory Limits (%)
2-fluorobiphenyl	35	30 - 150
o-terphenyl	83	30 - 150

U = Not detected at the reporting limit.
B = Compound found in the blank at a concentration of 14 ug/Kg.
J = Below reporting limit, but above MDL.
J8 = Duplicate %RR above limit.

Polynuclear Aromatic Hydrocarbons in Sediment
SW 846 8270/EPA 680 modified

Lab Number:	31466-007
Sample Designation:	YS-7
Date Sampled:	12/19/18 1600
Date Extracted:	01/14/19 1100
Date Analyzed:	01/16/19
Matrix:	Solid
Moisture (%):	37
Sample Amount (g):	16.0
Final Volume (mL)	1.00
Dilution Factor:	2

Compound	Concentration (ug/Kg)	Qualifier
naphthalene	25	
acenaphthylene	59	
acenaphthene	17	J
fluorene	49	
phenanthrene	524	B
anthracene	119	
fluoranthene	46	
pyrene	785	
benzo[a]anthracene	495	
chrysene	436	
benzo[b]fluoranthene	513	
benzo[k]fluoranthene	387	
benzo[a]pyrene	426	
indeno[1,2,3-cd]pyrene	124	
dibenz[a,h]anthracene	62	
benzo[g,h,i]perylene	111	

Surrogate Standards	Recovery (%)	Advisory Limits (%)
2-fluorobiphenyl	30	30 - 150
o-terphenyl	86	30 - 150

U = Not detected at the reporting limit.
B = Compound found in the blank at a concentration of 14 ug/Kg.
J = Below reporting limit, but above MDL.

Polynuclear Aromatic Hydrocarbons in Sediment
SW 846 8270/EPA 680 modified

Lab Number:	31466-008
Sample Designation:	YS-8
Date Sampled:	12/20/18 1200
Date Extracted:	01/14/19 1100
Date Analyzed:	01/15/19
Matrix:	Solid
Moisture (%):	31
Sample Amount (g):	14.0
Final Volume (mL)	1.00
Dilution Factor:	5

Compound	Concentration (ug/Kg)	Qualifier
naphthalene	73	
acenaphthylene	215	
acenaphthene	80	
fluorene	188	
phenanthrene	1720	B
anthracene	407	
fluoranthene	2450	
pyrene	2960	
benzo[a]anthracene	1530	
chrysene	1310	
benzo[b]fluoranthene	968	
benzo[k]fluoranthene	1070	
benzo[a]pyrene	1190	
indeno[1,2,3-cd]pyrene	912	
dibenz[a,h]anthracene	309	
benzo[g,h,i]perylene	940	

Surrogate Standards	Recovery (%)	Advisory Limits (%)
2-fluorobiphenyl	50	30 - 150
o-terphenyl	129	30 - 150

U = Not detected at the reporting limit.
B = Compound found in the blank at a concentration of 14 ug/Kg.

Polynuclear Aromatic Hydrocarbons in Sediment
SW 846 8270/EPA 680 modified

Lab Number:	31466-009
Sample Designation:	YS-9
Date Sampled:	12/20/18 1200
Date Extracted:	01/14/19 1100
Date Analyzed:	01/16/19
Matrix:	Solid
Moisture (%):	33
Sample Amount (g):	15.0
Final Volume (mL)	1.00
Dilution Factor:	5

Compound	Concentration (ug/Kg)	Qualifier
naphthalene	145	
acenaphthylene	320	
acenaphthene	155	
fluorene	296	
phenanthrene	2680	B
anthracene	633	
fluoranthene	3560	
pyrene	3870	
benzo[a]anthracene	2240	
chrysene	2070	
benzo[b]fluoranthene	2410	
benzo[k]fluoranthene	1760	
benzo[a]pyrene	1930	
indeno[1,2,3-cd]pyrene	523	
dibenz[a,h]anthracene	285	
benzo[g,h,i]perylene	492	

Surrogate Standards	Recovery (%)	Advisory Limits (%)
2-fluorobiphenyl	55	30 - 150
o-terphenyl	102	30 - 150

U = Not detected at the reporting limit.
B = Compound found in the blank at a concentration of 14 ug/Kg.

Polynuclear Aromatic Hydrocarbons in Sediment
SW 846 8270/EPA 680 modified

Lab Number:	31466-010
Sample Designation:	YS-10
Date Sampled:	12/20/18 1200
Date Extracted:	01/14/19 1100
Date Analyzed:	01/16/19
Matrix:	Solid
Moisture (%):	47
Sample Amount (g):	19.0
Final Volume (mL)	1.00
Dilution Factor:	5

Compound	Concentration (ug/Kg)	Qualifier
naphthalene	61	
acenaphthylene	154	
acenaphthene	54	
fluorene	120	
phenanthrene	1140	B
anthracene	286	
fluoranthene	1790	
pyrene	1860	
benzo[a]anthracene	1150	
chrysene	985	
benzo[b]fluoranthene	1180	
benzo[k]fluoranthene	904	
benzo[a]pyrene	968	
indeno[1,2,3-cd]pyrene	278	
dibenz[a,h]anthracene	147	
benzo[g,h,i]perylene	253	

Surrogate Standards	Recovery (%)	Advisory Limits (%)
2-fluorobiphenyl	38	30 - 150
o-terphenyl	84	30 - 150

U = Not detected at the reporting limit.
B = Compound found in the blank at a concentration of 14 ug/Kg.

Polynuclear Aromatic Hydrocarbons in Sediment
SW 846 8270/EPA 680 modified

Lab Number:	31466-011
Sample Designation:	YS-11
Date Sampled:	12/20/18 1200
Date Extracted:	01/14/19 1100
Date Analyzed:	01/17/19
Matrix:	Solid
Moisture (%):	28
Sample Amount (g):	14.0
Final Volume (mL)	1.00
Dilution Factor:	1

Compound	Concentration (ug/Kg)	Qualifier
naphthalene	11	
acenaphthylene	45	
acenaphthene	10	
fluorene	23	
phenanthrene	167	B
anthracene	41	
fluoranthene	266	
pyrene	333	
benzo[a]anthracene	237	
chrysene	212	
benzo[b]fluoranthene	281	
benzo[k]fluoranthene	208	
benzo[a]pyrene	252	
indeno[1,2,3-cd]pyrene	74	
dibenz[a,h]anthracene	38	
benzo[g,h,i]perylene	72	

Surrogate Standards	Recovery (%)	Advisory Limits (%)
2-fluorobiphenyl	49	30 - 150
o-terphenyl	85	30 - 150

U = Not detected at the reporting limit.
B = Compound found in the blank at a concentration of 14 ug/Kg.

ESI

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Polynuclear Aromatic Hydrocarbons in Sediment
SW 846 8270/EPA 680 modified

Lab Number:	31466-012
Sample Designation:	YS-12
Date Sampled:	12/20/18 1200
Date Extracted:	01/14/19 1100
Date Analyzed:	01/17/19
Matrix:	Solid
Moisture (%):	27
Sample Amount (g):	14.0
Final Volume (mL)	1.00
Dilution Factor:	1

Compound	Concentration (ug/Kg)	Qualifier
naphthalene	10	U
acenaphthylene	10	U
acenaphthene	10	U
fluorene	6	J
phenanthrene	45	B
anthracene	11	
fluoranthene	60	
pyrene	60	
benzo[a]anthracene	45	
chrysene	33	
benzo[b]fluoranthene	34	
benzo[k]fluoranthene	30	
benzo[a]pyrene	21	
indeno[1,2,3-cd]pyrene	12	
dibenz[a,h]anthracene	10	J
benzo[g,h,i]perylene	8	J

Surrogate Standards	Recovery (%)	Advisory Limits (%)
2-fluorobiphenyl	65	30 - 150
o-terphenyl	88	30 - 150

U = Not detected at the reporting limit.
B = Compound found in the blank at a concentration of 14 ug/Kg.
J = Below reporting limit, but above MDL.

Polynuclear Aromatic Hydrocarbons in Sediment
SW 846 8270/EPA 680 modified

Lab Number:	31466-013
Sample Designation:	YS-13
Date Sampled:	12/20/18 1600
Date Extracted:	01/14/19 1100
Date Analyzed:	01/17/19
Matrix:	Solid
Moisture (%):	36
Sample Amount (g):	16.0
Final Volume (mL)	1.00
Dilution Factor:	1

Compound	Concentration (ug/Kg)	Qualifier
naphthalene	16	
acenaphthylene	41	
acenaphthene	17	
fluorene	38	
phenanthrene	345	B
anthracene	94	
fluoranthene	466	
pyrene	612	
benzo[a]anthracene	353	
chrysene	315	
benzo[b]fluoranthene	388	
benzo[k]fluoranthene	275	
benzo[a]pyrene	294	
indeno[1,2,3-cd]pyrene	84	
dibenz[a,h]anthracene	41	
benzo[g,h,i]perylene	78	

Surrogate Standards	Recovery (%)	Advisory Limits (%)
2-fluorobiphenyl	41	30 - 150
o-terphenyl	85	30 - 150

U = Not detected at the reporting limit.
B = Compound found in the blank at a concentration of 14 ug/Kg.

Pesticides in Sediment
SW 846 8081B

Lab Number:	31466-001
Sample Designation:	YS-1
Date Sampled:	12/19/18 1100
Date Extracted:	12/27/18 1000
Date Analyzed:	01/13/19
Matrix:	Solid
Moisture (%):	33
Sample Amount (g):	15
Final Volume (mL)	1.0
Dilution Factor:	1

Analyte	Concentration (ug/Kg)	Qualifier
aldrin	0.2	U
gamma-chlordane (cis)	0.2	U
alpha-chlordane (trans)	0.2	U
cis-nonachlor	0.2	U
trans-nonachlor	0.2	U
oxychlordane	0.2	U
4,4'-DDT	0.4	U
4,4'-DDE	0.4	U
4,4'-DDD	0.4	U
alpha-BHC	0.2	U
dieldrin	0.4	U
endosulfan I	0.2	U
endosulfan II	0.4	U
endrin	0.4	U
heptachlor	0.2	U
heptachlor epoxide	0.2	U
hexachlorobenzene	0.2	U
gamma-BHC (lindane)	0.2	U
methoxychlor	2	U
toxaphene	10	U

Surrogate Standard	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	55	30 - 150
decachlorobiphenyl	83	30 - 150

U = Not detected at indicated level.

Pesticides in Sediment
SW 846 8081B

Lab Number:	31466-002
Sample Designation:	YS-2
Date Sampled:	12/19/18 1100
Date Extracted:	12/27/18 1000
Date Analyzed:	01/12/19
Matrix:	Solid
Moisture (%):	26
Sample Amount (g):	13
Final Volume (mL)	1.0
Dilution Factor:	1

Analyte	Concentration (ug/Kg)	Qualifier
aldrin	0.2	U,J7
gamma-chlordane (cis)	0.2	U,J7
alpha-chlordane (trans)	0.2	U
cis-nonachlor	0.2	U
trans-nonachlor	0.2	U,J7
oxychlordane	0.2	U
4,4'-DDT	0.4	U
4,4'-DDE	0.4	U
4,4'-DDD	0.4	U
alpha-BHC	0.2	U
dieldrin	0.4	U
endosulfan I	0.2	U
endosulfan II	0.4	U
endrin	0.4	U
heptachlor	0.2	U
heptachlor epoxide	0.2	U
hexachlorobenzene	0.2	U
gamma-BHC (lindane)	0.2	U
methoxychlor	2	U,J7
toxaphene	10	U

Surrogate Standard	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	77	30 - 150
decachlorobiphenyl	94	30 - 150

U = Not detected at indicated level.
J7 = MSD %RR above limit.

Pesticides in Sediment
SW 846 8081B

Lab Number:	31466-003
Sample Designation:	YS-3
Date Sampled:	12/19/18 1100
Date Extracted:	12/27/18 1000
Date Analyzed:	01/13/19
Matrix:	Solid
Moisture (%):	27
Sample Amount (g):	14
Final Volume (mL)	1.0
Dilution Factor:	1

Analyte	Concentration (ug/Kg)	Qualifier
aldrin	0.2	U
gamma-chlordane (cis)	2.3	
alpha-chlordane (trans)	0.2	U
cis-nonachlor	0.2	U
trans-nonachlor	1.2	
oxychlordane	0.2	U
4,4'-DDT	0.4	U
4,4'-DDE	3.9	
4,4'-DDD	0.4	U
alpha-BHC	0.2	U
dieldrin	0.51	
endosulfan I	0.2	U
endosulfan II	0.4	U
endrin	0.73	
heptachlor	0.2	U
heptachlor epoxide	0.2	U
hexachlorobenzene	0.2	U
gamma-BHC (lindane)	3.4	
methoxychlor	3.7	
toxaphene	10	U

Surrogate Standard	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	149	30 - 150
decachlorobiphenyl	101	30 - 150

U = Not detected at indicated level.

Pesticides in Sediment
SW 846 8081B

Lab Number:	31466-004
Sample Designation:	YS-4
Date Sampled:	12/19/18 1100
Date Extracted:	12/27/18 1000
Date Analyzed:	01/13/19
Matrix:	Solid
Moisture (%):	55
Sample Amount (g):	22
Final Volume (mL)	1.0
Dilution Factor:	1

Analyte	Concentration (ug/Kg)	Qualifier
aldrin	0.2	U
gamma-chlordane (cis)	1.9	
alpha-chlordane (trans)	0.2	U
cis-nonachlor	0.2	U
trans-nonachlor	0.2	U
oxychlordane	0.52	
4,4'-DDT	2	
4,4'-DDE	1.4	
4,4'-DDD	2.3	
alpha-BHC	0.2	U
dieldrin	1.4	
endosulfan I	1	
endosulfan II	0.4	U
endrin	0.83	
heptachlor	0.2	U
heptachlor epoxide	0.38	
hexachlorobenzene	0.22	
gamma-BHC (lindane)	0.2	U
methoxychlor	2	U
toxaphene	10	U

Surrogate Standard	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	62	30 - 150
decachlorobiphenyl	110	30 - 150

U = Not detected at indicated level.

Pesticides in Sediment
SW 846 8081B

Lab Number:	31466-005
Sample Designation:	YS-5
Date Sampled:	12/19/18 1100
Date Extracted:	12/27/18 1000
Date Analyzed:	01/14/19
Matrix:	Solid
Moisture (%):	40
Sample Amount (g):	17
Final Volume (mL)	1.0
Dilution Factor:	1

Analyte	Concentration (ug/Kg)	Qualifier
aldrin	0.2	U
gamma-chlordane (cis)	1.6	
alpha-chlordane (trans)	0.2	U
cis-nonachlor	0.2	U
trans-nonachlor	1.1	
oxychlordane	0.3	
4,4'-DDT	2.6	
4,4'-DDE	2.2	
4,4'-DDD	3.8	
alpha-BHC	0.2	U
dieldrin	2	
endosulfan I	0.63	
endosulfan II	0.4	U
endrin	0.88	
heptachlor	0.2	U
heptachlor epoxide	0.2	U
hexachlorobenzene	0.2	U
gamma-BHC (lindane)	0.2	U
methoxychlor	2.5	
toxaphene	10	U

Surrogate Standard	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	105	30 - 150
decachlorobiphenyl	120	30 - 150

U = Not detected at indicated level.

Pesticides in Sediment
SW 846 8081B

Lab Number:	31466-006
Sample Designation:	YS-6
Date Sampled:	12/19/18 1100
Date Extracted:	12/27/18 1000
Date Analyzed:	01/14/19
Matrix:	Solid
Moisture (%):	30
Sample Amount (g):	14
Final Volume (mL)	1.0
Dilution Factor:	1

Analyte	Concentration (ug/Kg)	Qualifier
aldrin	0.2	U
gamma-chlordane (cis)	1.4	
alpha-chlordane (trans)	0.2	U
cis-nonachlor	0.6	
trans-nonachlor	0.68	
oxychlordane	0.2	U
4,4'-DDT	3.2	
4,4'-DDE	0.56	
4,4'-DDD	0.93	
alpha-BHC	0.2	U
dieldrin	0.68	
endosulfan I	0.2	U
endosulfan II	0.4	U
endrin	0.72	
heptachlor	0.2	U
heptachlor epoxide	0.2	U
hexachlorobenzene	0.2	U
gamma-BHC (lindane)	0.2	U
methoxychlor	2	U
toxaphene	10	U

Surrogate Standard	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	82	30 - 150
decachlorobiphenyl	78	30 - 150

U = Not detected at indicated level.

Pesticides in Sediment
SW 846 8081B

Lab Number:	31466-007
Sample Designation:	YS-7
Date Sampled:	12/19/18 1600
Date Extracted:	12/27/18 1000
Date Analyzed:	01/14/19
Matrix:	Solid
Moisture (%):	37
Sample Amount (g):	16
Final Volume (mL)	1.0
Dilution Factor:	1

Analyte	Concentration (ug/Kg)	Qualifier
aldrin	4	
gamma-chlordane (cis)	0.2	U
alpha-chlordane (trans)	0.2	U
cis-nonachlor	0.2	U
trans-nonachlor	1.4	
oxychlordane	0.24	
4,4'-DDT	2.8	
4,4'-DDE	1.3	
4,4'-DDD	4.9	
alpha-BHC	0.2	U
dieldrin	0.4	U
endosulfan I	0.68	
endosulfan II	0.4	U
endrin	1.8	
heptachlor	0.2	U
heptachlor epoxide	0.61	
hexachlorobenzene	0.2	U
gamma-BHC (lindane)	0.2	U
methoxychlor	7.2	
toxaphene	10	U

Surrogate Standard	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	113	30 - 150
decachlorobiphenyl	102	30 - 150

U = Not detected at indicated level.

Pesticides in Sediment
SW 846 8081B

Lab Number:	31466-008
Sample Designation:	YS-8
Date Sampled:	12/20/18 1200
Date Extracted:	12/27/18 1000
Date Analyzed:	01/13/19
Matrix:	Solid
Moisture (%):	31
Sample Amount (g):	14
Final Volume (mL)	1.0
Dilution Factor:	1

Analyte	Concentration (ug/Kg)	Qualifier
aldrin	0.2	U
gamma-chlordane (cis)	6.5	
alpha-chlordane (trans)	0.2	U
cis-nonachlor	0.2	U
trans-nonachlor	3.1	
oxychlordane	0.46	
4,4'-DDT	6	
4,4'-DDE	1.5	
4,4'-DDD	5.8	
alpha-BHC	0.2	U
dieldrin	0.4	U
endosulfan I	1.1	
endosulfan II	0.4	U
endrin	5.7	
heptachlor	0.2	U
heptachlor epoxide	0.55	
hexachlorobenzene	0.2	U
gamma-BHC (lindane)	0.2	U
methoxychlor	18	
toxaphene	10	U

Surrogate Standard	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	88	30 - 150
decachlorobiphenyl	63	30 - 150

U = Not detected at indicated level.

Pesticides in Sediment
SW 846 8081B

Lab Number:	31466-009
Sample Designation:	YS-9
Date Sampled:	12/20/18 1200
Date Extracted:	12/27/18 1000
Date Analyzed:	01/13/19
Matrix:	Solid
Moisture (%):	33
Sample Amount (g):	15
Final Volume (mL)	1.0
Dilution Factor:	1

Analyte	Concentration (ug/Kg)	Qualifier
aldrin	0.2	U
gamma-chlordane (cis)	1.7	
alpha-chlordane (trans)	2.5	
cis-nonachlor	0.2	U
trans-nonachlor	1.4	
oxychlordane	0.88	
4,4'-DDT	13	
4,4'-DDE	3.6	
4,4'-DDD	14	
alpha-BHC	0.2	U
dieldrin	1.3	
endosulfan I	0.68	
endosulfan II	1.3	
endrin	1.5	
heptachlor	0.2	U
heptachlor epoxide	0.47	
hexachlorobenzene	0.2	U
gamma-BHC (lindane)	0.2	U
methoxychlor	19	
toxaphene	10	U

Surrogate Standard	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	90	30 - 150
decachlorobiphenyl	66	30 - 150

U = Not detected at indicated level.

Pesticides in Sediment
SW 846 8081B

Lab Number:	31466-010
Sample Designation:	YS-10
Date Sampled:	12/20/18 1200
Date Extracted:	12/27/18 1000
Date Analyzed:	01/13/19
Matrix:	Solid
Moisture (%):	47
Sample Amount (g):	19
Final Volume (mL)	1.0
Dilution Factor:	1

Analyte	Concentration (ug/Kg)	Qualifier
aldrin	0.2	U
gamma-chlordane (cis)	0.56	
alpha-chlordane (trans)	0.2	U
cis-nonachlor	9.4	
trans-nonachlor	1.8	
oxychlordane	0.55	
4,4'-DDT	8.7	
4,4'-DDE	4	
4,4'-DDD	17	
alpha-BHC	0.2	U
dieldrin	4	
endosulfan I	2.6	
endosulfan II	0.4	U
endrin	2.1	
heptachlor	0.2	U
heptachlor epoxide	0.34	
hexachlorobenzene	0.2	U
gamma-BHC (lindane)	0.2	U
methoxychlor	5.6	
toxaphene	10	U

Surrogate Standard	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	111	30 - 150
decachlorobiphenyl	83	30 - 150

U = Not detected at indicated level.

Pesticides in Sediment
SW 846 8081B

Lab Number:	31466-011
Sample Designation:	YS-11
Date Sampled:	12/20/18 1200
Date Extracted:	12/27/18 1000
Date Analyzed:	01/13/19
Matrix:	Solid
Moisture (%):	28
Sample Amount (g):	14
Final Volume (mL)	1.0
Dilution Factor:	1

Analyte	Concentration (ug/Kg)	Qualifier
aldrin	0.2	U
gamma-chlordane (cis)	1	
alpha-chlordane (trans)	0.2	U
cis-nonachlor	0.84	
trans-nonachlor	0.73	
oxychlordane	0.2	U
4,4'-DDT	0.88	
4,4'-DDE	1.1	
4,4'-DDD	0.4	U
alpha-BHC	0.2	U
dieldrin	0.73	
endosulfan I	0.68	
endosulfan II	0.4	U
endrin	0.81	
heptachlor	0.2	U
heptachlor epoxide	0.2	U
hexachlorobenzene	0.2	U
gamma-BHC (lindane)	0.2	U
methoxychlor	3.2	
toxaphene	10	U

Surrogate Standard	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	120	30 - 150
decachlorobiphenyl	94	30 - 150

U = Not detected at indicated level.

Pesticides in Sediment
SW 846 8081B

Lab Number:	31466-012
Sample Designation:	YS-12
Date Sampled:	12/20/18 1200
Date Extracted:	12/27/18 1000
Date Analyzed:	01/13/19
Matrix:	Solid
Moisture (%):	27
Sample Amount (g):	14
Final Volume (mL)	1.0
Dilution Factor:	1

Analyte	Concentration (ug/Kg)	Qualifier
aldrin	0.2	U
gamma-chlordane (cis)	0.2	U
alpha-chlordane (trans)	0.2	U
cis-nonachlor	0.2	U
trans-nonachlor	0.2	U
oxychlordane	0.2	U
4,4'-DDT	0.4	U
4,4'-DDE	0.4	U
4,4'-DDD	0.4	U
alpha-BHC	0.2	U
dieldrin	0.4	U
endosulfan I	0.2	U
endosulfan II	0.4	U
endrin	0.4	U
heptachlor	0.2	U
heptachlor epoxide	0.2	U
hexachlorobenzene	0.2	U
gamma-BHC (lindane)	0.2	U
methoxychlor	2	U
toxaphene	10	U

Surrogate Standard	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	97	30 - 150
decachlorobiphenyl	102	30 - 150

U = Not detected at indicated level.

Pesticides in Sediment
SW 846 8081B

Lab Number:	31466-013
Sample Designation:	YS-13
Date Sampled:	12/20/18 1600
Date Extracted:	12/27/18 1000
Date Analyzed:	01/13/19
Matrix:	Solid
Moisture (%):	36
Sample Amount (g):	16
Final Volume (mL)	1.0
Dilution Factor:	1

Analyte	Concentration (ug/Kg)	Qualifier
aldrin	0.2	U
gamma-chlordane (cis)	0.2	U
alpha-chlordane (trans)	0.2	U
cis-nonachlor	0.2	U
trans-nonachlor	0.2	U
oxychlordane	0.2	U
4,4'-DDT	0.4	U
4,4'-DDE	0.4	U
4,4'-DDD	0.4	U
alpha-BHC	0.2	U
dieldrin	0.4	U
endosulfan I	0.2	U
endosulfan II	0.4	U
endrin	0.4	U
heptachlor	0.2	U
heptachlor epoxide	0.2	U
hexachlorobenzene	0.2	U
gamma-BHC (lindane)	0.2	U
methoxychlor	2	U
toxaphene	10	U

Surrogate Standard	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	81	30 - 150
decachlorobiphenyl	86	30 - 150

U = Not detected at indicated level.

Quality Control Summary

Parameter: Arsenic, total
Project: Yachting Solutions
Matrix: Solid
QC Batch No: 661S

Pertains to samples:

Lab ID	Sample ID	Lab ID	Sample ID
31466-001	YS-1	31466-011	YS-11
31466-002	YS-2	31466-012	YS-12
31466-003	YS-3	31466-013	YS-13
31466-004	YS-4		
31466-005	YS-5		
31466-006	YS-6		
31466-007	YS-7		
31466-008	YS-8		

	Control Limit +/-	Preparation Blank Result ug/g dry wt	Q		M
PB661S	0.3	0.3	U		Pass

LABORATORY CONTROL SAMPLE RECOVERY

ID	Control Limit %	Lab Control Sample Result ug/g dry wt	True Value ug/g dry wt	%R	Lab Control Dup Sample Result ug/g dry wt	True Value ug/g dry wt	%R	
LCS	85-115	25.5	25.0	102	25.5	25.0	102	Pass
SRM	70-130	136	138	99				Pass

DUPLICATE ANALYSIS

ID	Control Limit %	Duplicate Result ug/g dry wt	Q	Sample Result ug/g dry wt	Q	RPD	Q	
31466-012	20	17.8		18.2		2		Pass

SPIKE SAMPLE ANALYSIS

ID	Control Limit %	Spiked Sample Result ug/g dry wt	Spike Added ug/g dry wt	Sample Result ug/g dry wt	Q	%R	Q	
31466-012S	80-120	34.9	17.9	18.2		93		Pass
31466-012SD	80-120	37.1	18.1	18.2		104		Pass

U = Below quantitation limit

Quality Control Summary

Parameter: Cadmium, total
Project: Yachting Solutions
Matrix: Solid
QC Batch No: 661S

Pertains to samples:

Lab ID	Sample ID	Lab ID	Sample ID
31466-001	YS-1	31466-011	YS-11
31466-002	YS-2	31466-012	YS-12
31466-003	YS-3	31466-013	YS-13
31466-004	YS-4		
31466-005	YS-5		
31466-006	YS-6		
31466-007	YS-7		
31466-008	YS-8		

	Control Limit +/-	Preparation Blank Result ug/g dry wt	Q		M
PB661S	0.1	0.1	U		Pass

LABORATORY CONTROL SAMPLE RECOVERY

ID	Control Limit %	Lab Control Sample Result ug/g dry wt	True Value ug/g dry wt	%R	Lab Control Dup Sample Result ug/g dry wt	True Value ug/g dry wt	%R	
LCS	85-115	2.02	2.00	101	2.06	2.00	103	Pass
SRM	70-130	38.8	42.3	92				Pass

DUPLICATE ANALYSIS

ID	Control Limit %	Duplicate Result ug/g dry wt	Q	Sample Result ug/g dry wt	Q	RPD	Q	
31466-012	20	0.096		0.102		NC		Pass

SPIKE SAMPLE ANALYSIS

ID	Control Limit %	Spiked Sample Result ug/g dry wt	Spike Added ug/g dry wt	Sample Result ug/g dry wt	Q	%R	Q	
31466-012S	80-120	1.56	1.43	0.102		102		Pass
31466-012SD	80-120	1.60	1.45	0.102		103		Pass

U = Below quantitation limit

Quality Control Summary

Parameter: Chromium, total
Project: Yachting Solutions
Matrix: Solid
QC Batch No: 661S

Pertains to samples:

Lab ID	Sample ID	Lab ID	Sample ID
31466-001	YS-1	31466-011	YS-11
31466-002	YS-2	31466-012	YS-12
31466-003	YS-3	31466-013	YS-13
31466-004	YS-4		
31466-005	YS-5		
31466-006	YS-6		
31466-007	YS-7		
31466-008	YS-8		

	Control Limit +/-	Preparation Blank Result ug/g dry wt	Q		M
PB661S	0.3	0.3	U		Pass

LABORATORY CONTROL SAMPLE RECOVERY

ID	Control Limit %	Lab Control Sample Result ug/g dry wt	True Value ug/g dry wt	%R	Lab Control Dup Sample Result ug/g dry wt	True Value ug/g dry wt	%R	
LCS	85-115	25.1	25.0	100	25.2	25.0	101	Pass
SRM	70-130	66.4	63	106				Pass

DUPLICATE ANALYSIS

ID	Control Limit %	Duplicate Result ug/g dry wt	Q	Sample Result ug/g dry wt	Q	RPD	Q	
31466-012	20	45.5		48.9		7		Pass

SPIKE SAMPLE ANALYSIS

ID	Control Limit %	Spiked Sample Result ug/g dry wt	Spike Added ug/g dry wt	Sample Result ug/g dry wt	Q	%R	Q	
31466-012S	80-120	65.7	17.9	48.9		94		Pass
31466-012SD	80-120	68.3	18.1	48.9		107		Pass

U = Below quantitation limit

Quality Control Summary

Parameter: Copper, total
Project: Yachting Solutions
Matrix: Solid
QC Batch No: 661S

Pertains to samples:

Lab ID	Sample ID	Lab ID	Sample ID
31466-001	YS-1	31466-011	YS-11
31466-002	YS-2	31466-012	YS-12
31466-003	YS-3	31466-013	YS-13
31466-004	YS-4		
31466-005	YS-5		
31466-006	YS-6		
31466-007	YS-7		
31466-008	YS-8		

	Control Limit +/-	Preparation Blank Result ug/g dry wt	Q		M
PB661S	0.5	0.5	U		Pass

LABORATORY CONTROL SAMPLE RECOVERY

ID	Control Limit %	Lab Control Sample Result ug/g dry wt	True Value ug/g dry wt	%R	Lab Control Dup Sample Result ug/g dry wt	True Value ug/g dry wt	%R	
LCS	85-115	25.6	25.0	102	25.6	25.0	102	Pass
SRM	70-130	82.4	82.3	100				Pass

DUPLICATE ANALYSIS

ID	Control Limit %	Duplicate Result ug/g dry wt	Q	Sample Result ug/g dry wt	Q	RPD	Q	
31466-012	20	27.6		29.1		5		Pass

SPIKE SAMPLE ANALYSIS

ID	Control Limit %	Spiked Sample Result ug/g dry wt	Spike Added ug/g dry wt	Sample Result ug/g dry wt	Q	%R	Q	
31466-012S	80-120	45.8	17.9	29.1		93		Pass
31466-012SD	80-120	47.6	18.1	29.1		102		Pass

U = Below quantitation limit

Quality Control Summary

Parameter: Lead, total
Project: Yachting Solutions
Matrix: Solid
QC Batch No: 661S

Pertains to samples:

Lab ID	Sample ID	Lab ID	Sample ID
31466-001	YS-1	31466-011	YS-11
31466-002	YS-2	31466-012	YS-12
31466-003	YS-3	31466-013	YS-13
31466-004	YS-4		
31466-005	YS-5		
31466-006	YS-6		
31466-007	YS-7		
31466-008	YS-8		

	Control Limit +/-	Preparation Blank Result ug/g dry wt	Q		M
PB661S	0.3	0.3	U		Pass

LABORATORY CONTROL SAMPLE RECOVERY

ID	Control Limit %	Lab Control Sample Result ug/g dry wt	True Value ug/g dry wt	%R	Lab Control Dup Sample Result ug/g dry wt	True Value ug/g dry wt	%R	
LCS	85-115	24.7	25.0	99	24.7	25.0	99	Pass
SRM	70-130	120	115	104				Pass

DUPLICATE ANALYSIS

ID	Control Limit %	Duplicate Result ug/g dry wt	Q	Sample Result ug/g dry wt	Q	RPD	Q	
31466-012	20	13.7		13.9		1		Pass

SPIKE SAMPLE ANALYSIS

ID	Control Limit %	Spiked Sample Result ug/g dry wt	Spike Added ug/g dry wt	Sample Result ug/g dry wt	Q	%R	Q	
31466-012S	80-120	32.5	17.9	13.9		104		Pass
31466-012SD	80-120	33.0	18.1	13.9		106		Pass

U = Below quantitation limit

Quality Control Summary

Parameter: Mercury, total
Project: Yachting Solutions
Matrix: Solid
QC Batch No: 419S

Pertains to samples:

Lab ID	Sample ID	Lab ID	Sample ID
31466-001	YS-1	31466-011	YS-11
31466-002	YS-2	31466-012	YS-12
31466-003	YS-3	31466-013	YS-13
31466-004	YS-4		
31466-005	YS-5		
31466-006	YS-6		
31466-007	YS-7		
31466-008	YS-8		

	Control Limit +/-	Preparation Blank Result ug/g dry wt	Q		M
PB419S	0.005	0.005	U		Pass

LABORATORY CONTROL SAMPLE RECOVERY

ID	Control Limit %	Lab Control Sample Result ug/g dry wt	True Value ug/g dry wt	%R	Lab Control Dup Sample Result ug/g dry wt	True Value ug/g dry wt	%R	
LCS	75-125	0.370	0.320	116	0.371	0.320	116	Pass
SRM	70-130	2.69	3.12	86				Pass

DUPLICATE ANALYSIS

ID	Control Limit %	Duplicate Result ug/g dry wt	Q	Sample Result ug/g dry wt	Q	RPD	Q	
31466-012	25	0.011		0.009		NC		Pass

SPIKE SAMPLE ANALYSIS

ID	Control Limit %	Spiked Sample Result ug/g dry wt	Spike Added ug/g dry wt	Sample Result ug/g dry wt	Q	%R	Q	
31466-012S	75-125	0.273	0.229	0.009		115		Pass
31466-012SD	75-125	0.270	0.232	0.009		113		Pass

U = Below quantitation limit

NC = Not calculated due to one or both values less than five times the reporting limit.

Quality Control Summary

Parameter: Nickel, total
Project: Yachting Solutions
Matrix: Solid
QC Batch No: 661S

Pertains to samples:

Lab ID	Sample ID	Lab ID	Sample ID
31466-001	YS-1	31466-011	YS-11
31466-002	YS-2	31466-012	YS-12
31466-003	YS-3	31466-013	YS-13
31466-004	YS-4		
31466-005	YS-5		
31466-006	YS-6		
31466-007	YS-7		
31466-008	YS-8		

	Control Limit +/-	Preparation Blank Result ug/g dry wt	Q		M
PB661S	0.5	0.5	U		Pass

LABORATORY CONTROL SAMPLE RECOVERY

ID	Control Limit %	Lab Control Sample Result ug/g dry wt	True Value ug/g dry wt	%R	Lab Control Dup Sample Result ug/g dry wt	True Value ug/g dry wt	%R	
LCS	85-115	25.1	25.0	100	25.4	25.0	102	Pass
SRM	70-130	373	363	103				Pass

DUPLICATE ANALYSIS

ID	Control Limit %	Duplicate Result ug/g dry wt	Q	Sample Result ug/g dry wt	Q	RPD	Q	
31466-012	20	47.5		49.2		4		Pass

SPIKE SAMPLE ANALYSIS

ID	Control Limit %	Spiked Sample Result ug/g dry wt	Spike Added ug/g dry wt	Sample Result ug/g dry wt	Q	%R	Q	
31466-012S	80-120	62.3	17.9	49.2		73	J5	Low
31466-012SD	80-120	64.6	18.1	49.2		85		Pass

U = Below quantitation limit

J5 = MS %R below limit

Quality Control Summary

Parameter: Zinc, total
Project: Yachting Solutions
Matrix: Solid
QC Batch No: 661S

Pertains to samples:

Lab ID	Sample ID	Lab ID	Sample ID
31466-001	YS-1	31466-011	YS-11
31466-002	YS-2	31466-012	YS-12
31466-003	YS-3	31466-013	YS-13
31466-004	YS-4		
31466-005	YS-5		
31466-006	YS-6		
31466-007	YS-7		
31466-008	YS-8		

	Control Limit +/-	Preparation Blank Result ug/g dry wt	Q		M
PB661S	2	2	U		Pass

LABORATORY CONTROL SAMPLE RECOVERY

ID	Control Limit %	Lab Control Sample Result ug/g dry wt	True Value ug/g dry wt	%R	Lab Control Dup Sample Result ug/g dry wt	True Value ug/g dry wt	%R	
LCS	85-115	51.7	50.0	103	52.2	50.0	104	Pass
SRM	70-130	382	377	101				Pass

DUPLICATE ANALYSIS

ID	Control Limit %	Duplicate Result ug/g dry wt	Q	Sample Result ug/g dry wt	Q	RPD	Q	
31466-012	20	78.9		80.1		2		Pass

SPIKE SAMPLE ANALYSIS

ID	Control Limit %	Spiked Sample Result ug/g dry wt	Spike Added ug/g dry wt	Sample Result ug/g dry wt	Q	%R	Q	
31466-012S	80-120	114	35.8	80.1		95		Pass
31466-012SD	80-120	117	36.2	80.1		102		Pass

U = Below quantitation limit

Metals by ICPMS and Mercury by *CVAF
EPA 200.8,SW846 6020 and Hg EPA 245.7

Lab Number: MDL 2018
Sample Designation: Solid
Date Analyzed: 04/21/17 - 03/18/18, Hg 06/20/17 - 03/19/18
Matrix: Solid
Sample Amount (mL): 1
Final Volume (mL): 50

Parameter	True Value (ug\g)	Rep A 2018 (ug\g)	Rep B 2018 (ug\g)	Rep B 2017 (ug\g)	Rep C 2017 (ug\g)	Rep D 2017 (ug\g)	Rep E 2017 (ug\g)	Rep F 2017 (ug\g)	Rep G 2017 (ug\g)	STD (ug\g)	MDL (ug\g)	Initials
Aluminum, total	1	1.02	1.02	1.02	1.05	1.03	1.04	0.939	1.05	0.033	0.1044	JLH
Antimony, total	0.05	0.051	0.051	0.051	0.0508	0.0524	0.054	0.0508	0.0513	0.001	0.0033	JLH
Arsenic, total	0.125	0.122	0.122	0.129	0.13	0.132	0.126	0.125	0.127	0.003	0.0106	JLH
Barium, total	1	0.996	0.996	0.986	1.03	1.01	0.973	1	0.98	0.017	0.0527	JLH
Beryllium, total	0.025	0.0252	0.0252	0.0239	0.0258	0.0261	0.0252	0.0245	0.0257	0.001	0.0021	JLH
Boron, total	0.1	0.105	0.105	0.085	0.096	0.0964	0.0952	0.0942	0.094	0.006	0.0189	JLH
Cadmium, total	0.0625	0.0618	0.0618	0.0648	0.0643	0.0644	0.0647	0.0657	0.063	0.001	0.0043	JLH
Calcium, total	2.5	2.6	2.6	2.1	2.7	2.7	2.7	2.7	2.8	0.203	0.6365	JLH
Chromium, total	0.1	0.0992	0.0992	0.1	0.0964	0.101	0.0986	0.0983	0.0987	0.001	0.0039	JLH
Cobalt, total	0.25	0.245	0.245	0.254	0.258	0.26	0.254	0.253	0.258	0.005	0.0168	JLH
Copper, total	0.125	0.126	0.126	0.124	0.128	0.133	0.129	0.127	0.127	0.003	0.0079	JLH
Iron, total	0.5	0.494	0.494	0.503	0.507	0.511	0.495	0.495	0.503	0.006	0.0195	JLH
Lead, total	0.125	0.124	0.124	0.126	0.127	0.128	0.125	0.125	0.125	0.001	0.0042	JLH
Magnesium, total	2.5	2.5	2.5	2.5	2.6	2.6	2.5	2.5	2.5	0.043	0.1360	JLH
Manganese, total	0.25	0.254	0.254	0.253	0.254	0.258	0.254	0.248	0.255	0.003	0.0081	JLH
Molybdenum, total	0.1	0.0994	0.0994	0.104	0.107	0.0989	0.098	0.0983	0.101	0.003	0.0093	JLH
Nickel, total	0.25	0.252	0.252	0.248	0.254	0.258	0.248	0.244	0.249	0.004	0.0127	JLH
Potassium, total	2.5	2.2	2.2	2.4	2.8	2.7	2.8	2.6	2.6	0.229	0.7184	JLH
Selenium, total	0.125	0.125	0.125	0.134	0.131	0.127	0.126	0.135	0.131	0.004	0.0118	JLH
Sodium, total	2.5	1.9	1.9	2.1	2.7	2.8	2.7	2.9	3	0.427	1.3414	JLH
Strontium, total	0.05	0.0502	0.0502	0.0496	0.0493	0.0542	0.0553	0.0523	0.0493	0.002	0.0069	JLH
Thallium, total	0.125	0.12	0.12	0.126	0.128	0.127	0.125	0.124	0.125	0.003	0.0087	JLH
Tin, total	0.05	0.0501	0.0501	0.0479	0.0548	0.0511	0.0518	0.0513	0.0524	0.002	0.0059	JLH
Vanadium, total	0.25	0.236	0.236	0.236	0.245	0.25	0.24	0.251	0.253	0.007	0.0214	JLH
Zinc, total	0.25	0.258	0.258	0.27	0.248	0.269	0.26	0.26	0.261	0.006	0.0202	JLH
Mercury, total*	0.00125	0.00108	0.00103	0.0019	0.0021	0.00114	0.00121	0.00122	0.00125	0.000	0.0012	JLH

PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	PB272S
Sample Designation:	Laboratory Blank
Date Sampled:	01/10/19 1130
Date Extracted:	01/10/19 1130
Date Analyzed:	01/16/19
Matrix:	Solid
Sample Amount (g):	10
Final Volume (mL)	1.00
Dilution Factor:	1

Congener Number	PCB Congener	Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	1.0	U
18	2,2',5-trichlorobiphenyl	1.0	U
28	2,4,4'-trichlorobiphenyl	1.0	U
44	2,2',3,5'-tetrachlorobiphenyl	1.0	U
49	2,2',4,5'-tetrachlorobiphenyl	4.9	B
52	2,2',5,5'-tetrachlorobiphenyl	1.0	U
66	2,3',4,4'-tetrachlorobiphenyl	1.0	U
77	3,3',4,4'-tetrachlorobiphenyl	1.0	U
87	2,2',3,4,5'-pentachlorobiphenyl	2.0	B
101	2,2',4,5,5'-pentachlorobiphenyl	1.0	U
105	2,3,3',4,4'-pentachlorobiphenyl	1.0	U
118	2,3',4,4',5-pentachlorobiphenyl	1.0	U
126	3,3',4,4',5-pentachlorobiphenyl	1.0	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	1.0	U
138	2,2',3,4,4',5'-hexachlorobiphenyl	1.0	U
153	2,2',4,4',5,5'-hexachlorobiphenyl	1.0	U
156	2,3,3',4,4',5-hexachlorobiphenyl		
169	3,3',4,4',5,5'-hexachlorobiphenyl		
170	2,2',3,3',4,4',5-heptachlorobiphenyl	1.0	U
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	1.0	U
183	2,2',3,4,4',5',6-heptachlorobiphenyl	1.0	U
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	1.5	B
187	2,2',3,4',5,5',6-heptachlorobiphenyl	1.0	U
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	1.0	U
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	1.0	U
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	1.0	U

Surrogate Standards	Recovery (%)	Advisory Limits (%)
PCB 198	64	30 - 150

B = Compound found in the blank.

Lab Number:	LCS272s / LCSD272S
Sample Designation:	Laboratory Control Sample Duplicate
Date Sampled:	01/10/2019 1130
Date Extracted:	01/10/2019 1130
Date Analyzed:	01/16/2019
Matrix:	Solid
Sample Amount (g):	10
Final Volume (mL)	1.00
Dilution Factor:	1

Congener Number	PCB Congener	LCS Concentration (ug/Kg)	Recovery (%)	Recovery Limit (%)	LCSD Concentration (ug/Kg)	Recovery (%)	Recovery Limit (%)	Relative Difference (%)	RPD Limit (%)
8	2,4'-dichlorobiphenyl	13	67	30 - 150	13	64	30 - 150	3	30
18	2,2',5-trichlorobiphenyl	13	64	30 - 150	12	60	30 - 150	6	30
28	2,4,4'-trichlorobiphenyl	17	83	30 - 150	16	79	30 - 150	5	30
44	2,2',3,5'-tetrachlorobiphenyl	18	89	30 - 150	17	85	30 - 150	5	30
49	2,2',4,5'-tetrachlorobiphenyl	19	97	30 - 150	19	94	30 - 150	3	30
52	2,2',5,5'-tetrachlorobiphenyl	17	87	30 - 150	16	81	30 - 150	7	30
66	2,3',4,4'-tetrachlorobiphenyl	21	104	30 - 150	20	100	30 - 150	4	30
77	3,3',4,4'-tetrachlorobiphenyl	22	110	30 - 150	22	109	30 - 150	1	30
87	2,2',3,4,5'-pentachlorobiphenyl	22	112	30 - 150	22	108	30 - 150	4	30
101	2,2',4,5,5'-pentachlorobiphenyl	21	103	30 - 150	19	97	30 - 150	6	30
105	2,3,3',4,4'-pentachlorobiphenyl	22	108	30 - 150	22	109	30 - 150	1	30
118	2,3',4,4',5-pentachlorobiphenyl	24	118	30 - 150	24	118	30 - 150	0	30
126	3,3',4,4',5-pentachlorobiphenyl	21	105	30 - 150	18	90	30 - 150	16	30
128	2,2',3,3',4,4'-hexachlorobiphenyl	19	95	30 - 150	16	78	30 - 150	20	30
138	2,2',3,4,4',5'-hexachlorobiphenyl	21	104	30 - 150	16	82	30 - 150	24	30
153	2,2',4,4',5,5'-hexachlorobiphenyl	22	108	30 - 150	22	109	30 - 150	1	30
156	2,3,3',4,4',5-hexachlorobiphenyl			30 - 150			30 - 150		30
169	3,3',4,4',5,5'-hexachlorobiphenyl			30 - 150			30 - 150		30
170	2,2',3,3',4,4',5-heptachlorobiphenyl	23	117	30 - 150	21	106	30 - 150	9	30
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	21	105	30 - 150	18	90	30 - 150	15	30
183	2,2',3,4,4',5',6-heptachlorobiphenyl	19	94	30 - 150	15	75	30 - 150	22	30
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	21	106	30 - 150	21	105	30 - 150	0	30
187	2,2',3,4',5,5',6-heptachlorobiphenyl	19	93	30 - 150	14	70	30 - 150	28	30
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	22	112	30 - 150	22	109	30 - 150	3	30
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	26	132	30 - 150	27	134	30 - 150	2	30
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphen	21	107	30 - 150	22	111	30 - 150	4	30

Surrogate Standard		Recovery (%)	Advisory Limits (%)	Recovery (%)	Advisory Limits (%)
198	2,2',3,3',4,5,5',6-octachlorobiphenyl	75	30 - 150	62	30 - 150

ESI

PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	31466-001D
Sample Designation:	DSAM (Laboratory Duplicate)
Date Sampled:	12/19/18 1100
Date Extracted:	01/10/19 1130
Date Analyzed:	01/17/19
Matrix:	Solid
Moisture (%):	33
Sample Amount (g):	15.00
Final Volume (mL)	1.00
Dilution Factor:	5

Congener Number	PCB Congener	Duplicate Result (ug/Kg)	Duplicate Qualifier	Sample Result (ug/Kg)	Sample Qualifier	Relative Difference (%)	Limit (%)
8	2,4'-dichlorobiphenyl	0.99	U	0.99	U	NC	30
18	2,2',5-trichlorobiphenyl	0.99	U	0.99	U	NC	30
28	2,4,4'-trichlorobiphenyl	0.99	U	0.99	U	NC	30
44	2,2',3,5'-tetrachlorobiphenyl	0.99	U	0.99	U	NC	30
49	2,2',4,5'-tetrachlorobiphenyl	2.70		3.30		22	30
52	2,2',5,5'-tetrachlorobiphenyl	0.99	U	0.99	U	NC	30
66	2,3',4,4'-tetrachlorobiphenyl	0.99	U	0.99	U	NC	30
77	3,3',4,4'-tetrachlorobiphenyl	0.99	U	0.99	U	NC	30
87	2,2',3,4,5'-pentachlorobiphenyl	1.30		1.40		11	30
101	2,2',4,5,5'-pentachlorobiphenyl	0.99	U	0.99	U	NC	30
105	2,3,3',4,4'-pentachlorobiphenyl	0.99	U	0.99	U	NC	30
118	2,3',4,4',5-pentachlorobiphenyl	0.99	U	0.99	U	NC	30
126	3,3',4,4',5-pentachlorobiphenyl	0.99	U	0.99	U	NC	30
128	2,2',3,3',4,4'-hexachlorobiphenyl	0.99	U	0.99	U	NC	30
138	2,2',3,4,4',5'-hexachlorobiphenyl	0.99	U	0.99	U	NC	30
153	2,2',4,4',5,5'-hexachlorobiphenyl	0.99	U	0.99	U	NC	30
156	2,3,3',4,4',5-hexachlorobiphenyl						30
169	3,3',4,4',5,5'-hexachlorobiphenyl						30
170	2,2',3,3',4,4',5-heptachlorobiphenyl	0.99	U	0.99	U	NC	30
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	0.99	U	0.99	U	NC	30
183	2,2',3,4,4',5',6-heptachlorobiphenyl	0.99	U	1.10		28	30
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	0.99	U	0.99	U	NC	30
187	2,2',3,4',5,5',6-heptachlorobiphenyl	0.99	U	0.99	U	NC	30
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	0.99	U	0.99	U	NC	30
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	0.99	U	0.99	U	NC	30
209	2,2',3,3',4,4',5,5',6,6'-decachlorobipheny	0.99	U	0.99	U	NC	30

Surrogate Standard	Recovery (%)	Recovery (%)	Advisory Limits (%)
PCB 198	68	86	30 - 150

U = Not detected at reporting limit.
NC = Not calculated due to one or more values less than five times the reporting limit.

EnviroSystems, Inc. One Lafayette Road Hampton, NH 03843-0778 603-926-3345 fax 603-926-3521 www.envirosystems.com

Lab Number:	31466-001MSD
Sample Designation:	YS-1 (Matrix Spike Duplicate)
Date Sampled:	01/10/19 1130
Date Extracted:	01/10/19 1130
Date Analyzed:	01/17/19
Matrix:	Solid
Sample Amount (g):	15.00
Final Volume (mL)	1.00
Dilution Factor:	1.00

Congener Number	PCB Congener	Sample Result (ug/Kg)	Amount Added (ug/Kg)	MS Result (ug/Kg)	Recovery (%)	Recovery Limit (%)	MSD Result (ug/Kg)	Recovery (%)	Recovery Limit (%)	Relative Difference (%)	RPD Limit (%)	
8	2,4'-dichlorobiphenyl	ND	20	12	62	30 - 150	13	68	30 - 150	6	30	
18	2,2',5-trichlorobiphenyl	ND	20	13	64	30 - 150	15	74	30 - 150	11	30	
28	2,4,4'-trichlorobiphenyl	ND	20	17	84	30 - 150	19	98	30 - 150	14	30	
44	2,2',3,5'-tetrachlorobiphenyl	ND	20	18	90	30 - 150	18	92	30 - 150	2	30	
49	2,2',4,5'-tetrachlorobiphenyl	3.3	20	20	96	30 - 150	19	93	30 - 150	5	30	
52	2,2',5,5'-tetrachlorobiphenyl	ND	20	18	89	30 - 150	18	88	30 - 150	0	30	
66	2,3',4,4'-tetrachlorobiphenyl	ND	20	21	103	30 - 150	20	99	30 - 150	4	30	
77	3,3',4,4'-tetrachlorobiphenyl	ND	20	22	112	30 - 150	20	103	30 - 150	10	30	
87	2,2',3,4,5'-pentachlorobiphenyl	1.4	20	22	111	30 - 150	20	100	30 - 150	12	30	
101	2,2',4,5,5'-pentachlorobiphenyl	ND	20	20	102	30 - 150	19	96	30 - 150	6	30	
105	2,3,3',4,4'-pentachlorobiphenyl	ND	20	23	114	30 - 150	20	103	30 - 150	10	30	
118	2,3',4,4',5-pentachlorobiphenyl	ND	20	25	124	30 - 150	21	105	30 - 150	19	30	
126	3,3',4,4',5-pentachlorobiphenyl	ND	20	19	95	30 - 150	23	116	30 - 150	21	30	
128	2,2',3,3',4,4'-hexachlorobiphenyl	ND	20	17	84	30 - 150	22	112	30 - 150	28	30	
138	2,2',3,4,4',5'-hexachlorobiphenyl	ND	20	17	87	30 - 150	22	110	30 - 150	23	30	
153	2,2',4,4',5,5'-hexachlorobiphenyl	ND	20	23	116	30 - 150	20	102	30 - 150	14	30	
156	2,3,3',4,4',5-hexachlorobiphenyl		NA									
169	3,3',4,4',5,5'-hexachlorobiphenyl		NA									
170	2,2',3,3',4,4',5-heptachlorobiphenyl	ND	20	23	118	30 - 150	24	120	30 - 150	2	30	
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	ND	20	19	97	30 - 150	23	115	30 - 150	17	30	
183	2,2',3,4,4',5',6-heptachlorobiphenyl	1.1	20	16	80	30 - 150	21	105	30 - 150	25	30	
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	ND	20	23	115	30 - 150	20	101	30 - 150	14	30	
187	2,2',3,4',5,5',6-heptachlorobiphenyl	ND	20	15	75	30 - 150	22	111	30 - 150	36	30	J7
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	ND	20	21	107	30 - 150	24	121	30 - 150	14	30	
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	ND	20	30	150	30 - 150	24	121	30 - 150	30	30	
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	ND	20	24	121	30 - 150	21	106	30 - 150	15	30	

Surrogate Standard	MS Recovery (%)	MS Advisory Limits (%)	MSD Recovery (%)	MSD Advisory Limits (%)
PCB 198	68	30 - 150	87	30 - 150

ND = Not detected
NA = Not added or evaluated
J7 = MSD %RR above limit.

PCB Congeners in Sediment
SW 846 8082 / EPA 680 modified

			MDLS A 2018		MDLS B 2018		MDLS B 2017		MDLS C 2017		MDLS D 2017		MDLS E 2017		MDLS F 2017		MDLS G 2017			
Lab Number:																				
Sample Designation:			Solid		Solid		Solid		Solid		Solid		Solid		Solid		Solid			
Date Sampled:			01/08/18 1200		01/08/18 1200		01/27/17 0915		01/27/17 0915		01/27/17 0915		01/27/17 0915		01/27/17 0915		01/27/17 0915			
Date Extracted:			01/08/18 1200		01/08/18 1200		01/27/17 0915		01/27/17 0915		01/27/17 0915		01/27/17 0915		01/27/17 0915		01/27/17 0915			
Date Analyzed:			01/13/18		01/13/18		05/10/17		05/10/17		05/10/17		05/10/17		05/10/17		05/10/17			
Matrix:			Solid		Solid		Solid		Solid		Solid		Solid		Solid		Solid			
Moisture:			NA		NA		NA		NA		NA		NA		NA		NA			
Sample Amount (g):			20		20		20		20		20		20		20		20			
Final Volume (mL)			1		1		1		1		1		1		1		1			
Dilution Factor:			1		1		1		1		1		1		1		1			
Analyst:			RDF		RDF		RDF		RDF		RDF		RDF		RDF		RDF			
			MDL01		MDL02		MDL03		MDL04		MDL05		MDL06		MDL07		MDL08			
		True Value	Found	Recovery	Found	Recovery	Found	Recovery	Found	Recovery	Found	Recovery	Found	Recovery	Found	Recovery	Found	Recovery	STD	MDL
		(ng/L)	(ng/L)	(%)	(ng/L)	(%)	(ng/L)	(%)	(ng/L)	(%)	(ng/L)	(%)	(ng/L)	(%)	(ng/L)	(%)	(ng/L)	(%)	(ng/L)	(ng/L)
8	2,4'-dichlorobiphenyl	0.20	0.13	66	0.12	61	0.15	73	0.15	73	0.13	64	0.14	72	0.14	68	0.14	70	0.009	0.03
18	2,2',5-trichlorobiphenyl	0.20	0.20	99	0.16	81	0.15	74	0.14	71	0.14	72	0.14	69	0.15	74	0.14	69	0.018	0.06
28	2,4,4'-trichlorobiphenyl	0.20	0.13	64	0.12	60	0.19	95	0.18	90	0.15	74	0.16	81	0.13	66	0.19	97	0.027	0.08
52	2,2',5,5'-tetrachlorobiphenyl	0.20	0.19	96	0.14	69	0.17	87	0.17	83	0.16	80	0.17	84	0.15	76	0.16	80	0.014	0.05
49	2,2',4,5'-tetrachlorobiphenyl	0.20	0.18	91	0.14	70	0.14	70	0.14	72	0.14	68	0.14	70	0.14	70	0.13	65	0.015	0.05
44	2,2',3,5'-tetrachlorobiphenyl	0.20	0.19	93	0.15	73	0.18	91	0.15	75	0.18	91	0.16	79	0.16	80	0.18	91	0.015	0.05
66	2,3',4,4'-tetrachlorobiphenyl	0.20	0.15	75	0.15	74	0.18	88	0.18	92	0.19	93	0.17	86	0.18	88	0.19	95	0.015	0.05
101	2,2',4,5,5'-pentachlorobiphenyl	0.20	0.18	92	0.14	70	0.18	88	0.19	94	0.16	78	0.16	81	0.17	83	0.16	82	0.014	0.05
87	2,2',3,4,5'-pentachlorobiphenyl	0.20	0.16	79	0.16	80	0.16	79	0.17	86	0.15	74	0.17	86	0.16	80	0.16	82	0.007	0.02
77	3,3',4,4'-tetrachlorobiphenyl	0.20	0.12	61	0.10	49	0.19	97	0.18	90	0.18	88	0.17	84	0.17	86	0.18	90	0.031	0.10
118	2,3',4,4',5-pentachlorobiphenyl	0.20	0.14	70	0.11	54	0.18	89	0.16	81	0.17	83	0.16	82	0.17	84	0.18	90	0.023	0.07
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	0.20	0.20	99	0.15	76	0.18	90	0.17	84	0.16	80	0.16	78	0.16	81	0.17	83	0.014	0.04
153	2,2',4,4',5,5'-hexachlorobiphenyl	0.20	0.19	95	0.17	83	0.17	86	0.17	84	0.17	83	0.18	90	0.17	83	0.18	88	0.008	0.02
105	2,3,3',4,4'-pentachlorobiphenyl	0.20	0.16	79	0.12	60	0.17	86	0.17	84	0.17	83	0.18	90	0.17	83	0.18	88	0.018	0.06
138	2,2',3,4,4',5'-hexachlorobiphenyl	0.20	0.29	145	0.19	95	0.18	92	0.18	89	0.17	85	0.18	92	0.17	83	0.18	91	0.037	0.12
126	3,3',4,4',5-pentachlorobiphenyl	0.20	0.25	126	0.17	85	0.18	88	0.19	96	0.14	71	0.17	85	0.14	71	0.18	91	0.032	0.10
187	2,2',3,4',5,5',6-heptachlorobiphenyl	0.20	0.27	137	0.14	70	0.19	96	0.19	96	0.17	82	0.18	89	0.18	88	0.17	84	0.037	0.12
183	2,2',3,4,4',5',6-heptachlorobiphenyl	0.20	0.29	145	0.13	65	0.16	80	0.19	96	0.14	70	0.17	84	0.18	90	0.17	82	0.046	0.15
128	2,2',3,3',4,4'-hexachlorobiphenyl	0.20	0.24	118	0.17	85	0.16	82	0.16	78	0.13	64	0.16	77	0.15	76	0.14	72	0.030	0.10
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	0.20	0.27	133	0.17	85	0.16	79	0.14	72	0.14	68	0.14	71	0.13	66	0.13	63	0.042	0.13
170	2,2',3,3',4,4',5-heptachlorobiphenyl	0.20	0.24	120	0.14	70	0.16	82	0.16	78	0.13	64	0.16	77	0.15	76	0.14	72	0.032	0.10
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	0.20	0.21	103	0.16	80	0.08	41	0.15	72	0.08	41	0.08	40	0.07	34	0.10	50	0.046	0.15
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	0.20	0.26	130	0.11	55	0.21	102	0.25	127	0.17	86	0.18	91	0.18	92	0.18	92	0.045	0.14
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	0.20	0.26	128	0.17	85	0.15	77	0.14	68	0.15	75	0.14	71	0.13	67	0.17	84	0.037	0.12

Surrogate Standard	Recovery (%)	Recovery (%)	Recovery (%)	Recovery (%)	Recovery (%)	Recovery (%)	Recovery (%)	Recovery (%)	(%)
PCB 198	56	62	138	139	127	131	126	121	30 - 150

Polynuclear Aromatic Hydrocarbons in Sediment
SW 846 8270/EPA 680 modified

Lab Number:	PB279S
Sample Designation:	Laboratory Blank
Date Sampled:	12/19/18 1100
Date Extracted:	01/14/19 1100
Date Analyzed:	01/15/19
Matrix:	Solid
Sample Amount (g):	10.0
Final Volume (mL)	1.00
Dilution Factor:	1

Compound	Concentration (ug/Kg)	Qualifier
naphthalene	10	U
acenaphthylene	10	U
acenaphthene	10	U
fluorene	10	U
phenanthrene	14	B
anthracene	10	U
fluoranthene	10	U
pyrene	10	U
benzo[a]anthracene	10	U
chrysene	10	U
benzo[b]fluoranthene	10	U
benzo[k]fluoranthene	10	U
benzo[a]pyrene	10	U
indeno[1,2,3-cd]pyrene	10	U
dibenz[a,h]anthracene	10	U
benzo[g,h,i]perylene	10	U

Surrogate Standard	Recovery (%)	Advisory Limits (%)
2-fluorobiphenyl	72	30 - 150
o-terphenyl	87	30 - 150

U = Not detected.
B = Compound present in the blank at a concentration of 14 ug/Kg.

Polynuclear Aromatic Hydrocarbons in Sediment
SW 846 8270/EPA 680 modified

Lab Number:	LCS279S / LCSD279S
Sample Designation:	Laboratory Control Sample Duplicate
Date Sampled:	01/14/19 1100
Date Extracted:	01/14/19 1100
Date Analyzed:	01/15/19
Matrix:	Solid
Sample Amount (g):	10.0
Final Volume (mL)	1.00
Dilution Factor:	1

Compound	True Value (ug/Kg)	LCS Result (ug/Kg)	Recovery (%)	Recovery Limit (%)	LCSD Result (ug/Kg)	Recovery (%)	Recovery Limit (%)	Relative Difference (%)	RPD Limit (%)	
naphthalene	500	312	62	30 - 150	223	45	30 - 150	32	30	J4
acenaphthylene	500	371	74	30 - 150	275	55	30 - 150	29	30	
acenaphthene	500	336	67	30 - 150	248	50	30 - 150	29	30	
fluorene	500	388	78	30 - 150	300	60	30 - 150	26	30	
phenanthrene	500	421	84	30 - 150	376	75	30 - 150	11	30	
anthracene	500	423	85	30 - 150	377	75	30 - 150	13	30	
fluoranthene	500	480	96	30 - 150	465	93	30 - 150	3	30	
pyrene	500	509	102	30 - 150	507	101	30 - 150	1	30	
benzo[a]anthracene	500	522	104	30 - 150	518	104	30 - 150	0	30	
chrysene	500	434	87	30 - 150	429	86	30 - 150	1	30	
benzo[b]fluoranthene	500	406	81	30 - 150	405	81	30 - 150	0	30	
benzo[k]fluoranthene	500	445	89	30 - 150	450	90	30 - 150	1	30	
benzo[a]pyrene	500	423	85	30 - 150	424	85	30 - 150	0	30	
indeno[1,2,3-cd]pyrene	500	516	103	30 - 150	510	102	30 - 150	1	30	
dibenz[a,h]anthracene	500	533	107	30 - 150	524	105	30 - 150	2	30	
benzo[g,h,i]perylene	500	500	100	30 - 150	502	100	30 - 150	0	30	

Surrogate Standards	Recovery (%)	Advisory Limits (%)	Recovery (%)	Advisory Limits (%)
2-fluorobiphenyl	58	30 - 150	45	30 - 150
o-terphenyl	95	30 - 150	97	30 - 150

J4 = LCSD %RR above limit.

Polynuclear Aromatic Hydrocarbons in Sediment
SW 846 8270/EPA 680 modified

Lab Number:	31466-006D
Sample Designation:	YS-6 (Laboratory Duplicate)
Date Sampled:	12/19/18 1100
Date Extracted:	01/14/19 1100
Date Analyzed:	01/16/19
Matrix:	Solid
Moisture (%):	30
Sample Amount (g):	14.0
Final Volume (mL)	1.00
Dilution Factor:	1

Compound	Duplicate Concentration (ug/Kg)	Duplicate Qualifier	Sample Concentration (ug/Kg)	Sample Qualifier	Relative Difference (%)	Limit (%)	Qualifier
naphthalene	11		6	J	NC	30	
acenaphthylene	15		13		NC	30	
acenaphthene	8	J	10	U	NC	30	
fluorene	17		11		NC	30	
phenanthrene	170		121		35	30	J8
anthracene	38		29		NC	30	
fluoranthene	230		188		20	30	
pyrene	210		181		16	30	
benzo[a]anthracene	150		127		14	30	
chrysene	120		106		15	30	
benzo[b]fluoranthene	130		116		13	30	
benzo[k]fluoranthene	100		81		20	30	
benzo[a]pyrene	110		97		15	30	
indeno[1,2,3-cd]pyrene	34		31		NC	30	
dibenz[a,h]anthracene	19		18		NC	30	
benzo[g,h,i]perylene	29		26		NC	30	

Surrogate Standard	Recovery (%)	Recovery (%)	Advisory Limits (%)
2-fluorobiphenyl	46	35	30 - 150
o-terphenyl	82	83	30 - 150

U = Not detected.
NC = Not calculated due to one or both values less than five times the reporting limit.
J = Below reporting limit, but above MDL.
J8 = Duplicate %RR above limit.

ESI

Polynuclear Aromatic Hydrocarbons in Sediment
SW 846 8270/EPA 680 modified

Lab Number:	31466-006MSD
Sample Designation:	YS-13 (Matrix Spike Duplicate)
Date Sampled:	1/14/19
Date Extracted:	1/14/19
Date Analyzed:	01/15/19
Matrix:	Solid
Moisture:	36
Sample Amount (g):	14.0
Final Volume (mL)	1
Dilution Factor:	5

Compound	Sample Result (ug/Kg)	Amount Added (ug/Kg)	MS Result (ug/Kg)	Recovery (%)	Recovery Limit (%)	MSD Result (ug/Kg)	Recovery (%)	Recovery Limit (%)	Relative Difference (%)	RPD Limit (%)
naphthalene	6	557	286	50	30 - 150	265	46	30 - 150	8	30
acenaphthylene	13	557	347	60	30 - 150	319	55	30 - 150	8	30
acenaphthene	10	557	321	57	30 - 150	297	53	30 - 150	8	30
fluorene	11	557	412	72	30 - 150	388	68	30 - 150	6	30
phenanthrene	121	557	650	93	30 - 150	644	94	30 - 150	1	30
anthracene	32	557	509	86	30 - 150	500	85	30 - 150	2	30
fluoranthene	207	557	832	112	30 - 150	853	119	30 - 150	2	30
pyrene	199	557	897	125	30 - 150	907	130	30 - 150	1	30
benzo[a]anthracene	140	557	813	121	30 - 150	818	124	30 - 150	1	30
chrysene	117	557	610	88	30 - 150	604	89	30 - 150	1	30
benzo[b]fluoranthene	127	557	557	77	30 - 150	667	99	30 - 150	18	30
benzo[k]fluoranthene	89	557	660	103	30 - 150	579	89	30 - 150	13	30
benzo[a]pyrene	107	557	610	90	30 - 150	612	92	30 - 150	0	30
indeno[1,2,3-cd]pyrene	34	557	704	120	30 - 150	725	125	30 - 150	3	30
dibenz[a,h]anthracene	10	557	503	87	30 - 150	516	89	30 - 150	2	30
benzo[g,h,i]perylene	29	557	571	97	30 - 150	589	101	30 - 150	3	30

Surrogate Standard	Recovery (%)	Advisory Limits (%)	Recovery (%)	Advisory Limits (%)
2-fluorobiphenyl	49	30 - 150	45	30 - 150
o-terphenyl	111	30 - 150	111	30 - 150

U = Not detected
NA = Not added or evaluated

Polynuclear Aromatic Hydrocarbons in Solid Matrix
SW 846 8270/680 modified

Sample Designation:	Solid
Date Sampled:	01/08/18
Date Extracted:	01/08/18
Date Analyzed:	01/12/18
Analyst:	RDF
Moisture:	NA
Sample Amount (g):	20.00
Final Volume (mL)	1.0
Dilution Factor:	1

Lab Number:		MDL A 2018 MDL 01		MDL B 2018 MDL 02		MDL B 2017 MDL 03		MDL C 2017 MDL 04		MDL D 2017 MDL 05		MDL E 2017 MDL 06		MDL F 2017 MDL 07		MDL G 2017 MDL 08			
	True Value (ug/Kg)	Found (ug/Kg)	Recovery (%)	Found (ug/Kg)	Recovery (%)	Found (ug/Kg)	Recovery (%)	Found (ug/Kg)	Recovery (%)	Found (ug/Kg)	Recovery (%)	Found (ug/Kg)	Recovery (%)	Found (ug/Kg)	Recovery (%)	Found (ug/Kg)	Recovery (%)	STD (ug/Kg)	MDL (ug/Kg)
naphthalene	8	8.16	102	7.28	91	9.80	98	8.14	81	7.28	73	7.85	78	7.99	80	7.88	79	0.7364	0.23
acenaphthylene	8	7.60	95	6.41	80	9.02	90	7.39	74	6.41	64	6.66	67	7.24	72	7.58	76	0.8002	0.25
acenaphthene	8	8.22	103	7.34	92	9.70	97	7.56	76	7.34	73	7.09	71	7.22	72	8.30	83	0.8163	0.26
fluorene	8	8.69	109	7.34	92	10.27	103	7.93	79	7.34	73	7.82	78	7.27	73	8.19	82	0.9363	0.30
phenanthrene	8	15.21	190	11.33	142	15.01	150	11.79	118	11.33	113	11.54	115	8.38	84	8.24	82	2.4111	0.77
anthracene	8	11.02	138	7.34	92	8.96	90	7.62	76	7.34	73	7.27	73	7.82	78	7.25	73	1.2306	0.39
fluoranthene	8	11.09	139	8.45	106	11.95	119	9.04	90	8.45	85	8.56	86	8.16	82	8.16	82	1.3617	0.43
pyrene	8	9.77	122	8.29	104	11.50	115	8.82	88	8.29	83	8.62	86	8.60	86	8.51	85	1.0240	0.33
benzo[a]anthracene	8	8.49	106	7.18	90	9.92	99	7.82	78	7.18	72	7.41	74	7.25	72	7.18	72	0.9062	0.29
chrysene	8	9.50	119	7.77	97	10.77	108	8.24	82	7.77	78	7.80	78	8.31	83	8.55	85	0.9856	0.31
benzo[b]fluoranthene	8	7.51	94	7.10	89	10.38	104	7.79	78	7.10	71	7.20	72	7.05	70	7.14	71	1.0548	0.34
benzo[k]fluoranthene	8	10.40	130	7.50	94	11.29	113	9.38	94	7.50	75	8.94	89	8.45	85	8.69	87	1.2364	0.39
benzo[a]pyrene	8	8.19	102	7.33	92	9.31	93	8.12	81	7.33	73	7.26	73	7.27	73	7.02	70	0.7169	0.23
indeno[1,2,3-cd]pyrene	8	8.66	108	5.79	72	8.43	84	6.78	68	5.79	58	6.11	61	6.41	64	6.71	67	1.0494	0.33
dibenz[a,h]anthracene	8	7.89	99	5.10	64	7.40	74	5.99	60	5.10	51	5.24	52	5.32	53	5.24	52	1.0438	0.33
benzo[g,h,i]perylene	8	8.75	109	5.80	73	8.53	85	6.62	66	5.80	58	6.20	62	5.70	57	6.47	65	1.1439	0.36

Pesticides in Sediment
SW 846 8081B

Lab Number:	PB268S
Sample Designation:	Laboratory Blank
Date Sampled:	12/27/18 1000
Date Extracted:	12/27/18 1000
Date Analyzed:	01/12/19
Matrix:	Solid
Moisture (%):	NA
Sample Amount (g):	10.00
Final Volume (mL)	1.00
Dilution Factor:	1

Analyte	Concentration (ug/Kg)	Qualifier
aldrin	0.2	U
gamma-chlordane (cis)	0.2	U
alpha-chlordane (trans)	0.2	U
cis-nonachlor	0.2	U
trans-nonachlor	0.2	U
oxychlordane	0.2	U
4,4'-DDT	0.4	U
4,4'-DDE	0.4	U
4,4'-DDD	0.4	U
alpha-BHC	0.2	U
dieldrin	0.4	U
endosulfan I	0.2	U
endosulfan II	0.4	U
endrin	0.4	U
heptachlor	0.2	U
heptachlor epoxide	0.2	U
hexachlorobenzene	0.2	U
gamma-BHC (lindane)	0.2	U
methoxychlor	2	U
toxaphene	10	U

Surrogate Standard	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	78	30 - 150
decachlorobiphenyl	70	30 - 150

U = Not detected at indicated level.

Pesticides in Sediment
SW 846 8081B

Lab Number:	LCSD268S
Sample Designation:	Laboratory Control Sample Duplicate
Date Sampled:	12/27/18 1000
Date Extracted:	12/27/18 1000
Date Analyzed:	01/12/19
Matrix:	Solid
Moisture:	NA
Sample Amount (g):	10
Final Volume (mL)	1
Dilution Factor:	1

Analyte	LCS True Value (ug/Kg)	LCS Found (ug/Kg)	LCS Recovery (%)	LCSD True Value (ug/Kg)	LCSD Found (ug/Kg)	LCSD Recovery (%)	Relative Difference (%)
aldrin	2.0	0.98	49	2.0	1.00	50	2
gamma-chlordane	2.0	1.10	55	2.0	1.18	59	7
alpha-chlordane	2.0	1.17	59	2.0	1.17	59	0
cis-nonachlor	2.0	1.21	61	2.0	1.28	64	5
trans-nonachlor	2.0	1.18	59	2.0	1.19	60	1
oxychlordane	2.0	1.07	53	2.0	1.13	56	5
4,4'-DDT	4.0	3.15	79	4.0	3.22	81	2
4,4'-DDE	4.0	2.45	61	4.0	2.73	68	11
4,4'-DDD	4.0	2.54	63	4.0	2.67	67	5
alpha-BHC	2.0	0.80	40	2.0	0.86	43	8
dieldrin	4.0	2.19	55	4.0	2.25	56	3
endosulfan I	2.0	1.06	53	2.0	1.06	53	1
endosulfan II	4.0	2.34	59	4.0	2.46	61	5
endrin	4.0	2.43	61	4.0	2.5	63	3
heptachlor	2.0	1.03	51	2.0	1.07	53	3
heptachlor epoxide	2.0	1.17	58	2.0	1.17	59	0
hexachlorobenzene	2.0	1.31	66	2.0	1.70	85	26
gamma-BHC (lindane)	2.0	1.1	55	2.0	1.26	63	13
methoxychlor	20.0	15	75	20.0	16.4	82	9
toxaphene	NA	10	NA	NA	10	NA	NA

Surrogate Standard	Recovery (%)	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	63	76	30 - 150
decachlorobiphenyl	74	77	30 - 150

NA = Not added or evaluated.

Pesticides in Sediment
SW 846 8081B

Lab Number:	31466-002
Sample Designation:	YS-2 (Laboratory Duplicate)
Date Sampled:	12/19/18 1100
Date Extracted:	12/27/18 1000
Date Analyzed:	01/12/19
Matrix:	Solid
Moisture (%):	26
Sample Amount (g):	13
Final Volume (mL)	1
Dilution Factor:	1

Analyte	Sample Concentration (ug/Kg)	Qualifier	Duplicate Concentration (ug/Kg)	Qualifier	Relative Difference (%)	Limit (%)
aldrin	0.2	U	0.2	U	NC	30
gamma-chlordane	0.2	U	0.2	U	NC	30
alpha-chlordane	0.2	U	0.2	U	NC	30
cis-nonachlor	0.2	U	0.2	U	NC	30
trans-nonachlor	0.2	U	0.2	U	NC	30
oxychlordane	0.2	U	0.2	U	NC	30
4,4'-DDT	0.4	U	0.4	U	NC	30
4,4'-DDE	0.4	U	0.4	U	NC	30
4,4'-DDD	0.4	U	0.4	U	NC	30
alpha-BHC	0.2	U	0.2	U	NC	30
dieldrin	0.4	U	0.4	U	NC	30
endosulfan I	0.2	U	0.2	U	NC	30
endosulfan II	0.4	U	0.4	U	NC	30
endrin	0.4	U	0.4	U	NC	30
heptachlor	0.2	U	0.2	U	NC	30
heptachlor epoxide	0.2	U	0.2	U	NC	30
hexachlorobenzene	0.2	U	0.2	U	NC	30
gamma-BHC (Lindane)	0.2	U	0.2	U	NC	30
methoxychlor	2	U	2	U	NC	30
toxaphene	10	U	10	U	NC	30

Surrogate Standard	Sample Recovery (%)	Duplicate Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	77	84	30 - 150
decachlorobiphenyl	94	88	30 - 150

U = Not detected at indicated level.
NC = Not calculated due to one or both values less than five times quantitation limit.

Pesticides in Sediment
SW 846 8081B

Lab Number:	31466-002MSD
Sample Designation:	YS-2 (Matrix Spike Duplicate)
Date Sampled:	12/19/18 1100
Date Extracted:	12/27/18 1000
Date Analyzed:	01/12/19
Matrix:	Solid
Moisture (%):	26
Sample Amount (g):	13
Final Volume (mL)	1
Dilution Factor:	1

Compound	Sample Result (ug/Kg)	Amount Added (ug/Kg)	MS Result (ug/Kg)	Recovery (%)	Recovery Limit (%)	MSD Result (ug/Kg)	Recovery (%)	Recovery Limit (%)	Relative Difference (%)	RPD Limit (%)	Qual
aldrin	ND	2.1	1.98	95	30-150	1.35	65	30-150	38	30	J7
gamma-chlordane (cis)	ND	2.1	2.26	109	30-150	1.61	78	30-150	34	30	J7
alpha-chlordane (trans)	ND	2.1	1.88	80	30-150	1.67	81	30-150	11	30	
cis-nonachlor	ND	2.1	2.01	97	30-150	1.91	92	30-150	5	30	
trans-nonachlor	ND	2.1	1.08	52	30-150	2.05	99	30-150	61	30	J7
oxychlordane	ND	2.1	1.85	89	30-150	1.77	85	30-150	4	30	
4,4'-DDT	ND	4.1	4.68	113	30-150	3.70	89	30-150	23	30	
4,4'-DDE	ND	4.1	3.96	96	30-150	3.36	81	30-150	17	30	
4,4'-DDD	ND	4.1	4.34	105	30-150	3.58	86	30-150	19	30	
alpha-BHC	ND	2.1	1.38	67	30-150	1.26	61	30-150	10	30	
dieldrin	ND	4.1	4.22	102	30-150	3.19	77	30-150	28	30	
endosulfan I	ND	2.1	1.98	96	30-150	2.07	100	30-150	4	30	
endosulfan II	ND	4.1	4.07	98	30-150	3.06	74	30-150	29	30	
endrin	ND	4.1	4.26	103	30-150	3.30	79	30-150	26	30	
heptachlor	ND	2.1	1.46	70	30-150	1.18	57	30-150	21	30	
heptachlor epoxide	ND	2.1	1.99	96	30-150	1.54	74	30-150	25	30	
hexachlorobenzene	ND	2.1	1.80	87	30-150	1.79	86	30-150	1	30	
gamma-BHC (lindane)	ND	2.1	1.82	88	30-150	1.74	84	30-150	4	30	
methoxychlor	ND	20.7	27.1	131	30-150	18.4	89	30-150	38	30	J7
toxaphene	ND	NA	NA	NA	30-150	NA	NA	30-150	NA	30	

Surrogate Standard	Recovery (%)	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	92	68	30 - 150
decachlorobiphenyl	103	76	30 - 150

NA = Analyte not present in control sample.
ND = Not detected.
J7 = MSD %RR above limit.

Pesticides in Sediment Matrix
SW 846 8081

Lab Number:		MDLW A 2018		MDLW B 2018		MDLS2017		MDLS2017		MDLS2017		MDLS2017		MDLS2017		MDLS2017			
Sample Designation:		Sediment		Sediment		Sediment		Sediment		Sediment		Sediment		Sediment		Sediment			
Date Sampled:		01/25/18 1000		01/25/18 1000		01/04/17		01/04/17		01/04/17		01/04/17		01/04/17		01/04/17			
Date Extracted:		01/25/18 1000		01/25/18 1000		01/04/17		01/04/17		01/04/17		01/04/17		01/04/17		01/04/17			
Date Analyzed:		02/28/18		02/28/18		01/12/17		01/12/17		01/12/17		01/12/17		01/12/17		01/12/17			
Matrix:		Solid		Solid		Solid		Solid		Solid		Solid		Solid		Solid			
Moisture:		NA		NA		NA		NA		NA		NA		NA		NA			
Sample Amount (g):		20.00		20.00		20.00		20.00		20.00		20.00		20.00		20.00			
Final Volume (mL)		1		1		1.00		1.00		1.00		1.00		1.00		1.00			
Dilution Factor:		1		1		1.00		1.00		1.00		1.00		1.00		1.00			
Analyst:		AM		AM		AM		AM		AM		AM		AM		AM			
		MDL01		MDL02		MDL03		MDL04		MDL05		MDL06		MDL07		MDL08			
	True Value (ug/Kg)	Found (ug/Kg)	Recovery (%)	Found (ug/Kg)	Recovery (%)	Found (ug/Kg)	Recovery (%)	Found (ug/Kg)	Recovery (%)	Found (ug/Kg)	Recovery (%)	Found (ug/Kg)	Recovery (%)	Found (ug/Kg)	Recovery (%)	Found (ug/Kg)	Recovery (%)	STD (ug/Kg)	MDL (ug/Kg)
hexachlorobenzene	0.10	0.10	96	0.09	94	0.10	96	0.10	95	0.09	93	0.10	99	0.09	91	0.09	94	0.00	0.01
alpha-BHC	0.10	0.06	56	0.06	59	0.11	107	0.11	105	0.11	108	0.11	109	0.09	94	0.10	101	0.02	0.06
gamma-BHC (Lindane)	0.10	0.07	70	0.07	71	0.13	130	0.13	128	0.13	129	0.13	129	0.12	123	0.13	127	0.02	0.08
beta-BHC	0.10	0.10	105	0.11	108	0.09	94	0.08	80	0.07	75	0.07	74	0.08	81	0.07	74	0.01	0.04
delta-BHC	0.10	0.08	83	0.06	58	0.10	98	0.08	83	0.08	78	0.08	76	0.07	71	0.07	70	0.01	0.03
heptachlor	0.10	0.08	84	0.09	88	0.09	87	0.10	96	0.09	89	0.09	87	0.08	84	0.09	92	0.00	0.01
aldrin	0.10	0.07	71	0.06	64	0.11	114	0.08	84	0.08	80	0.08	77	0.07	72	0.08	80	0.01	0.04
oxychlordane	0.10	0.08	81	0.07	74	0.10	105	0.10	99	0.10	98	0.10	100	0.10	95	0.10	95	0.01	0.03
chlorpyrifos	0.10	0.10	102	0.10	99	0.11	113	0.12	118	0.10	105	0.10	102	0.10	103	0.11	110	0.01	0.02
heptachlor epoxide	0.10	0.08	78	0.09	86	0.09	94	0.08	83	0.09	87	0.09	88	0.08	83	0.09	88	0.00	0.01
gamma-chlordane	0.10	0.10	97	0.09	94	0.08	79	0.08	83	0.09	90	0.08	83	0.08	80	0.09	85	0.01	0.02
trans-nonachlor	0.10	0.08	84	0.07	70	0.10	96	0.10	105	0.09	92	0.09	90	0.09	91	0.09	93	0.01	0.03
alpha-chlordane	0.10	0.07	73	0.08	82	0.09	93	0.09	91	0.09	89	0.10	96	0.08	81	0.10	96	0.01	0.02
endosulfan I	0.10	0.09	93	0.08	82	0.09	88	0.09	85	0.08	85	0.09	87	0.08	83	0.09	85	0.00	0.01
4,4'-DDE	0.20	0.17	83	0.16	78	0.22	111	0.23	115	0.23	113	0.23	114	0.22	110	0.23	116	0.03	0.09
dieldrin	0.20	0.16	81	0.15	77	0.26	128	0.25	127	0.26	129	0.26	128	0.25	124	0.26	128	0.04	0.13
endrin	0.20	0.15	77	0.15	77	0.28	139	0.27	134	0.27	135	0.27	134	0.26	130	0.27	135	0.05	0.16
cis-nonachlor	0.10	0.07	71	0.07	70	0.07	71	0.07	75	0.07	71	0.09	92	0.08	77	0.07	72	0.01	0.02
4,4'-DDD	0.20	0.14	72	0.14	72	0.29	145	0.29	143	0.30	148	0.28	139	0.27	133	0.28	140	0.06	0.19
endosulfan II	0.20	0.15	74	0.15	75	0.17	83	0.19	95	0.19	96	0.20	98	0.19	93	0.19	96	0.02	0.06
toxaphene	0.00	0.00	NA	0.00	NA	0.00	NA	0.00	NA	0.00	NA	0.00	NA	0.00	NA	0.00	NA	0.00	0.00
4,4'-DDT	0.20	0.14	71	0.15	76	0.28	142	0.27	137	0.28	142	0.28	139	0.27	136	0.28	142	0.06	0.18
endrin aldehyde	0.20	0.16	80	0.16	79	0.15	73	0.17	87	0.17	86	0.16	82	0.16	81	0.17	87	0.01	0.03
endosulfan sulfate	0.20	0.16	78	0.16	79	0.16	81	0.18	92	0.18	92	0.18	89	0.17	84	0.19	96	0.01	0.04
methoxychlor	1.00	0.95	95	0.96	96	1.25	125	1.26	126	1.23	123	1.26	126	1.20	120	1.25	125	0.12	0.39
endrin ketone	0.20	0.15	76	0.15	76	0.16	79	0.17	86	0.17	87	0.17	86	0.16	81	0.17	87	0.01	0.03

Table II-1: Completeness Checklist

Quality Assurance/Quality Control Questions	Yes/No? Comments?
1. Was the report signed by the responsible applicant approved representative?	Yes
2. Were the methods for sampling, chemical and biological testing described in the Sampling and Analysis Plan (SAP) and the Laboratory QA Plan (LQAP) followed?	Yes
3. If not, were deviations documented?	Yes
4. Was the SAP approved by the New England District?	Yes
5. Did the applicant use a laboratory with a LQAP on file at the New England District?	Yes
6. Did the samples adequately represent the physical/chemical variability in the dredging area?	Yes
7. Were the correct stations sampled (include the precision of the navigation method used)?	Yes
8. Were the preservation and storage requirements in Chapter 8 of the EPA/Corps QA/QC Manual (EPA/USACE 1995) and EPA (2001d) followed?	Yes
9. Were the samples properly labeled?	Yes
10. Were all the requested data included?	Yes
11. Were the reporting limits met?	Yes
12. Were the chain-of-custody forms properly processed?	Yes
13. Were the method blanks run and were the concentration below the acceptance criteria?	Yes, except where noted
14. Was the MDL study performed on each matrix (with this data submission) or within the last 12 months?	Yes

Table II-1: Completeness Checklist

Quality Assurance/Quality Control Questions	Yes/No? Comments?
15. Were the SRM/CRM analyses within acceptance criteria?	No, SRM was unavailable for analysis
16. Were the matrix spike/matrix spike duplicates run at the required frequency and was the percent recovery/RPD within the acceptance criteria?	Yes, except where noted
17. Were the duplicate samples analyzed and were the RPDs within the required acceptance criteria?	Yes, except where noted
18. For each analytical fraction of organic compounds, were recoveries for the internal standard within the acceptance criteria?	Yes
19. Were surrogate recoveries within the required acceptance criteria?	Yes
20. Were corrective action forms provided for all non-conforming data?	Yes
21. Were all the species-specific test conditions in Appendix V met?	NA
22. Were the test-specific age requirements met for each test species?	NA
23. Was the bulk physical/chemical testing performed on the sediments/composites that were biologically tested?	NA
24. Were the mortality acceptance criteria met for the water column and sediment toxicity tests?	NA
25. Were the test performance requirements in Table 11.3 of EPA (1994a) met?	NA

Table II-2: Quality Control Summary for Analyses of Polyaromatic Hydrocarbons (PAHs) and other base-neutrals in Sediment and Tissue Matrices

Method Reference Number: 8270C

Quality Control (QC) Element	Acceptance Criteria*	Criteria Met? Yes/No	List results outside criteria (Cross-reference results table in data report)	Location of Results (Retained at Lab or in Data Package)
Initial Calibration	Must be performed prior to the analysis of any QC sample or field sample (<20 % RSD for each compound)	Yes		Retained at Lab
Calculation of Method Detection Limits (MDLs)	For each matrix, analyzed once per 12 month period (see Section 5.2 for MDL procedure)	Yes		In Data Package
Calibration Verification (Second Source)	Once, after initial calibration (80 to 120% recovery of each compound)	Yes		Retained at Lab
Continuing Calibration	At the beginning of every 12 hour shift (≤ 15 % D)	Yes		Retained at Lab
Standard Reference Materials	Within the limits provided by vendor	No	The SRM was unavailable	In Data Package
Method Blank	No target analytes > RL	No	There was a hit present for phenanthrene in the blank.	In Data Package
Matrix Spike/Matrix Spike Duplicate (MS/MSD)	One set (MS/MSD) per group of field samples. Must contain all target analytes. (Recovery Limits 50 to 120%; RPD <30%)	Yes		In Data Package
Analytical Replicates	Analyze one sample in duplicate for each group of field samples (RPD < 30%)	No	The %RR for phenanthrene was above acceptable limits.	In Data Package
Surrogate Recoveries	Calculate % recovery (30 to 150% recovery)	No	There were two incidences where the surrogate %R was below limits.	In Data Package
Internal Standard Areas	Within 50 to 200% of internal standards in continuing calibration check	Yes		Retained at Lab

* The Quality Control Acceptance Criteria are general guidelines. If alternate criteria are used, they must be documented in this table.

Table II-3: Quality Control Summary for Analyses of Pesticides in Sediment, Tissue and Water Matrices

Method Reference Number: 8081B

Quality Control (QC) Element	Acceptance Criteria*	Criteria Met? Yes/No	List results outside criteria (Cross-reference results table in data report)	Location of Results (Retained at Lab or in Data Package)
Initial Calibration	Must be performed prior to the analysis of any QC sample or field sample (< 20 % RSD for each compound)	Yes		Retained at Lab
Calculation of Method Detection Limits (MDLs)	For each matrix, analyzed once per 12 month period (see Section 5.2 for MDL procedure)	Yes		In Data Package
Calibration Verification (Second Source)	Once, after initial calibration (80 to 120% recovery of each compound)	Yes		Retained at Lab
Continuing Calibration	Every 20 injections (≤ 15 % D)	Yes		Retained at Lab
Standard Reference Materials	Within the limits provided by vendor	No	The SRM was unavailable	In Data Package
Method Blank	No target analytes > RL	Yes		In Data Package
Matrix Spike/Matrix Spike Duplicate (MS/MSD)	One set (MS/MSD) per group of field samples. Must contain all target analytes. (Recovery Limits 50 to 120%; RPD <30%)	No	There were four incidences where the MSD %RR was above limits.	In Data Package
Analytical Replicates	Analyze one sample in duplicate for each group of field samples (RPD < 30%)	Yes		In Data Package
Surrogate Recoveries	Calculate % recovery (30 to 150% recovery)	Yes		In Data Package

* The Quality Control Acceptance Criteria are general guidelines. If alternate criteria are used, they must be documented in this tabl

Table II-4: Quality Control Summary for Analyses of Polychorinated Biphenyls (PCB congeners) in Sediment, Tissue and Water Matrices

Method Reference Number: 8082A

Quality Control (QC) Element	Acceptance Criteria*	Criteria Met? Yes/No	List results outside criteria (Cross-reference results table in data report)	Location of Results (Retained at Lab or in Data Package)
Initial Calibration	Must be performed prior to the analysis of any QC sample or field sample (<20 % RSD for each compound)	Yes		Retained at Lab
Calculation of Method Detection Limits (MDLs)	For each matrix, analyzed once per 12 month period (see Section 5.2 for MDL procedure)	Yes		In Data Package
Calibration Verification (Second Source)	Once, after initial calibration. (80 to 120% recovery of each compound)	Yes		Retained at Lab
Continuing Calibration	Every 20 injections (± 15 % D)	Yes		Retained at Lab
Standard Reference Materials	Within the limits provided by vendor	No	The SRM was unavailable	In Data Package
Method Blank	No target analytes > RL	No	There were three incidences where there was a hit above the reporting limit in the blank.	In Data Package
Matrix Spike/Matrix Spike Duplicate (MS/MSD)	One set (MS/MSD) per group of field samples. Must contain all target analytes. (Recovery Limits 50 to 120%; RPD <30%)	No	The %RR for PCB 187 was above acceptable limits.	In Data Package
Analytical Replicates	Analyze one sample in duplicate for each group of field samples (RPD < 30%)	Yes		In Data Package
Surrogate Recoveries	Calculate % recovery (30 to 150% recovery)	Yes		In Data Package

* The Quality Control Acceptance Criteria are general guidelines. If alternate criteria are used, they must be documented in this table.

Table II-5: Quality Control Summary for Analyses of Metals in Sediments, Tissue and Water Matrices

Method Reference Numbers: Various Reference Numbers

Quality Control (QC) Element	Acceptance Criteria*	Criteria Met? Yes/No	List results outside criteria (Cross-reference results table in data report)	Location of Results (Retained at Lab or in Data Package)
Linear Range Determination for ICP	Performed Quarterly	Yes		Retained at Lab
Initial Calibration for AA, Hg	Performed Daily (Correlation Coefficient ±0.995)	Yes		Retained at Lab
Calculation of Method Detection Limits (MDLs)	For each matrix, analyzed once per 12 month period (see Section 5.2 for MDL procedure)	Yes		In Data Package
Initial Calibration Verification/ Continuing Calibration Verification	Hg: 80 to 120% recovery Other metals: 90 to 110% recovery	Yes		Retained at Lab
Initial Calibration Blank/ Continuing Calibration Blank	No target analytes > Instrument Detection Limit (IDL)	Yes		Retained at Lab
Standard Reference Materials	Within the limits provided by vendor	No	The SRM was unavailable	In Data Package
Method Blank	No target analytes > RL	Yes		In Data Package
Sample Spike/ Sample Duplicate	One set per group of field samples. Must contain all target analytes. Recovery Limits (75 to 125%; RPD < 20% or < 35%)	No	There was one incidence where the spike %R for nickel was below the acceptable limit.	In Data Package
Analytical Replicates	Analyze one sample in duplicate for each group of field samples (RPD < 30%)	Yes		In Data Package

* The Quality Control Acceptance Criteria are general guidelines. If alternate criteria are used, they must be documented in this table.

SAMPLE RECEIPT AND CONDITION DOCUMENTATION

STUDY NO:	31466		
SDG No:	Eco-Analysts Inc		
Project:	Yachting Solutions		
Delivered via:	Client		
Date and Time Received:	12/21/18 1200	Date and TIme Logged into Lab:	12/26/18 0907
Received By:	JTP	Logged into Lab by:	AM AM
Air bill / Way bill:	No	Air bill included in folder if received?	NA
Cooler on ice/packs:	No	Custody Seals present?	NA
Cooler Blank Temp (C) at arrival:	14.7	Custody Seals intact?	NA
Number of COC Pages:	2		
COC Serial Number(s):	NA		
COC Complete:	Yes	Does the info on the COC match the samples?	Yes
Sampled Date:	Yes	Were samples received within holding time?	Yes
Field ID complete:	Yes	Were all samples properly labeled?	Yes
Sampled Time:	Yes	Were proper sample containers used?	Yes
Analysis request:	Yes	Were samples received intact? (none broken or leaking)	Yes
COC Signed and dated:	Yes	Were sample volumes sufficient for requested analysis?	Yes
Were all samples received?	Yes	Were VOC vials free of headspace?	NA
Client notification/authorization:	Not required	pH Test strip ID number:	NA

Field ID	Lab ID	Mx	Analysis Requested	Bottle	Req'd Pres'n	Verified Pres'n
YS-1	31466-001	S	Subsample Total Metals As,Cd,Cr,Cu,Pb,Hg,Ni,Zn;CGR8:	1000 G,9 oz	4C	NA
YS-2	31466-002	S	Subsample Total Metals As,Cd,Cr,Cu,Pb,Hg,Ni,Zn;CGR8:	1000 G,9 oz	4C	NA
YS-3	31466-003	S	Subsample Total Metals As,Cd,Cr,Cu,Pb,Hg,Ni,Zn;CGR8:	1000 G,9 oz	4C	NA
YS-4	31466-004	S	Subsample Total Metals As,Cd,Cr,Cu,Pb,Hg,Ni,Zn;CGR8:	1000 G,9 oz	4C	NA
YS-5	31466-005	S	Subsample Total Metals As,Cd,Cr,Cu,Pb,Hg,Ni,Zn;CGR8:	1000 G,9 oz	4C	NA
YS-6	31466-006	S	Subsample Total Metals As,Cd,Cr,Cu,Pb,Hg,Ni,Zn;CGR8:	1000 G,9 oz	4C	NA
YS-7	31466-007	S	Subsample Total Metals As,Cd,Cr,Cu,Pb,Hg,Ni,Zn;CGR8:	1000 G,9 oz	4C	NA
YS-8	31466-008	S	Subsample Total Metals As,Cd,Cr,Cu,Pb,Hg,Ni,Zn;CGR8:	1000 G,9 oz	4C	NA
YS-9	31466-009	S	Subsample Total Metals As,Cd,Cr,Cu,Pb,Hg,Ni,Zn;CGR8:	1000 G,9 oz	4C	NA
YS-10	31466-010	S	Subsample Total Metals As,Cd,Cr,Cu,Pb,Hg,Ni,Zn;CGR8:	1000 G,9 oz	4C	NA
YS-11	31466-011	S	Subsample Total Metals As,Cd,Cr,Cu,Pb,Hg,Ni,Zn;CGR8:	1000 G,9 oz	4C	NA
YS-12	31466-012	S	Subsample Total Metals As,Cd,Cr,Cu,Pb,Hg,Ni,Zn;CGR8:	1000 G,9 oz	4C	NA
YS-13	31466-013	S	Subsample Total Metals As,Cd,Cr,Cu,Pb,Hg,Ni,Zn;CGR8:	1000 G,9 oz	4C	NA

Notes and qualifications:

ESI
EnviroSystems, Inc.
1 Lafayette Road
P.O. Box 778
Hampton, N.H. 03843
Voice: 603-926-3345
FAX: 603-926-3521

ESI Job No: 31466

CHAIN OF CUSTODY DOCUMENTATION

Client: ECO-ANALYSTS	Contact: Bud Brown	Project Name: Yachting Solutions	Page 1 of 2
Report to: Bud Brown	Address: P.O. Box 224	Project Number:	
Invoice to: EC Yachting Solutions	Address: Bath, ME 04530	Project Manager: Bud Brown	
Voice: 207-837-2442	Fax:	email: rubtov@gwi.net	P.O. No: Quote No:

Protocol: RCRA SDWA NPDES USCOE Other

Lab Number (assigned by lab)	Your Field ID: (must agree with container)	Date Sampled	Time Sampled	Sampled By	Grab or composit (G/C)	Container Size (ml.)	Container Type (P/G/T)	Field Preservation	Matrix S=Solid W=Water	Filter N=Not needed F=Done in field L=Lab to do	Analyses Requested\ Special Instructions:
001	YS-1	12/19	1100	Bud	G	2 gal	P	N/A	S	N	Bulk Chemistry
002	YS-2	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
003	YS-3	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
004	YS-4	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
005	YS-5	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
006	YS-6	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
007	YS-7	↓	1600	↓	↓	↓	↓	↓	↓	↓	↓

Relinquished By:	Date: 12/21	Time: 1200	Received By: Date: 12/21/18 Time: 1200
Relinquished By:	Date:	Time:	Received at Lab By: Date: Time:

Comments:

ESI

EnviroSystems, Inc.
1 Lafayette Road
P.O. Box 778
Hampton, N.H. 03843

Voice: 603-926-3345
FAX: 603-926-3521

ESI Job No: 31466

CHAIN OF CUSTODY DOCUMENTATION

Client: ECO-ANALYSTS	Contact: Bud Brown	Project Name: Yachting Solutions	Page 2 of 2
Report to: Bud Brown	Address: P.O. Box 224	Project Number:	
Invoice to: Yachting Solutions	Address: Bath, ME 04330	Project Manager: Bud Brown	
Voice: 207-837-2442	Fax:	email: raptor@gwi.net	P.O. No: Quote No:

Protocol: RCRA SDWA NPDES USCOE Other

Lab Number (assigned by lab)	Your Field ID: (must agree with container)	Date Sampled	Time Sampled	Sampled By	Grab or composit (G/C)	Container Size (ml.)	Container Type (P/G/T)	Field Preservation	Matrix S=Solid W=Water	Filter N=Not needed F=Done in field L=Lab to do	Analyses Requested\ Special Instructions:
008	YS-8	12/20	1200	Bud	G	2.5gal	P	N/A	S	N	Bulk Chemistry
009	YS-9	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
010	YS-10										
011	YS-11										
012	YS-12		↓								
013	YS-13	↓	1600	↓	↓	↓	↓	↓	↓	↓	↓

Relinquished By:	Date: 12/21	Time: 1200	Received By: Ann T. Pur
Relinquished By:	Date:	Time:	Received at Lab By:

Date: 12/21/18 Time: 1200

Date: Time:

Comments: