bp Ephesus Pre-Drilling Sediment Survey Report

Newfoundland & Labrador Orphan Basin Exploration Drilling Program

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Revision Code	B02	**Revision Description**	For Approval
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Location (Region/Field)	Newfoundland - Orphan Basin	**Well ID**	Ephesus F-94
Legacy ID	NA	**Rig Name**	Stena IceMax

Signature Block	Name	Role	Signature / Date
Owner	Dunphy, Robert	Environment Advisor	DocuSigned by: Robert Dunphy B27012117FC2458... 13-Jul-2023
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Approver	Allen Sherritt	Sr. Wells Manager	DocuSigned by: Allen Sherritt 167A273F7FC34DE... 13-Jul-2023

Revision History

Revision Date	Revision Code	Approver	Revision Description
13/July/2023	B02	Allen Sherritt	To address regulatory comments. In section 6.2 changed maximum sample recovered from 22.5 to 23 cm. Added PAHs to Table 6-3. Revised caption for Figure 6-3 to explain images D and E
30/May/2023	B01	Allen Sherritt	For approval

Operating Management System (OMS) – Sub Elements and Group Essentials

Sub Element	Sub Element Title	Group Essentials
3.6	Environment	
7.1	Regulatory	

Reviewers

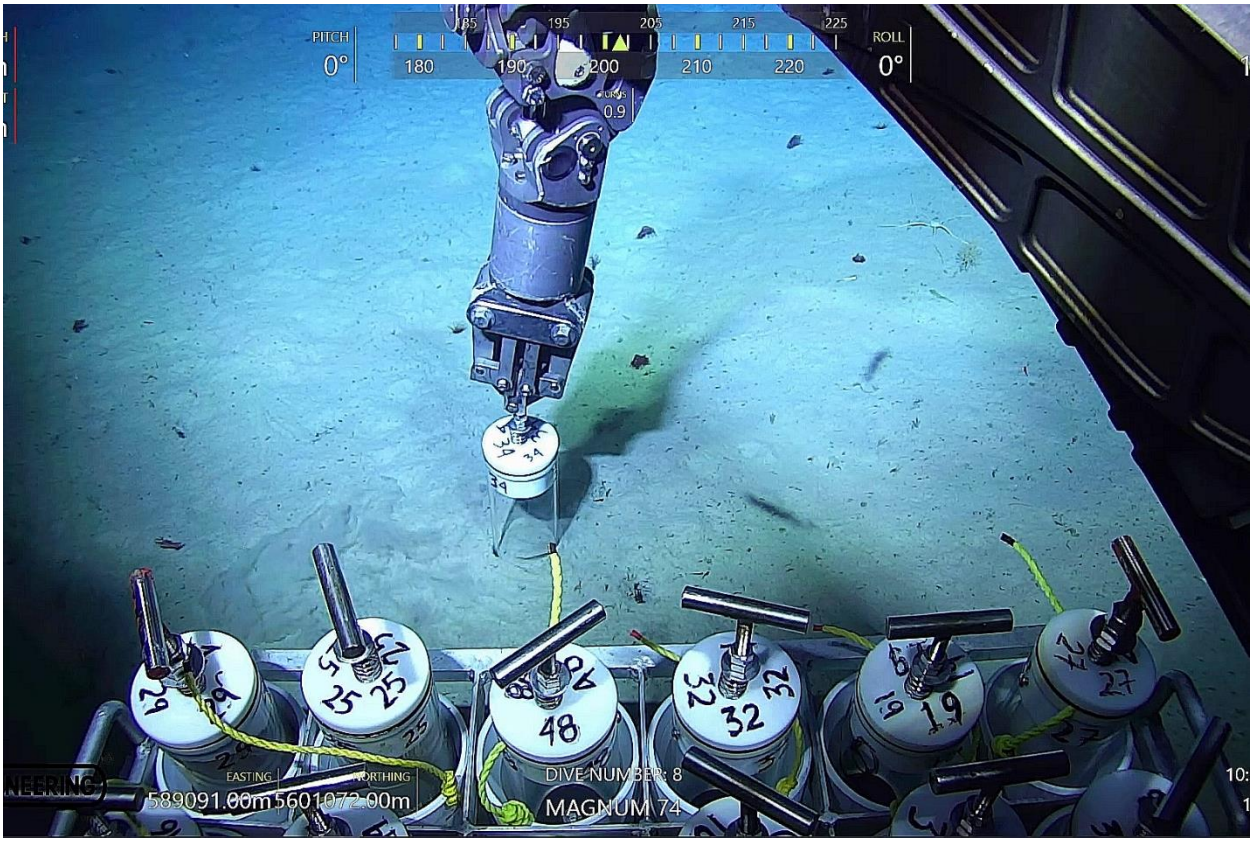
Name	Role	Type of Review	Date Reviewed

BP CANADA ENERGY GROUP ULC

BP EPHESUS PRE-DRILLING SEDIMENT SURVEY REPORT

EPHESUS PROSPECT ROV SURVEY

July 13, 2023



BP EPHESUS PRE-DRILLING SEDIMENT SURVEY REPORT

EPHESUS PROSPECT ROV SURVEY

BP CANADA ENERGY GROUP ULC

VERSION 2

PROJECT NO.: ME2382602
DATE: JULY 13, 2023

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1. Foreword

This report was prepared by WSP E&I Canada Limited to support the bp Canada Energy Group ULC (bp) Ephesus F-94 exploration well drilling program.

2. Acronyms and Abbreviations

bp	bp Canada Energy Group ULC
C-NLOPB	Canada-Newfoundland Offshore Petroleum Board
DFO	Fisheries and Oceans Canada
E	East
EL	Exploration License
ESRI	Environmental Systems Research Institute
kg	Kilogram
km	Kilometre
m	Metre
MDL	Method Detection Limit
µg	Microgram
mg	Milligram
mm	Millimetre
N	North
NL	Newfoundland and Labrador
OECM	Other Effective Area-Based Conservation Measure
PAH	Polycyclic Aromatic Hydrocarbons
RDL	Reportable Detection Limit
ROV	Remotely-operated vehicle
S	South
SiBA	Significant Benthic Area
UTM	Universal Transverse Mercator
VPH	Volatile Petroleum Hydrocarbons
W	West
WAM	Weak Acid Extractable Metals
WGS	World Geodetic System
WoRMS	World Register of Marine Species

3. Background

bp has contracted with Stena Drilling Ltd. (Stena Drilling) for the *Stena IceMax* drillship to drill an exploratory well, the Ephesus well, on Exploration License EL 1148 (formerly 1145 and 1146) in the West Orphan Basin in the summer of 2023. The well is located approximately 395 km Northeast of St. John's, NL and in a water depth of approximately 1,340 m to evaluate the potential of oil-bearing formations. The proposed location of the Ephesus exploration well is detailed in Figure 3-1.

The well is located within a sea pen SiBA as well as the Northeast Slope OECM as shown in Figure 3-2.

For a more detailed description of the drilling program see Section 2.0 of the September 2018 *Newfoundland Orphan Basin Exploration Drilling Program Environmental Impact Statement* which was conducted under the *Canadian Environmental Assessment Act* 2012 (CEAA 2012) (registration number 80147) and can be found at the website Environmental Impact Statement – Canada.ca (ceaa-acee.gc.ca).

Prior to the commencement of drilling, bp conducted a physical sampling survey in April of 2023. This report describes the survey sampling efforts, and the sediment chemistry analysis results.

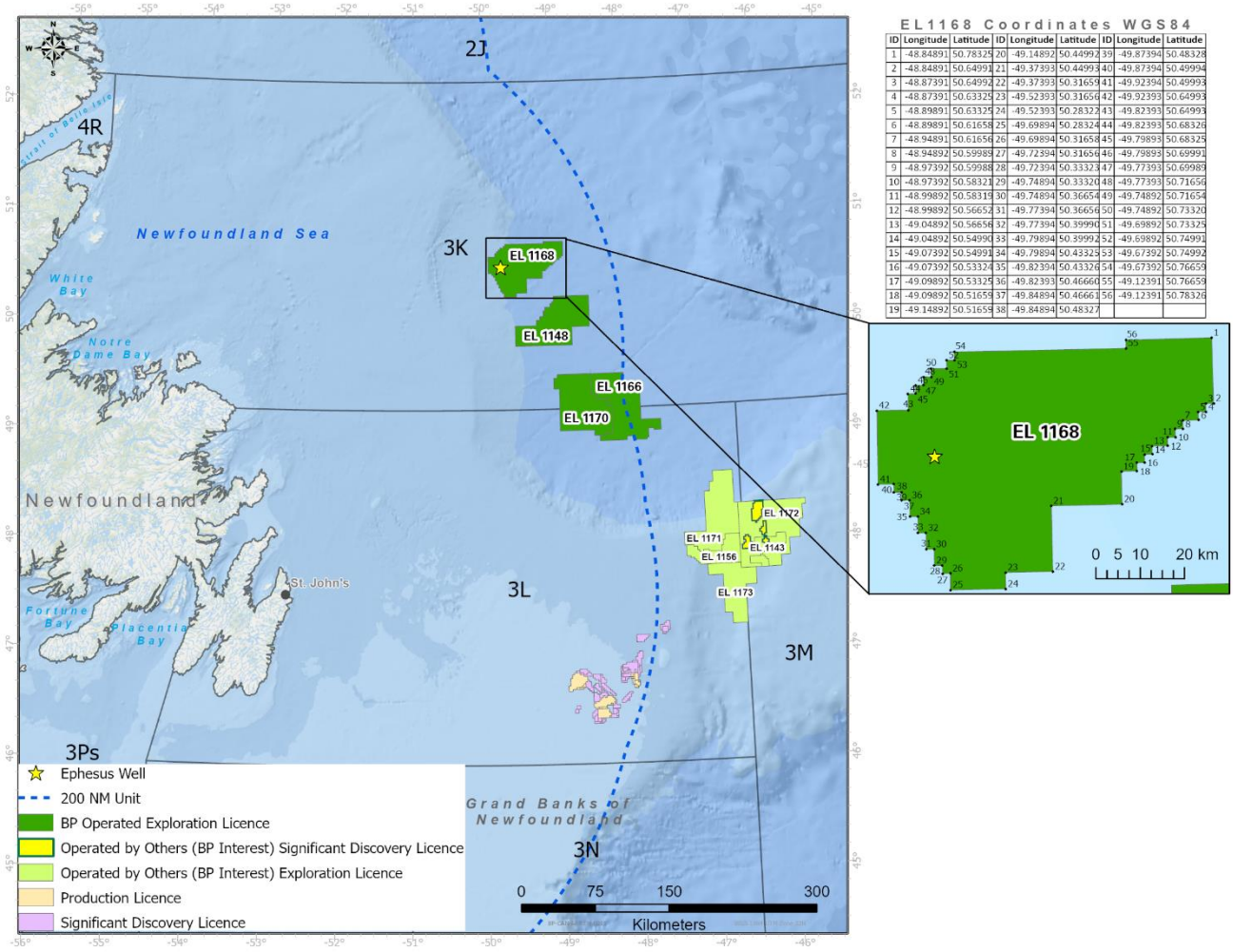

Figure 3-1: Ephesus Well Location

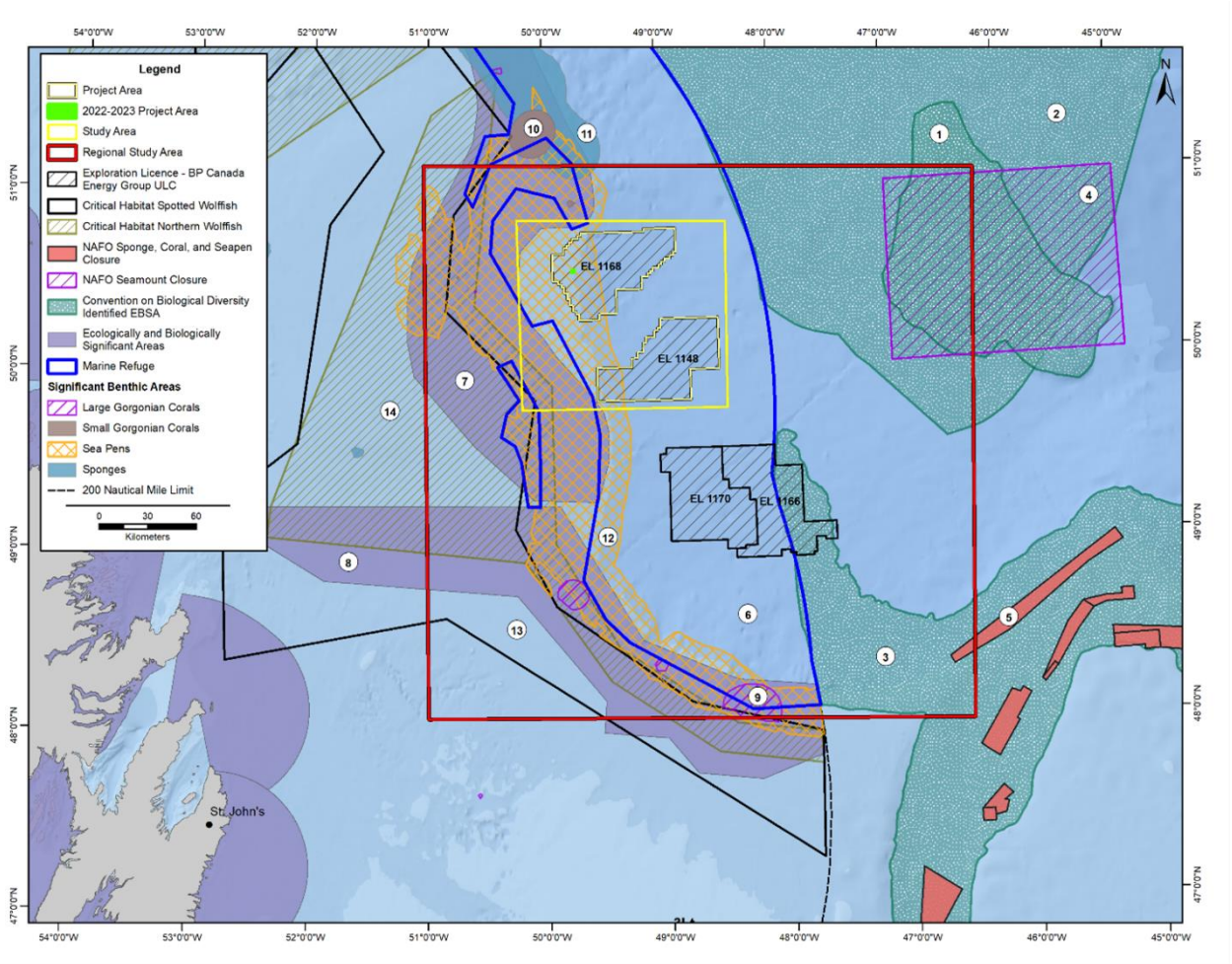

Figure 3-2: Survey Area Relative to the NE Newfoundland Slope OECM and the Sea Pen SiBA

4. Purpose

The purpose of the 2023 pre-drilling sampling survey was to gather baseline sediment characterization data to support requirements described in Conditions 3.12.2 and 3.12.2.1 of the February 2020 Decision Statement issued for the project EIS titled Newfoundland Orphan Basin Exploration Drilling Program September 2018 (bp Canada 2018) (See Table 4-1). The results of the survey will inform the post-drilling survey methodology and enable a comparison of pre-and post drilling sediment chemistry and physical characteristics.

As recommended in the draft DFO Regional Guidance on Measures to Protect Corals and Sponges During Exploratory Drilling in the Canada-Newfoundland and Labrador Offshore Area (DFO 2022a), coral samples, and sponge samples were collected. With the exception of black corals, a sample of the dominant species for each of the functional groups prevalent in the area in the immediate vicinity of the wellsite.

Table 4-1: EIS Decision Statement Conditions

Condition	Condition Details
3.12.2	For the first well in each exploration licence, and for any well where drilling is undertaken in an area determined by seabed investigation surveys to be sensitive benthic habitat, and for any well located within a special area designated as such due to the presence of sensitive coral and sponge species, or a location near a special area where drilling cuttings dispersion modelling predicts that drilling cuttings deposition may have adverse effects, develop and implement, in consultation with Fisheries and Oceans Canada and the Board, follow-up requirements to verify the accuracy of the environmental assessment and effectiveness of mitigation measures as they pertain to the effects of drill cuttings discharges on benthic habitat. Follow-up shall include:
3.12.2.1	Measurement of sediment deposition extent and thickness post-drilling to verify the drill waste deposition modeling predictions;

5. Methodology

With the support of WSP E&I Canada Ltd. and in consultation with the C-NLOPB and Fisheries and Oceans Canada (DFO), in March of 2023 bp developed the *bp Pre-Drilling Sediment Survey Plan Ephesus Prospect ROV Survey CN002-EV-PLN-600-00022* (bp Canada 2023). The survey was completed in April 2023 using a remotely operated vehicle (ROV) that collected sediment samples, biological specimens, and still imagery.

Sediment sample locations were located within and outside of the predicted drill cuttings footprint as shown in Figure 5-2. In addition to sediment sampling, at the request of DFO, additional photos of two black corals observed within the survey area and physical specimens of corals and sponges were also collected.

A total of twenty (20) sediment samples and four (4) biological samples were collected on 10-14 April 2023 (See Figure 5-2). Sediment samples were sent to BV Laboratories (St. John's, NL) for chemical analysis, and the biological samples were provided to DFO Science, Benthic Ecology Lab at Northwest Atlantic Fisheries Centre (St. John's, NL).

The results of the pre-drilling sediment sampling survey described herein will inform the post-drilling survey methodology and enable a comparison of pre-and post-drilling sediment chemistry and physical characteristics.

5.1. Sediment Collection and Processing

Sample were collected at 10 stations in duplicate (20 samples total) that included each of the two reference areas and eight sites within the predicted drill cutting dispersion footprint (Figure 5-2). Duplicate samples were taken at each location for a total of 20 sediment samples. Sampling sites were geo-tagged with a survey waypoint (See Table 6-1: A). These coordinates will be used in the post-drilling survey to collect samples at the same sites.

A rack of twelve (12) push cores was attached to a sampling skid mounted under the ROV to transport the cores to and from the seafloor (See Figure 5-1 and Figure 5-3A). To prevent damage caused by air entrapment inside the core, before the ROV was deployed a piece of polypropylene rope was inserted under the push core vent which is incorporated into the push core cap with T handle (See Figure 5-3B and Figure 5-4).

Once on the seafloor the ROV manipulator arm removed each core from the rack, inserted it in the seafloor and then returned the core containing a sample to the rack. To the extent possible, ROV operators held the cores in a vertical position and executed movements in slow, non-jerky and continuous motion.

When the ROV returned to the vessel deck, the push core rack was removed and brought to the on-deck processing laboratory (See Figure 5-3C). To prevent sample loss when the cores were removed from each of the push core storage tubes, each tube was equipped with a removeable base plug which was released from the tube and retained in the base of the push core when handled for sample processing. Each recovered sample was then measured, photographed, and a redox potential measurement was taken with a YSI Pro1030 with an ORP probe (See Figure 5-3D and Appendix A).

Each push core was then placed in an extruder device and the sample was slowly and continuously pushed (using the base plug), undisturbed, out through the top of the push core. The top 15 cm was removed, homogenized, and placed in pre-labelled sample jars with preservative added as required. For this program only volatile petroleum hydrocarbons (VPH) analyses require samples to be preserved, which for VPH is methanol. See Figure 5-4 and Figure 5-5.

Figure 5-1: ROV with Push Core Rack Mounted on Sampling Skid

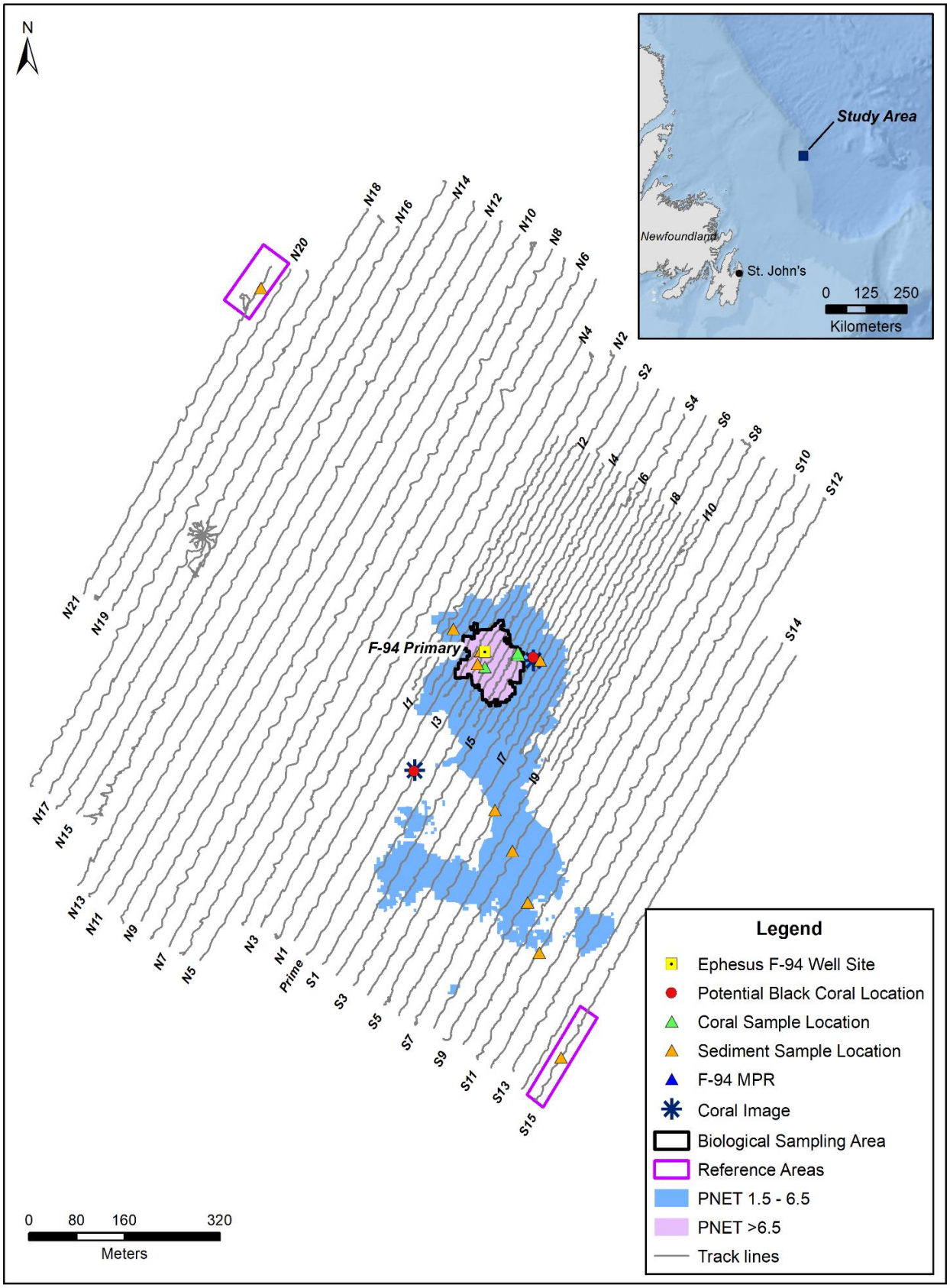

Figure 5-2: Actual June 2022 ROV Survey Track Lines and Actual April 2023 Sediment Sample Sites

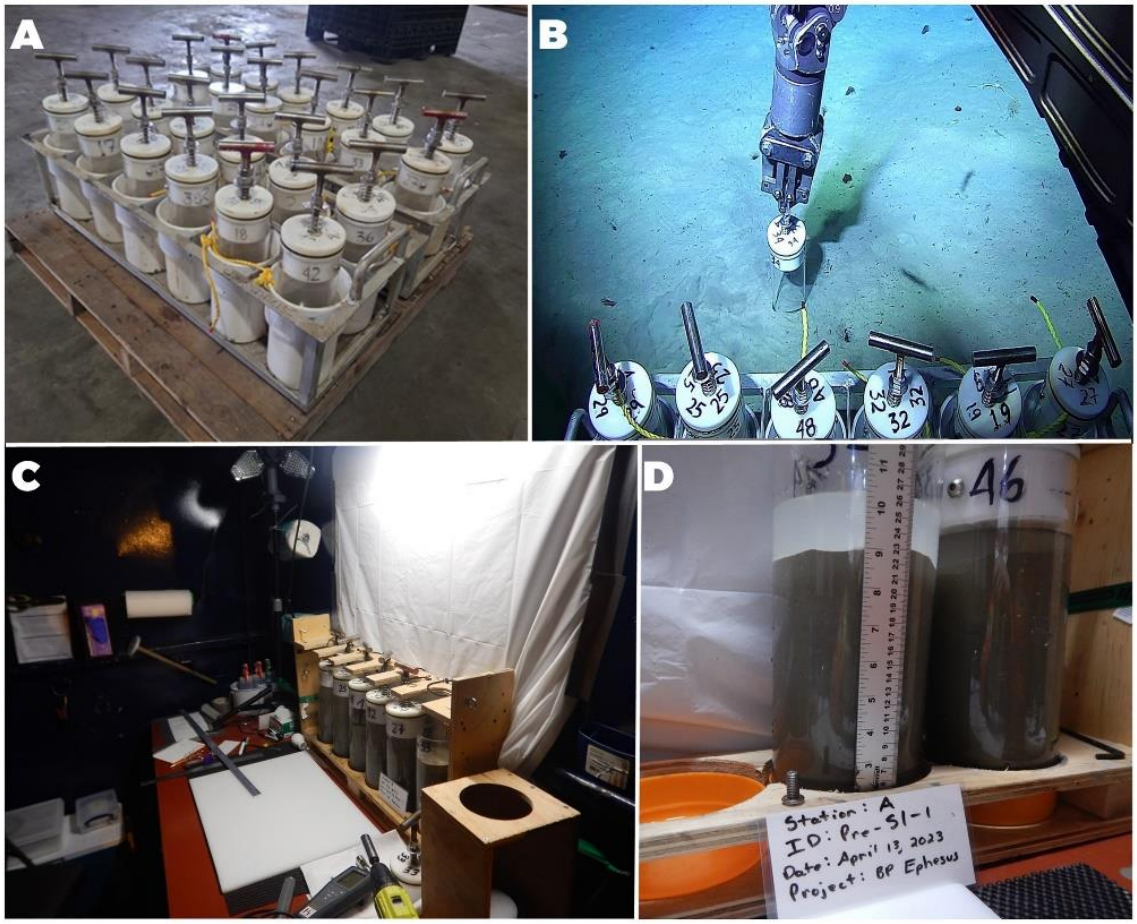

Figure 5-3: Photos of Sediment Sampling and Processing. A) Push Cores and Rack, B) In Situ Sampling with ROV, C) Laboratory Setup, D) Sediment Recovery Measurement

Figure 5-4: Push Core Holder with Base Plug

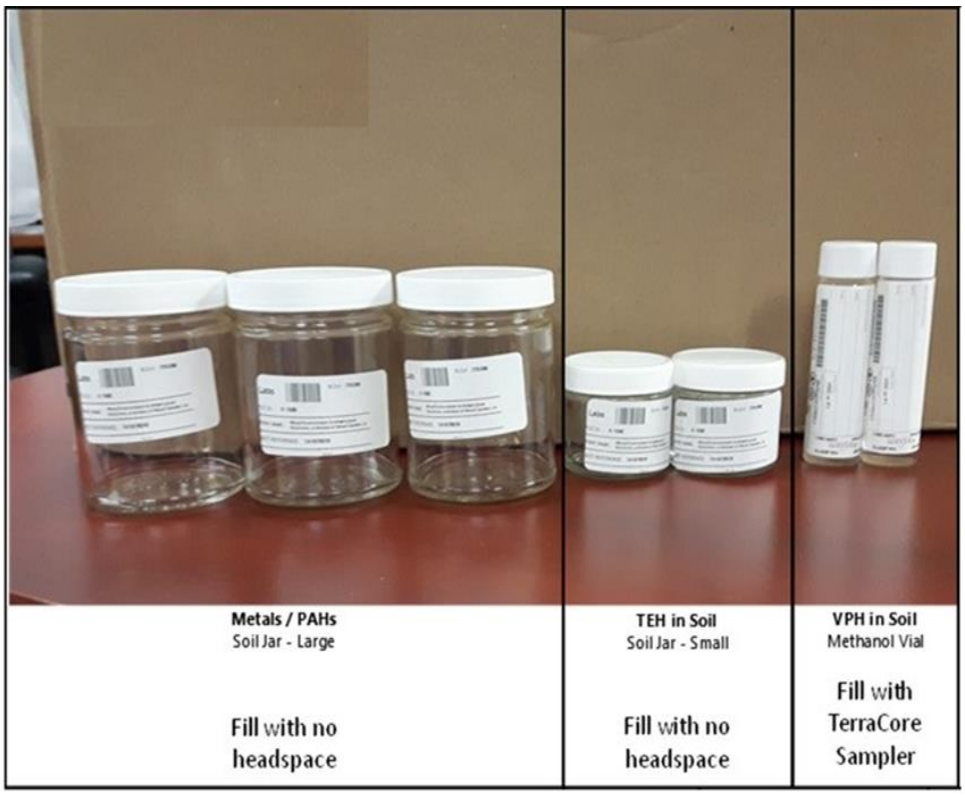

Figure 5-5: Pre-labelled Sample Jars

5.2. Sediment Analysis

Collected sediments were sent for analysis to BV Laboratories (St. John's, NL) for the standard suite of analytes reflected in Table 5-1. Only the top 15 cm of each recovered sample was used for chemical analysis and stored in onboard refrigerators at 4ºC for transport to the laboratory.

Table 5-1: Sediment Chemical and Physical Analysis

Analyte	Test Method – Bureau Veritas Lab	Description
Metals	Solids Acid Extraction ICPMS and MS-WAM ATL SOP 00058 / EPA 6020B R2 m	Solid Extractable and Solid Acid Extractable Metals, including aluminum, barium, cadmium, chromium, copper iron, lead, lithium, uranium, zinc, and others
Hydrocarbons	ATL SOP 00111 / Atl RBCA v3.1 m ATL SOP 00119 / Atl RBCA v3.1 m Volatiles (VPH) to be field preserved with methanol	Total petroleum hydrocarbons including C10-C16, >C16-C21, >C21-<C32 Benzene, toluene, ethylbenzene, xylenes
PAH's	By GC/MS. CAM-SOP-00318 / EPA 8270E	Suite of polyaromatic hydrocarbons
Particle Size Analysis	MSAMS'78 / WREP-125R3m	Particle size distribution
Redox	Field detection using YSI Pro1030 with ORP probe	Oxidation reduction potential
Moisture	OMOE handbook 1983m	Sediment moisture reported by percent

5.3. Biological Specimen Collection

The biological specimens were collected and were chosen opportunistically within the area predicted to be subject to burial by released drill solids. Waypoints were taken at each specimen sampling location. Once retrieved from the ROV, specimens were stored in freezer bags with identification labels and stored in onboard freezers at -18ºC. Post-survey, the specimens were submitted to DFO Science, Benthic Ecology Lab at the Northwest Atlantic Fisheries Centre in St. John's, NL. Instead of collecting samples of black corals, close-up still images were obtained.

5.4. Data Recording

bp and its subcontractors were responsible for recording waypoints and video logs. The sample collection locations are presented below and a copy (.xlsx) will be submitted with this report.

5.5. Mapping Observations

Actual sample locations were mapped and presented below. Maps were generated using ArcGIS 10.8 (ESRI 2020) in WGS 1984 UTM zone 22N.

6. Results

6.1. Seabed Sampling Site Locations

The actual locations of the sediment sample sites as well as the biological sample sites are found in Table 6-1: A. The locations of the black corals are also found in Table 6-1: A however the black corals were not sampled.

Table 6-1: Actual Sediment Sample and Biological Specimen Sample Site Locations

ID	Easting (m)	Northing (m)	Depth (m)
Sediment Sample Sites			
Pre-N21	588727.359	5601686.922	-1300.494
Pre-N2	589050.18	5601129.257	-1305.088
Pre-F94	589096.078	5601092.741	-1306.436
Pre-S1	589090.908	5601071.849	-1306.614
Pre-S3	589195.655	5601077.392	-1306.659
Pre-S5	589120.054	5600832.957	-1308.965
Pre-S7	589149.414	5600765.954	-1308.466
Pre-S9	589175.074	5600681.413	-1309.208
Pre-S11	589194.07	5600599.688	-1309.648
Pre-S15	589230.693	5600428.233	-1309.831
Specimens/Images			
Small Gorgonian-01	589157.525	5601087.825	-1306.474
Sea Pen-01	589159.351	5601086.946	-1306.045
Sponge-01	589158.221	5601090.099	-1305.201
Sponge-02	589102.954	5601066.513	-1306.772
Black Coral-Prime	588985.333	5600898.513	-1308.088
Black Coral-I6	589184.345	5601077.94	-1307.936

6.2. Seabed Sediment Analysis

A total of twenty (20) seabed sediment samples were collected at the sample sites noted in Table 6-1: A. As reflected in Table 6-1, sample recovery ranged between 13 to 23 cm. The seafloor sediment consisted of olive-grey clay with no sulphurous odours. The recovery for each sample was a sufficient amount for chemical analysis and no samples were combined. Sediment samples were

sent to Bureau Veritas Laboratories for chemical analysis. Image plates for all sediment samples recovered are presented in Appendix A. The mean analyte concentrations per site (samples A and B combined) are presented in boxplots in Appendix C.

The summary statistics for all analytes above the reportable detection limit (RDL) as well as others of general interest are presented in Table 6-2. The notable results are summarized as follows:

- All hydrocarbons were below the RDLs.
- Total extractable metals were mostly above their respective RDLs.
- Barium and weak acid extractable metal (WAM) barium were all above RDL, with a mean of 141.50 mg/kg and 31.00 mg/kg, respectively.
- All PAHs were below the RDL.
- The mean percent fines for all 20 samples was 97.81%.

There appears to be more variation in bariums between duplicate samples at stations between N21 to S5 (See Figure 6-1 and Figure 6-2).The full sediment chemical analysis results are presented in Appendix B and are provided in an excel file issued by the laboratory.

Table 6-1: Sediment Sample Recovery and Redox Potential

Station	Recovery (cm)		Redox Potential (mV)* A/B	Station	Recovery (cm)		Redox Potential (mV)* A/B
	A	B			A	B	
PRE-N-21	22.5	20	139/149	**PRE-S-5**	21.5	15	258/129
PRE-N-2	22.5	19.5	224/241	**PRE-S-7**	21	21	212/195
PRE-F94	21	20	178/254	**PRE-S-9**	17	18.5	217/116
PRE-S-1	16	18.5	90/200	**PRE-S-11**	19	21.5	138/101
PRE-S-3	21	22	105/239	**PRE-S-15**	13	23	200/249
*In-field measurement Sediment was measured from the top of the rubber base plug (thickness 4 cm)							

Table 6-2: Sediment Chemistry Statistics

Analyte	RDL	Units	No. Samples	No. >RDL	No. = RDL	No. <RDL	Mean	St.dev	Median	Min.	Max
PARTICLE SIZE ANALYSIS											
Gravel	0.1	%	20	2	0	18	0.54	0.21	0.54	<0.1	0.74
Sand	0.1	%	20	20	0	0	2.12	0.15	2.1	1.8	2.4
Percent Fines	0.1	%	20	20	0	0	97.81	0.39	98	97	98
TOTAL EXTRACTABLE METALS											
Aluminum	10	mg/kg	20	20	0	0	9150.00	339.85	9100.00	8500.00	9700.00
Barium	5	mg/kg	20	20	0	0	141.50	7.26	140.00	130.00	150.00
Chromium	2	mg/kg	20	20	0	0	28.50	1.18	28.00	26.00	30.00
Cobalt	1	mg/kg	20	20	0	0	5.43	0.21	5.40	5.00	5.80
Cooper	2	mg/kg	20	20	0	0	9.78	0.25	9.85	9.20	10.00
Iron	50	mg/kg	20	20	0	0	16850.00	572.28	17000.00	16000.00	18000.00
Lead	0.5	mg/kg	20	20	0	0	4.30	0.30	4.30	3.80	5.00
Lithium	2	mg/kg	20	20	0	0	16.20	0.75	16.00	15.00	17.00
Manganese	2	mg/kg	20	20	0	0	207.50	11.78	210.00	190.00	230.00
Mercury	0.1	mg/kg	20	4	1	15	0.12	0.02	0.11	0.10	0.15
Nickel	2	mg/kg	20	20	0	0	16.20	0.60	16.00	15.00	17.00
Rubidium	2	mg/kg	20	20	0	0	22.90	1.09	23.00	21.00	25.00
Strontium	5	mg/kg	20	20	0	0	84.25	3.48	85.00	78.00	90.00
Thallium	0.1	mg/kg	20	18	0	2	0.12	0.01	0.12	0.11	0.13
Tin	1	mg/kg	20	3	2	15	4.10	5.46	1.70	1.00	15.00
Uranium	0.1	mg/kg	20	20	0	0	0.83	0.09	0.83	0.66	1.00
Vanadium	2	mg/kg	20	20	0	0	32.45	1.40	32.00	30.00	35.00
Zinc	5	mg/kg	20	20	0	0	39.00	1.84	39.50	35.00	42.00
WEAK-ACID EXTRACTABLE METALS											
WAM Barium	5	mg/kg	20	20	0	0	31.00	2.66	32	21	34
HYDROCARBONS											

Analyte	RDL	Units	No. Samples	No. >RDL	No.=RDL	No.<RDL	Mean	St.dev	Median	Min.	Max
Benzene	0.005	mg/kg	20	-	-	20	-	-	-	-	-
Toluene	0.05	mg/kg	20	-	-	20	-	-	-	-	-
Ethylbenzene	0.01	mg/kg	20	-	-	20	-	-	-	-	-
Xylenes	0.05	mg/kg	20	-	-	20	-	-	-	-	-
C_6 - C_{10} (less BTEX)	2.5	mg/kg	20	-	-	20	-	-	-	-	-
C_{10}-C_{21}	10	mg/kg	20	0	0	20	-	-	-	-	-
C_{21}-C_{32}	15	mg/kg	20	0	0	20	-	-	-	-	-
Redox											
Redox Potential	-	mV	20	-	-	-	266	4.97	270	260	270
Polyaromatic Hydrocarbons											
Acenaphthene	<0.050	µg/g	20	0	0	20	-	-	-	-	-
Acenaphthylene	<0.050	µg/g	20	0	0	20	-	-	-	-	-
Anthracene	<0.050	µg/g	20	0	0	20	-	-	-	-	-
Benzo(a)anthracene	<0.050	µg/g	20	0	0	20	-	-	-	-	-
Benzo(a)pyrene	<0.050	µg/g	20	0	0	20	-	-	-	-	-
Benzo(b/j) fluoranthene	<0.050	µg/g	20	0	0	20	-	-	-	-	-
Benzo(g,h,i)perylene	<0.050	µg/g	20	0	0	20	-	-	-	-	-
Benzo(k)fluoranthene	<0.050	µg/g	20	0	0	20	-	-	-	-	-
Chrysene	<0.050	µg/g	20	0	0	20	-	-	-	-	-
Dibenzo(a,h)anthracene	<0.050	µg/g	20	0	0	20	-	-	-	-	-
Fluoranthene	<0.050	µg/g	20	0	0	20	-	-	-	-	-
Fluorene	<0.050	µg/g	20	0	0	20	-	-	-	-	-
Indeno(1,2,3-cd) pyrene	<0.050	µg/g	20	0	0	20	-	-	-	-	-
1-Methylnaphthalene	<0.050	µg/g	20	0	0	20	-	-	-	-	-

2-Methylnaphthalene	<0.050	µg/g	20	0	0	20	-	-	-	-	-
Naphthalene	<0.050	µg/g	20	0	0	20	-	-	-	-	-
Phenanthrene	<0.050	µg/g	20	0	0	20	-	-	-	-	-
Pyrene	<0.050	µg/g	20	0	0	20	-	-	-	-	-
Benzo(b)fluoranthene	<0.030	µg/g	20	0	0	20	-	-	-	-	-
Perylene	<0.050	µg/g	20	0	0	20	-	-	-	-	-
Benzo(j)fluoranthene	< 0.030	µg/g	20	0	0	20	-	-	-	-	-

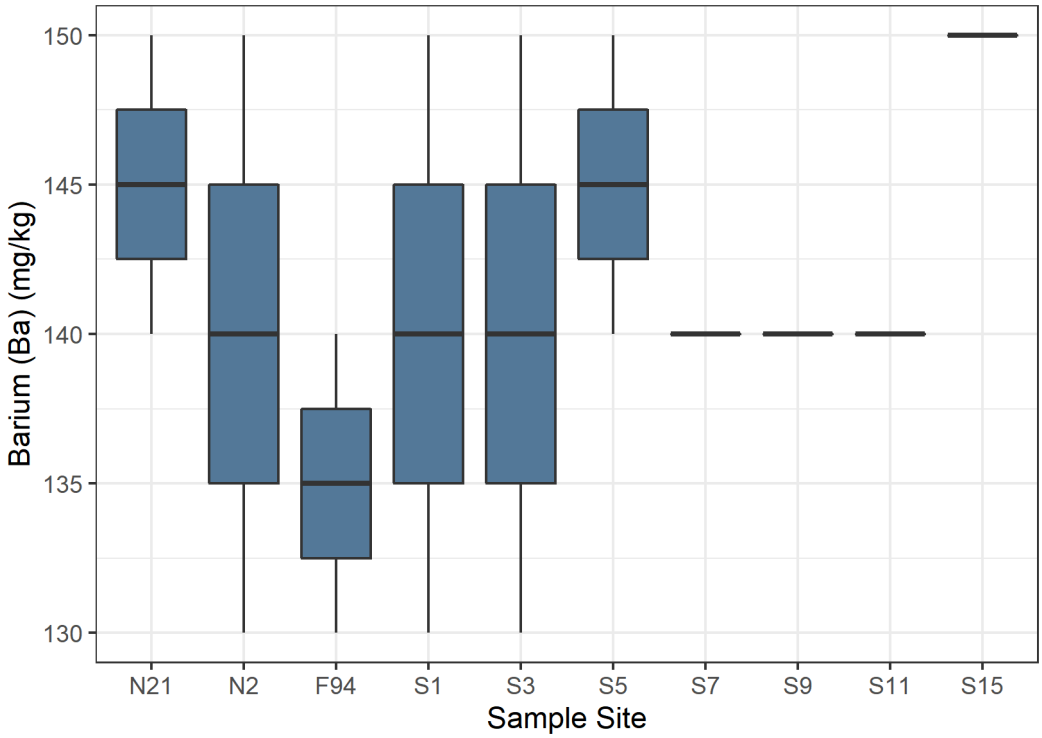

Figure 6-1: Mean Barium (A and B) Concentrations (mg/kg) per Sample Site

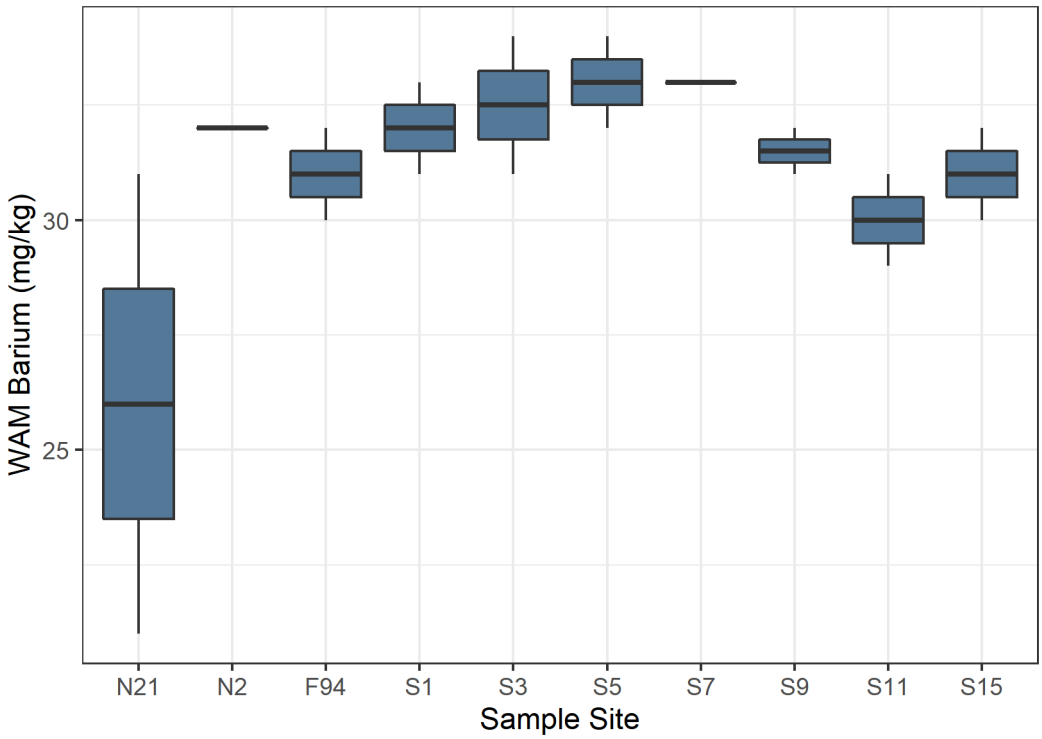

Figure 6-2: Mean WAM Barium (A and B) Concentrations (mg/kg) per Sample Site

6.3. Biological Collection

Four physical specimens (two corals and two sponges) were collected within the biological sampling area (See Figure 5-2). The two corals collected were a small gorgonian (*Acanella* sp.) and the most observed sea pen species *Pennatula* sp. Two sponges were also collected including a glass sponge (Hexactinellida) and a solid/massive (Demospongiae). Three of the specimens were collected within close proximity to each other towards the western edge of the biological sampling area. See Figure 6-3. The solid/massive sponge was collected just south of the well site. Close up images of two black corals were also collected as per DFO's request. See Figure 6-4.

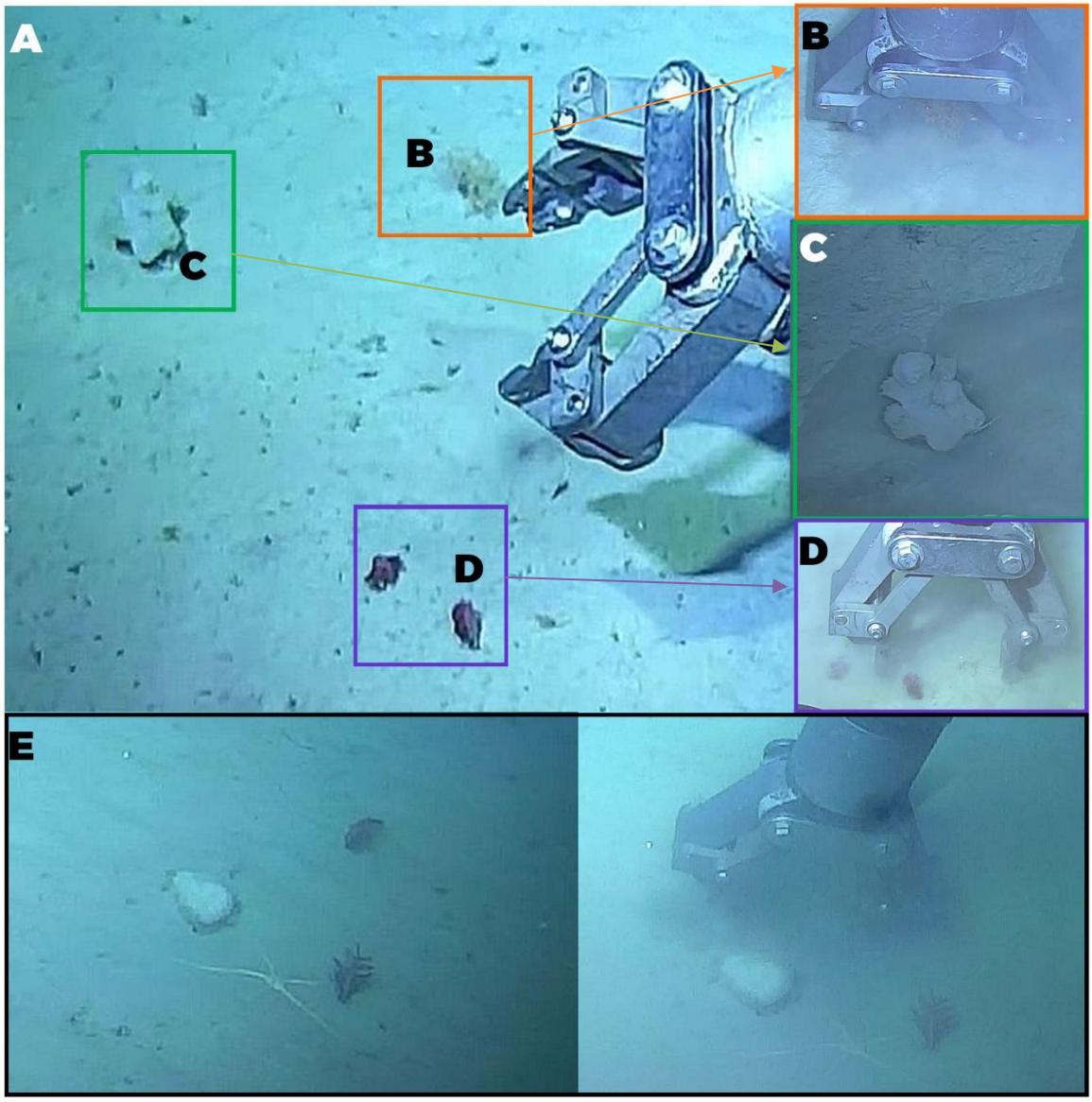

Figure 6-3: Images of Specimen Collection. A) Grouping of 3 Specimens Collected, B) Small Gorgonian (*Acanella* sp., WoRMS AphialD: 125303), C) Glass Sponge (Hexactinellida, WoRMS AphialID: 22612), D) Sea pens (*Pennatula* sp., WoRMS AphailD: 128495), E) Solid/Massive Sponge Collection (next to grouping of Sea pens) (Demospongiae, WoRMS AphialD 164811).

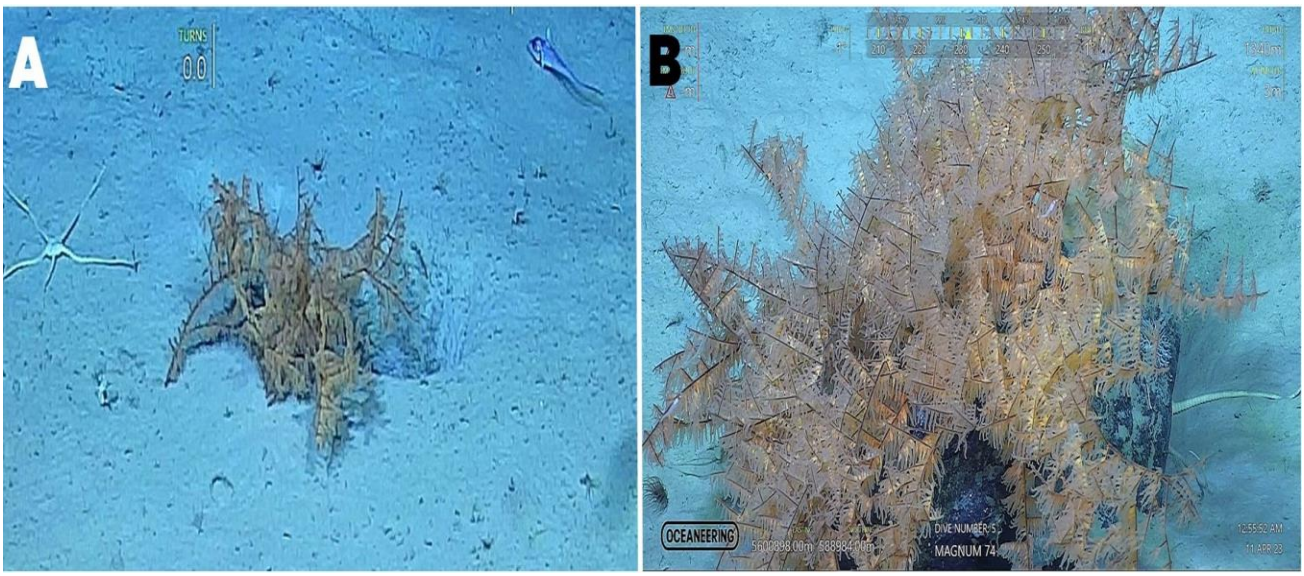

Figure 6-4: Close-up Images of Black Corals in the Area, A) Transect-I6, B) Transect-Primary

7. Closure

This report has been prepared for the exclusive use of bp. The environmental investigation was conducted using standard assessment practices and in accordance with verbal and written request from the client. No further warranty expressed or implied is made. The conclusions presented herein are based solely upon the scope of services and time and budgetary limitations described in our contract. Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. WSP accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

8. References

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Appendix A: Sediment Recovery Plates

Figure A-1: Sediment Recovery Per Site A) Pre-N21-A, B) Pre-N21-B, C) Pre-N2-A, D) Pre-N2-B, E) Pre-F94-A, F) Pre-F94-B.

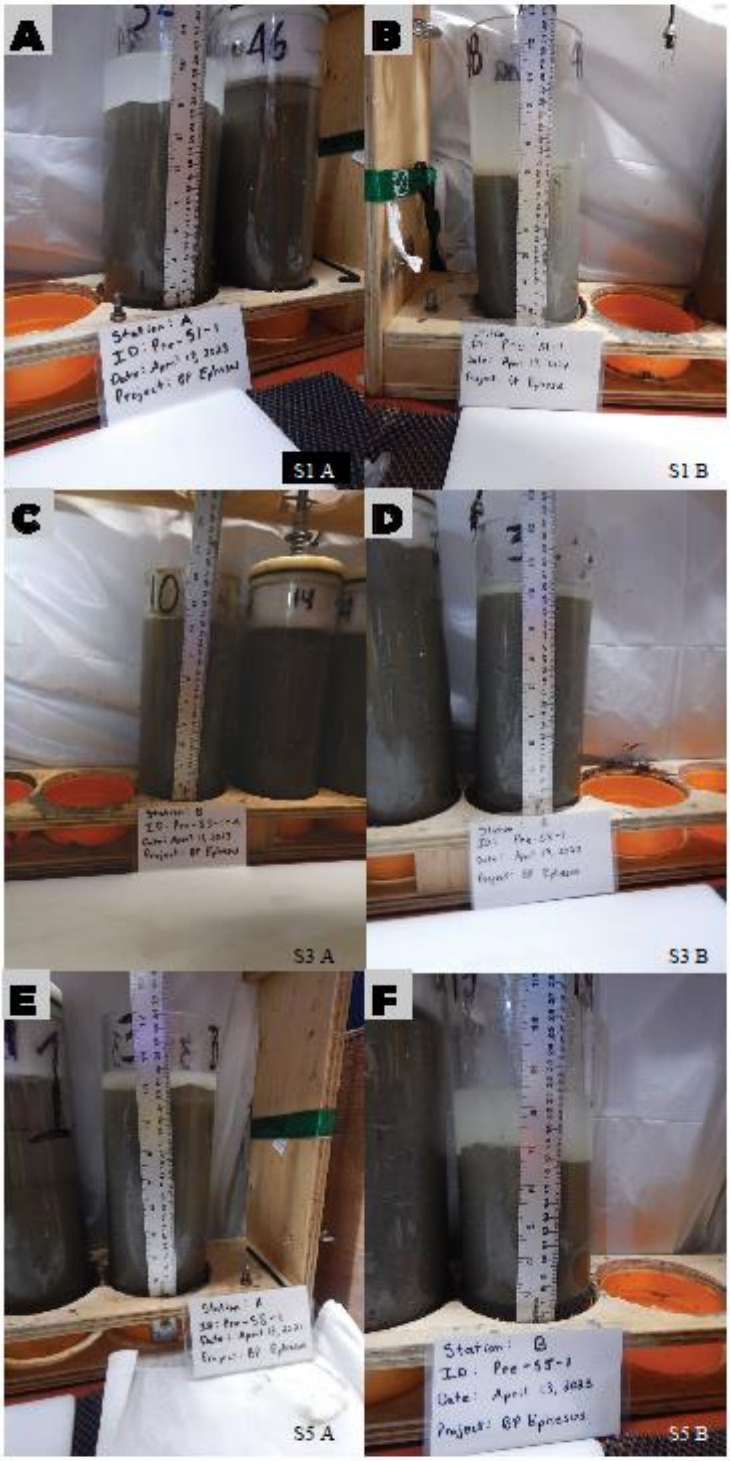

Figure A-2: Sediment Recovery Per Site A) Pre-S1-A, B) Pre-S1-B, C) Pre-S3-A, D) Pre-S3-B, E) Pre-S5-A, F) Pre-S5-B.

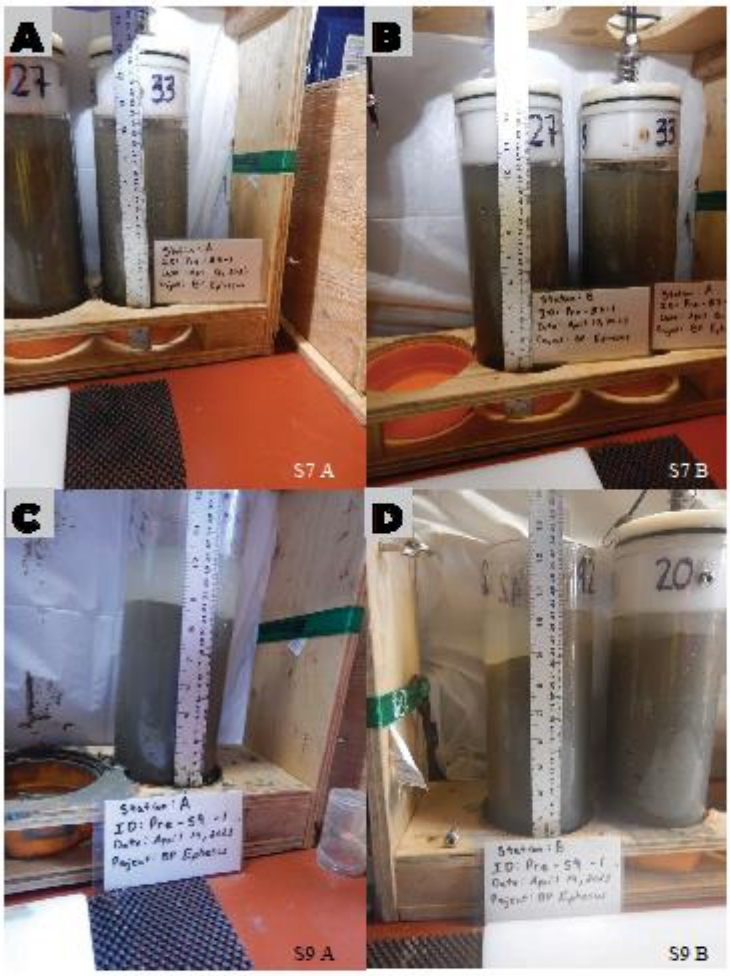

Figure A-3: Sediment Recovery Per Site A) Pre-S7-A, B) Pre-S7-B, C) Pre-S9-A, D) Pre-S9-B.

Figure A-3: Sediment Recovery Per Site A) Pre-S11-A, B) Pre-S11-B, C) Pre-S15-A, D) Pre-S15-B.

Appendix B: Sediment Chemistry Results

Table B-1: Sediment Chemistry Laboratory Results Hydrocarbons

WSP E&I Canada Limited
Bureau Veritas Job Number: C3A7223 Client Project #: ME2382602.3000.*.5290.573000
Report Date: 2023/05/05
Your P.O. #: ME2382602.3000.*.529

RBCA HYDROCARBONS IN SOIL (FIELD PRES.)

Bureau Veritas ID		VOM345	VOM346	VOM347	VOM348	VOM349	VOM350	VOM351	VOM352	VOM353	VOM354		VOM355	VOM355	VOM356	VOM357	VOM358	VOM359	VOM360	VOM361	VOM362	VOM362		VOM363	VOM364			
Sampling Date		2023-04-13	2023-04-13	2023-04-13	2023-04-13	2023-04-13	2023-04-13	2023-04-13	2023-04-13	2023-04-13	2023-04-13		2023-04-13	2023-04-13	2023-04-13	2023-04-14	2023-04-14	2023-04-14	2023-04-14	2023-04-14	2023-04-14	2023-04-14		2023-04-14	2023-04-14			
COC Number		926537-01-01	926537-01-01	926537-01-01	926537-01-01	926537-01-01	926537-01-01	926537-01-01	926537-01-01	926537-01-01	926537-01-01		926537-02-01	926537-02-01	926537-02-01	926537-02-01	926537-02-01	926537-02-01	926537-02-01	926537-02-01	926537-02-01	926537-02-01		926537-02-01	926537-02-01			
	UNITS	**PRE-S7-1-A**	**PRE-S7-1-B**	**PRE-S5-1-A**	**PRE-S5-1-B**	**PRE-S3-1-B**	**PRE-F94-1-B**	**PRE-S1-1-B**	**PRE-N2-1-B**	**PRE-S3-1-A**	**PRE-F94-1-A**	**QC Batch**	**PRE-S1-1-A**	**PRE-S1-1-A Lab-Dup**	**PRE-N2-1-A**	**PRE-S15-1-A**	**PRE-S15-1-B**	**PRE-S9-1-B**	**PRE-S9-1-A**	**PRE-S11-1-A**	**PRE-S11-1-B**	**PRE-S11-1-B Lab-Dup**	**QC Batch**	**PRE-N21-1-A**	**PRE-N21-1-B**	**RDL**	**MDL**	**QC Batch**
Petroleum Hydrocarbons																												
Benzene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	8615949	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	N/A	8618205	<0.0050	<0.0050	0.005	N/A	8618205
Toluene	mg/kg	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	8615949	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	N/A	8618205	<0.050	<0.050	0.05	N/A	8618205
Ethylbenzene	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	8615949	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	N/A	8618205	<0.010	<0.010	0.01	0.03	8618205
Total Xylenes	mg/kg	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	8615949	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	N/A	8618205	<0.050	<0.050	0.05	N/A	8618205
C6 - C10 (less BTEX)	mg/kg	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	8615949	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	N/A	8618205	<2.5	<2.5	2.5	N/A	8618205
>C10-C16 Hydrocarbons	mg/kg	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	8620807	<10	N/A	<10	<10	<10	<10	<10	<10	<10	<10	8620807	<10	<10	10	N/A	8620873
>C16-C21 Hydrocarbons	mg/kg	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	8620807	<10	N/A	<10	<10	<10	<10	<10	<10	<10	<10	8620807	<10	<10	10	N/A	8620873
>C21-<C32 Hydrocarbons	mg/kg	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	8620807	<15	N/A	<15	<15	<15	<15	<15	<15	<15	<15	8620807	<15	<15	15	N/A	8620873
Modified TPH (Tier1)	mg/kg	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	8613209	<15	N/A	<15	<15	<15	<15	<15	<15	<15	N/A	8613209	<15	<15	15	N/A	8613209
Reached Baseline at C32	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	8620807	NA	N/A	NA	NA	NA	NA	NA	NA	NA	N/A	8620807	NA	NA	N/A	N/A	8620873
Hydrocarbon Resemblance	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	8620807	NA	N/A	NA	NA	NA	NA	NA	NA	NA	N/A	8620807	NA	NA	N/A	N/A	8620873
Surrogate Recovery (%)																												
Isobutylbenzene - Extractable	%	96	96	96	94	94	96	91	93	91	98	8620807	97	N/A	87	95	97	96	94	97	93	94	8620807	100	101	N/A	N/A	8620873
n-Dotriacontane - Extractable	%	102	102	103	101	99	105	99	99	98	108	8620807	104	N/A	97	101	101	102	100	100	104	109	8620807	105	103	N/A	N/A	8620873
Isobutylbenzene - Volatile	%	101	97	98	97	96	101	92	94	93	89	8615949	106	103	104	108	98	99	96	100	96	N/A	8618205	98	92	N/A	N/A	8618205

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
N/A = Not Applicable

Table B-2: Sediment Chemistry Laboratory Results PAHs

WSP E&I Canada Limited
Bureau Veritas Job Number: C3A7223 Client Project #: ME2382602.3000.*.5290.573000
Report Date: 2023/05/05
Your P.O. #: ME2382602.3000.*.529

PAH IN SOIL TO MISSISSAUGA (SEDIMENT)

Bureau Veritas ID		VOM345			VOM346	VOM347			VOM348	VOM349	VOM350	VOM351			VOM352	VOM353	VOM354			VOM355			VOM356			VOM357	VOM358			VOM359	VOM359			VOM360	VOM361	VOM362	VOM363	VOM364			
Sampling Date		2023-04-13			2023-04-13	2023-04-13			2023-04-13	2023-04-13	2023-04-13	2023-04-13			2023-04-13	2023-04-13	2023-04-13			2023-04-13			2023-04-13			2023-04-14	2023-04-14			2023-04-14	2023-04-14			2023-04-14	2023-04-14	2023-04-14	2023-04-14	2023-04-14			
COC Number		926537-01-01			926537-01-01	926537-01-01			926537-01-01	926537-01-01	926537-01-01	926537-01-01			926537-01-01	926537-01-01	926537-01-01			926537-02-01			926537-02-01			926537-02-01	926537-02-01			926537-02-01	926537-02-01			926537-02-01	926537-02-01	926537-02-01	926537-02-01	926537-02-01			
	UNITS	PRE-S7-1-A	RDL	MDL	PRE-S7-1-B	PRE-S5-1-A	RDL	MDL	PRE-S5-1-B	PRE-S3-1-B	PRE-F94-1-B	PRE-S1-1-B	RDL	MDL	PRE-N2-1-B	PRE-S3-1-A	PRE-F94-1-A	RDL	MDL	PRE-S1-1-A	RDL	MDL	PRE-N2-1-A	RDL	MDL	PRE-S15-1-A	PRE-S15-1-B	RDL	MDL	PRE-S9-1-B	PRE-S9-1-B Lab-Dup	RDL	MDL	PRE-S9-1-A	PRE-S11-1-A	PRE-S11-1-B	PRE-N21-1-A	PRE-N21-1-B	RDL	MDL	QC Batch
Polyaromatic Hydrocarbons																																									
Acenaphthene	ug/g	<0.050	0.05	0.02	<0.10	<0.10	0.1	0.04	<0.050	<0.050	<0.050	<0.050	0.05	0.02	<0.10	<0.10	<0.10	0.1	0.04	<0.050	0.05	0.02	<0.10	0.1	0.04	<0.050	<0.050	0.05	0.02	<0.10	<0.10	0.1	0.04	<0.050	<0.050	<0.050	<0.050	<0.050	0.05	0.02	8630548
Acenaphthylene	ug/g	<0.050	0.05	0.01	<0.10	<0.10	0.1	0.02	<0.050	<0.050	<0.050	<0.050	0.05	0.01	<0.10	<0.10	<0.10	0.1	0.02	<0.050	0.05	0.01	<0.10	0.1	0.02	<0.050	<0.050	0.05	0.01	<0.10	<0.10	0.1	0.02	<0.050	<0.050	<0.050	<0.050	<0.050	0.05	0.01	8630548
Anthracene	ug/g	<0.050	0.05	0.01	<0.10	<0.10	0.1	0.02	<0.050	<0.050	<0.050	<0.050	0.05	0.01	<0.10	<0.10	<0.10	0.1	0.02	<0.050	0.05	0.01	<0.10	0.1	0.02	<0.050	<0.050	0.05	0.01	<0.10	<0.10	0.1	0.02	<0.050	<0.050	<0.050	<0.050	<0.050	0.05	0.01	8630548
Benzo(a)anthracene	ug/g	<0.050	0.05	0.02	<0.10	<0.10	0.1	0.04	<0.050	<0.050	<0.050	<0.050	0.05	0.02	<0.10	<0.10	<0.10	0.1	0.04	<0.050	0.05	0.02	<0.10	0.1	0.04	<0.050	<0.050	0.05	0.02	<0.10	<0.10	0.1	0.04	<0.050	<0.050	<0.050	<0.050	<0.050	0.05	0.02	8630548
Benzo(a)pyrene	ug/g	<0.050	0.05	0.01	<0.10	<0.10	0.1	0.02	<0.050	<0.050	<0.050	<0.050	0.05	0.01	<0.10	<0.10	<0.10	0.1	0.02	<0.050	0.05	0.01	<0.10	0.1	0.02	<0.050	<0.050	0.05	0.01	<0.10	<0.10	0.1	0.02	<0.050	<0.050	<0.050	<0.050	<0.050	0.05	0.01	8630548
Benzo(b/j)fluoranthene	ug/g	<0.050	0.05	0.02	<0.10	<0.10	0.1	0.04	<0.050	<0.050	<0.050	<0.050	0.05	0.02	<0.10	<0.10	<0.10	0.1	0.04	<0.050	0.05	0.02	<0.10	0.1	0.04	<0.050	<0.050	0.05	0.02	<0.10	<0.10	0.1	0.04	<0.050	<0.050	<0.050	<0.050	<0.050	0.05	0.02	8630548
Benzo(g,h,i)perylene	ug/g	<0.050	0.05	0.04	<0.10	<0.10	0.1	0.08	<0.050	<0.050	<0.050	<0.050	0.05	0.04	<0.10	<0.10	<0.10	0.1	0.08	<0.050	0.05	0.04	<0.10	0.1	0.08	<0.050	<0.050	0.05	0.04	<0.10	<0.10	0.1	0.08	<0.050	<0.050	<0.050	<0.050	<0.050	0.05	0.04	8630548
Benzo(k)fluoranthene	ug/g	<0.050	0.05	0.02	<0.10	<0.10	0.1	0.04	<0.050	<0.050	<0.050	<0.050	0.05	0.02	<0.10	<0.10	<0.10	0.1	0.04	<0.050	0.05	0.02	<0.10	0.1	0.04	<0.050	<0.050	0.05	0.02	<0.10	<0.10	0.1	0.04	<0.050	<0.050	<0.050	<0.050	<0.050	0.05	0.02	8630548
Chrysene	ug/g	<0.050	0.05	0.02	<0.10	<0.10	0.1	0.04	<0.050	<0.050	<0.050	<0.050	0.05	0.02	<0.10	<0.10	<0.10	0.1	0.04	<0.050	0.05	0.02	<0.10	0.1	0.04	<0.050	<0.050	0.05	0.02	<0.10	<0.10	0.1	0.04	<0.050	<0.050	<0.050	<0.050	<0.050	0.05	0.02	8630548
Dibenzo(a,h)anthracene	ug/g	<0.050	0.05	0.04	<0.10	<0.10	0.1	0.08	<0.050	<0.050	<0.050	<0.050	0.05	0.04	<0.10	<0.10	<0.10	0.1	0.08	<0.050	0.05	0.04	<0.10	0.1	0.08	<0.050	<0.050	0.05	0.04	<0.10	<0.10	0.1	0.08	<0.050	<0.050	<0.050	<0.050	<0.050	0.05	0.04	8630548
Fluoranthene	ug/g	<0.050	0.05	0.01	<0.10	<0.10	0.1	0.02	<0.050	<0.050	<0.050	<0.050	0.05	0.01	<0.10	<0.10	<0.10	0.1	0.02	<0.050	0.05	0.01	<0.10	0.1	0.02	<0.050	<0.050	0.05	0.01	<0.10	<0.10	0.1	0.02	<0.050	<0.050	<0.050	<0.050	<0.050	0.05	0.01	8630548
Fluorene	ug/g	<0.050	0.05	0.01	<0.10	<0.10	0.1	0.02	<0.050	<0.050	<0.050	<0.050	0.05	0.01	<0.10	<0.10	<0.10	0.1	0.02	<0.050	0.05	0.01	<0.10	0.1	0.02	<0.050	<0.050	0.05	0.01	<0.10	<0.10	0.1	0.02	<0.050	<0.050	<0.050	<0.050	<0.050	0.05	0.01	8630548
Indeno(1,2,3-cd)pyrene	ug/g	<0.050	0.05	0.04	<0.10	<0.10	0.1	0.08	<0.050	<0.050	<0.050	<0.050	0.05	0.04	<0.10	<0.10	<0.10	0.1	0.08	<0.050	0.05	0.04	<0.10	0.1	0.08	<0.050	<0.050	0.05	0.04	<0.10	<0.10	0.1	0.08	<0.050	<0.050	<0.050	<0.050	<0.050	0.05	0.04	8630548
1-Methylnaphthalene	ug/g	<0.050	0.05	0.01	<0.10	<0.10	0.1	0.02	<0.050	<0.050	<0.050	<0.050	0.05	0.01	<0.10	<0.10	<0.10	0.1	0.02	<0.050	0.05	0.01	<0.10	0.1	0.02	<0.050	<0.050	0.05	0.01	<0.10	<0.10	0.1	0.02	<0.050	<0.050	<0.050	<0.050	<0.050	0.05	0.01	8630548
2-Methylnaphthalene	ug/g	<0.050	0.05	0.01	<0.10	<0.10	0.1	0.02	<0.050	<0.050	<0.050	<0.050	0.05	0.01	<0.10	<0.10	<0.10	0.1	0.02	<0.050	0.05	0.01	<0.10	0.1	0.02	<0.050	<0.050	0.05	0.01	<0.10	<0.10	0.1	0.02	<0.050	<0.050	<0.050	<0.050	<0.050	0.05	0.01	8630548
Naphthalene	ug/g	<0.050	0.05	0.01	<0.10	<0.10	0.1	0.02	<0.050	<0.050	<0.050	<0.050	0.05	0.01	<0.10	<0.10	<0.10	0.1	0.02	<0.050	0.05	0.01	<0.10	0.1	0.02	<0.050	<0.050	0.05	0.01	<0.10	<0.10	0.1	0.02	<0.050	<0.050	<0.050	<0.050	<0.050	0.05	0.01	8630548
Phenanthrene	ug/g	<0.050	0.05	0.01	<0.10	<0.10	0.1	0.02	<0.050	<0.050	<0.050	<0.050	0.05	0.01	<0.10	<0.10	<0.10	0.1	0.02	<0.050	0.05	0.01	<0.10	0.1	0.02	<0.050	<0.050	0.05	0.01	<0.10	<0.10	0.1	0.02	<0.050	<0.050	<0.050	<0.050	<0.050	0.05	0.01	8630548
Pyrene	ug/g	<0.050	0.05	0.01	<0.10	<0.10	0.1	0.02	<0.050	<0.050	<0.050	<0.050	0.05	0.01	<0.10	<0.10	<0.10	0.1	0.02	<0.050	0.05	0.01	<0.10	0.1	0.02	<0.050	<0.050	0.05	0.01	<0.10	<0.10	0.1	0.02	<0.050	<0.050	<0.050	<0.050	<0.050	0.05	0.01	8630548
Benzo(b)fluoranthene	ug/g	<0.030	0.03	N/A	<0.060	<0.060	0.06	N/A	<0.030	<0.030	<0.030	<0.030	0.03	N/A	<0.060	<0.060	<0.060	0.06	N/A	<0.030	0.03	N/A	<0.060	0.06	N/A	<0.030	<0.030	0.03	N/A	<0.060	<0.060	0.06	N/A	<0.030	<0.030	<0.030	<0.030	<0.030	0.03	N/A	8630548
Perylene	ug/g	<0.050	0.05	N/A	<0.10	<0.10	0.1	N/A	<0.050	<0.050	<0.050	<0.050	0.05	N/A	<0.10	<0.10	<0.10	0.1	N/A	<0.050	0.05	N/A	<0.10	0.1	N/A	<0.050	<0.050	0.05	N/A	<0.10	<0.10	0.1	N/A	<0.050	<0.050	<0.050	<0.050	<0.050	0.05	N/A	8630548
Benzo(j)fluoranthene	ug/g	<0.030	0.03	N/A	<0.060	<0.060	0.06	N/A	<0.030	<0.030	<0.030	<0.030	0.03	N/A	<0.060	<0.060	<0.060	0.06	N/A	<0.030	0.03	N/A	<0.060	0.06	N/A	<0.030	<0.030	0.03	N/A	<0.060	<0.060	0.06	N/A	<0.030	<0.030	<0.030	<0.030	<0.030	0.03	N/A	8630548
Surrogate Recovery (%)																																									
D10-Anthracene	%	102	N/A	N/A	89	108	N/A	N/A	92	109	86	93	N/A	N/A	88	103	96	N/A	N/A	97	N/A	N/A	101	N/A	N/A	104	98	N/A	N/A	90	93	N/A	N/A	93	101	102	108	96	N/A	N/A	8630548
D14-Terphenyl (FS)	%	101	N/A	N/A	96	96	N/A	N/A	95	101	97	97	N/A	N/A	98	95	95	N/A	N/A	97	N/A	N/A	95	N/A	N/A	95	97	N/A	N/A	95	93	N/A	N/A	97	95	94	90	94	N/A	N/A	8630548
D8-Acenaphthylene	%	96	N/A	N/A	91	91	N/A	N/A	90	92	93	90	N/A	N/A	89	91	93	N/A	N/A	90	N/A	N/A	90	N/A	N/A	88	91	N/A	N/A	88	92	N/A	N/A	93	93	90	84	91	N/A	N/A	8630548

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
N/A = Not Applicable

Table B-3: Sediment Chemistry Laboratory Results Inorganics (Particle Size & Moisture)

WSP E&I Canada Limited
Bureau Veritas Job Number: C3A7223 Client Project #: ME2382602.3000.*.5290.573000
Report Date: 2023/05/05
Your P.O. #: ME2382602.3000.*.529

RESULTS OF ANALYSES OF SEDIMENT

Bureau Veritas ID		VOM345	VOM345	VOM346	VOM347		VOM348		VOM348	VOM349	VOM350	VOM351	VOM352	VOM352	VOM353	VOM354	VOM355	VOM356	VOM357	VOM358	VOM359	VOM360	VOM361	VOM362	VOM363	VOM364			
Sampling Date		2023-04-13	2023-04-13	2023-04-13	2023-04-13		2023-04-13		2023-04-13	2023-04-13	2023-04-13	2023-04-13	2023-04-13	2023-04-13	2023-04-13	2023-04-13	2023-04-13	2023-04-13	2023-04-14	2023-04-14	2023-04-14	2023-04-14	2023-04-14	2023-04-14	2023-04-14	2023-04-14			
COC Number		926537-01-01	926537-01-01	926537-01-01	926537-01-01		926537-01-01		926537-01-01	926537-01-01	926537-01-01	926537-01-01	926537-01-01	926537-01-01	926537-01-01	926537-01-01	926537-02-01	926537-02-01	926537-02-01	926537-02-01	926537-02-01	926537-02-01	926537-02-01	926537-02-01	926537-02-01	926537-02-01			
	UNITS	**PRE-S7-1-A**	**PRE-S7-1-A Lab-Dup**	**PRE-S7-1-B**	**PRE-S5-1-A**	**QC Batch**	**PRE-S5-1-B**	**RDL**	**PRE-S5-1-B Lab-Dup**	**PRE-S3-1-B**	**PRE-F94-1-B**	**PRE-S1-1-B**	**PRE-N2-1-B**	**PRE-N2-1-B Lab-Dup**	**PRE-S3-1-A**	**PRE-F94-1-A**	**PRE-S1-1-A**	**PRE-N2-1-A**	**PRE-S15-1-A**	**PRE-S15-1-B**	**PRE-S9-1-B**	**PRE-S9-1-A**	**PRE-S11-1-A**	**PRE-S11-1-B**	**PRE-N21-1-A**	**PRE-N21-1-B**	**RDL**	**MDL**	**QC Batch**
CONVENTIONALS																													
Redox Potential	mV	270	N/A	260	270	8631818	270	N/A	270	260	260	270	270	N/A	260	260	270	260	260	260	270	270	270	270	270	260	N/A	N/A	8631818
Inorganics																													
Moisture	%	35	N/A	40	35	8615851	35	1	N/A	34	32	34	35	34	33	33	35	34	34	33	34	32	32	35	35	33	1	0.2	8616633
< -1 Phi (2 mm)	%	100	100	100	100	8619222	100	0.1	N/A	100	100	100	100	N/A	100	100	100	100	99	100	100	100	100	100	100	100	0.1	N/A	8619222
< 0 Phi (1 mm)	%	100	100	100	100	8619222	100	0.1	N/A	100	100	100	100	N/A	100	100	100	100	99	100	100	100	100	100	100	100	0.1	N/A	8619222
< +1 Phi (0.5 mm)	%	100	100	100	100	8619222	100	0.1	N/A	100	100	100	100	N/A	100	100	100	100	99	100	100	100	100	100	100	100	0.1	N/A	8619222
< +2 Phi (0.25 mm)	%	100	100	99	100	8619222	100	0.1	N/A	100	100	100	100	N/A	100	100	100	100	99	100	100	100	100	100	100	100	0.1	N/A	8619222
< +3 Phi (0.12 mm)	%	99	99	99	99	8619222	99	0.1	N/A	99	99	99	99	N/A	99	99	99	99	99	99	99	99	99	99	99	99	0.1	N/A	8619222
< +4 Phi (0.062 mm)	%	98	98	98	98	8619222	98	0.1	N/A	98	98	98	98	N/A	98	98	98	98	98	98	98	98	98	98	98	98	0.1	N/A	8619222
< +5 Phi (0.031 mm)	%	79	78	81	79	8619222	78	0.1	N/A	80	82	81	80	N/A	79	80	79	80	79	80	80	80	82	81	82	81	0.1	N/A	8619222
< +6 Phi (0.016 mm)	%	48	49	47	50	8619222	49	0.1	N/A	48	50	49	49	N/A	49	50	50	49	51	51	48	49	49	52	50	51	0.1	N/A	8619222
< +7 Phi (0.0078 mm)	%	28	28	27	29	8619222	29	0.1	N/A	28	28	29	29	N/A	28	28	29	28	29	29	28	28	28	29	29	29	0.1	N/A	8619222
< +8 Phi (0.0039 mm)	%	25	25	24	26	8619222	26	0.1	N/A	25	25	25	25	N/A	25	25	26	25	26	26	26	25	26	26	26	26	0.1	N/A	8619222
< +9 Phi (0.0020 mm)	%	21	21	20	22	8619222	21	0.1	N/A	20	21	21	21	N/A	21	21	21	21	22	21	21	21	21	22	21	22	0.1	N/A	8619222
Gravel	%	<0.10	<0.10	0.33	<0.10	8619222	<0.10	0.1	N/A	<0.10	<0.10	<0.10	<0.10	N/A	<0.10	<0.10	<0.10	<0.10	0.74	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.1	N/A	8619222
Sand	%	2.1	2.1	2	2.2	8619222	2.1	0.1	N/A	2.1	2	2.4	2.3	N/A	2.1	2	2.4	2.2	1.8	2.2	2.3	2.2	2.2	1.9	2.1	2	0.1	N/A	8619222
Silt	%	73	73	73	72	8619222	72	0.1	N/A	73	73	72	72	N/A	73	73	72	73	72	72	72	72	72	72	72	72	0.1	N/A	8619222
Clay	%	25	25	24	26	8619222	26	0.1	N/A	25	25	25	25	N/A	25	25	26	25	26	26	26	25	26	26	26	26	0.1	N/A	8619222

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
N/A = Not Applicable

Table B-4: Sediment Chemistry Laboratory Results Weak Acid Extractable

WSP E&I Canada Limited
Bureau Veritas Job Number: C3A7223 Client Project #: ME2382602.3000.*.5290.573000
Report Date: 2023/05/05
Your P.O. #: ME2382602.3000.*.529

ELEMENTS BY ICP/MS (SEDIMENT)

Bureau Veritas ID		VOM345	VOM346	VOM347	VOM348	VOM349	VOM350	VOM351	VOM352	VOM353	VOM354	VOM355	VOM356	VOM357	VOM358	VOM359	VOM360	VOM360	VOM361	VOM362	VOM363	VOM364			
Sampling Date		2023-04-13	2023-04-13	2023-04-13	2023-04-13	2023-04-13	2023-04-13	2023-04-13	2023-04-13	2023-04-13	2023-04-13	2023-04-13	2023-04-13	2023-04-14	2023-04-14	2023-04-14	2023-04-14	2023-04-14	2023-04-14	2023-04-14	2023-04-14	2023-04-14			
COC Number		926537-01-01	926537-01-01	926537-01-01	926537-01-01	926537-01-01	926537-01-01	926537-01-01	926537-01-01	926537-01-01	926537-01-01	926537-02-01	926537-02-01	926537-02-01	926537-02-01	926537-02-01	926537-02-01	926537-02-01	926537-02-01	926537-02-01	926537-02-01	926537-02-01			
	UNITS	**PRE-S7-1-A**	**PRE-S7-1-B**	**PRE-S5-1-A**	**PRE-S5-1-B**	**PRE-S3-1-B**	**PRE-F94-1-B**	**PRE-S1-1-B**	**PRE-N2-1-B**	**PRE-S3-1-A**	**PRE-F94-1-A**	**PRE-S1-1-A**	**PRE-N2-1-A**	**PRE-S15-1-A**	**PRE-S15-1-B**	**PRE-S9-1-B**	**PRE-S9-1-A**	**PRE-S9-1-A Lab-Dup**	**PRE-S11-1-A**	**PRE-S11-1-B**	**PRE-N21-1-A**	**PRE-N21-1-B**	**RDL**	**MDL**	**QC Batch**
Metals																									
Weak Acid Ext. Barium (Ba)	mg/kg	33	33	34	32	34	32	31	32	31	30	33	32	30	32	32	31	20 (1)	29	31	21	31	5	N/A	8626720

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
N/A = Not Applicable
(1) Poor RPD due to sample inhomogeneity. Verified by repeat digestion and analysis.

Table B-5: Sediment Chemistry Laboratory Results Metals

ELEMENTS BY ATOMIC SPECTROSCOPY (SEDIMENT)

Bureau Veritas ID		VOM345	VOM346	VOM347	VOM348	VOM349		VOM350	VOM351	VOM352	VOM353		VOM354	VOM355	VOM356	VOM357	VOM358	VOM359	VOM360	VOM361	VOM362	VOM363	VOM364			
Sampling Date		2023-04-13	2023-04-13	2023-04-13	2023-04-13	2023-04-13		2023-04-13	2023-04-13	2023-04-13	2023-04-13		2023-04-13	2023-04-13	2023-04-13	2023-04-14	2023-04-14	2023-04-14	2023-04-14	2023-04-14	2023-04-14	2023-04-14	2023-04-14			
COC Number		926537-01-01	926537-01-01	926537-01-01	926537-01-01	926537-01-01		926537-01-01	926537-01-01	926537-01-01	926537-01-01		926537-01-01	926537-02-01	926537-02-01	926537-02-01	926537-02-01	926537-02-01	926537-02-01	926537-02-01	926537-02-01	926537-02-01	926537-02-01			
	UNITS	**PRE-S7-1-A**	**PRE-S7-1-B**	**PRE-S5-1-A**	**PRE-S5-1-B**	**PRE-S3-1-B**	**QC Batch**	**PRE-F94-1-B**	**PRE-S1-1-B**	**PRE-N2-1-B**	**PRE-S3-1-A**	**QC Batch**	**PRE-F94-1-A**	**PRE-S1-1-A**	**PRE-N2-1-A**	**PRE-S15-1-A**	**PRE-S15-1-B**	**PRE-S9-1-B**	**PRE-S9-1-A**	**PRE-S11-1-A**	**PRE-S11-1-B**	**PRE-N21-1-A**	**PRE-N21-1-B**	**RDL**	**MDL**	**QC Batch**
Metals																										
Acid Extractable Aluminum (Al)	mg/kg	9100	8900	9700	9100	9500	8626934	8900	8700	8800	8500	8620782	9200	9400	9500	9600	9400	9000	8800	9000	8900	9700	9300	10	N/A	8626934
Acid Extractable Antimony (Sb)	mg/kg	<2.0	<2.0	<2.0	<2.0	<2.0	8626934	<2.0	<2.0	<2.0	<2.0	8620782	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	2	N/A	8626934
Acid Extractable Arsenic (As)	mg/kg	<2.0	<2.0	<2.0	<2.0	<2.0	8626934	<2.0	<2.0	<2.0	<2.0	8620782	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	2	N/A	8626934
Acid Extractable Barium (Ba)	mg/kg	140	140	150	140	150	8626934	130	130	130	130	8620782	140	150	150	150	150	140	140	140	140	150	140	5	N/A	8626934
Acid Extractable Beryllium (Be)	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0	8626934	<1.0	<1.0	<1.0	<1.0	8620782	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1	N/A	8626934
Acid Extractable Bismuth (Bi)	mg/kg	<2.0	<2.0	<2.0	<2.0	<2.0	8626934	<2.0	<2.0	<2.0	<2.0	8620782	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	2	N/A	8626934
Acid Extractable Boron (B)	mg/kg	<50	<50	<50	<50	<50	8626934	<50	<50	<50	<50	8620782	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	50	N/A	8626934
Acid Extractable Cadmium (Cd)	mg/kg	<0.30	<0.30	<0.30	<0.30	<0.30	8626934	<0.30	<0.30	<0.30	<0.30	8620782	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	0.3	N/A	8626934
Acid Extractable Chromium (Cr)	mg/kg	28	28	30	28	29	8626934	27	26	27	26	8620782	29	29	30	29	29	28	27	28	28	30	29	2	N/A	8626934
Acid Extractable Cobalt (Co)	mg/kg	5.3	5.5	5.8	5.6	5.4	8626934	5.2	5.1	5.3	5	8620782	5.4	5.8	5.6	5.6	5.7	5.4	5.2	5.3	5.4	5.5	5.4	1	N/A	8626934
Acid Extractable Copper (Cu)	mg/kg	9.5	9.6	10	9.8	10	8626934	9.9	9.2	9.8	9.5	8620782	10	10	10	10	10	9.8	9.6	9.4	9.5	10	10	2	N/A	8626934
Acid Extractable Iron (Fe)	mg/kg	17000	17000	18000	17000	18000	8626934	16000	16000	16000	16000	8620782	17000	17000	17000	17000	17000	17000	16000	17000	17000	17000	17000	50	N/A	8626934
Acid Extractable Lead (Pb)	mg/kg	4.4	4.2	4.9	4.4	4.2	8626934	4.3	3.8	4.3	3.9	8620782	4.2	4.4	5	4.2	4.2	4.5	4.4	3.9	3.8	4.5	4.4	0.5	N/A	8626934
Acid Extractable Lithium (Li)	mg/kg	17	16	17	16	17	8626934	15	15	15	15	8620782	16	17	17	17	17	16	16	16	16	17	16	2	N/A	8626934
Acid Extractable Manganese (Mn)	mg/kg	210	210	230	200	220	8626934	190	190	200	190	8620782	210	200	220	210	210	220	200	200	200	230	210	2	N/A	8626934
Acid Extractable Mercury (Hg)	mg/kg	0.15	0.12	0.11	<0.10	<0.10	8626934	<0.10	<0.10	<0.10	<0.10	8620782	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.11	0.1	<0.10	0.1	N/A	8626934
Acid Extractable Molybdenum (Mo)	mg/kg	<2.0	<2.0	<2.0	<2.0	<2.0	8626934	<2.0	<2.0	<2.0	<2.0	8620782	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	2	N/A	8626934
Acid Extractable Nickel (Ni)	mg/kg	16	16	17	17	17	8626934	16	15	16	15	8620782	16	17	17	17	16	16	16	16	16	16	16	2	N/A	8626934
Acid Extractable Rubidium (Rb)	mg/kg	23	22	24	23	24	8626934	22	21	22	21	8620782	23	24	25	24	24	23	21	23	23	23	23	2	N/A	8626934
Acid Extractable Selenium (Se)	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50	8626934	<0.50	<0.50	<0.50	<0.50	8620782	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0.5	N/A	8626934
Acid Extractable Silver (Ag)	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50	8626934	<0.50	<0.50	<0.50	<0.50	8620782	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0.5	N/A	8626934
Acid Extractable Strontium (Sr)	mg/kg	84	86	90	86	89	8626934	81	78	81	81	8620782	85	85	89	88	87	86	81	81	78	85	84	5	N/A	8626934
Acid Extractable Thallium (Tl)	mg/kg	0.12	0.12	0.13	0.11	0.13	8626934	0.11	0.11	<0.10	0.11	8620782	0.11	0.12	0.12	0.12	0.12	0.11	<0.10	0.11	0.12	0.11	0.12	0.1	N/A	8626934
Acid Extractable Tin (Sn)	mg/kg	1	1.7	<1.0	<1.0	15	8626934	<1.0	<1.0	<1.0	<1.0	8620782	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.8	<1.0	<1.0	<1.0	1	1	N/A	8626934
Acid Extractable Uranium (U)	mg/kg	0.76	0.87	0.82	0.86	0.96	8626934	0.84	0.75	0.66	0.97	8620782	0.83	0.82	0.84	1	0.94	0.89	0.73	0.69	0.78	0.79	0.75	0.1	N/A	8626934
Acid Extractable Vanadium (V)	mg/kg	32	32	35	32	34	8626934	31	30	31	30	8620782	33	33	34	34	34	32	32	32	31	34	33	2	N/A	8626934
Acid Extractable Zinc (Zn)	mg/kg	40	39	42	38	40	8626934	36	39	35	35	8620782	40	40	40	40	41	39	38	38	39	40	41	5	N/A	8626934

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

Appendix C: Boxplots

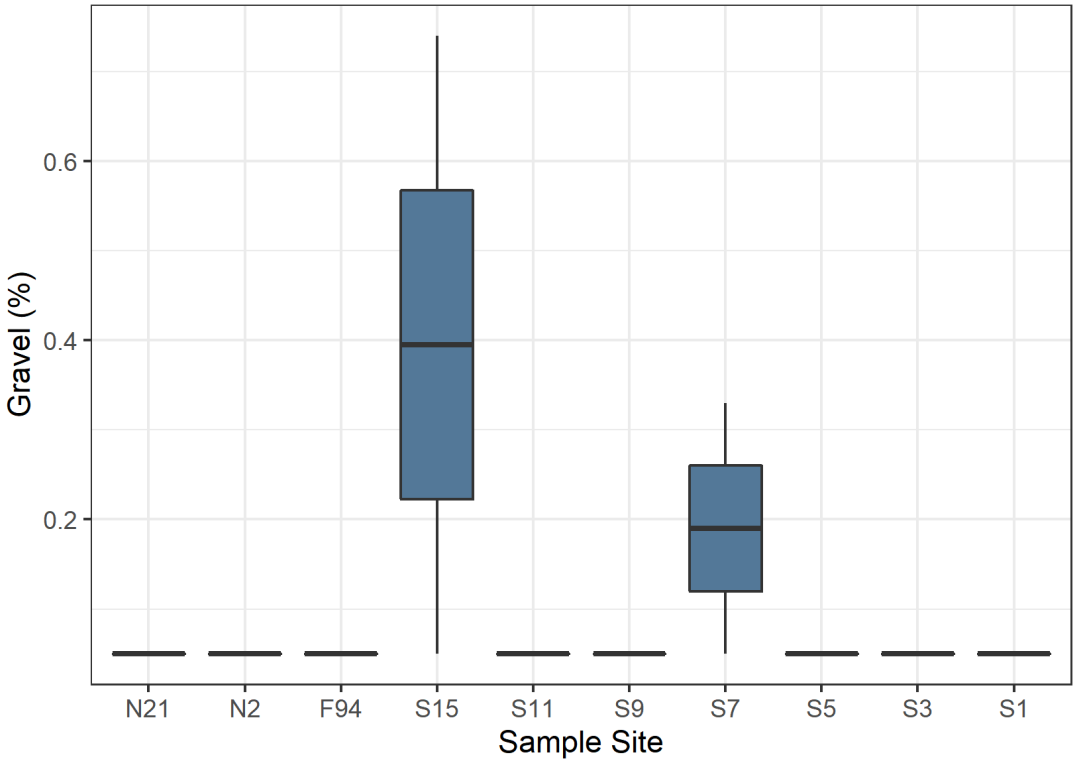

Figure C-1: Mean Gravel (A and B) Concentrations (mg/kg) per Sample Site.

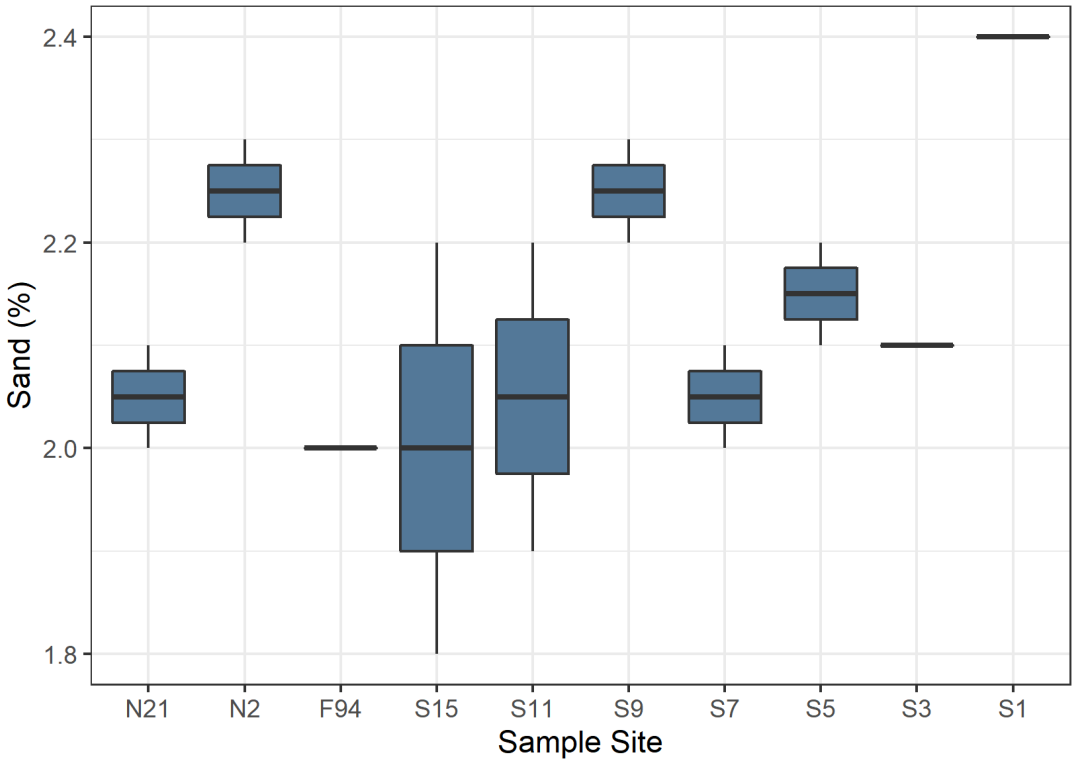

Figure C-2: Mean Sand (A and B) Concentrations (mg/kg) per Sample Site.

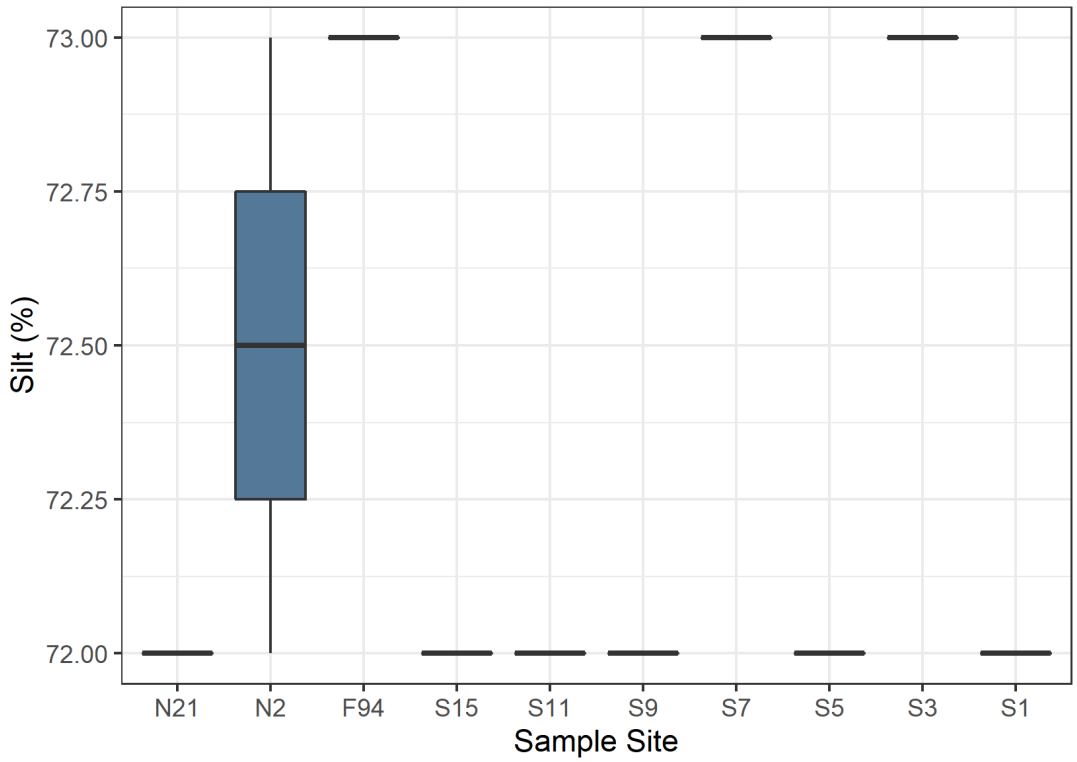

Figure C-3: Mean Silt (A and B) Concentrations (mg/kg) per Sample Site.

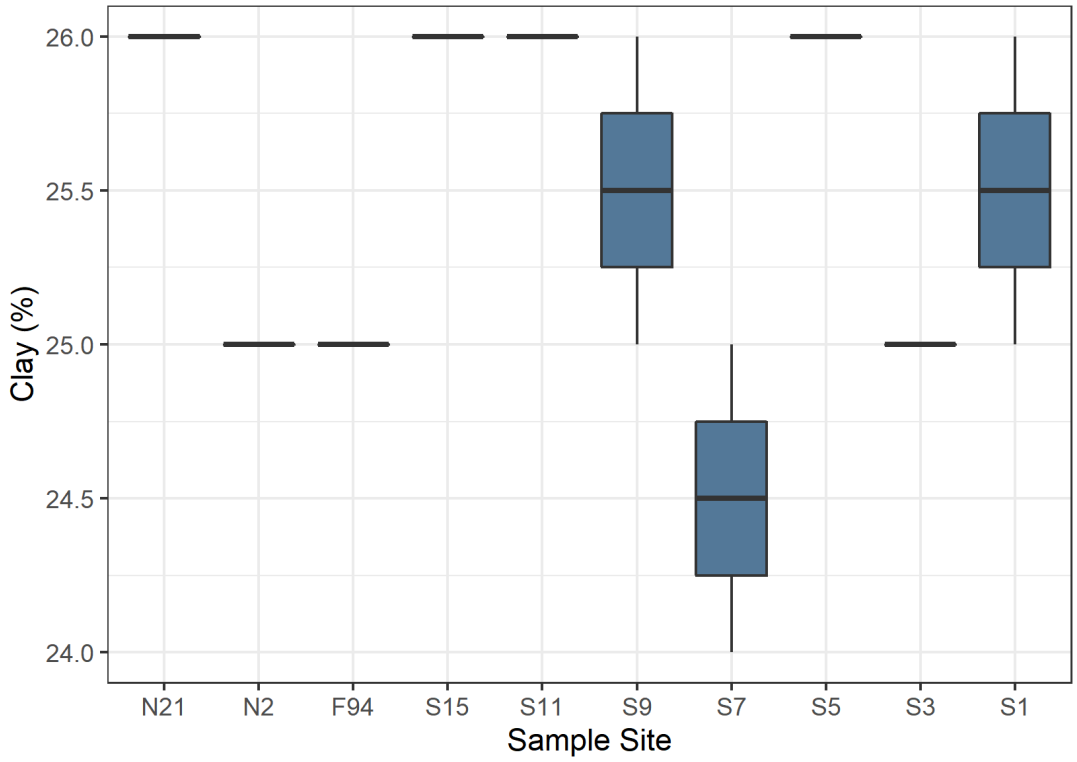

Figure C-4: Mean Clay (A and B) Concentrations (mg/kg) per Sample Site.

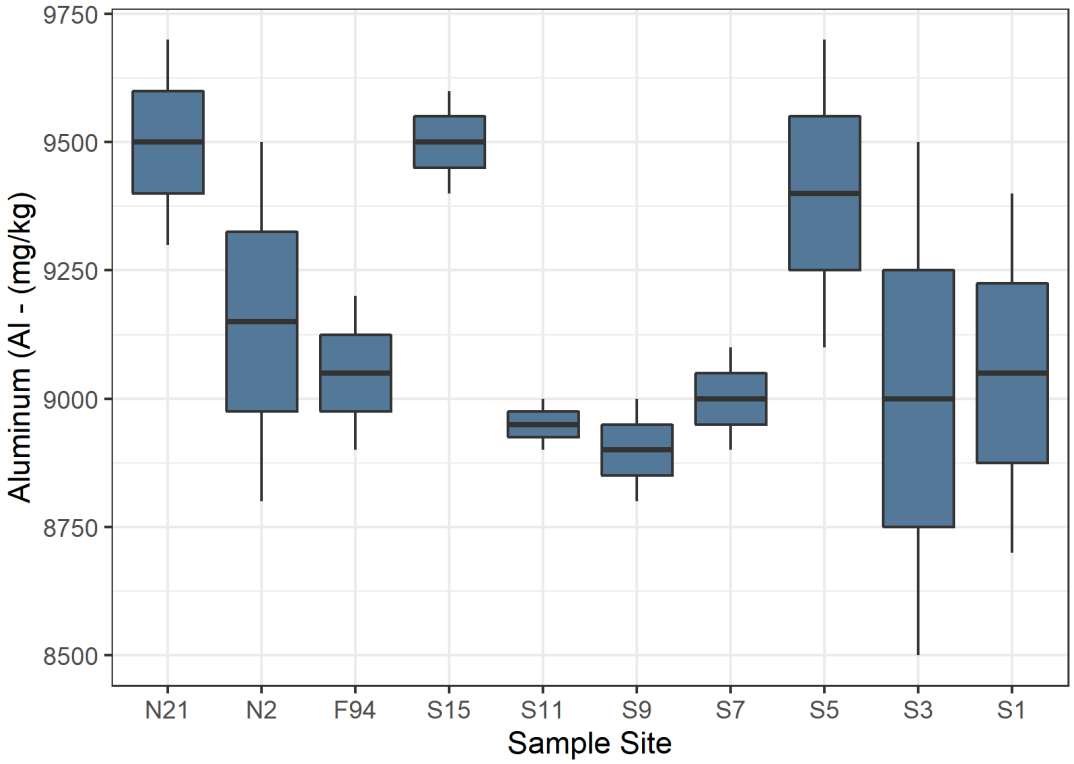

Figure C-5: Mean Aluminium (A and B) Concentrations (mg/kg) per Sample Site.

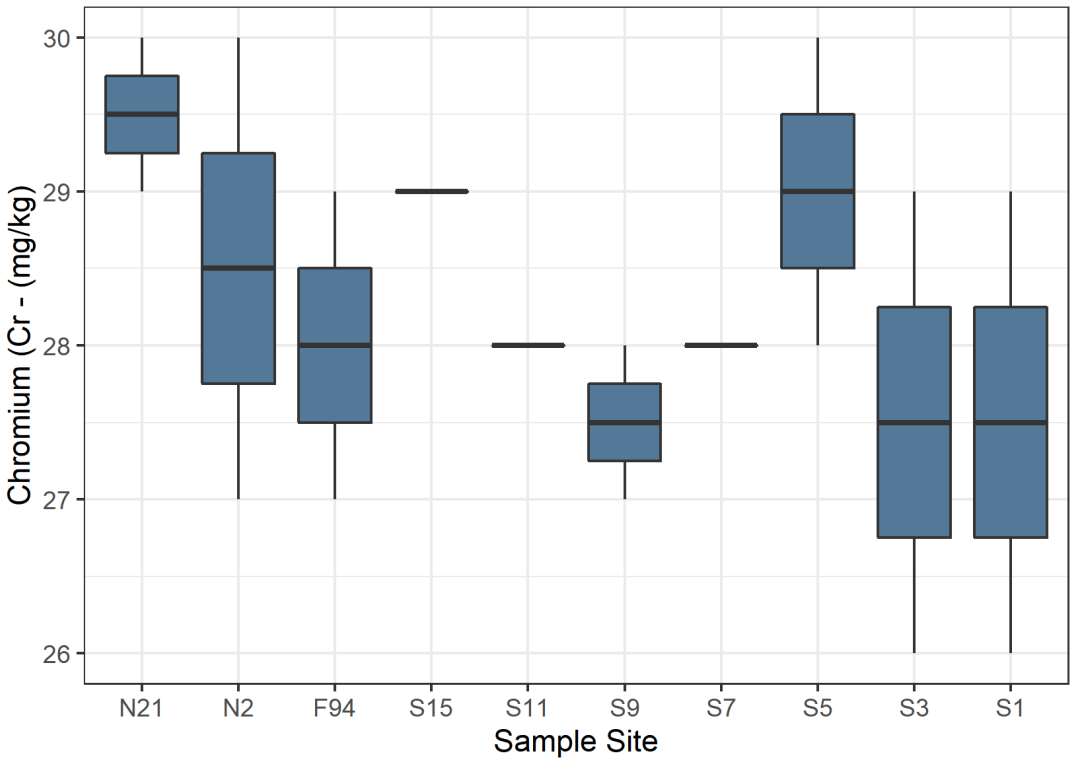

Figure C-6: Mean Chromium (A and B) Concentrations (mg/kg) per Sample Site.

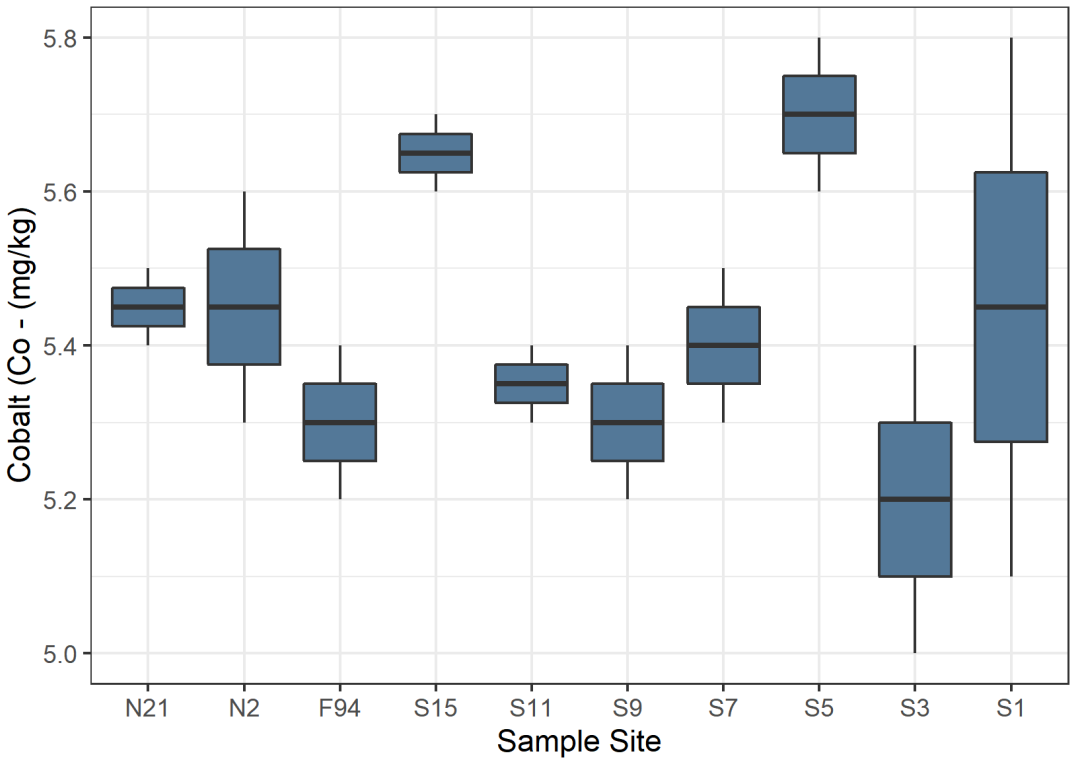

Figure C-7: Mean Cobalt (A and B) Concentrations (mg/kg) per Sample Site.

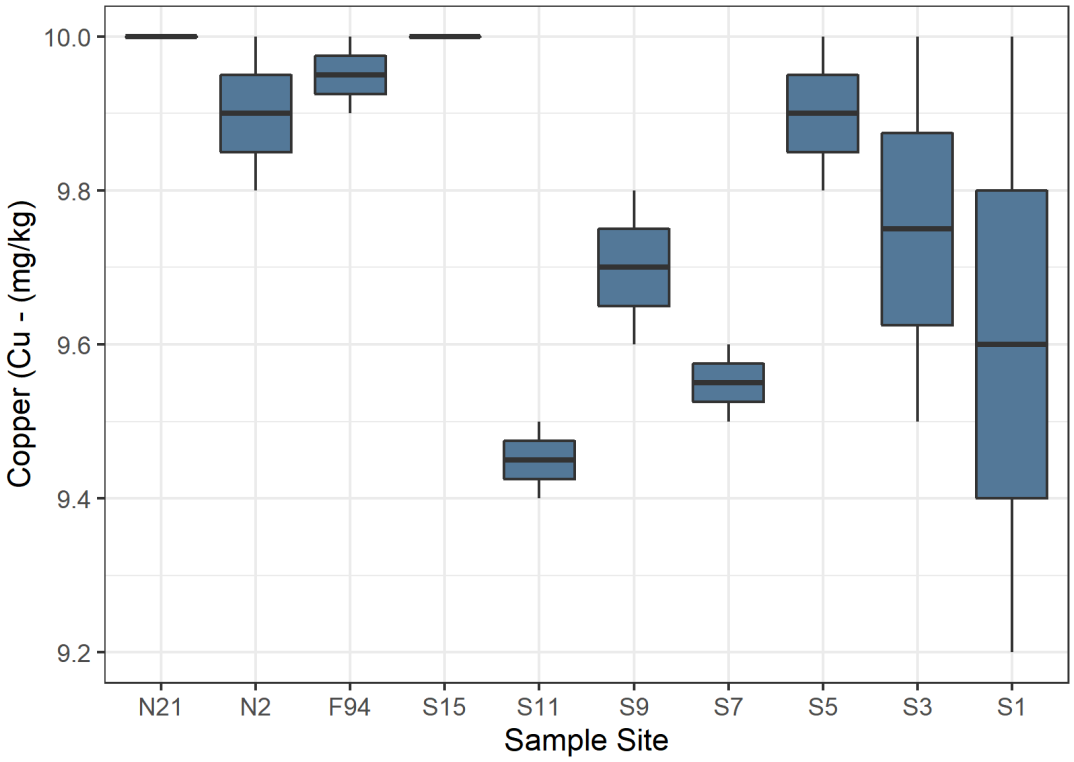

Figure C-8: Mean Copper (A and B) Concentrations (mg/kg) per Sample Site.

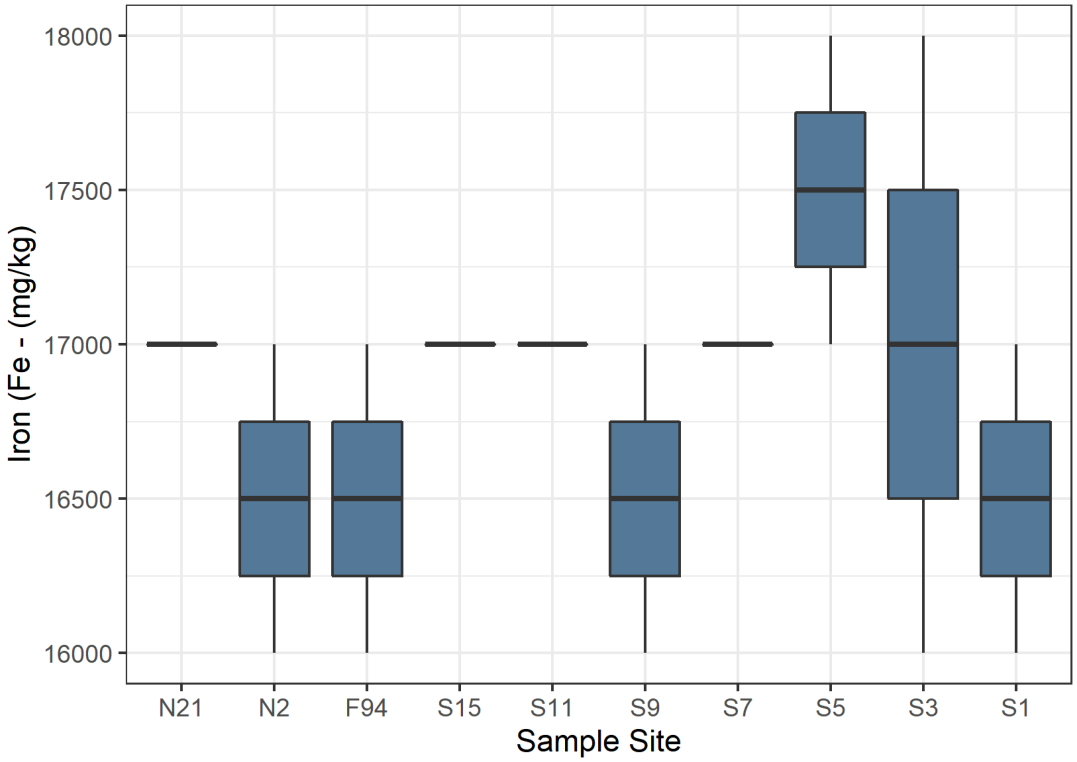

Figure C-9: Mean Iron (A and B) Concentrations (mg/kg) per Sample Site.

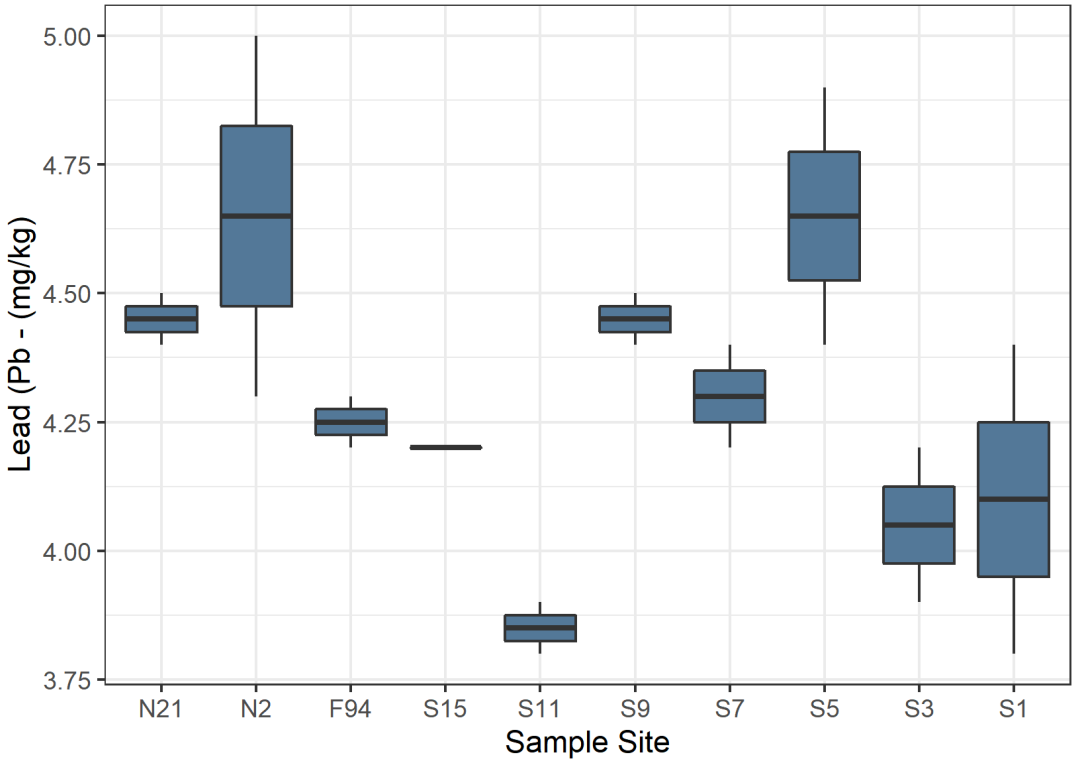

Figure C-10: Mean Lead (A and B) Concentrations (mg/kg) per Sample Site.

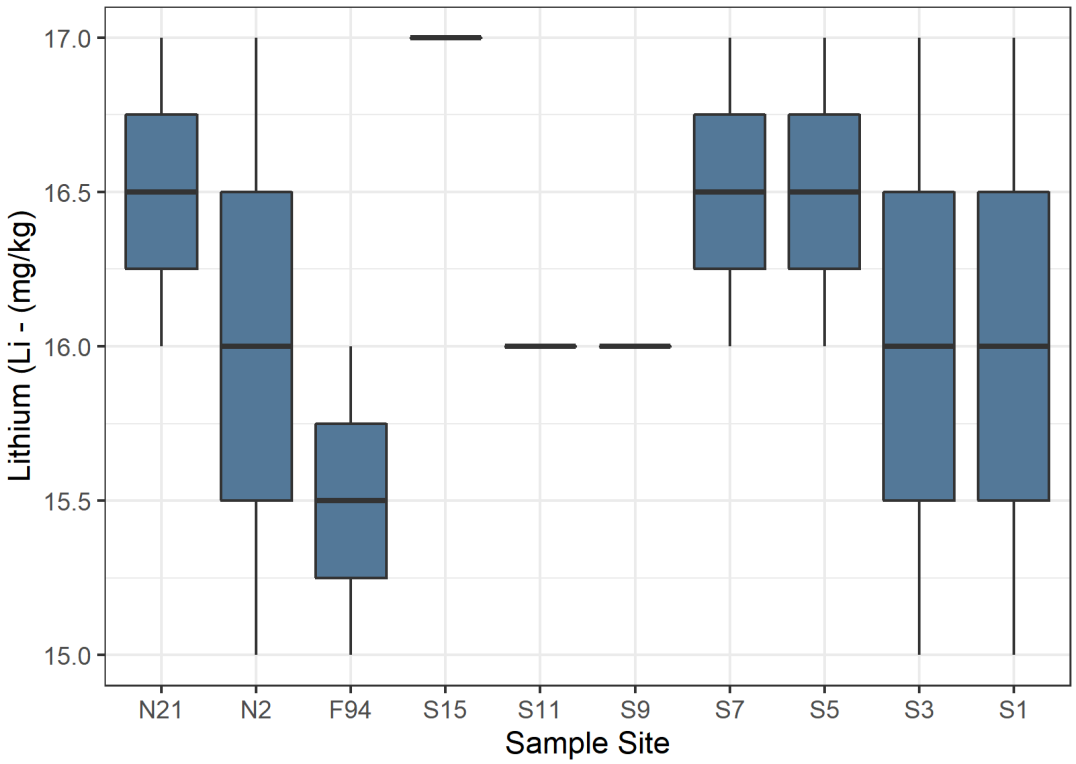

Figure C-11: Mean Lithium (A and B) Concentrations (mg/kg) per Sample Site.

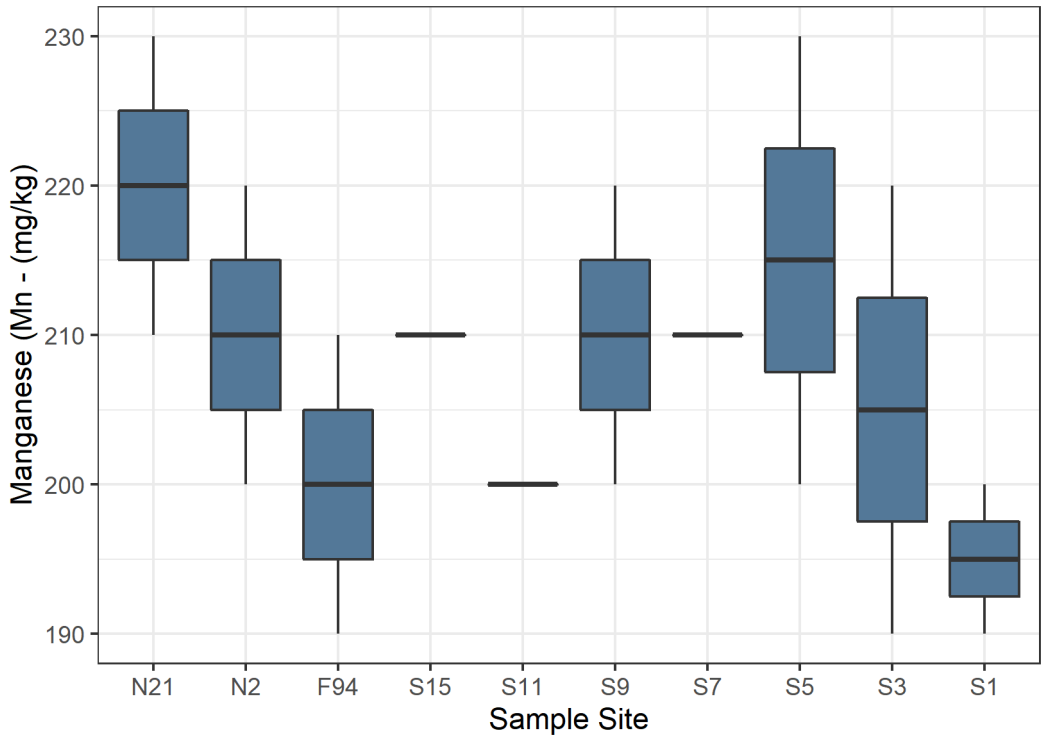

Figure C-12: Mean Manganese (A and B) Concentrations (mg/kg) per Sample Site.

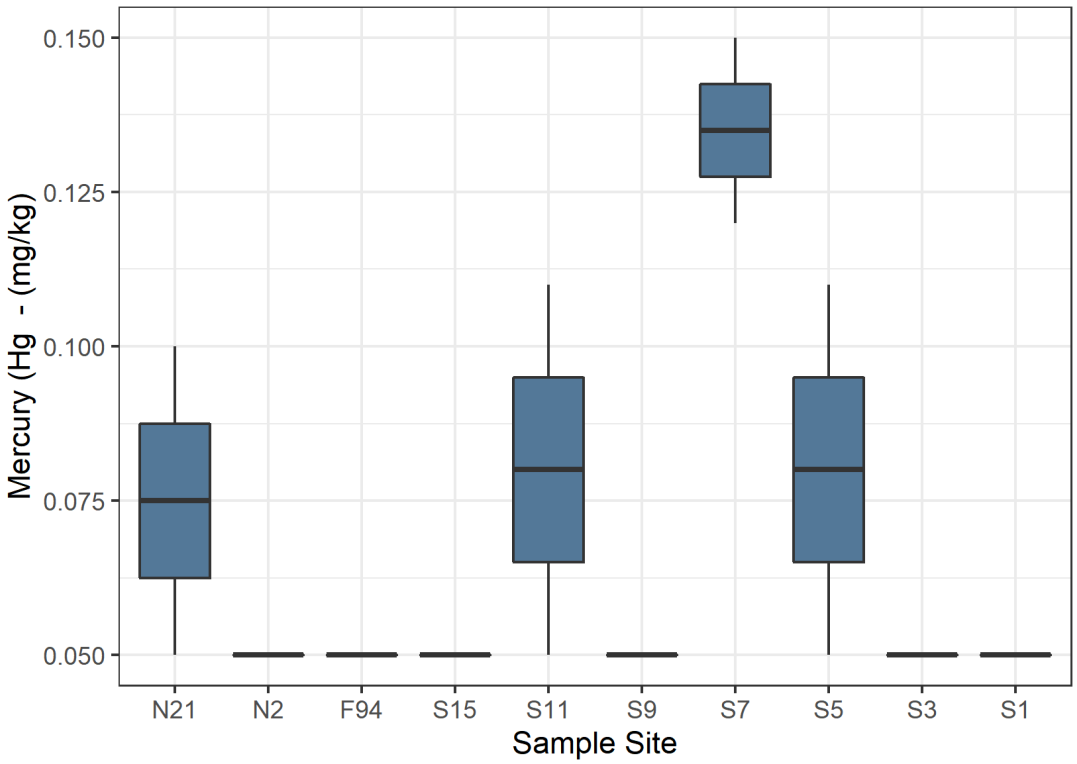

Figure C-13: Mean Mercury (A and B) Concentrations (mg/kg) per Sample Site.

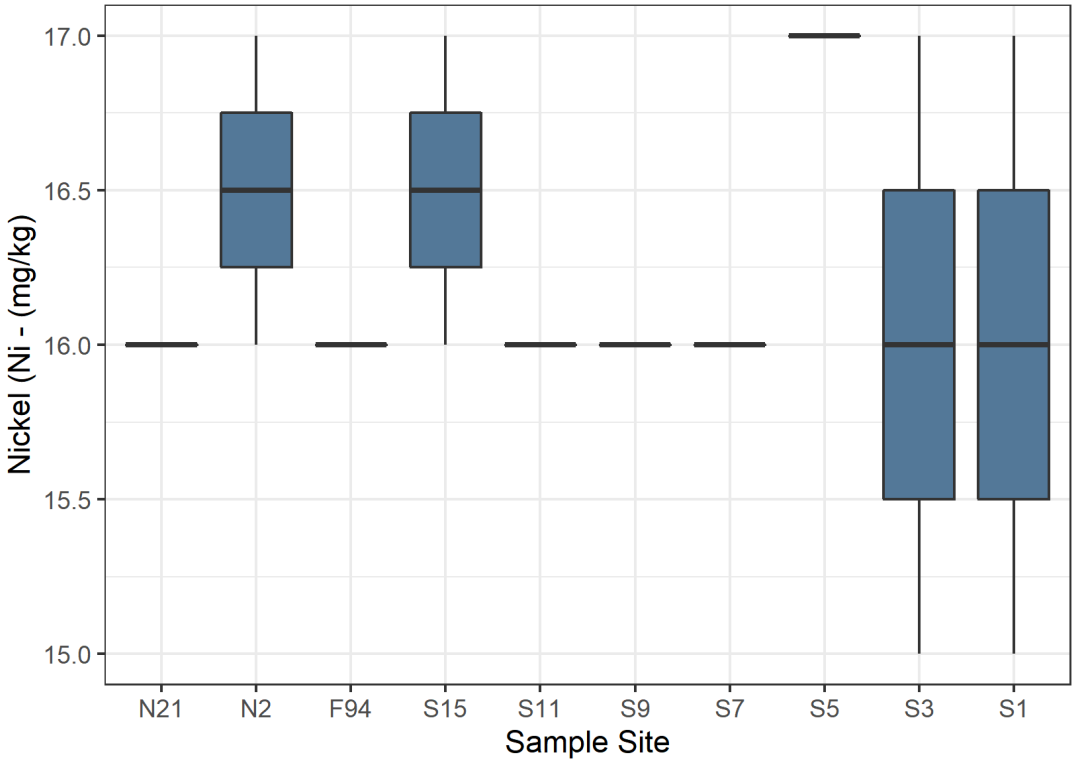

Figure C-14: Mean Nickel (A and B) Concentrations (mg/kg) per Sample Site.

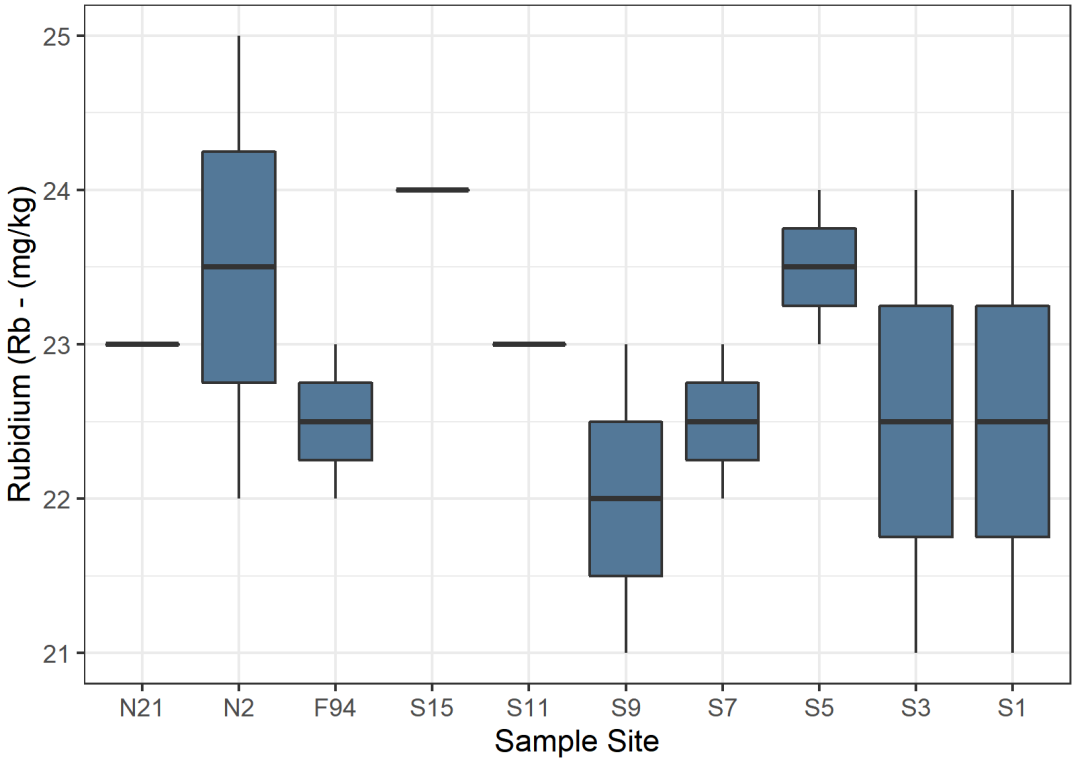

Figure C-15: Mean Rubidium (A and B) Concentrations (mg/kg) per Sample Site.

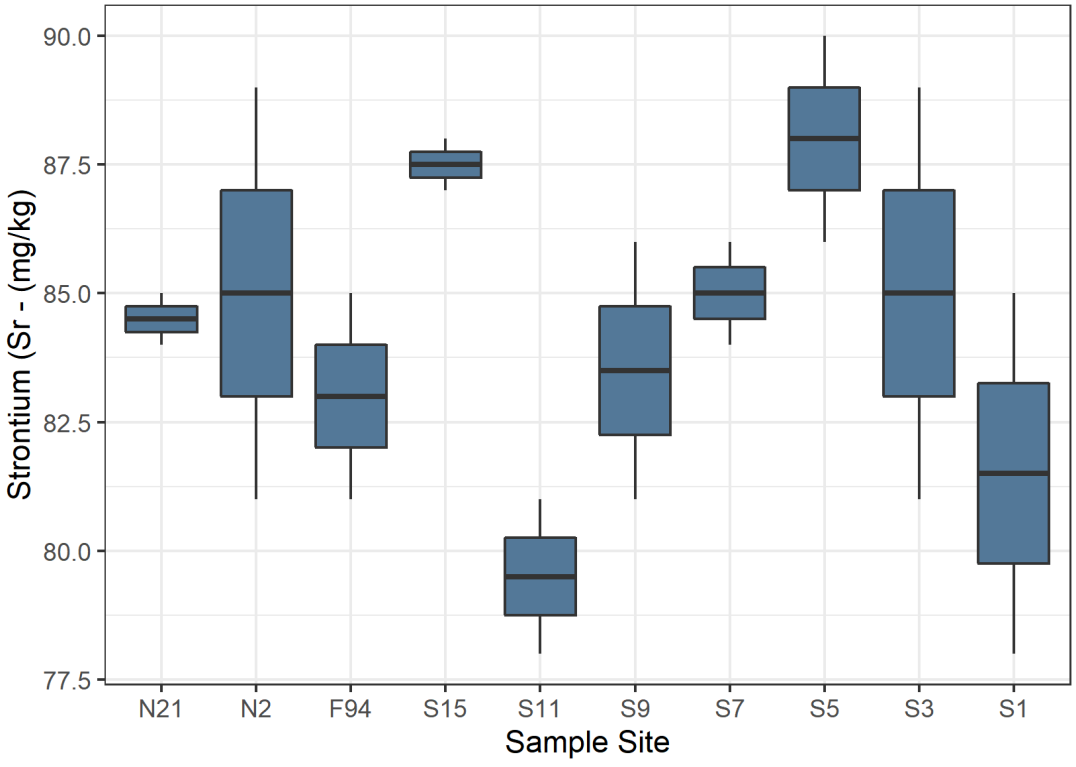

Figure C-16: Mean Strontium (A and B) Concentrations (mg/kg) per Sample Site.

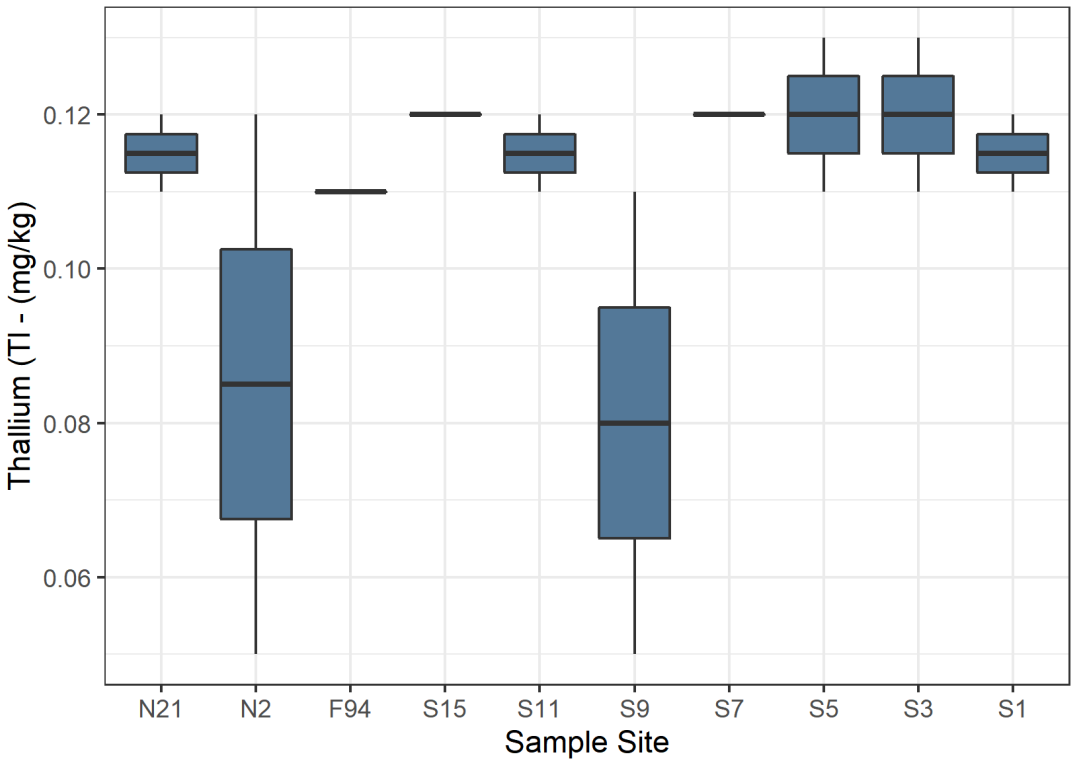

Figure C-17: Mean Thallium (A and B) Concentrations (mg/kg) per Sample Site.

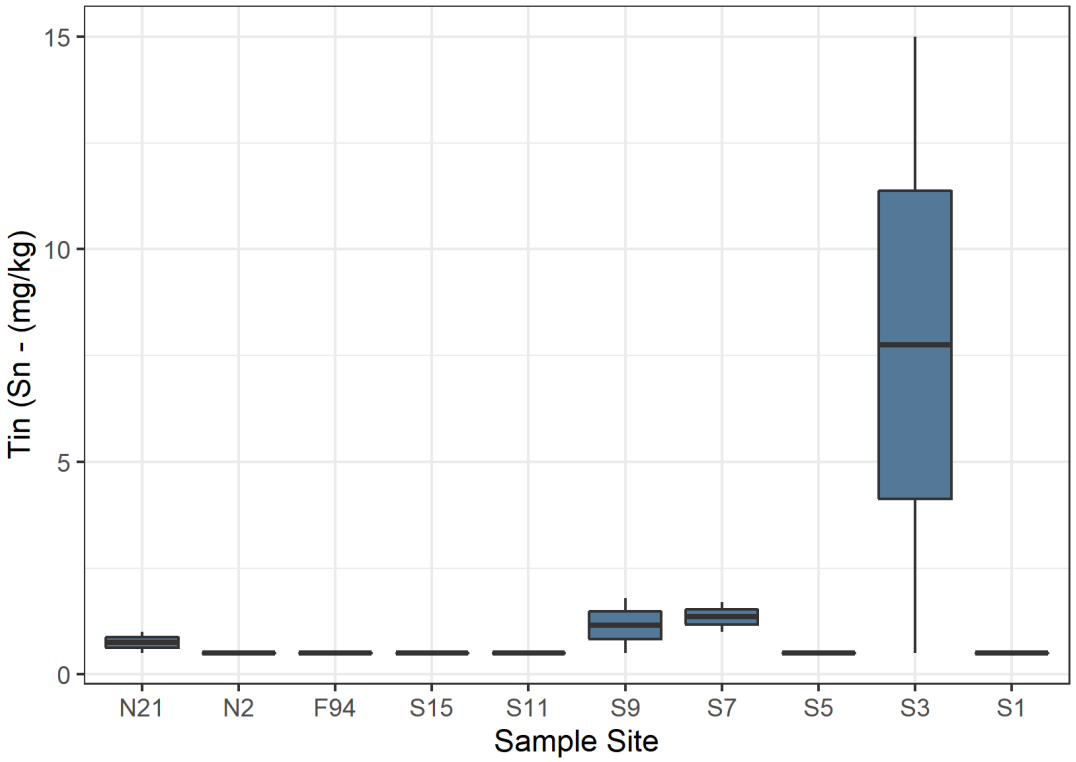

Figure C-18: Mean Tin (A and B) Concentrations (mg/kg) per Sample Site.

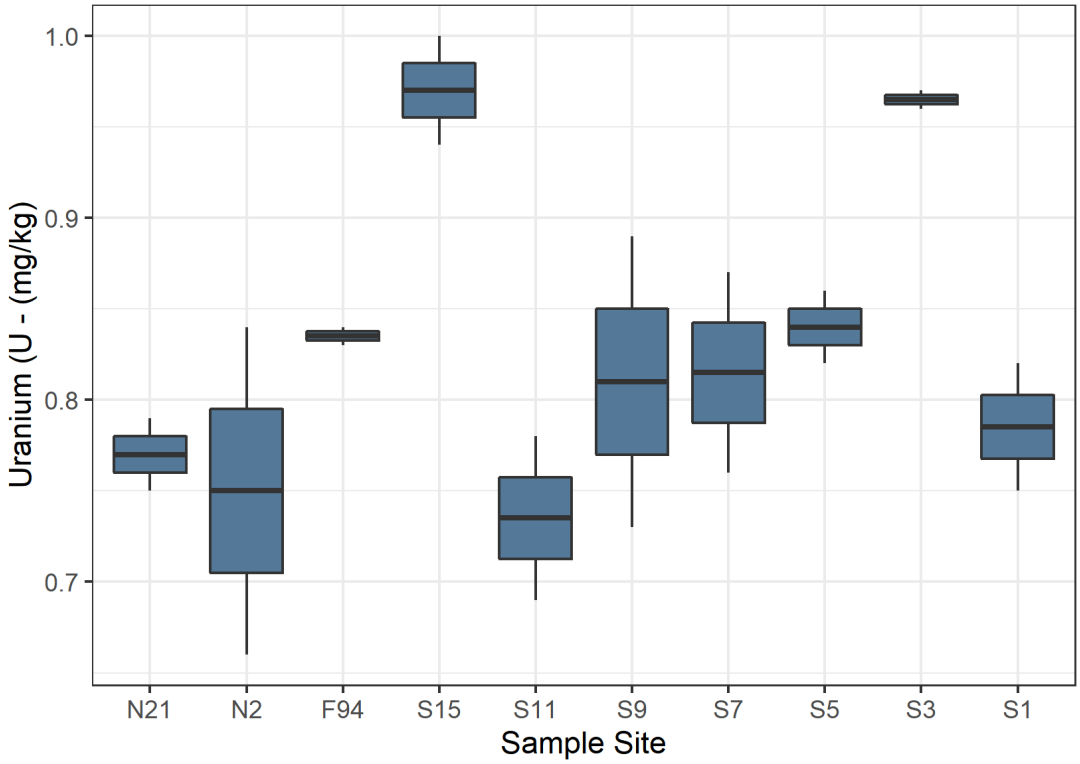

Figure C-19: Mean Uranium (A and B) Concentrations (mg/kg) per Sample Site.

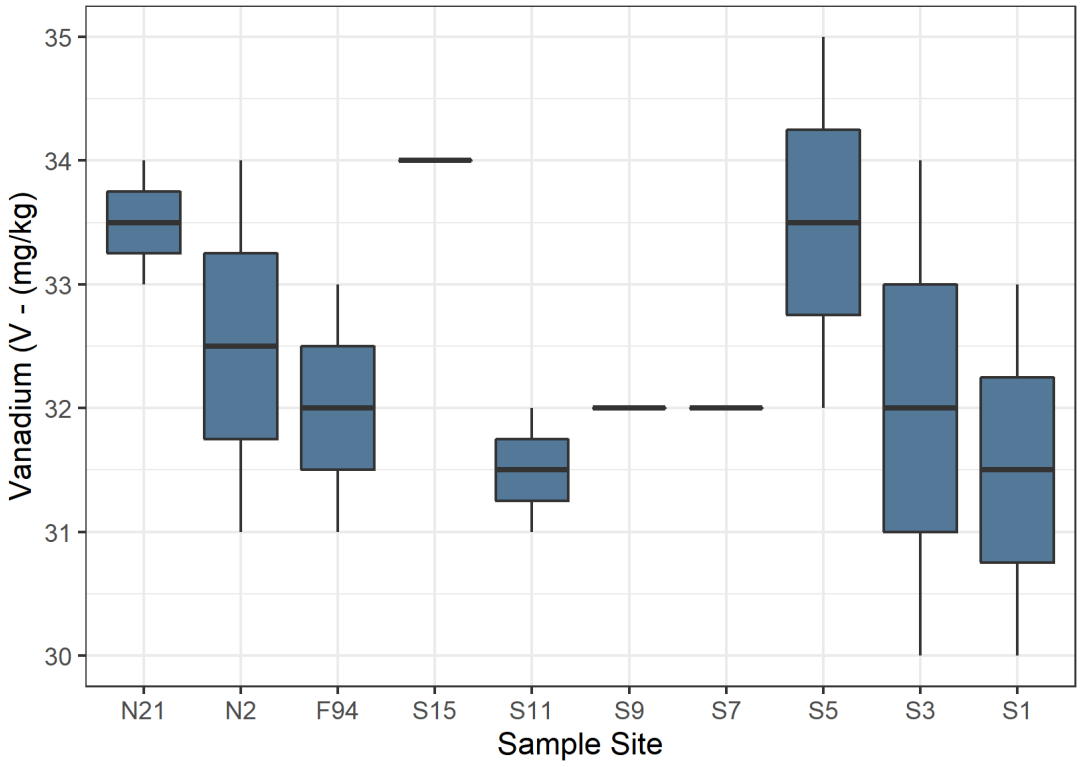

Figure C-20: Mean Vanadium (A and B) Concentrations (mg/kg) per Sample Site.

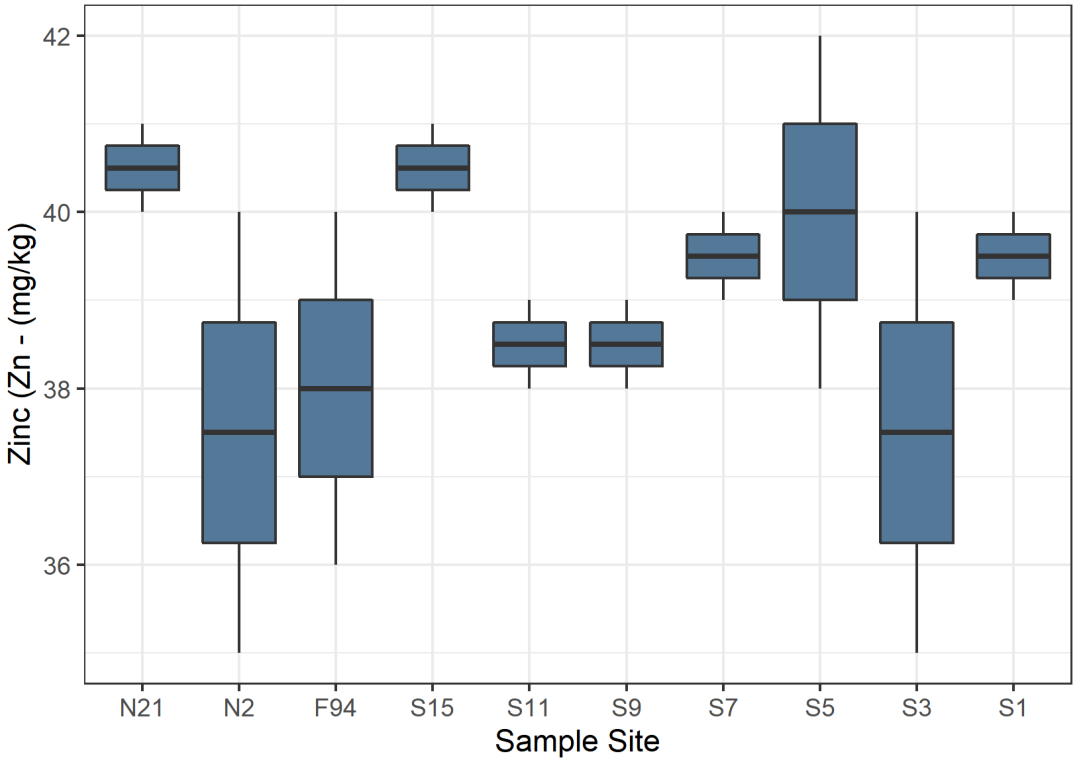

Figure C-21: Mean Zinc (A and B) Concentrations (mg/kg) per Sample Site.