31 March 2022
Project Number: 210561

Mr. Michael Brownlee
Public Services and Procurement Canada
Western Region
10025 Jasper Region
Edmonton, AB T5J1S6

Re: Nunavut Water Board (NWB) 2021 Compliance Long Term Monitoring Report
Water Licence 1BR-MDR2126, Former Iqaluit Metal Dump, Iqaluit, NU

Dear Mr. Brownlee,

BluMetric Environmental Inc. (BluMetric™) was retained by Public Services and Procurement Canada (PSPC), Western Region on behalf of Transport Canada (TC) to complete the 2021-2022 Compliance Long Term Monitoring (LTM) requirements at the Former Iqaluit Metal Dump, located in Iqaluit, NU. The Site location is indicated in **Figure 1**. Site work and the associated reporting completed in 2021/2022 was conducted as per the requirements of the Nunavut Water Board (NWB) Water Licence 1BR-MDR2126, and the site-specific Performance and Long Term Monitoring Plan (Arcadis, August 2018).

EXECUTIVE SUMMARY

The Iqaluit Former Metal Dump Landfill is located 1.7 km southwest of the City of Iqaluit, Nunavut on the border of the Sylvia Grinnell Territorial Park and the Sylvia Grinnell River. The Site covers an area of approximately 72,500 m^2. The United States Air Force used the Site from 1955 to 1963 as a metal dump for vehicles, truck bodies, barrels and scrap metal. The majority of materials were deposited in 1963 when the US Military left Frobisher Bay. The debris was scattered over a large area and consisted of vehicles, equipment, barrels, scrap metal, shops and buildings.

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The Site was remediated during Fiscal Year 2017-2018. A Long Term Monitoring (LTM) plan was developed in February 2018 by Arcadis, outlining a sampling program to monitor natural attenuation at the Site. As per the LTM, the initial Phase 1 of monitoring is required in years 1, 3, and 5 following remediation. Dillon Consulting LTD/ Outcome Consultants Inc (DOJV) completed the year 1 LTM requirements for the Site in 2018, and in 2019 they conducted additional monitoring that was supplemental to the defined LTM program. BluMetric completed the Year 3 LTM requirements for the Site in 2020 and recommended that monitoring also be completed in Years 4 (2021) to acquire additional analytical data to support trend analysis. The field program described herein was conducted in accordance with the recommendations in the Year 3 LTM Report recommendations.

The 2021 LTM field program took place on August 25, 2021 and included visual monitoring, monitoring of the natural environment, and an environmental sampling program. All work was completed in accordance with the Nunavut Water Board (NWB) Water Licence 1BR-MDR2126 and the Performance and Long-Term Monitoring Plan (PLTMP) (Arcadis, August 2017). Based on the recommendations set out in the LTM Plan and the NWB Water Licence (1BR-MDR2126), monitoring at the Site is recommended to continue until 2022 to confirm that environmental and human health are being protected.

BACKGROUND

The Iqaluit Former Metal Dump is located 1.7 km southwest of the City of Iqaluit, Nunavut on the border of the Sylvia Grinnell Territorial Park and the Sylvia Grinnell River. The Site covers an area of approximately 72,500 m^2. The United States Air Force (USAF) used the Site from 1955 to 1963 as a metal dump for vehicles, truck bodies, barrels and scrap metal. The majority of materials were deposited in 1963 when the US Military left Frobisher Bay. The debris was scattered over a large area and consisted of vehicles, equipment, barrels, and scrap metal. Two main areas of waste are present at the Site as a result of former land use activities; the main debris/ community landfill in the central portion of the Site, and the vehicle dump located to the south.

The Site was remediated during Fiscal Year 2017-2018. A Long Term Monitoring (LTM) plan was developed in February 2018 by Arcadis, outlining a sampling program to monitor natural attenuation at the Site. As per the LTM, the initial Phase 1 of monitoring is required in years 1, 3, and 5 following remediation. Dillon Consulting LTD/ Outcome Consultants Inc (DOJV) completed the year 1 LTM requirements for the Site in 2018, and in 2019 they conducted additional monitoring that was supplemental to the defined LTM program. BluMetric completed the Year 3 LTM requirements for the Site in 2020 and recommended that monitoring also be completed in Years 4 (2021) to acquire additional analytical data to support trend analysis.

The field program described herein was conducted in accordance with the recommendations in the Year 3 LTM Report recommendations.

ENVIRONMENTAL QUALITY GUIDELINES

The applicable environmental quality guidelines (EQG) for the Site were established as part of the Long Term Monitoring Plan (Arcadis, 2018). As per the Plan, results from the 2021 program were evaluated using the following criteria:

- Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health (CSQGs) (CCME, 1999, with updates);
- Canada-Wide Standards (CWS) for Petroleum Hydrocarbons in Soil (CCME, 2008);
- Canadian Soil Quality Guidelines (CSQG) Polycyclic Aromatic Hydrocarbons factsheet (CCME, 2010);
- Canadian Environmental Quality Guidelines. Canadian Sediment Quality Guidelines (CSedQG) for the Protection of Aquatic Life (CCME, 2007, with updates), and;
- Canadian Environmental Quality Guidelines. Canadian Water Quality Guidelines (CWQG) for the Protection of Aquatic Life (CCME, 2007, with updates).

Additionally, for the 2018 and 2019 Annual Monitoring Programs, Dillon-Outcome Joint Ventures used the following criteria for Petroleum Hydrocarbons in surface water in absence of an applicable federal or territorial guideline, and the use of these criteria has been carried through in subsequent reports:

- Alberta Government, Alberta Tier 1 Soil and Groundwater Guidelines. Table 2. (AEP, 2019).

The LTM Plan divided the Site into three (3) sectors; the upper, lower eastern and lower western. **Table 1** outlines each sector, the associated LTM stations and the EQG classification.

Table 1: EQG Classification for LTM Stations

Sector	LTM Station (s)	EQG
Upper	7, 8	Commercial, Freshwater, Coarse-grained soil
Lower – Eastern Portion	2, 5, 6	Wildland, Freshwater, Coarse-grained Soil
Lower – Western Portion	1, 3, 4	Wildland, Lowest of Marine or Freshwater, Coarse-grained soil

WATER USAGE

NWB water licence allows for the usage of up to 50 m³ per day, a maximum of 25 L (0.0025 m³) of water was collected on August 25, 2021 for surface water sampling purposes. No other water was used or diverted during the 2021 LTM activities.

LONG TERM MONITORING

The 2021 Long Term Monitoring requirements for the Iqaluit Former Metal Dump were completed on August 25, 2021. Results from the 2021 monitoring period are summarized within the NWB Annual Reporting Form included as **Appendix A**.

VISUAL MONITORING

Visual inspections of the isolation cover surface and the access roadway were conducted as part of the LTM activities on August 25, 2021. Photos were taken of points of interest at standard photo locations as specified within the LTM Plan. Locations were confirmed with a handheld GPS.

MONITORING OF THE NATURAL ENVIRONMENT

Monitoring of the natural environment was conducted as part of the LTM activities on August 25, 2021. Observations indicating use of the Site by local residents were made. These observations included ATV tracks on the top of the landfill, remnants of tents and firepits on the south side of the landfill, dog tracks in the vicinity of the landfill, and a family seen walking along the shoreline during field activities. A local resident assisting with the field activities indicated that the Site is known to be commonly used as a fishing location.

Ravens flying over the Site were the only wildlife observed in in the vicinity of the Site and vegetation was observed to be sparse.

SAMPLING

All sampling conducted throughout the 2021 LTM program was completed in compliance with the protocol outlined in CCME 2016 “Guidance Manual for Environmental Site Characterization in Support of Environmental and Human Health Risk Assessment”, Volume 3 “Standard Operating Procedures”. Furthermore, sample collection, preservation, and analysis was conducted in accordance with methodology prescribed in the current edition of “Standard Methods for the Examination of Water and Wastewater” in accordance with Part K, condition 2 of the Water Licence.

All samples were submitted for analysis at Bureau Veritas Laboratories (Bureau Veritas), a Canadian Association of Laboratory Accreditation (CALA) certified Laboratory, in Ottawa, ON.

Surface Water

A total of nine surface water samples, including one duplicate sample, were collected during the LTM program conducted on August 25, 2021. Field parameters recorded at each sampling location are included in Table B-1 (Attachment B). The August 2021 surface water analytical results, along with historical surface water quality results for the Site, are provided in Tables B-2 through B-6 (Attachment B) in comparison to the applicable criteria.

Exceedances to the EQG for surface water samples in 2021 were limited to total zinc at LTM-SW7 only. A summary of the parameters reported in exceedance of the applicable EQG within surface water throughout the complete LTM program to date is presented below in **Table 2.**

Table 2: Summary of LTM Surface Water Exceedances

LTM Year	2017	2018	2019	2020	2021
LTM-SW1	--	--	--	--	--
LTM-SW2	Cadmium, Zinc	--	--	--	--
LTM-SW3	Zinc	--	--	--	--
LTM-SW4	--	--	--	--	--
LTM-SW5	Zinc	Cadmium, Lead, Zinc	--	--	--
LTM-SW6	Zinc	Cadmium, Lead, Zinc	--	--	--
LTM-SW7	Zinc	Zinc	Cadmium, Lead, Zinc	Zinc	Zinc
LTM-SW8	NA	NA	Zinc	--	--

Notes:
NA – Not Analyzed
-- – No Exceedances of applicable EQG

Sediments

A total of nine sediment samples, including one duplicate sample, were collected during the LTM program conducted on August 25, 2021. The August 2020 sediment analytical results, along with historical sediment quality results for the Site, are provided in Tables B-7 through B-10 (Attachment B) in comparison to the applicable criteria, A summary of the parameters reported in exceedance of the applicable EQG within sediment throughout the complete LTM program to date is presented below in **Table 3**.

Table 3: Summary of LTM Sediment Exceedances

LTM Year	2018	2019	2020	2021
LTM-SD1	--	--	--	--
LTM-SD2	--	--	--	--
LTM-SD3	--	--	Chromium	Lead
LTM-SD4	--	--	Lead	Total PCBs
LTM-SD5	F3, Cadmium, Lead, Zinc, Total PCBs	F3, Cadmium, Zinc, Total PCBs	F2, F3, Cadmium, Lead, Zinc, Total PCBs	F3, PCBs
LTM-SD6	Toluene, F2, F3, Cadmium, Lead, Zinc, Total PCBs	F2, F3, Cadmium, Lead, Zinc, Total PCBs	F2, F3, Cadmium, Lead, Zinc, Total PCBs	PCBs
LTM-SD7	Zinc, Total PCBs	Zinc	Zinc, Total PCBs	Lead, Zinc, PCBs
LTM-SD8	NA	Zinc	--	Zinc

Notes:
NA – Not Analyzed
-- – No Exceedances of applicable EQG

CONCLUSIONS

The 2021 Long Term Monitoring requirements for the Iqaluit Former Metal Dump were completed on August 25, 2021. Exceedances to the EQGs for surface water samples in 2021 were limited to total zinc at LTM-SW7 only. EQG exceedances for sediment samples in 2021 were noted at LTM-SD3, SD4, SD5, SD6, SD7, and SW8 for various parameters. It is recommended that Year 5 of the long term monitoring continue to be implemented at the Site as per the site-specific LTM Plan (Arcadis, 2018). Year 5 of long term monitoring will occur in federal Fiscal Year 2022-2023, and is the final year of long term monitoring as required by the PLTMP.

CLOSURE

The conclusions presented in this report represent our professional opinion and are based upon the work described in this report and any limiting conditions in the terms of reference, scope of work, or conditions noted herein. The findings presented in this report are based on conditions observed at the specified dates and locations, and on the analysis of samples for the specified parameters. Unless otherwise stated, the findings cannot be extended to previous or future Site conditions, portions of the Site that were not investigated directly, or types of analysis not performed.

BluMetric Environmental Inc. makes no warranty as to the accuracy or completeness of the information provided by others, or of conclusions and recommendations predicated on the accuracy of that information. Nothing in this report is intended to constitute or provide a legal opinion. BluMetric Environmental Inc. makes no representation as to compliance with environmental laws, rules, regulations, or policies established by regulatory agencies.

This report has been prepared for the Nunavut Water Board on behalf of Public Services and Procurement Canada and Transport Canada. Any use a third party makes of this report, any reliance on the report, or decisions based upon the report, are the responsibility of those third parties unless authorization is received from BluMetric environmental Inc., in writing.

Regards,
BluMetric Environmental Inc.

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Encl:

Attachment A:	Figures
	Figure 1: Site Location
	Figure 2: Site Plan
Attachment B:	Chemistry Results
	Table B-1: Surface Water Field Parameters and Purge Water Observations
	Table B-2 to B-6: Surface Water Analytical Results
	Tables B-7 to B-10: Sediment Analytical Results
Attachment C:	NWB Annual Reporting Form
Attachment D:	Laboratory Certificates of Analysis
Attachment E:	Quality Assurance/Quality Control Plan

ATTACHMENT A

Figures

Site Location

Hubbard Rd.

Akilliq Rd

LEGEND

Road

Elevation Contour (10 m)

REV.	DESCRIPTION	YY/MM/DD	BY	CHK
1				

REFERENCES

N W E S

0 50 100 Metres

1:5,000

CLIENT

Public Service and Procurement Canada

PROJECT

Compliance Long Term Monitoring for Transport Canada at the Former Iqaluit Dump

TITLE

Site Location

BluMetric™ Environmental

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PROJECT #	DATE
210561	**October 27, 2021**

DRAWN	CHECKED	FIG NO.	REV
KG	**HW**	**01**	**0**

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LEGEND

- Sample Locations
- Approximate Limit of Former Landfill
- Road
- Elevation Contour (10 m)

REV.	DESCRIPTION	YY/MM/DD	BY	CHK
1				

REFERENCES

N, W, E, S

0 50 100 Metres

1:2,000

CLIENT

Public Service and Procurement Canada

PROJECT

Compliance Long Term Monitoring for Transport Canada at the Former Iqaluit Dump

TITLE

Site Plan

BluMetric™ Environmental

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PROJECT #	DATE
210561	**October 27, 2021**

DRAWN	CHECKED	FIG NO.	REV
KG	**HW**	**02**	**0**

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ATTACHMENT B

Chemistry Results

Table B-1: Field Parameters and Purge Water Observations

Well ID	Date	Turbidity (NTU)	TDS (g/L	Temperature (°C)	Electrical Conductivity (mS/cm)	Dissolved Oxygen (mg/L)	pH	Oxygen Reducing Potential (mV)
SW-1	2021-10-25	0	0.396	9.39	0.618	12.11	8	176
SW-2	2021-10-25	0	2.58	9,74	4.0	13.18	7.91	184
SW-3	2021-10-25	4.3	0.693	9,82	1.08	13.5	7.96	153
SW-4	2021-10-25	62.4	0.359	12.03	0.562	14.4	8.42	185
SW-5	2021-10-25	5.2	0.061	10.97	0.094	13.41	8.11	188
SW-6	2021-10-25	0	0.57	11.9	0.088	2.04	8.01	125
SW-7	2021-10-25	0	0.068	8.5	0.105	4.36	8.68	66
SW-8	2021-10-25	77	0.02	7.19	0.158	5.59	8.6	157

Notes:

NTU - Nephelometric Turbidity Unit

°C - Degrees Celcius

mS/cm - Millisiemens per Centimeter

mg/L - Milligrams per Liter

Table B-2: Surface Water Analytical Results - General Chemistry					SW-1*								
Sample ID	RDL	Units	CWQG Freshwater[1]	CWQG Marine[2]	LTM1	DUP 1	LTM1-SW1-18	LTM1-SW1-19	LTM2-DUP-19-SW	LTM-SW1	SW-1	LTM2	LTM2
Date Sampled					2017-09-21	2017-09-21	2018-09-19	2019-07-30	2019-07-30	2020-09-19	2021-08-25	2017-09-21	2017-10-03
BV Labs ID					--	--	--	--	--	NSD389	QNY919	--	--
Hardness (CaCO3)	1.0	mg/L	NV	NV	--	--	350	300	280	3600	380	--	--
Conductivity	1.0	mS/cm	NV	NV	--	--	3.13	1.16	--	32	3.9	--	--
Total Dissolved Solids	10.0	mg/L	NV	NV	--	--	1,880	1,520	1,410	24400	2220	--	--
pH	NV	pH	6.5 - 9.0	7.0 - 8.7	7.67	7.63	7.59	7.24	7.38	7.51	7.60	7.67	6.64
Total Suspended Solids	1	mg/L	NV	NV	--	--	7	2	3	11	10	--	--

Notes:

10 Exceeds Applicable CCME Criteria

1 - Canadian Council of Members of the Environment (CCME), Canadian Water Quality Guidelines (CWQG) for the Protection of Aquatic Life. Longterm Exposure, Freshwater. (CCME, 2007, with updates)

2 - Canadian Council of Members of the Environment (CCME), Canadian Water Quality Guidelines (CWQG) for the Protection of Aquatic Life. Longterm Exposure, Marine. (CCME, 2007, with updates)

mS/cm - microsiemens per centimeter

mg/L - milligrams per litre

NV - No Value

RDL - Reportable Detection Limit

* Lowest of marine or freshwater guidelines applies

Table B-2: Surface Water Analytical Results - General Chemistry					SW-2				SW-3*						
Sample ID	**RDL**	**Units**	**CWQG Freshwater[1]**	**CWQG Marine[2]**	**LTM1-SW2-18**	**LTM2-SW2-19**	**LTM-SW2**	**SW-2**	**LTM3**	**LTM3**	**LTM1-SW3-18**	**LTM2-SW3-19**	**LTM-SW3**	**SW-3**	**LTM4**
Date Sampled					**2018-09-19**	**2019-07-30**	**2020-09-19**	**2021-08-25**	**2017-09-21**	**2017-10-03**	**2018-09-19**	**2019-07-30**	**2020-09-19**	**2021-08-25**	**2017-09-21**
BV Labs ID					--	--	**NSD390**	**QNY920**	--	--	--	--	**NSD391**	**QNY921**	--
Hardness (CaCO3)	1.0	mg/L	NV	NV	250	310	2500	68	--	--	840	1000	2000	140	--
Conductivity	1.0	mS/cm	NV	NV	2.56	2.90	22	0.66	--	--	8.92	8.44	19	1.4	--
Total Dissolved Solids	10.0	mg/L	NV	NV	1340	1700	15400	350	--	--	4740	5760	12400	840	--
pH	NV	pH	6.5 - 9.0	7.0 - 8.7	7.49	7.77	7.48	7.55	7.53	6.79	7.52	8.22	7.69	8	7.64
Total Suspended Solids	1	mg/L	NV	NV	1	6	12	2	--	--	5	3	7	2	--

Notes:

10 Exceeds Applicable CCME Criteria

1 - Canadian Council of Members of the Environment (CCME), Canadian Water Quality Guidelines (CWQG) for the Protection of Aquatic Life. Longterm Exposure, Freshwater. (CCME, 2007, with updates)

2 - Canadian Council of Members of the Environment (CCME), Canadian Water Quality Guidelines (CWQG) for the Protection of Aquatic Life. Longterm Exposure, Marine. (CCME, 2007, with updates)

mS/cm - microsiemens per centimeter

mg/L - milligrams per litre

NV - No Value

RDL - Reportable Detection Limit

* Lowest of marine or freshwater guidelines applies

Table B-2: Surface Water Analytical Results - General Chemistry					SW-4*					SW-5				
Sample ID	**RDL**	**Units**	**CWQG Freshwater[1]**	**CWQG Marine[2]**	**LTM4**	**LTM1-SW4-18**	**LTM2-SW4-19**	**LTM-SW4**	**SW-4**	**LTM5**	**LTM5**	**LTM1-SW5-18**	**LTM2-SW5-19**	**LTM-SW5**
Date Sampled					**2017-10-03**	**2018-09-19**	**2019-07-30**	**2020-09-19**	**2021-08-25**	**2017-09-21**	**2017-10-03**	**2018-09-19**	**2019-07-30**	**2020-09-19**
BV Labs ID					--	--	--	**NSD392**	**QNY922**	--	--	--	--	**NSD393**
Hardness (CaCO3)	1.0	mg/L	NV	NV	--	110	440	2500	93	--	--	46	71	1700
Conductivity	1.0	mS/cm	NV	NV	--	1.27	4.09	23	1	--	--	0.15	0.13	17
Total Dissolved Solids	10.0	mg/L	NV	NV	--	395	2630	16300	455	--	--	170	110	11200
pH	NV	pH	6.5 - 9.0	7.0 - 8.7	7.43	7.62	8.37	7.72	7.72	7.61	7.41	7.45	7.70	7.44
Total Suspended Solids	1	mg/L	NV	NV	--	1	2	13	1	--	--	28	5	10

Notes:

10 Exceeds Applicable CCME Criteria

1 - Canadian Council of Members of the Environment (CCME), Canadian Water Quality Guidelines (CWQG) for the Protection of Aquatic Life. Longterm Exposure, Freshwater. (CCME, 2007, with updates)

2 - Canadian Council of Members of the Environment (CCME), Canadian Water Quality Guidelines (CWQG) for the Protection of Aquatic Life. Longterm Exposure, Marine. (CCME, 2007, with updates)

mS/cm - microsiemens per centimeter

mg/L - milligrams per litre

NV - No Value

RDL - Reportable Detection Limit

* Lowest of marine or freshwater guidelines applies

Table B-2: Surface Water Analytical Results - General Chemistry						SW-6								
Sample ID	RDL	Units	CWQG Freshwater[1]	CWQG Marine[2]	SW-5	LTM6	LTM6	LTM1-SW6-18	LTM2-SW6-19	LTM-SW6	SW-6	LTM7	LTM7	DUP2
Date Sampled					2021-08-25	2017-09-21	2017-10-03	2018-09-19	2019-07-31	2020-09-19	2021-08-25	2017-09-21	2017-10-03	2017-10-03
BV Labs ID					QNY923	--	--	--	--	NSD394	QNY924	--	--	--
Hardness (CaCO3)	1.0	mg/L	NV	NV	39	--	--	44	70	89	40	--	--	--
Conductivity	1.0	mS/cm	NV	NV	0.10	--	--	0.11	0.15	0.28	0.10	--	--	--
Total Dissolved Solids	10.0	mg/L	NV	NV	55	--	--	130	85	165	70	--	--	--
pH	NV	pH	6.5 - 9.0	7.0 - 8.7	7.62	7.63	7.37	7.42	7.59	7.60	7.59	7.31	7.23	7.22
Total Suspended Solids	1	mg/L	NV	NV	1	--	--	64	42	3	2	--	--	--

Notes:

10 Exceeds Applicable CCME Criteria

1 - Canadian Council of Members of the Environment (CCME), Canadian Water Quality Guidelines (CWQG) for the Protection of Aquatic Life. Longterm Exposure, Freshwater. (CCME, 2007, with updates)

2 - Canadian Council of Members of the Environment (CCME), Canadian Water Quality Guidelines (CWQG) for the Protection of Aquatic Life. Longterm Exposure, Marine. (CCME, 2007, with updates)

mS/cm - microsiemens per centimeter

mg/L - milligrams per litre

NV - No Value

RDL - Reportable Detection Limit

* Lowest of marine or freshwater guidelines applies

Table B-2: Surface Water Analytical Results - General Chemistry					SW-7						SW-8		
Sample ID	RDL	Units	CWQG Freshwater[1]	CWQG Marine[2]	LTM1-SW7-18	LTM2-SW7-19	LTM-SW7	LTM-SW9 (DUP of SW7)	SW-7	SW-DUP-1 (DUP of SW-7)	LTM2-SW8-19	LTM-SW8	SW-8
Date Sampled					2018-09-19	2019-07-30	2020-09-19	2020-09-19	2021-08-25	2021-08-25	2019-07-31	2020-09-19	2021-08-25
BV Labs ID					--	--	NSD395	NSD397	QNY925	QNY927	--	NSD396	QNY926
Hardness (CaCO3)	1.0	mg/L	NV	NV	50	65	28	21	47	47	74	44	49
Conductivity	1.0	mS/cm	NV	NV	0.12	0.13	0.10	0.09	0.12	0.12	0.12	0.12	0.12
Total Dissolved Solids	10.0	mg/L	NV	NV	80	95	85	90	95	80	115	100	90
pH	NV	pH	6.5 - 9.0	7.0 - 8.7	7.29	7.22	7.13	6.87	7.32	7.31	7.19	7.09	7.14
Total Suspended Solids	1	mg/L	NV	NV	1	530	61	14	6	5	12	8	8

Notes:

10 Exceeds Applicable CCME Criteria

1 - Canadian Council of Members of the Environment (CCME), Canadian Water Quality Guidelines (CWQG) for the Protection of Aquatic Life. Longterm Exposure, Freshwater. (CCME, 2007, with updates)

2 - Canadian Council of Members of the Environment (CCME), Canadian Water Quality Guidelines (CWQG) for the Protection of Aquatic Life. Longterm Exposure, Marine. (CCME, 2007, with updates)

mS/cm - microsiemens per centimeter

mg/L - milligrams per litre

NV - No Value

RDL - Reportable Detection Limit

* Lowest of marine or freshwater guidelines applies

Table B-3: Surface Water Analytical Results - Total Metals						SW-1*							SW-2					
Sample ID		**RDL**	**Units**	**CWQG Freshwater[1]**	**CWQG Marine[2]**	**LTM1**	**DUP1**	**LTM1-SW1-18**	**LTM2-SW1-19**	**LTM2-DUP-19- SW**	**LTM-SW1**	**SW-1**	**LTM2**	**LTM2**	**LTM1-SW2-18**	**LTM2-SW2-19**	**LTM-SW2**	**SW-2**
Date Sampled						**2017-09-21**	**2017-09-21**	**2018-09-19**	**2019-07-30**	**2019-07-30**	**2020-09-19**	**2021-08-25**	**2017-09-21**	**2017-10-03**	**2018-09-19**	**2019-07-30**	**2020-09-19**	**2021-08-25**
BV Labs ID						**--**	**--**	**--**	**--**	**--**	**NSD389**	**QNY919**	--	--	--	--	**NSD390**	**QNY920**
Total Arsenic (As)		1.0	µg/L	5	12.5	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<0.10	<0.10	<1.0	<1.0	<5.0	<1.0
Total Cadmium (Cd)		0.09	µg/L	0.09[3]	0.12	<0.10	<0.10	<0.10	<0.10	<0.10	<0.45	<0.090	<0.010	0.111	<0.10	<0.10	<0.45	<0.090
Total Chromium (Cr)		5.0	µg/L	NV	NV	<10	<10	<5	<5.0	<5.0	<25	<5.0	<1.0	<1.0	<5	<5.0	<25	<5.0
Total Cobalt (Co)		0.5	µg/L	NV	NV	<2.0	<2.0	<0.50	<0.50	<0.50	<2.5	<0.50	<0.20	0.33	<0.50	<0.50	<2.5	<0.50
Total Lead (Pb)		0.5	µg/L	7[5]	NV	<2.0	<2.0	<0.5	<0.50	<0.50	<2.5	<0.50	0.64	2.31	<0.5	<0.50	<2.5	<0.50
Total Nickel (Ni)		1.0	µg/L	150[7]	NV	<10	<10	<1	<1.0	<1.0	<5.0	<1.0	<1.0	1.3	<1	<1.0	<5.0	<1.0
Total Zinc (Zn)		5.0	µg/L	7	NV	<50	<50	5.6	<5.0	<5.0	<25	<5.0	<5.0	14.7	<5	<5.0	<25	<5.0

Notes:

10 Exceeds Applicable CCME Criteria

1 - Canadian Council of Members of the Environment (CCME), Canadian Water Quality Guidelines (CWQG) for the Protection of Aquatic Life. Longterm Exposure, Freshwater. (CCME, 2007, with updates)

2 - Canadian Council of Members of the Environment (CCME), Canadian Water Quality Guidelines (CWQG) for the Protection of Aquatic Life. Longterm Exposure, Marine. (CCME, 2007, with updates)

3 - If Hardness > 280 mg/L CWQG is 0.37 µg/L, if hardness is < 17 mg/L CWQG is 0.04 µg/L, if hardness is > 17 and < 280 mg/L CWQG is calculated.

4 - If Hardness > 180 mg/L CWQG is 4 µg/L, if hardness if < 82 mg/L CWQG is 2 µg/L, if hardness is > 82 and < 180 mg/L the CWQG is calculated.

5 - If Hardness > 180 mg/L CWQG is 7 µg/L, if hardness if < 60 mg/L CWQG is 1 µg/L, if hardness is > 60 and < 180 mg/L the CWQG is calculated.

6 - Variable, calculated.

7 - If Hardness > 180 mg/L CWQG is 150 µg/L, if hardness if < 60 mg/L CWQG is 25 µg/L, if hardness is > 60 and < 180 mg/L the CWQG is calculated.

µg/L - micrograms per litre

NV - No Value

RDL - Reportable Detection Limit

* Lowest of marine or freshwater guidelines applies

Table B-3: Surface Water Analytical Results - Total Metals						SW-3*						SW-4*					
Sample ID		RDL	Units	CWQG Freshwater[1]	CWQG Marine[2]	LTM3	LTM3	LTM1-SW3-18	LTM2-SW3-19	LTM-SW3	SW-3	LTM4	LTM4	LTM1-SW4-18	LTM2-SW4-19	LTM-SW4	SW-4
Date Sampled						2017-09-21	2017-10-03	2018-09-19	2019-07-30	2020-09-19	2021-08-25	2017-09-21	2017-10-03	2018-09-19	2019-07-30	2020-09-19	2021-08-25
BV Labs ID						--	--	--	--	NSD391	QNY921	--	--	--	--	NSD392	QNY922
Total Arsenic (As)		1.0	µg/L	5	12.5	<0.50	0.6	<1.0	<1.0	<5.0	<1.0	<0.10	<0.10	<1.0	<1.0	<5.0	<1.0
Total Cadmium (Cd)		0.09	µg/L	0.09[3]	0.12	<0.050	0.017	<0.10	<0.10	<0.45	<0.090	0.021	0.04	<0.10	<0.10	<0.45	<0.090
Total Chromium (Cr)		5.0	µg/L	NV	NV	<5.0	<1.0	<5	<5.0	<25	<5.0	<1.0	<1.0	<5	<5.0	<25	<5.0
Total Cobalt (Co)		0.5	µg/L	NV	NV	<1.0	0.54	<0.50	<0.50	<2.5	<0.50	<0.20	<0.20	<0.50	<0.50	<2.5	<0.50
Total Lead (Pb)		0.5	µg/L	7[5]	NV	<1.0	12.9	<0.5	<0.50	<2.5	<0.50	<0.20	<0.20	<0.5	<0.50	<2.5	<0.50
Total Nickel (Ni)		1.0	µg/L	150[7]	NV	<5.0	2.5	<1	<1.0	<5.0	<1.0	<1.0	<1.0	<1	<1.0	<5.0	<1.0
Total Zinc (Zn)		5.0	µg/L	7	NV	68	18.4	<5	<5.0	<25	<5.0	<5.0	5.3	<5	<5.0	<25	<5.0

Notes:

10 Exceeds Applicable CCME Criteria

1 - Canadian Council of Members of the Environment (CCME), Canadian Water Quality Guidelines (CWQG) for the Protection of Aquatic Life. Longterm Exposure, Freshwater. (CCME, 2007, with updates)

2 - Canadian Council of Members of the Environment (CCME), Canadian Water Quality Guidelines (CWQG) for the Protection of Aquatic Life. Longterm Exposure, Marine. (CCME, 2007, with updates)

3 - If Hardness > 280 mg/L CWQG is 0.37 µg/L, if hardness is < 17 mg/L CWQG is 0.04 µg/L, if hardness is > 17 and < 280 mg/L CWQG is calculated.

4 - If Hardness > 180 mg/L CWQG is 4 µg/L, if hardness if < 82 mg/L CWQG is 2 µg/L, if hardness is > 82 and < 180 mg/L the CWQG is calculated.

5 - If Hardness > 180 mg/L CWQG is 7 µg/L, if hardness if < 60 mg/L CWQG is 1 µg/L, if hardness is > 60 and < 180 mg/L the CWQG is calculated.

6 - Variable, calculated.

7 - If Hardness > 180 mg/L CWQG is 150 µg/L, if hardness if < 60 mg/L CWQG is 25 µg/L, if hardness is > 60 and < 180 mg/L the CWQG is calculated.

µg/L - micrograms per litre

NV - No Value

RDL - Reportable Detection Limit

* Lowest of marine or freshwater guidelines applies

Table B-3: Surface Water Analytical Results - Total Metals						SW-5						SW-6			
Sample ID		**RDL**	**Units**	**CWQG Freshwater[1]**	**CWQG Marine[2]**	**LTM5**	**LTM5**	**LTM1-SW5-18**	**LTM2-SW5-19**	**LTM-SW5**	**SW-5**	**LTM6**	**LTM6**	**LTM1-SW6-18**	**LTM2-SW6-19**
Date Sampled						**2017-09-21**	**2017-10-03**	**2018-09-19**	**2019-07-30**	**2020-09-19**	**2021-08-25**	**2017-09-21**	**2017-10-03**	**2018-09-19**	**2019-07-31**
BV Labs ID						**--**	**--**	**--**	**--**	**NSD393**	**QNY923**	--	--	--	--
Total Arsenic (As)		1.0	µg/L	5	12.5	<0.10	<0.10	<1.0	<1.0	<5.0	<1.0	<0.10	<0.10	<1	<1.0
Total Cadmium (Cd)		0.09	µg/L	0.09[3]	0.12	0.035	0.043	0.14	<0.10	<0.45	<0.090	0.025	0.043	0.15	<0.10
Total Chromium (Cr)		5.0	µg/L	NV	NV	<1.0	<1.0	<5	<5.0	<25	<5.0	<1.0	<1.0	<5	<5.0
Total Cobalt (Co)		0.5	µg/L	NV	NV	<0.20	0.22	0.54	<0.50	<2.5	<0.50	<0.20	0.26	0.68	<0.50
Total Lead (Pb)		0.5	µg/L	7[5]	NV	0.26	<0.20	1.8	<0.50	<2.5	<0.50	<0.20	<0.20	2.4	0.51
Total Nickel (Ni)		1.0	µg/L	150[7]	NV	<1.0	<1.0	<1	<1.0	<5.0	<1.0	<1.0	<1.0	<1	<1.0
Total Zinc (Zn)		5.0	µg/L	7	NV	5.7	28	16	<5.0	<25	<5.0	14.4	9.1	16	<5.0

Notes:

10 Exceeds Applicable CCME Criteria

1 - Canadian Council of Members of the Environment (CCME), Canadian Water Quality Guidelines (CWQG) for the Protection of Aquatic Life. Longterm Exposure, Freshwater. (CCME, 2007, with updates)

2 - Canadian Council of Members of the Environment (CCME), Canadian Water Quality Guidelines (CWQG) for the Protection of Aquatic Life. Longterm Exposure, Marine. (CCME, 2007, with updates)

3 - If Hardness > 280 mg/L CWQG is 0.37 µg/L, if hardness is < 17 mg/L CWQG is 0.04 µg/L, if hardness is > 17 and < 280 mg/L CWQG is calculated.

4 - If Hardness > 180 mg/L CWQG is 4 µg/L, if hardness if < 82 mg/L CWQG is 2 µg/L, if hardness is > 82 and < 180 mg/L the CWQG is calculated.

5 - If Hardness > 180 mg/L CWQG is 7 µg/L, if hardness if < 60 mg/L CWQG is 1 µg/L, if hardness is > 60 and < 180 mg/L the CWQG is calculated.

6 - Variable, calculated.

7 - If Hardness > 180 mg/L CWQG is 150 µg/L, if hardness if < 60 mg/L CWQG is 25 µg/L, if hardness is > 60 and < 180 mg/L the CWQG is calculated.

µg/L - micrograms per litre

NV - No Value

RDL - Reportable Detection Limit

* Lowest of marine or freshwater guidelines applies

Table B-3: Surface Water Analytical Results - Total Metals						SW-7										SW-8		
Sample ID	RDL	Units	CWQG Freshwater[1]	CWQG Marine[2]	LTM-SW6	SW-6	LTM7	LTM7	DUP2	LTM1-SW7-18	LTM2-SW7-19	LTM-SW7	LTM-SW9 (DUP of SW7)	SW-7	SW-DUP-1 (DUP of SW-7)	LTM2-SW8-19	LTM-SW8	SW-8
Date Sampled					2020-09-19	2021-08-25	2017-09-21	2017-10-03	2017-10-03	2018-09-19	2019-07-30	2020-09-19	2020-09-19	2021-08-25	2021-08-25	2019-07-31	2020-09-19	2021-08-25
BV Labs ID					NSD394	QNY924	--	--	--	--	--	NSD395	NSD397	QNY925	QNY927	--	NSD396	QNY926
Total Arsenic (As)	1.0	µg/L	5	12.5	<1.0	<1.0	0.15	0.17	0.17	<1.0	1.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total Cadmium (Cd)	0.09	µg/L	0.09[3]	0.12	<0.090	<0.090	<0.010	0.01300	0.01900	<0.1	0.23	<0.090	<0.090	<0.090	<0.090	<0.10	<0.090	<0.090
Total Chromium (Cr)	5.0	µg/L	NV	NV	<5.0	<5.0	<1.0	<1.0	<1.0	<5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Total Cobalt (Co)	0.5	µg/L	NV	NV	<0.50	<0.50	<0.20	0.56	0.62	<0.50	6.8	0.64	3.9	0.51	<0.50	1.9	<0.50	<0.50
Total Lead (Pb)	0.5	µg/L	7[5]	NV	<0.50	<0.50	0.21	0.61	0.62	<0.5	11	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Total Nickel (Ni)	1.0	µg/L	150[7]	NV	<1.0	<1.0	<1.0	<1.0	1.3	<1	4.2	1.2	1.2	<1.0	<1.0	1.1	<1.0	<1.0
Total Zinc (Zn)	5.0	µg/L	7	NV	<5.0	<5.0	40.8	223	254	57	640	250	12	13	13	7.9	6.2	6.0

Notes:

10 Exceeds Applicable CCME Criteria

1 - Canadian Council of Members of the Environment (CCME), Canadian Water Quality Guidelines (CWQG) for the Protection of Aquatic Life. Longterm Exposure, Freshwater. (CCME, 2007, with updates)

2 - Canadian Council of Members of the Environment (CCME), Canadian Water Quality Guidelines (CWQG) for the Protection of Aquatic Life. Longterm Exposure, Marine. (CCME, 2007, with updates)

3 - If Hardness > 280 mg/L CWQG is 0.37 µg/L, if hardness is < 17 mg/L CWQG is 0.04 µg/L, if hardness is > 17 and < 280 mg/L CWQG is calculated.

4 - If Hardness > 180 mg/L CWQG is 4 µg/L, if hardness if < 82 mg/L CWQG is 2 µg/L, if hardness is > 82 and < 180 mg/L the CWQG is calculated.

5 - If Hardness > 180 mg/L CWQG is 7 µg/L, if hardness if < 60 mg/L CWQG is 1 µg/L, if hardness is > 60 and < 180 mg/L the CWQG is calculated.

6 - Variable, calculated.

7 - If Hardness > 180 mg/L CWQG is 150 µg/L, if hardness if < 60 mg/L CWQG is 25 µg/L, if hardness is > 60 and < 180 mg/L the CWQG is calculated.

µg/L - micrograms per litre

NV - No Value

RDL - Reportable Detection Limit

* Lowest of marine or freshwater guidelines applies

Table B-4: Surface Water Analytical Results - BTEX and PHCs						SW-1*							SW-2							
Sample ID	RDL	Units	CWQG Freshwater[1]	CWQG Marine[2]	Alberta Tier 1[3]	LTM1	DUP1	LTM1-SW1-18	LTM2-SW1-19	LTM2-DUP-19-SW	LTM-SW1	SW-1	LTM2	LTM2	LTM1-SW2-18	LTM2-SW2-19	LTM-SW2	SW-2	LTM3	LTM3
Date Sampled						2017-09-21	2017-09-21	2018-09-19	2019-07-30	2019-07-30	2020-09-19	2021-08-25	2017-09-21	2017-10-03	2018-09-19	2019-07-30	2020-09-19	2021-08-25	2017-09-21	2017-10-03
BV Labs ID						--	--	--	--	--	NSD389	QNY919	--	--	--	--	NSD390	QNY920	--	--
BTEX																				
Benzene	0.20	µg/L	370	110	NV	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Ethylbenzene	0.20	µg/L	90	25	NV	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.69
Toluene	0.20	µg/L	2	215	NV	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
o-Xylene	0.20	µg/L	NV	NV	NV	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
m+p-Xylene	0.40	µg/L	NV	NV	NV	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40
Xylenes	0.40	µg/L	74	NV	NV	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40
Hydrocarbons																				
F1 (C6-C10)	25	µg/L	NV	NV	2200	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	56
F1 (C6-C10) - BTEX	25	µg/L	NV	NV	NV	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	56
F2 (C10-C16)	100	µg/L	NV	NV	1100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
F3 (C16-C34)	200	µg/L	NV	NV	NV	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200
F4 (C34-C50)	200	µg/L	NV	NV	NV	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200
Reached Baseline at C50	NA	NA	NV	NV	NV	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes:

10 Exceeds Applicable CCME Criteria

1 - Canadian Council of Members of the Environment (CCME), Canadian Water Quality Guidelines (CWQG) for the Protection of Aquatic Life. Longterm Exposure, Freshwater. (CCME, 2007, with updates)

2 - Canadian Council of Members of the Environment (CCME), Canadian Water Quality Guidelines (CWQG) for the Protection of Aquatic Life. Longterm Exposure, Marine. (CCME, 2007, with updates)

3 - Alberta Government, Alberta Tier 1 Soil and Groundwater Guidelines. Table 2. (AEP, 2019)

µg/L - micrograms per litre

NV - No Value

RDL - Reportable Detection Limit

* Lowest of marine or freshwater guidelines applies

Table B-4: Surface Water Analytical Results - BTEX and PHCs						SW-3*				SW-4*						SW-5					
Sample ID	RDL	Units	CWQG Freshwater[1]	CWQG Marine[2]	Alberta Tier 1[3]	LTM1-SW3-18	LTM2-SW3-19	LTM-SW3	SW-3	LTM4	LTM4	LTM1-SW4-18	LTM2-SW4-19	LTM-SW4	SW-4	LTM5	LTM5	LTM1-SW5-18	LTM2-SW5-19	LTM-SW5	SW-5
Date Sampled						2018-09-19	2019-07-30	2020-09-19	2021-08-25	2017-09-21	2017-10-03	2018-09-19	2019-07-30	2020-09-19	2021-08-25	2017-09-21	2017-10-03	2018-09-19	2019-07-30	2020-09-19	2021-08-25
BV Labs ID						--	--	NSD391	QNY921	--	--	--	--	NSD392	QNY922	--	--	--	--	NSD393	QNY923
BTEX																					
Benzene	0.20	µg/L	370	110	NV	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Ethylbenzene	0.20	µg/L	90	25	NV	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Toluene	0.20	µg/L	2	215	NV	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
o-Xylene	0.20	µg/L	NV	NV	NV	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
m+p-Xylene	0.40	µg/L	NV	NV	NV	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40
Xylenes	0.40	µg/L	74	NV	NV	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40
Hydrocarbons																					
F1 (C6-C10)	25	µg/L	NV	NV	2200	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25
F1 (C6-C10) - BTEX	25	µg/L	NV	NV	NV	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25
F2 (C10-C16)	100	µg/L	NV	NV	1100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
F3 (C16-C34)	200	µg/L	NV	NV	NV	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200
F4 (C34-C50)	200	µg/L	NV	NV	NV	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200
Reached Baseline at C50	NA	NA	NV	NV	NV	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes:

10 Exceeds Applicable CCME Criteria

1 - Canadian Council of Members of the Environment (CCME). Canadian Water Quality Guidelines (CWQG) for the Protection of Aquatic Life. Longterm Exposure, Freshwater. (CCME, 2007, with updates)

2 - Canadian Council of Members of the Environment (CCME). Canadian Water Quality Guidelines (CWQG) for the Protection of Aquatic Life. Longterm Exposure, Marine. (CCME, 2007, with updates)

3 - Alberta Government. Alberta Tier 1 Soil and Groundwater Guidelines. Table 2. (AEP, 2019)

µg/L - micrograms per litre

NV - No Value

RDL - Reportable Detection Limit

* Lowest of marine or freshwater guidelines applies

Table B-4: Surface Water Analytical Results - BTEX and PHCs						SW-6						SW-7								
Sample ID	RDL	Units	CWQG Freshwater[1]	CWQG Marine[2]	Alberta Tier 1[3]	LTM6	LTM6	LTM1-SW6-18	LTM2-SW6-19	LTM-SW6	SW-6	LTM7	LTM7	DUP2	LTM1-SW7-18	LTM2-SW7-19	LTM-SW7	LTM-SW9 (DUP of SW7)	SW-7	SW-DUP-1 (DUP of SW-7)
Date Sampled						2017-09-21	2017-10-03	2018-09-19	2019-07-31	2020-09-19	2021-08-25	2017-09-21	2017-10-03	2017-10-03	2018-09-19	2019-07-30	2020-09-19	2020-09-19	2021-08-25	2021-08-25
BV Labs ID						--	--	--	--	NSD394	QNY924	--	--	--	--	--	NSD395	NSD397	QNY925	QNY927
BTEX																				
Benzene	0.20	µg/L	370	110	NV	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Ethylbenzene	0.20	µg/L	90	25	NV	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Toluene	0.20	µg/L	2	215	NV	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	1.1	<0.20	<0.20	<0.20	<0.20
o-Xylene	0.20	µg/L	NV	NV	NV	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
m+p-Xylene	0.40	µg/L	NV	NV	NV	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40
Xylenes	0.40	µg/L	74	NV	NV	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40
Hydrocarbons																				
F1 (C6-C10)	25	µg/L	NV	NV	2200	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25
F1 (C6-C10) - BTEX	25	µg/L	NV	NV	NV	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25
F2 (C10-C16)	100	µg/L	NV	NV	1100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
F3 (C16-C34)	200	µg/L	NV	NV	NV	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200
F4 (C34-C50)	200	µg/L	NV	NV	NV	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200
Reached Baseline at C50	NA	NA	NV	NV	NV	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes:

10 Exceeds Applicable CCME Criteria

1 - Canadian Council of Members of the Environment (CCME). Canadian Water Quality Guidelines (CWQG) for the Protection of Aquatic Life. Longterm Exposure, Freshwater. (CCME, 2007, with updates)

2 - Canadian Council of Members of the Environment (CCME). Canadian Water Quality Guidelines (CWQG) for the Protection of Aquatic Life. Longterm Exposure, Marine. (CCME, 2007, with updates)

3 - Alberta Government. Alberta Tier 1 Soil and Groundwater Guidelines. Table 2. (AEP, 2019)

µg/L - micrograms per litre

NV - No Value

RDL - Reportable Detection Limit

* Lowest of marine or freshwater guidelines applies

Table B-4: Surface Water Analytical Results - BTEX and PHCs							SW-8		
Sample ID		RDL	Units	CWQG Freshwater[1]	CWQG Marine[2]	Alberta Tier 1[3]	LTM2-SW8-19	LTM-SW8	SW-8
Date Sampled							2019-07-31	2020-09-19	2021-08-25
BV Labs ID							--	NSD396	QNY926
BTEX									
Benzene		0.20	µg/L	370	110	NV	<0.20	<0.20	<0.20
Ethylbenzene		0.20	µg/L	90	25	NV	<0.20	0.35	<0.20
Toluene		0.20	µg/L	2	215	NV	<0.20	<0.20	0.24
o-Xylene		0.20	µg/L	NV	NV	NV	<0.20	<0.20	<0.20
m+p-Xylene		0.40	µg/L	NV	NV	NV	<0.40	<0.40	<0.40
Xylenes		0.40	µg/L	74	NV	NV	<0.40	<0.40	<0.40
Hydrocarbons									
F1 (C6-C10)		25	µg/L	NV	NV	2200	<25	<25	<25
F1 (C6-C10) - BTEX		25	µg/L	NV	NV	NV	<25	<25	<25
F2 (C10-C16)		100	µg/L	NV	NV	1100	<100	<100	<100
F3 (C16-C34)		200	µg/L	NV	NV	NV	<200	<200	<200
F4 (C34-C50)		200	µg/L	NV	NV	NV	<200	<200	<200
Reached Baseline at C50		NA	NA	NV	NV	NV	Yes	Yes	Yes

Notes:

10 Exceeds Applicable CCME Criteria

1 - Canadian Council of Members of the Environment (CCME), Canadian Water Quality Guidelines (CWQG) for the Protection of Aquatic Life. Longterm Exposure, Freshwater. (CCME, 2007, with updates)

2 - Canadian Council of Members of the Environment (CCME), Canadian Water Quality Guidelines (CWQG) for the Protection of Aquatic Life. Longterm Exposure, Marine. (CCME, 2007, with updates)

3 - Alberta Government, Alberta Tier 1 Soil and Groundwater Guidelines. Table 2. (AEP, 2019)

µg/L - micrograms per litre

NV - No Value

RDL - Reportable Detection Limit

* Lowest of marine or freshwater guidelines applies

Table B-5: Surface Water Analytical Results - PCBs					SW-1*							SW-2						SW-3*				
Sample ID	RDL	Units	CWQG Freshwater[1]	CWQG Marine[2]	LTM1	DUP1	LTM1-SW1-18	LTM2-SW1-19	LTM2-DUP-19-SW	LTM-SW1	SW-1	LTM2	LTM2	LTM1-SW2-18	LTM2-SW2-19	LTM-SW2	SW-2	LTM3	LTM3	LTM1-SW3-18	LTM2-SW3-19	LTM-SW3
Date Sampled					2017-09-21	2017-09-21	2018-09-19	2019-07-30	2019-07-30	2020-09-19	2021-08-25	2017-09-21	2017-10-03	2018-09-19	2019-07-30	2020-09-19	2021-08-25	2017-09-21	2017-10-03	2018-09-19	2019-07-30	2020-09-19
BV Labs ID					--	--	--	--	--	NSD389	QNY919	--	--	--	--	NSD390	QNY920	--	--	--	--	NSD391
Aroclor 1016	0.05	µg/L	NV	NV	<0.05	<0.05	--	--	--	<0.05	<0.05	<0.05	<0.05	--	--	<0.05	<0.05	<0.05	<0.05	--	--	<0.05
Aroclor 1221	0.05	µg/L	NV	NV	<0.05	<0.05	--	--	--	<0.05	<0.05	<0.05	<0.05	--	--	<0.05	<0.05	<0.05	<0.05	--	--	<0.05
Aroclor 1232	0.05	µg/L	NV	NV	<0.05	<0.05	--	--	--	<0.05	<0.05	<0.05	<0.05	--	--	<0.05	<0.05	<0.05	<0.05	--	--	<0.05
Aroclor 1242	0.05	µg/L	NV	NV	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	*<0.05*	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Aroclor 1248	0.05	µg/L	NV	NV	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Aroclor 1254	0.05	µg/L	NV	NV	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Aroclor 1260	0.05	µg/L	NV	NV	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Aroclor 1262	0.05	µg/L	NV	NV	--	--	--	--	--	<0.05	<0.05	--	--	--	--	<0.05	<0.05	--	--	--	--	<0.05
Aroclor 1268	0.05	µg/L	NV	NV	--	--	--	--	--	<0.05	<0.05	--	--	--	--	<0.05	<0.05	--	--	--	--	<0.05
Total PCB	0.05	µg/L	NV	NV	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05

Notes:

10 Exceeds Applicable CCME Criteria

1 - Canadian Council of Members of the Environment (CCME), Canadian Water Quality Guidelines (CWQG) for the Protection of Aquatic Life. Longterm Exposure, Freshwater. (CCME, 2007, with updates)

2 - Canadian Council of Members of the Environment (CCME), Canadian Water Quality Guidelines (CWQG) for the Protection of Aquatic Life. Longterm Exposure, Marine. (CCME, 2007, with updates)

µg/L - micrograms per litre

NV - No Value

RDL - Reportable Detection Limit

* Lowest of marine or freshwater guidelines applies

Table B-5: Surface Water Analytical Results - PCBs						SW-4*						SW-5						SW-6				
Sample ID	RDL	Units	CWQG Freshwater[1]	CWQG Marine[2]	SW-3	LTM4	LTM4	LTM1-SW4-18	LTM2-SW4-19	LTM-SW4	SW-4	LTM5	LTM5	LTM1-SW5-18	LTM2-SW5-19	LTM-SW5	SW-5	LTM6	LTM6	LTM1-SW6-18	LTM2-SW6-19	LTM-SW6
Date Sampled					2021-08-25	2017-09-21	2017-10-03	2018-09-19	2019-07-30	2020-09-19	2021-08-25	2017-09-21	2017-10-03	2018-09-19	2019-07-30	2020-09-19	2021-08-25	2017-09-21	2017-10-03	2018-09-19	2019-07-31	2020-09-19
BV Labs ID					QNY921	--	--	--	--	NSD392	QNY922	--	--	--	--	NSD393	QNY923	--	--	--	--	NSD394
Aroclor 1016	0.05	µg/L	NV	NV	<0.05	<0.05	<0.05	--	--	<0.05	<0.05	<0.05	<0.05	--	--	<0.05	<0.05	<0.05	<0.05	--	--	<0.05
Aroclor 1221	0.05	µg/L	NV	NV	<0.05	<0.05	<0.05	--	--	<0.05	<0.05	<0.05	<0.05	--	--	<0.05	<0.05	<0.05	<0.05	--	--	<0.05
Aroclor 1232	0.05	µg/L	NV	NV	<0.05	<0.05	<0.05	--	--	<0.05	<0.05	<0.05	<0.05	--	--	<0.05	<0.05	<0.05	<0.05	--	--	<0.05
Aroclor 1242	0.05	µg/L	NV	NV	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Aroclor 1248	0.05	µg/L	NV	NV	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Aroclor 1254	0.05	µg/L	NV	NV	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Aroclor 1260	0.05	µg/L	NV	NV	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Aroclor 1262	0.05	µg/L	NV	NV	<0.05	--	--	--	--	<0.05	<0.05	--	--	--	--	<0.05	<0.05	--	--	--	--	<0.05
Aroclor 1268	0.05	µg/L	NV	NV	<0.05	--	--	--	--	<0.05	<0.05	--	--	--	--	<0.05	<0.05	--	--	--	--	<0.05
Total PCB	0.05	µg/L	NV	NV	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05

Notes:

10 Exceeds Applicable CCME Criteria

1 - Canadian Council of Members of the Environment (CCME), Canadian Water Quality Guidelines (CWQG) for the Protection of Aquatic Life. Longterm Exposure, Freshwater. (CCME, 2007, with updates)

2 - Canadian Council of Members of the Environment (CCME), Canadian Water Quality Guidelines (CWQG) for the Protection of Aquatic Life. Longterm Exposure, Marine. (CCME, 2007, with updates)

µg/L - micrograms per litre

NV - No Value

RDL - Reportable Detection Limit

* Lowest of marine or freshwater guidelines applies

Table B-5: Surface Water Analytical Results - PCBs						SW-7										SW-8		
Sample ID	RDL	Units	CWQG Freshwater[1]	CWQG Marine[2]	SW-6	LTM7	LTM7	DUP2	LTM1-SW7-18	LTM2-SW7-19	LTM-SW7	LTM-SW9 (DUP of SW7)	SW-7	SW-DUP-1 (DUP of SW-7)	LTM2-SW8-19	LTM-SW8	SW-8
Date Sampled					2021-08-25	2017-09-21	2017-10-03	2017-10-03	2018-09-19	2019-07-30	2020-09-19	2020-09-19	2021-08-25	2021-08-25	2019-07-31	2020-09-19	2021-08-25
BV Labs ID					QNY924	--	--	--	--	--	NSD395	NSD397	QNY925	QNY927	--	NSD396	QNY926
Aroclor 1016	0.05	µg/L	NV	NV	<0.05	<0.05	<0.05	<0.05	--	--	<0.05	<0.05	<0.05	<0.05	--	<0.05	<0.05
Aroclor 1221	0.05	µg/L	NV	NV	<0.05	<0.05	<0.05	<0.05	--	--	<0.05	<0.05	<0.05	<0.05	--	<0.05	<0.05
Aroclor 1232	0.05	µg/L	NV	NV	<0.05	<0.05	<0.05	<0.05	--	--	<0.05	<0.05	<0.05	<0.05	--	<0.05	<0.05
Aroclor 1242	0.05	µg/L	NV	NV	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Aroclor 1248	0.05	µg/L	NV	NV	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Aroclor 1254	0.05	µg/L	NV	NV	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Aroclor 1260	0.05	µg/L	NV	NV	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Aroclor 1262	0.05	µg/L	NV	NV	<0.05	--	--	--	--	--	<0.05	<0.05	<0.05	<0.05	--	<0.05	<0.05
Aroclor 1268	0.05	µg/L	NV	NV	<0.05	--	--	--	--	--	<0.05	<0.05	<0.05	<0.05	--	<0.05	<0.05
Total PCB	0.05	µg/L	NV	NV	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05

Notes:

10 Exceeds Applicable CCME Criteria

1 - Canadian Council of Members of the Environment (CCME), Canadian Water Quality Guidelines (CWQG) for the Protection of Aquatic Life. Longterm Exposure, Freshwater. (CCME, 2007, with updates)

2 - Canadian Council of Members of the Environment (CCME), Canadian Water Quality Guidelines (CWQG) for the Protection of Aquatic Life. Longterm Exposure, Marine. (CCME, 2007, with updates)

µg/L - micrograms per litre

NV - No Value

RDL - Reportable Detection Limit

* Lowest of marine or freshwater guidelines applies

Table B-6: Surface Water Analytical Results - PAHs

Sample ID	RDL	Units	CWQG Freshwater[1]	CWQG Marine[2]	LTM-SW8	SW-8
Date Sampled					2020-09-19	2021-08-25
BV Labs ID					NSD396	QNY926
Acenaphthene	0.1	µg/L	5.8	NV	<0.10	<0.10
Acenaphthylene	0.1	µg/L	NV	NV	<0.10	<0.10
Anthracene	0.01	µg/L	0.012	NV	<0.010	<0.010
Benzo(a)anthracene	0.0085	µg/L	0.018	NV	<0.0085	<0.0085
Benzo(a)pyrene	0.0075	µg/L	0.015	NV	<0.0075	<0.0075
Benzo(b/j)fluoranthene	0.0085	µg/L	NV	NV	<0.0085	<0.0085
Benzo(ghi)perylene	0.0085	µg/L	NV	NV	-	0.01
Benzo(k)fluoranthene	0.0085	µg/L	NV	NV	<0.0085	<0.0085
Chrysene	0.0085	µg/L	NV	NV	<0.0085	<0.0085
Dibenzo(a,h)anthracene	0.0075	µg/L	NV	NV	<0.0075	<0.0075
Fluoranthene	0.01	µg/L	0.04	NV	<0.010	<0.010
Fluorene	0.05	µg/L	3	NV	<0.050	<0.050
Indeno(1,2,3-cd)pyrene	0.0085	µg/L	NV	NV	<0.0085	<0.0085
1-Methylnaphthalene	0.1	µg/L	NV	NV	<0.10	<0.10
2-Methylnaphthalene	0.1	µg/L	NV	NV	<0.10	<0.10
Naphthalene	0.1	µg/L	1.1	1.4	<0.10	<0.10
Phenanthrene	0.05	µg/L	0.4	NV	<0.050	<0.050
Pyrene	0.02	µg/L	0.025	NV	<0.020	<0.020
Methylnaphthalene, 2-(1-)	-	µg/L	NV	NV	-	-

Notes:

10 Exceeds Applicable CCME Criteria

1 - Canadian Council of Members of the Environment (CCME), Canadian Water Quality Guidelines (CWQG) for the Protection of Aquatic Life. Longterm Exposure, Freshwater. (CCME, 2007, with updates)

2 - Canadian Council of Members of the Environment (CCME), Canadian Water Quality Guidelines (CWQG) for the Protection of Aquatic Life. Longterm Exposure, Marine. (CCME, 2007, with updates)

µg/L - micrograms per litre
NV - No Value
RDL - Reportable Detection Limit

Table B-7: Sediment Analytical Results - BTEX and PHCs

Sample ID	RDL	Units	SQGPAL Freshwater[1]		SQGPAL Marine[2]		CSQG[3] Residential / Parkland	CSQG[4] Commercial	CWS[5] Residential / Parkland	CWS[6] Commercial	SED-1*					SED-2			
Date Sampled											LTM-SD1-18	LTM2-SD1-19	LTM2-DUP-19- SD	LTM-SD1	SED-1	LTM-SD2-18	LTM2-SD2-19	LTM-SD2	SED-2
											2018-09-19	2019-07-30	2019-07-30	2020-09-19	2021-08-25	2018-09-19	2019-07-30	2020-09-19	2021-08-25
BV Labs ID			ISQG	PEL	ISQG	PEL					--	--	--	NSD398	QNY959	--	--	NSD399	QNY960
BTEX																			
Benzene	0.006	µg/g	NV	NV	NV	NV	0.03	0.03	NV	NV	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060
Ethylbenzene	0.010	µg/g	NV	NV	NV	NV	0.37	0.37	NV	NV	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Toluene	0.020	µg/g	NV	NV	NV	NV	0.082	0.082	NV	NV	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
o-Xylene	0.020	µg/g	NV	NV	NV	NV	NV	NV	NV	NV	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
m+p-Xylene	0.020	µg/g	NV	NV	NV	NV	NV	NV	NV	NV	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Xylenes	0.020	µg/g	NV	NV	NV	NV	11	11	NV	NV	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Hydrocarbons																			
F1 (C6-C10)	10	µg/g	NV	NV	NV	NV	NV	NV	210	230	<10	<10	<10	<10	<10	<10	<10	<10	<10
F1 (C6-C10) - BTEX	10	µg/g	NV	NV	NV	NV	NV	NV	NV	NV	<10	<10	<10	<10	<10	<10	<10	<10	<10
F2 (C10-C16)	10	µg/g	NV	NV	NV	NV	NV	NV	150	260	<10	<10	--	<10	<10	<10	<10	<10	<10
F3 (C16-C34)	50	µg/g	NV	NV	NV	NV	NV	NV	300	1700	<50	<50	--	<50	<50	<50	<50	88	<50
F4 (C34-C50)	50	µg/g	NV	NV	NV	NV	NV	NV	2800	3300	<50	<50	--	<50	<50	<50	<50	<50	<50
Reached Baseline at C50	NA	NA	NV	NV	NV	NV	NV	NV	NV	NV	--	Yes	--	Yes	Yes	--	Yes	Yes	Yes

Notes:

10 Exceeds Applicable SQGPAL Criteria

250 Exceeds Applicable CSQG or CWS Criteria

1 - Canadian Council of Members of the Environment (CCME), Canadian Sediment Quality Guidelines for the Protection of Aquatic Life (SQGPAL), Freshwater. (CCME, 1999 with updates)

2 - Canadian Council of Members of the Environment (CCME), Canadian Sediment Quality Guidelines for the Protection of Aquatic Life (SQGPAL), Marine. (CCME, 1999 with updates)

3 - Canadian Council of Members of the Environment (CCME), Canadian Soil Quality Guidelines (CSQG) for the Protection of Environmental and Human Health , Residential/Parkland Use, Coarse Grained Soil (CCME, 2010)

4 - Canadian Council of Members of the Environment (CCME), Canadian Soil Quality Guidelines (CSQG) for the Protection of Environmental and Human Health , Commercial Land Use, Coarse Grained Soil (CCME, 2010)

5 - Canadian Council of Members of the Environment (CCME) Canada-Wide Standards (CWS) for Petroleum Hydrocarbons in Soil, Residential/Parkland Use, Coarse Grained Soil (CCME, 2008)

6 - Canadian Council of Members of the Environment (CCME) Canada-Wide Standards (CWS) for Petroleum Hydrocarbons in Soil, Commercial Land Use, Coarse Grained Soil (CCME, 2008)

ISQG - Interim Sediment Quality Guideline

PEL - Probable Effect Levels

µg/g - micrograms per gram

NV - No Value

RDL - Reportable Detection Limit

* Lowest of marine or freshwater guidelines applies

Table B-7: Sediment Analytical Results - BTEX and PHCs

Sample ID	RDL	Units	SQGPAL Freshwater[1]		SQGPAL Marine[2]		CSQG[3] Residential / Parkland	CSQG[4] Commercial	CWS[5] Residential / Parkland	CWS[6] Commercial	SED-3*				SED-4*				
Date Sampled											LTM-SD3-18	LTM2-SD3-19	LTM-SD3	SED-3	LTM-SD4-18	LTM2-SD4-19	LTM-SD4	SED-4	LTM-SD5-18
BV Labs ID			ISQG	PEL	ISQG	PEL					2018-09-19	2019-07-30	2020-09-19	2021-08-25	2018-09-19	2019-07-30	2020-09-19	2021-08-25	2018-09-19
											--	--	NSD400	QNY961	--	--	NSD401	QNY962	--
BTEX																			
Benzene	0.006	µg/g	NV	NV	NV	NV	0.03	0.03	NV	NV	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.036
Ethylbenzene	0.010	µg/g	NV	NV	NV	NV	0.37	0.37	NV	NV	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.060
Toluene	0.020	µg/g	NV	NV	NV	NV	0.082	0.082	NV	NV	0.03	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.12
o-Xylene	0.020	µg/g	NV	NV	NV	NV	NV	NV	NV	NV	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.12
m+p-Xylene	0.020	µg/g	NV	NV	NV	NV	NV	NV	NV	NV	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.12
Xylenes	0.020	µg/g	NV	NV	NV	NV	11	11	NV	NV	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.12
Hydrocarbons																			
F1 (C6-C10)	10	µg/g	NV	NV	NV	NV	NV	NV	210	230	<10	<10	<10	<10	<10	<10	<10	<10	<60
F1 (C6-C10) - BTEX	10	µg/g	NV	NV	NV	NV	NV	NV	NV	NV	<10	<10	<10	<10	<10	<10	<10	<10	<60
F2 (C10-C16)	10	µg/g	NV	NV	NV	NV	NV	NV	150	260	<10	<10	<10	<10	<10	<10	<10	<10	290
F3 (C16-C34)	50	µg/g	NV	NV	NV	NV	NV	NV	300	1700	<50	97	<50	<50	<50	<50	<50	<50	1400
F4 (C34-C50)	50	µg/g	NV	NV	NV	NV	NV	NV	2800	3300	<50	53	<50	<50	<50	<50	<50	<50	<500
Reached Baseline at C50	NA	NA	NV	NV	NV	NV	NV	NV	NV	NV	--	--	Yes	Yes	--	Yes	Yes	Yes	--

Notes:

10 Exceeds Applicable SQGPAL Criteria

250 Exceeds Applicable CSQG or CWS Criteria

1 - Canadian Council of Members of the Environment (CCME), Canadian Sediment Quality Guidelines for the Protection of Aquatic Life (SQGPAL), Freshwater. (CCME, 1999 with updates)

2 - Canadian Council of Members of the Environment (CCME), Canadian Sediment Quality Guidelines for the Protection of Aquatic Life (SQGPAL), Marine. (CCME, 1999 with updates)

3 - Canadian Council of Members of the Environment (CCME), Canadian Soil Quality Guidelines (CSQG) for the Protection of Environmental and Human Health , Residential/Parkland Use, Coarse Grained Soil (CCME, 2010)

4 - Canadian Council of Members of the Environment (CCME), Canadian Soil Quality Guidelines (CSQG) for the Protection of Environmental and Human Health , Commercial Land Use, Coarse Grained Soil (CCME, 2010)

5 - Canadian Council of Members of the Environment (CCME) Canada-Wide Standards (CWS) for Petroleum Hydrocarbons in Soil, Residential/Parkland Use, Coarse Grained Soil (CCME, 2008)

6 - Canadian Council of Members of the Environment (CCME) Canada-Wide Standards (CWS) for Petroleum Hydrocarbons in Soil, Commercial Land Use, Coarse Grained Soil (CCME, 2008)

ISQG - Interim Sediment Quality Guideline

PEL - Probable Effect Levels

µg/g - micrograms per gram

NV - No Value

RDL - Reportable Detection Limit

* Lowest of marine or freshwater guidelines applies

Table B-7: Sediment Analytical Results - BTEX and PHCs

Sample ID	RDL	Units	SQGPAL Freshwater[1]		SQGPAL Marine[2]		CSQG[3] Residential / Parkland	CSQG[4] Commercial	CWS[5] Residential / Parkland	CWS[6] Commercial	SED-5				SED-6				
Date Sampled											LTM2-SD5-19	LTM-SD5	LTM-SD9 (DUP of SD5)	SED-5	LTM-SD6-18	LTM2-SD6-19	LTM-SD6	SED-6	LTM-SD7-18
											2019-07-31	2020-09-19	2020-09-19	2021-08-25	2018-09-19	2019-07-31	2020-09-19	2021-08-25	2018-09-19
BV Labs ID			ISQG	PEL	ISQG	PEL					--	NSD402	NSD406	QNY963	--	--	NSD403	QNY964	--
BTEX																			
Benzene	0.006	µg/g	NV	NV	NV	NV	0.03	0.03	NV	NV	<0.012	<0.0060	<0.012	<0.012	<0.018	<0.012	0.013	<0.0060	<0.012
Ethylbenzene	0.010	µg/g	NV	NV	NV	NV	0.37	0.37	NV	NV	<0.020	<0.010	<0.020	<0.020	<0.030	<0.020	<0.020	<0.010	<0.020
Toluene	0.020	µg/g	NV	NV	NV	NV	0.082	0.082	NV	NV	<0.040	<0.020	<0.040	<0.040	0.10	<0.040	<0.040	<0.020	<0.040
o-Xylene	0.020	µg/g	NV	NV	NV	NV	NV	NV	NV	NV	<0.040	<0.020	<0.040	<0.040	<0.0060	<0.040	0.053	<0.020	<0.040
m+p-Xylene	0.020	µg/g	NV	NV	NV	NV	NV	NV	NV	NV	<0.040	<0.020	<0.040	<0.040	<0.0060	<0.040	<0.040	<0.020	<0.040
Xylenes	0.020	µg/g	NV	NV	NV	NV	11	11	NV	NV	<0.040	<0.020	<0.040	<0.040	<0.0060	<0.040	0.053	<0.020	<0.040
Hydrocarbons																			
F1 (C6-C10)	10	µg/g	NV	NV	NV	NV	NV	NV	210	230	<20	<10	<20	<20	<30	<20	31	<10	<20
F1 (C6-C10) - BTEX	10	µg/g	NV	NV	NV	NV	NV	NV	NV	NV	<20	<10	<20	<20	<30	<20	31	<10	<20
F2 (C10-C16)	10	µg/g	NV	NV	NV	NV	NV	NV	150	260	71	440	160	96	2700	1300	2100	<10	<30
F3 (C16-C34)	50	µg/g	NV	NV	NV	NV	NV	NV	300	1700	350	490	280	460	1700	1400	1700	<50	290
F4 (C34-C50)	50	µg/g	NV	NV	NV	NV	NV	NV	2800	3300	130	200	<150	170	540	490	520	<50	<150
Reached Baseline at C50	NA	NA	NV	NV	NV	NV	NV	NV	NV	NV	Yes	Yes	Yes	Yes	--	Yes	Yes	Yes	--

Notes:

10 Exceeds Applicable SQGPAL Criteria

250 Exceeds Applicable CSQG or CWS Criteria

1 - Canadian Council of Members of the Environment (CCME), Canadian Sediment Quality Guidelines for the Protection of Aquatic Life (SQGPAL), Freshwater. (CCME, 1999 with updates)

2 - Canadian Council of Members of the Environment (CCME), Canadian Sediment Quality Guidelines for the Protection of Aquatic Life (SQGPAL), Marine. (CCME, 1999 with updates)

3 - Canadian Council of Members of the Environment (CCME), Canadian Soil Quality Guidelines (CSQG) for the Protection of Environmental and Human Health , Residential/Parkland Use, Coarse Grained Soil (CCME, 2010)

4 - Canadian Council of Members of the Environment (CCME), Canadian Soil Quality Guidelines (CSQG) for the Protection of Environmental and Human Health , Commercial Land Use, Coarse Grained Soil (CCME, 2010)

5 - Canadian Council of Members of the Environment (CCME) Canada-Wide Standards (CWS) for Petroleum Hydrocarbons in Soil, Residential/Parkland Use, Coarse Grained Soil (CCME, 2008)

6 - Canadian Council of Members of the Environment (CCME) Canada-Wide Standards (CWS) for Petroleum Hydrocarbons in Soil, Commercial Land Use, Coarse Grained Soil (CCME, 2008)

ISQG - Interim Sediment Quality Guideline

PEL - Probable Effect Levels

µg/g - micrograms per gram

NV - No Value

RDL - Reportable Detection Limit

* Lowest of marine or freshwater guidelines applies

Table B-7: Sediment Analytical Results - BTEX and PHCs

Sample ID	RDL	Units	SQGPAL Freshwater[1]		SQGPAL Marine[2]		CSQG[3] Residential / Parkland	CSQG[4] Commercial	CWS[5] Residential / Parkland	CWS[6] Commercial	SED-7			SED-8			
Date Sampled											LTM2-SD7-19	LTM-SD7	SED-7	LTM2-SD8-19	LTM-SD8	SED-8	SED-DUP-1 (DUP of SED-8)
BV Labs ID			ISQG	PEL	ISQG	PEL					2019-07-30	2020-09-19	2021-08-25	2019-07-31	2020-09-19	2021-08-25	2021-08-25
											--	NSD404	QNY965	--	NSD405	QNY966	QNY967
BTEX																	
Benzene	0.006	µg/g	NV	NV	NV	NV	0.03	0.03	NV	NV	<0.0060	<0.0060	<0.14	<0.0060	<0.0060	<0.072	<0.066
Ethylbenzene	0.010	µg/g	NV	NV	NV	NV	0.37	0.37	NV	NV	<0.010	<0.010	<0.23	<0.010	<0.010	<0.12	<0.11
Toluene	0.020	µg/g	NV	NV	NV	NV	0.082	0.082	NV	NV	<0.020	<0.020	<0.46	<0.020	<0.020	<0.24	<0.22
o-Xylene	0.020	µg/g	NV	NV	NV	NV	NV	NV	NV	NV	<0.020	<0.020	<0.46	<0.020	<0.020	<0.24	<0.22
m+p-Xylene	0.020	µg/g	NV	NV	NV	NV	NV	NV	NV	NV	<0.020	<0.020	<0.46	<0.020	<0.020	<0.24	<0.22
Xylenes	0.020	µg/g	NV	NV	NV	NV	11	11	NV	NV	<0.020	<0.020	<0.46	<0.020	<0.020	<0.24	<0.22
Hydrocarbons																	
F1 (C6-C10)	10	µg/g	NV	NV	NV	NV	NV	NV	210	230	<10	<10	<230	<10	<10	<130	<110
F1 (C6-C10) - BTEX	10	µg/g	NV	NV	NV	NV	NV	NV	NV	NV	<10	<10	<230	<10	<10	<130	<110
F2 (C10-C16)	10	µg/g	NV	NV	NV	NV	NV	NV	150	260	<10	300	<30	<10	<20	<10	<20
F3 (C16-C34)	50	µg/g	NV	NV	NV	NV	NV	NV	300	1700	140	800	<150	200	370	<50	<100
F4 (C34-C50)	50	µg/g	NV	NV	NV	NV	NV	NV	2800	3300	61	230	<150	71	120	<50	<100
Reached Baseline at C50	NA	NA	NV	NV	NV	NV	NV	NV	NV	NV	No	Yes	Yes	No	Yes	Yes	Yes

Notes:

10 Exceeds Applicable SQGPAL Criteria

250 Exceeds Applicable CSQG or CWS Criteria

1 - Canadian Council of Members of the Environment (CCME), Canadian Sediment Quality Guidelines for the Protection of Aquatic Life (SQGPAL), Freshwater. (CCME, 1999 with updates)

2 - Canadian Council of Members of the Environment (CCME), Canadian Sediment Quality Guidelines for the Protection of Aquatic Life (SQGPAL), Marine. (CCME, 1999 with updates)

3 - Canadian Council of Members of the Environment (CCME), Canadian Soil Quality Guidelines (CSQG) for the Protection of Environmental and Human Health , Residential/Parkland Use, Coarse Grained Soil (CCME, 2010)

4 - Canadian Council of Members of the Environment (CCME), Canadian Soil Quality Guidelines (CSQG) for the Protection of Environmental and Human Health , Commercial Land Use, Coarse Grained Soil (CCME, 2010)

5 - Canadian Council of Members of the Environment (CCME) Canada-Wide Standards (CWS) for Petroleum Hydrocarbons in Soil, Residential/Parkland Use, Coarse Grained Soil (CCME, 2008)

6 - Canadian Council of Members of the Environment (CCME) Canada-Wide Standards (CWS) for Petroleum Hydrocarbons in Soil, Commercial Land Use, Coarse Grained Soil (CCME, 2008)

ISQG - Interim Sediment Quality Guideline

PEL - Probable Effect Levels

µg/g - micrograms per gram

NV - No Value

RDL - Reportable Detection Limit

* Lowest of marine or freshwater guidelines applies

Table B-8: Sediment Analytical Results - Metals

Sample ID		RDL	Units	SQGPAL Freshwater[1]		SQGPAL Marine[2]		SED-1*					SED-2				SED-3*			
								LTM-SD1-18	LTM2-SD1-19	LTM2-DUP-19-SD	LTM-SD1	SED-1	LTM-SD2-18	LTM2-SD2-19	LTM-SD2	SED-2	LTM-SD3-18	LTM2-SD3-19	LTM-SD3	SED-3
Date Sampled								2018-09-19	2019-07-30	2019-07-30	2020-09-19	2021-08-25	2018-09-19	2019-07-30	2020-09-19	2021-08-25	2018-09-19	2019-07-30	2020-09-19	2021-08-25
BV Labs ID				ISQG	PEL	ISQG	PEL	--	--	--	NSD398	QNY959	--	--	NSD399	QNY960	--	--	NSD400	QNY961
Acid Extractable Arsenic (As)		1.0	µg/g	5.9	17.0	7.2	41.6	1.4	1.2	1.1	<1.0	1.5	1.6	<1.0	<1.0	<1.0	1.2	2.6	1.7	1.8
Acid Extractable Cadmium (Cd)		0.10	µg/g	0.6	3.5	0.7	4.2	<0.10	<0.10	<0.10	<0.10	<0.10	0.18	<0.10	<0.10	<0.10	<0.10	0.13	<0.10	<0.10
Acid Extractable Chromium (Cr)		1.0	µg/g	37.3	90	52.3	160	28	29	25	22	18	22	21	14	20	19	18	38	20
Acid Extractable Cobalt (Co)		0.10	µg/g	NV	NV	NV	NV	4.4	3.6	3.6	3.8	2.9	4.5	3.4	2.3	2.7	5.3	3.7	4.5	19
Acid Extractable Lead (Pb)		1.0	µg/g	35	91.3	30.2	112	3.6	3.4	3	4.6	3.1	3.6	4.7	6.8	2.7	8.9	23	7.3	74
Acid Extractable Nickel (Ni)		0.50	µg/g	NV	NV	NV	NV	7.5	6.8	6.2	7.0	5.4	8.2	5.5	4.3	5.4	5.5	6.5	7.4	20
Acid Extractable Zinc (Zn)		5.0	µg/g	123	315	124	271	40	46	31	30	33	56	33	28	29	46	48	40	84

Notes:

10 Exceeds Applicable CCME Criteria

1 - Canadian Council of Members of the Environment (CCME), Canadian Sediment Quality Guidelines for the Protection of Aquatic Life (SQGPAL), Freshwater. (CCME, 1999 with updates)

2 - Canadian Council of Members of the Environment (CCME), Canadian Sediment Quality Guidelines for the Protection of Aquatic Life (SQGPAL), Marine. (CCME, 1999 with updates)

ISQG - Interim Sediment Quality Guideline
PEL - Probable Effect Levels
µg/g - micrograms per gram
NV - No Value
RDL - Reportable Detection Limit
* Lowest of marine or freshwater guidelines applies

Table B-8: Sediment Analytical Results - Metals

Sample ID		RDL	Units	SQGPAL Freshwater[1]		SQGPAL Marine[2]		SED-4*				SED-5					SED-6			
								LTM-SD4-18	LTM2-SD4-19	LTM-SD4	SED-4	LTM-SD5-18	LTM2-SD5-19	LTM-SD5	LTM-SD9 (DUP of SD5)	SED-5	LTM-SD6-18	LTM2-SD6-19	LTM-SD6	SED-6
Date Sampled								2018-09-19	2019-07-30	2020-09-19	2021-08-25	2018-09-19	2019-07-31	2020-09-19	2020-09-19	2021-08-25	2018-09-19	2019-07-31	2020-09-19	2021-08-25
BV Labs ID				ISQG	PEL	ISQG	PEL	--	--	NSD401	QNY962	--	--	NSD402	NSD406	QNY963	--	--	NSD403	QNY964
Acid Extractable Arsenic (As)		1.0	µg/g	5.9	17.0	7.2	41.6	1.6	1.6	1.6	1.2	1.8	1.4	1.5	1.9	<1.0	1.8	3.3	1.5	<1.0
Acid Extractable Cadmium (Cd)		0.10	µg/g	0.6	3.5	0.7	4.2	0.2	0.11	0.19	<0.10	4.9	0.75	1.9	1.3	0.32	3.9	7.4	2.9	0.12
Acid Extractable Chromium (Cr)		1.0	µg/g	37.3	90	52.3	160	17	15	16	18	23	20.0	22	24	14	28	36	27	26
Acid Extractable Cobalt (Co)		0.10	µg/g	NV	NV	NV	NV	3.6	3.3	4.7	2.9	7.5	5.6	6.0	6.2	2.8	7.8	17.0	7.7	3.5
Acid Extractable Lead (Pb)		1.0	µg/g	35	91.3	30.2	112	6.5	10	110	3.1	69	22	73	36	11	100	130	89	6.0
Acid Extractable Nickel (Ni)		0.50	µg/g	NV	NV	NV	NV	5.3	4.9	7.8	4.6	14	11	11	8.5	5.9	12	16	11	5.9
Acid Extractable Zinc (Zn)		5.0	µg/g	123	315	124	271	52	49	53	36	250	190	210	130	87	240	350	280	47

Notes:

10 Exceeds Applicable CCME Criteria

1 - Canadian Council of Members of the Environment (CCME), Canadian Sediment Quality Guidelines for the Protection of Aquatic Li

2 - Canadian Council of Members of the Environment (CCME), Canadian Sediment Quality Guidelines for the Protection of Aquatic L

ISQG - Interim Sediment Quality Guideline
PEL - Probable Effect Levels
µg/g - micrograms per gram
NV - No Value
RDL - Reportable Detection Limit
* Lowest of marine or freshwater guidelines applies

Table B-8: Sediment Analytical Results - Metals

Sample ID		RDL	Units	SQGPAL Freshwater[1]		SQGPAL Marine[2]		SED-7				SED-8			
								LTM-SD7-18	LTM2-SD7-19	LTM-SD7	SED-7	LTM2-SD8-19	LTM-SD8	SED-8	SED-DUP-1 (DUP of SED-8)
Date Sampled								2018-09-19	2019-07-30	2020-09-19	2021-08-25	2019-07-31	2020-09-19	2021-08-25	2021-08-25
BV Labs ID				ISQG	PEL	ISQG	PEL	--	--	NSD404	QNY965	--	NSD405	QNY966	QNY967
Acid Extractable Arsenic (As)		1.0	µg/g	5.9	17.0	7.2	41.6	2.7	<1.0	2.1	4.0	1.2	1.0	4.6	4.4
Acid Extractable Cadmium (Cd)		0.10	µg/g	0.6	3.5	0.7	4.2	0.2	0.15	0.32	0.59	<0.10	<0.10	0.29	0.36
Acid Extractable Chromium (Cr)		1.0	µg/g	37.3	90	52.3	160	43	34	36	27	19	25	15	20
Acid Extractable Cobalt (Co)		0.10	µg/g	NV	NV	NV	NV	10.0	5.8	9.4	12	4.4	4.4	14	12
Acid Extractable Lead (Pb)		1.0	µg/g	35	91.3	30.2	112	20	12	31	49	11	4.600000	31	22
Acid Extractable Nickel (Ni)		0.50	µg/g	NV	NV	NV	NV	15	9.9	20	13	7.9	7.2	12	10
Acid Extractable Zinc (Zn)		5.0	µg/g	123	315	124	271	230	190	140	340	140	27	200	460

Notes:

10 Exceeds Applicable CCME Criteria

1 - Canadian Council of Members of the Environment (CCME), Canadian Sediment Quality Guidelines for the Protection of Aquatic Li

2 - Canadian Council of Members of the Environment (CCME), Canadian Sediment Quality Guidelines for the Protection of Aquatic L

ISQG - Interim Sediment Quality Guideline
PEL - Probable Effect Levels
µg/g - micrograms per gram
NV - No Value
RDL - Reportable Detection Limit
* Lowest of marine or freshwater guidelines applies

Table B-9: Sediment Analytical Results - PCBs

Sample ID	RDL	Units	SQGPAL Freshwater[1]		SQGPAL Marine[2]		SED-1*					SED-2				SED-3*			
							LTM-SD1-18	LTM2-SD1-19	LTM2-DUP-19- SD	LTM-SD1	SED-1	LTM-SD2-18	LTM2-SD2-19	LTM-SD2	SED-2	LTM-SD3-18	LTM2-SD3-19	LTM-SD3	SED-3
Date Sampled							2018-09-19	2019-07-30	2019-07-30	2020-09-19	2021-08-25	2018-09-19	2019-07-30	2020-09-19	2021-08-25	2018-09-19	2019-07-30	2020-09-19	2021-08-25
BV Labs ID			ISQG	PEL	ISQG	PEL	--	--	--	NSD398	QNY959	--	--	NSD399	QNY960	--	--	NSD400	QNY961
Aroclor 1242	0.010	µg/g	NV	NV	NV	NV	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010
Aroclor 1248	0.010	µg/g	NV	NV	NV	NV	<0.010	<0.010	<0.010	<0.010	0.011	<0.010	<0.010	<0.020	<0.010	<0.010	<0.010	<0.010	0.012
Aroclor 1254	0.010	µg/g	0.06	0.34	0.0633	0.709	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010
Aroclor 1260	0.010	µg/g	NV	NV	NV	NV	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.025	<0.010	<0.010	<0.010	0.017	<0.010
Total PCB	0.010	µg/g	0.0341	0.277	0.0215	0.189	<0.010	<0.010	<0.010	<0.010	0.011	<0.010	<0.010	0.025	<0.010	<0.010	<0.010	0.017	0.012

Notes:

10 Exceeds Applicable CCME Criteria

1 - Canadian Council of Members of the Environment (CCME), Canadian Sediment Quality Guidelines for the Protection of Aquatic Life (SQGPAL), Freshwater. (CCME, 1999 with updates)

2 - Canadian Council of Members of the Environment (CCME), Canadian Sediment Quality Guidelines for the Protection of Aquatic Life (SQGPAL), Marine. (CCME, 1999 with updates)

ISQG - Interim Sediment Quality Guideline

PEL - Probable Effect Levels

µg/g - micrograms per gram

NV - No Value

RDL - Reportable Detection Limit

* Lowest of marine or freshwater guidelines applies

Table B-9: Sediment Analytical Results - PCBs

Sample ID	RDL	Units	SQGPAL Freshwater[1]		SQGPAL Marine[2]		SED-4*				SED-5					SED-6			
							LTM-SD4-18	LTM2-SD4-19	LTM-SD4	SED-4	LTM-SD5-18	LTM2-SD5-19	LTM-SD5	LTM-SD9 (DUP of SD5)	SED-5	LTM-SD6-18	LTM2-SD6-19	LTM-SD6	SED-6
Date Sampled							2018-09-19	2019-07-30	2020-09-19	2021-08-25	2018-09-19	2019-07-31	2020-09-19	2020-09-19	2021-08-25	2018-09-19	2019-07-31	2020-09-19	2021-08-25
BV Labs ID			ISQG	PEL	ISQG	PEL	--	--	NSD401	QNY962	--	--	NSD402	NSD406	QNY963	--	--	NSD403	QNY964
Aroclor 1242	0.010	µg/g	NV	NV	NV	NV	<0.010	<0.010	<0.010	<0.010	<0.090	<0.020	<0.020	<0.030	<0.020	<0.60	<0.40	<0.30	<0.010
Aroclor 1248	0.010	µg/g	NV	NV	NV	NV	<0.010	<0.010	<0.010	0.014	<0.090	<0.020	<0.020	<0.030	<0.020	<0.60	<0.40	<0.30	0.011
Aroclor 1254	0.010	µg/g	0.06	0.34	0.0633	0.709	<0.010	<0.010	<0.010	<0.010	<0.090	<0.020	<0.020	<0.030	<0.020	<0.60	<0.40	<0.30	<0.010
Aroclor 1260	0.010	µg/g	NV	NV	NV	NV	<0.010	<0.010	0.011	0.012	1.4	0.17	0.21	1.3	0.082	3.4	3.9	3.4	0.023
Total PCB	0.010	µg/g	0.0341	0.277	0.0215	0.189	<0.010	<0.010	0.011	0.027	1.4	0.17	0.21	1.3	0.082	3.4	3.9	3.4	0.035

Notes:

10 Exceeds Applicable CCME Criteria

1 - Canadian Council of Members of the Environment (CCME), Canadian Sediment Quality Guidelines for the Protection of Aquatic Life (SQGPAL), Freshwater. (CCME, 1999 with updates)

2 - Canadian Council of Members of the Environment (CCME), Canadian Sediment Quality Guidelines for the Protection of Aquatic Life (SQGPAL), Marine. (CCME, 1999 with updates)

ISQG - Interim Sediment Quality Guideline

PEL - Probable Effect Levels

µg/g - micrograms per gram

NV - No Value

RDL - Reportable Detection Limit

* Lowest of marine or freshwater guidelines applies

Table B-9: Sediment Analytical Results - PCBs

Sample ID	RDL	Units	SQGPAL Freshwater[1]		SQGPAL Marine[2]		SED-7				SED-8			
							LTM-SD7-18	LTM2-SD7-19	LTM-SD7	SED-7	LTM2-SD8-19	LTM-SD8	SED-8	SED-DUP-1 (DUP of SED-8)
Date Sampled							2018-09-19	2019-07-30	2020-09-19	2021-08-25	2019-07-31	2020-09-19	2021-08-25	2021-08-25
BV Labs ID			ISQG	PEL	ISQG	PEL	--	--	NSD404	QNY965	--	NSD405	QNY966	QNY967
Aroclor 1242	0.010	µg/g	NV	NV	NV	NV	<0.040	<0.020	<0.020	<0.15	<0.020	<0.020	<0.060	<0.070
Aroclor 1248	0.010	µg/g	NV	NV	NV	NV	<0.040	<0.020	<0.020	<0.15	<0.020	<0.020	<0.060	<0.070
Aroclor 1254	0.010	µg/g	0.06	0.34	0.0633	0.709	<0.040	<0.020	<0.020	0.17	<0.020	<0.020	<0.060	<0.070
Aroclor 1260	0.010	µg/g	NV	NV	NV	NV	0.59	<0.020	0.082	1.8	<0.020	<0.020	<0.060	<0.070
Total PCB	0.010	µg/g	0.0341	0.277	0.0215	0.189	0.59	<0.020	0.082	1.9	<0.020	<0.020	<0.060	<0.070

Notes:

10 Exceeds Applicable CCME Criteria

1 - Canadian Council of Members of the Environment (CCME), Canadian Sediment Quality Guidelines for the Protection of Aquatic Life (SQGPAL), Freshwater. (CCME, 1999 with updates)

2 - Canadian Council of Members of the Environment (CCME), Canadian Sediment Quality Guidelines for the Protection of Aquatic Life (SQGPAL), Marine. (CCME, 1999 with updates)

ISQG - Interim Sediment Quality Guideline

PEL - Probable Effect Levels

µg/g - micrograms per gram

NV - No Value

RDL - Reportable Detection Limit

* Lowest of marine or freshwater guidelines applies

Table B-10: Sediment Analytical Results - PAHs

Sample ID	RDL	Units	SQGPAL Freshwater[1]		SQGPAL Marine[2]		LTM-SD8
Date Sampled							2020-09-19
BV Labs ID			ISQG	PEL	ISQG	PEL	NSD405
Acenaphthene	0.005	ug/kg	0.00671	0.0889	0.00671	0.0889	<0.005
Acenaphthylene	0.005	ug/kg	0.00587	0.128	0.00587	0.128	<0.005
Anthracene	0.004	ug/kg	0.0469	0.245	0.0469	0.245	<0.004
Benzo(a)anthracene	0.005	ug/kg	0.0317	0.285	0.0748	0.693	0.012
Benzo(a)pyrene	0.005	ug/kg	0.0319	0.782	0.0888	0.763	0.019
Benzo(b/j)fluoranthene	0.005	ug/kg	NV	NV	NV	NV	0.03
Benzo(ghi)perylene	-	ug/kg	NV	NV	NV	NV	-
Benzo(k)fluoranthene	0.005	ug/kg	NV	NV	NV	NV	0.0099
Chrysene	0.005	ug/kg	0.0571	0.862	0.108	0.846	0.014
Dibenzo(a,h)anthracene	0.005	ug/kg	0.00622	0.135	0.00622	0.135	<0.005
Fluoranthene	0.005	ug/kg	0.111	2.355	0.113	1.494	0.038
Fluorene	0.005	ug/kg	0.0212	0.144	0.0212	0.144	<0.005
Indeno(1,2,3-cd)pyrene	0.005	ug/kg	NV	NV	NV	NV	0.025
1-Methylnaphthalene	0.005	ug/kg	NV	NV	NV	NV	<0.005
2-Methylnaphthalene	0.005	ug/kg	0.0202	0.201	0.0202	0.201	0.011
Naphthalene	0.005	ug/kg	0.0346	0.391	0.0346	0.391	0.025
Phenanthrene	0.005	ug/kg	0.0419	0.515	0.0867	0.544	0.018
Pyrene	0.005	ug/kg	0.053	0.875	0.153	1.398	0.034

Notes:

10 Exceeds Applicable CCME Criteria

1 - Canadian Council of Members of the Environment (CCME), Canadian Sediment Quality Guidelines for the Protection of Aquatic Life (SQGPAL), Freshwater. (CCME, 1999 with updates)

2 - Canadian Council of Members of the Environment (CCME), Canadian Sediment Quality Guidelines for the Protection of Aquatic Life (SQGPAL), Marine. (CCME, 1999 with updates)

ug/L - micrograms per litre
NV - No Value
RDL - Reportable Detection Limit

Table B-11: Surface Water Analytical Results - QAQC

Sample ID	RDL	5x	Units	SW-7	SW-DUP-1 (DUP of SW-7)	RPD
Date Sampled				2021-08-25	2021-08-25	
BV Lab ID				QNY925	QNY927	
General Chemistry						
Hardness (CaCO3)	1.0	5	mg/L	47	47	0%
Conductivity	1.0	5	umho/cm	0.12	0.12	0%
Total Dissolved Solids	20	100	mg/L	95	80	17%
Total Suspended Solids	1	5	mg/L	7.32	7.31	0%
Metals						
Total Arsenic (As)	1.0	5	ug/L	<1.0	<1.0	NC
Total Cadmium (Cd)	0.1	0.5	ug/L	<0.090	<0.090	NC
Total Chromium (Cr)	1.0	5	ug/L	<5.0	<5.0	NC
Total Cobalt (Co)	0.1	0.5	ug/L	0.51	<0.50	NC
Total Lead (Pb)	1.0	5	ug/L	<0.50	<0.50	NC
Total Nickel (Ni)	0.5	2.5	ug/L	<1.0	<1.0	NC
Total Zinc (Zn)	5.0	25	ug/L	13	13	0%
BTEX						
Benzene	0.20	1.0	ug/L	<0.20	<0.20	NC
Ethylbenzene	0.20	1.0	ug/L	<0.20	<0.20	NC
Toluene	0.20	1.0	ug/L	<0.20	<0.20	NC
o-Xylene	0.20	1.0	ug/L	<0.20	<0.20	NC
m+p-Xylene	0.40	2.0	ug/L	<0.40	<0.40	NC
Xylenes	0.40	2.0	ug/L	<0.40	<0.40	NC
Hydrocarbons						
F1 (C6-C10)	25	125	ug/L	<25	<25	NC
F1 (C6-C10) - BTEX	25	125	ug/L	<25	<25	NC
F2 (C10-C16)	100	500	ug/L	<100	<100	NC
F3 (C16-C34)	200	1000	ug/L	<200	<200	NC
F4 (C34-C50)	200	1000	ug/L	<200	<200	NC
Reached Baseline at C50	NA	NA	NA	Yes	Yes	NC
PCBs						
Aroclor 1016	0.05	0.25	ug/L	<0.05	<0.05	NC
Aroclor 1221	0.05	0.25	ug/L	<0.05	<0.05	NC
Aroclor 1232	0.05	0.25	ug/L	<0.05	<0.05	NC
Aroclor 1242	0.05	0.25	ug/L	<0.05	<0.05	NC
Aroclor 1248	0.05	0.25	ug/L	<0.05	<0.05	NC
Aroclor 1254	0.05	0.25	ug/L	<0.05	<0.05	NC
Aroclor 1260	0.05	0.25	ug/L	<0.05	<0.05	NC
Aroclor 1262	0.05	0.25	ug/L	<0.05	<0.05	NC
Aroclor 1268	0.05	0.25	ug/L	<0.05	<0.05	NC
Total PCB	0.05	0.25	ug/L	<0.05	<0.05	NC

Notes:

10 Exceeds CCME RPD Limit of 40%

mg/L - milligrams per litre

ug/L - micrograms per litre

NC - Not Calculated

RDL - Reportable Detection Limit

RPD - Relative Percent Difference

Table B-12: Sediment Analytical Results - QAQC

Sample ID	RDL	5x	Units	SED-8	SED-DUP-1 (DUP of SED-8)	RPD
Date Sampled				2021-08-25	2021-08-25	
BV Lab ID				QNY966	QNY967	
Metals						
Total Arsenic (As)	1.0	5	ug/g	4.6	4.4	NC
Total Cadmium (Cd)	0.1	0.5	ug/g	0.29	0.36	22%
Total Chromium (Cr)	1.0	5	ug/g	15	20	29%
Total Cobalt (Co)	0.1	0.5	ug/g	14	12	15%
Total Lead (Pb)	1.0	5	ug/g	31	22	34%
Total Nickel (Ni)	0.5	2.5	ug/g	12	10	18%
Total Zinc (Zn)	5.0	25	ug/g	200	460	79%
BTEX						
Benzene	0.01	0.1	ug/L	<0.072	<0.066	NC
Ethylbenzene	0.02	0.1	ug/L	<0.12	<0.11	NC
Toluene	0.04	0.2	ug/L	<0.24	<0.22	NC
o-Xylene	0.04	0.2	ug/L	<0.24	<0.22	NC
m+p-Xylene	0.40	2.0	ug/L	<0.24	<0.22	NC
Xylenes	0.40	2.0	ug/L	<0.24	<0.22	NC
Hydrocarbons						
F1 (C6-C10)	20	100	ug/L	<130	<110	NC
F1 (C6-C10) - BTEX	20	100	ug/L	<130	<110	NC
F2 (C10-C16)	30.00	150	ug/L	<10	<20	NC
F3 (C16-C34)	150.00	750	ug/L	<50	<100	NC
F4 (C34-C50)	150.00	750	ug/L	<50	<100	NC
Reached Baseline at C50	NA	NA	NA	Yes	Yes	NC
PCBs						
Aroclor 1242	0.030	0.15	ug/L	<0.060	<0.070	NC
Aroclor 1248	0.030	0.15	ug/L	<0.060	<0.070	NC
Aroclor 1254	0.030	0.15	ug/L	<0.060	<0.070	NC
Aroclor 1260	0.030	0.15	ug/L	<0.060	<0.070	NC
Total PCB	0.030	0.15	ug/L	<0.060	<0.070	NC

Notes:

10 Exceeds CCME RPD Limit of 40%

mg/L - milligrams per litre

ug/L - micrograms per litre

NC - Not Calculated

RDL - Reportable Detection Limit

RPD - Relative Percent Difference

ATTACHMENT C

NWB Annual Reporting Form

NWB Annual Report **Year being reported:** 2021

License No: 1BR-MDR2126 **Issued Date:** July 31, 2021
Expiry Date: July 30, 2026

Project Name: Former Iqaluit Metal Dump Remediation Project / Qikiqtanki

Licensee: Transport Canada

Mailing Address: 344 Edmonton Street, Winnipeg, Manitoba R3B 2L4

Name of Company filing Annual Report (if different from Name of Licensee please clarify relationship between the two entities, if applicable):

BluMetric Environmental Inc.

General Background Information on the Project (*optional):

During the 2021/2022 fiscal year completed a site investigation as per the long term monitoring plan (Arcadis, 2018) created following the 2017 remediation.

Licence Requirements: the licensee must provide the following information in accodance with

Part B | Item 1

A summary report of water use and waste disposal activities, including, but not limited to: methods of obtaining water; sewage and greywater management; drill waste management; solid and hazardous waste management.

Water Source(s): Long Term Monitoring Stations 1 through 7

Water Quantity:

50/day	Quantity Allowable Domestic (cu.m)
<1	Actual Quantity Used Domestic (cu.m)
N/A	Quantity Allowable Drilling (cu.m)
N/A	Total Quantity Used Drilling (cu.m)

Waste Management and/or Disposal

- ☐ Solid Waste Disposal
- ☐ Sewage
- ☐ Drill Waste
- ☐ Greywater
- ☐ Hazardous
- ☐ Other:

Additional Details:

N/A

A list of unauthorized discharges and a summary of follow-up actions taken.

Spill No.: (as reported to the Spill Hot-line)
Date of Spill:
Date of Notification to an Inspector:
Additional Details: (impacts to water, mitigation measures, short/long term monitoring, etc)

N/A

Revisions to the Spill Contingency Plan

N/A - not applicable

Additional Details:

Revisions to the Abandonment and Restoration Plan

N/A - not applicable

Additional Details:

Progressive Reclamation Work Undertaken

Additional Details (i.e., work completed and future works proposed)

Completed site investigation which included observation monitoring and extraction of surface water samples for each of the 7 long term monitoring stations for chemical analysis. Also, collected sediment samples from each of the stations as per the long term monitoring plan.

Results of the Monitoring Program including:

The GPS Co-ordinates (in degrees, minutes and seconds of latitude and longitude) of each location where sources of water are utilized;

Details attached

Additional Details:

The GPS Co-ordinates (in degrees, minutes and seconds of latitude and longitude) of each location where wastes associated with the licence are deposited;

Not Applicable (N/A)

Additional Details:

Results of any additional sampling and/or analysis that was requested by an Inspector

No additional sampling requested by an Inspector or the Board

Additional Details: (date of request, analysis of results, data attached, etc)

Any other details on water use or waste disposal requested by the Board by November 1 of the year being reported.

No additional sampling requested by an Inspector or the Board

Additional Details: (Attached or provided below)

Any responses or follow-up actions on inspection/compliance reports

No inspection and/or compliance report issued by INAC

Additional Details: (Dates of Report, Follow-up by the Licensee)

Any additional comments or information for the Board to consider

Date Submitted:	March 31, 2022	
Submitted/Prepared by:	Jackie Dunn (Transport Canada)	
Contact Information:	**Tel:**	
	Fax:	
	email:	jackie.dunn@tc.gc.ca

GPS Coordinates for water sources utilized

Source Description	Latitude			Longitude		
	° Deg	' Min	" Sec	° Deg	' Min	" Sec
LTM STN 1	63	44	18.48	68	33	33.95
LTM STN 2	63	44	19.77	68	33	30.3
LTM STN 3	63	44	13.6	68	33	27.71
LTM STN 4	63	44	10.05	68	33	26.07
LTM STN 5	63	44	11.09	68	33	22.05
LTM STN 6	63	44	11.9	68	33	20.45
LTM STN 7	63	44	15.82	68	33	13.77

GPS Locations of areas of waste disposal

Location Description (type)	Latitude			Longitude		
	° Deg	' Min	" Sec	° Deg	' Min	" Sec

ATTACHMENT D

Laboratory Certificates of Analysis

Your Project #: 210561
Your C.O.C. #: 841901-01-01, 841901-02-01

Attention: Heather Wolczanski

BluMetric Environmental Inc
1682 Woodward Dr
Ottawa, ON
CANADA K2C 3R8

Report Date: 2021/09/13
Report #: R6808699
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: C1P2295
Received: 2021/09/02, 16:08

Sample Matrix: Sediment
Samples Received: 9

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Petroleum Hydrocarbons F2-F4 in Soil (1)	9	2021/09/07	2021/09/08	CAM SOP-00316	CCME CWS m
Acid Extractable Metals by ICPMS	8	2021/09/07	2021/09/09	CAM SOP-00447	EPA 6020B m
Acid Extractable Metals by ICPMS	1	2021/09/08	2021/09/08	CAM SOP-00447	EPA 6020B m
Moisture	9	N/A	2021/09/04	CAM SOP-00445	Carter 2nd ed 51.2 m
Polychlorinated Biphenyl in Soil	1	2021/09/07	2021/09/07	CAM SOP-00309	EPA 8082A m
Polychlorinated Biphenyl in Soil	7	2021/09/07	2021/09/08	CAM SOP-00309	EPA 8082A m
Polychlorinated Biphenyl in Soil	1	2021/09/09	2021/09/10	CAM SOP-00309	EPA 8082A m
Volatile Organic Compounds and F1 PHCs	9	N/A	2021/09/08	CAM SOP-00230	EPA 8260C m

Sample Matrix: Water
Samples Received: 10

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Chloride by Automated Colourimetry	9	N/A	2021/09/08	CAM SOP-00463	SM 23 4500-Cl E m
Conductivity	9	N/A	2021/09/08	CAM SOP-00414	SM 23 2510 m
Free (WAD) Cyanide	9	N/A	2021/09/10	CAM SOP-00457	OMOE E3015 m
Total Cyanide	9	2021/09/09	2021/09/10	CAM SOP-00457	OMOE E3015 5 m
Petroleum Hydro. CCME F1 & BTEX in Water	8	N/A	2021/09/07	CAM SOP-00315	CCME PHC-CWS m
Petroleum Hydro. CCME F1 & BTEX in Water	2	N/A	2021/09/08	CAM SOP-00315	CCME PHC-CWS m
Petroleum Hydrocarbons F2-F4 in Water (1)	1	2021/09/07	2021/09/07	CAM SOP-00316	CCME PHC-CWS m
Petroleum Hydrocarbons F2-F4 in Water (1)	8	2021/09/07	2021/09/08	CAM SOP-00316	CCME PHC-CWS m
Fluoride	9	2021/09/08	2021/09/08	CAM SOP-00449	SM 23 4500-F C m
Hardness (calculated as CaCO3)	9	N/A	2021/09/09	CAM SOP 00102/00408/00447	SM 2340 B
Total Metals Analysis by ICPMS	4	N/A	2021/09/08	CAM SOP-00447	EPA 6020B m
Total Metals Analysis by ICPMS	5	N/A	2021/09/09	CAM SOP-00447	EPA 6020B m
B[a]P Total Potency Equivalent (2, 3)	1	N/A	2021/09/12		CCME
PAH in Water by GC/MS (2)	1	2021/09/11	2021/09/12	AB SOP-00037/AB SOP-00003	EPA 3510C/8270E m
Total Ammonia-N	9	N/A	2021/09/08	CAM SOP-00441	USGS I-2522-90 m
Nitrate (NO3) and Nitrite (NO2) in Water (4)	9	N/A	2021/09/08	CAM SOP-00440	SM 23 4500-NO3I/NO2B
Polychlorinated Biphenyl in Water	9	2021/09/07	2021/09/08	CAM SOP-00309	EPA 8082A m

Your Project #: 210561
Your C.O.C. #: 841901-01-01, 841901-02-01

Attention: Heather Wolczanski

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CANADA K2C 3R8

Report Date: 2021/09/13
Report #: R6808699
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: C1P2295
Received: 2021/09/02, 16:08

Sample Matrix: Water
Samples Received: 10

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
pH	9	2021/09/08	2021/09/08	CAM SOP-00413	SM 4500H+ B m
Sulphate by Automated Colourimetry	9	N/A	2021/09/08	CAM SOP-00464	EPA 375.4 m
Sulphide	9	N/A	2021/09/07	CAM SOP-00455	SM 23 4500-S G m
Total Dissolved Solids	9	2021/09/04	2021/09/07	CAM SOP-00428	SM 23 2540C m
Low Level Total Suspended Solids	9	2021/09/04	2021/09/07	CAM SOP-00428	SM 23 2540D m

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.

Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) All CCME PHC results met required criteria unless otherwise stated in the report. The CWS PHC methods employed by Bureau Veritas Laboratories conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following “Alberta Environment’s Interpretation of the Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil Validation of Performance-Based Alternative Methods September 2003”. Documentation is available upon request. Modifications from Reference Method for the Canada-wide Standard for Petroleum Hydrocarbons in Soil-Tier 1 Method: F2/F3/F4 data reported using validated cold solvent extraction instead of Soxhlet extraction.
(2) This test was performed by Bureau Veritas Calgary via Mississauga
(3) B[a]P TPE is calculated using 1/2 of the RDL for non detect results as per Alberta Environment instructions. This protocol may not apply in other jurisdictions.

Your Project #: 210561
Your C.O.C. #: 841901-01-01, 841901-02-01

Attention: Heather Wolczanski

BluMetric Environmental Inc
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CANADA K2C 3R8

Report Date: 2021/09/13
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Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: C1P2295
Received: 2021/09/02, 16:08

(4) Values for calculated parameters may not appear to add up due to rounding of raw data and significant figures.

Encryption Key

Christine Gripton
Senior Project Manager
13 Sep 2021 17:37:14

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Christine Gripton, Senior Project Manager
Email: Christine.Gripton@bureauveritas.com
Phone# (519)652-9444

==========

BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

CCME PETROLEUM HYDROCARBONS SOIL (SEDIMENT)

BV Labs ID		QNY959		QNY960	QNY961	QNY962		QNY963		
Sampling Date		2021/08/25 11:00		2021/08/25 11:00	2021/08/25 11:00	2021/08/25 11:00		2021/08/25 11:00		
COC Number		841901-02-01		841901-02-01	841901-02-01	841901-02-01		841901-02-01		
	UNITS	SED-1	QC Batch	SED-2	SED-3	SED-4	QC Batch	SED-5	RDL	QC Batch
Inorganics										
Moisture	%	21	7560618	16	19	23	7560553	53	1.0	7560618
F2-F4 Hydrocarbons										
F2 (C10-C16 Hydrocarbons)	ug/g	<10	7563026	<10	<10	<10	7563026	96	10	7563026
F3 (C16-C34 Hydrocarbons)	ug/g	<50	7563026	<50	<50	<50	7563026	460	50	7563026
F4 (C34-C50 Hydrocarbons)	ug/g	<50	7563026	<50	<50	<50	7563026	170	50	7563026
Reached Baseline at C50	ug/g	Yes	7563026	Yes	Yes	Yes	7563026	Yes		7563026
Surrogate Recovery (%)										
o-Terphenyl	%	101	7563026	101	100	101	7563026	102		7563026

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

BV Labs ID		QNY964			QNY965			QNY966		QNY967		
Sampling Date		2021/08/25 11:00			2021/08/25 11:00			2021/08/25 11:00		2021/08/25 11:00		
COC Number		841901-02-01			841901-02-01			841901-02-01		841901-02-01		
	UNITS	SED-6	RDL	QC Batch	SED-7	RDL	QC Batch	SED-8	RDL	SED-DUP-1	RDL	QC Batch
Inorganics												
Moisture	%	15	1.0	7560553	92	1.0	7560618	83	1.0	85	1.0	7560553
F2-F4 Hydrocarbons												
F2 (C10-C16 Hydrocarbons)	ug/g	<10	10	7563026	<30	30	7563026	<10	10	<20	20	7563026
F3 (C16-C34 Hydrocarbons)	ug/g	<50	50	7563026	<150	150	7563026	<50	50	<100	100	7563026
F4 (C34-C50 Hydrocarbons)	ug/g	<50	50	7563026	<150	150	7563026	<50	50	<100	100	7563026
Reached Baseline at C50	ug/g	Yes		7563026	Yes		7563026	Yes		Yes		7563026
Surrogate Recovery (%)												
o-Terphenyl	%	103		7563026	88		7563026	82		82		7563026

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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CCME ICPMS METALS (SEDIMENT)

BV Labs ID		QNY959	QNY960	QNY961	QNY962	QNY963		
Sampling Date		2021/08/25 11:00	2021/08/25 11:00	2021/08/25 11:00	2021/08/25 11:00	2021/08/25 11:00		
COC Number		841901-02-01	841901-02-01	841901-02-01	841901-02-01	841901-02-01		
	UNITS	SED-1	SED-2	SED-3	SED-4	SED-5	RDL	QC Batch
Metals								
Acid Extractable Antimony (Sb)	ug/g	<0.20	<0.20	<0.20	<0.20	0.27	0.20	7562906
Acid Extractable Arsenic (As)	ug/g	1.5	<1.0	1.8	1.2	<1.0	1.0	7562906
Acid Extractable Barium (Ba)	ug/g	20	18	27	17	30	0.50	7562906
Acid Extractable Beryllium (Be)	ug/g	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	7562906
Acid Extractable Boron (B)	ug/g	<5.0	<5.0	<5.0	<5.0	<5.0	5.0	7562906
Acid Extractable Cadmium (Cd)	ug/g	<0.10	<0.10	<0.10	<0.10	0.32	0.10	7562906
Acid Extractable Chromium (Cr)	ug/g	18	20	20	18	14	1.0	7562906
Acid Extractable Cobalt (Co)	ug/g	2.9	2.7	19	2.9	2.8	0.10	7562906
Acid Extractable Copper (Cu)	ug/g	5.0	8.0	15	5.4	16	0.50	7562906
Acid Extractable Lead (Pb)	ug/g	3.1	2.7	74	3.1	11	1.0	7562906
Acid Extractable Molybdenum (Mo)	ug/g	0.86	1.1	8.5	0.99	1.9	0.50	7562906
Acid Extractable Nickel (Ni)	ug/g	5.4	5.4	20	4.6	5.9	0.50	7562906
Acid Extractable Selenium (Se)	ug/g	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	7562906
Acid Extractable Silver (Ag)	ug/g	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	7562906
Acid Extractable Thallium (Tl)	ug/g	<0.050	<0.050	<0.050	<0.050	0.062	0.050	7562906
Acid Extractable Tin (Sn)	ug/g	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	7562906
Acid Extractable Uranium (U)	ug/g	0.47	0.80	2.1	0.74	1.5	0.050	7562906
Acid Extractable Vanadium (V)	ug/g	41	47	45	41	21	5.0	7562906
Acid Extractable Zinc (Zn)	ug/g	33	29	84	36	87	5.0	7562906
Acid Extractable Mercury (Hg)	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	7562906

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

CCME ICPMS METALS (SEDIMENT)

BV Labs ID		QNY964	QNY965		QNY966		QNY967		
Sampling Date		2021/08/25 11:00	2021/08/25 11:00		2021/08/25 11:00		2021/08/25 11:00		
COC Number		841901-02-01	841901-02-01		841901-02-01		841901-02-01		
	UNITS	SED-6	SED-7	QC Batch	SED-8	QC Batch	SED-DUP-1	RDL	QC Batch
Metals									
Acid Extractable Antimony (Sb)	ug/g	<0.20	0.66	7562906	0.50	7563966	0.37	0.20	7562906
Acid Extractable Arsenic (As)	ug/g	<1.0	4.0	7562906	4.6	7563966	4.4	1.0	7562906
Acid Extractable Barium (Ba)	ug/g	24	78	7562906	130	7563966	79	0.50	7562906
Acid Extractable Beryllium (Be)	ug/g	<0.20	0.26	7562906	0.23	7563966	0.21	0.20	7562906
Acid Extractable Boron (B)	ug/g	<5.0	7.2	7562906	6.6	7563966	8.2	5.0	7562906
Acid Extractable Cadmium (Cd)	ug/g	0.12	0.59	7562906	0.29	7563966	0.36	0.10	7562906
Acid Extractable Chromium (Cr)	ug/g	26	27	7562906	15	7563966	20	1.0	7562906
Acid Extractable Cobalt (Co)	ug/g	3.5	12	7562906	14	7563966	12	0.10	7562906
Acid Extractable Copper (Cu)	ug/g	12	27	7562906	24	7563966	20	0.50	7562906
Acid Extractable Lead (Pb)	ug/g	6.0	49	7562906	31	7563966	22	1.0	7562906
Acid Extractable Molybdenum (Mo)	ug/g	1.9	1.7	7562906	1.5	7563966	1.7	0.50	7562906
Acid Extractable Nickel (Ni)	ug/g	5.9	13	7562906	12	7563966	10	0.50	7562906
Acid Extractable Selenium (Se)	ug/g	<0.50	<0.50	7562906	<0.50	7563966	<0.50	0.50	7562906
Acid Extractable Silver (Ag)	ug/g	<0.20	<0.20	7562906	<0.20	7563966	<0.20	0.20	7562906
Acid Extractable Thallium (Tl)	ug/g	<0.050	0.064	7562906	<0.050	7563966	<0.050	0.050	7562906
Acid Extractable Tin (Sn)	ug/g	1.2	2.7	7562906	<1.0	7563966	1.1	1.0	7562906
Acid Extractable Uranium (U)	ug/g	1.1	0.72	7562906	0.74	7563966	0.67	0.050	7562906
Acid Extractable Vanadium (V)	ug/g	54	44	7562906	27	7563966	36	5.0	7562906
Acid Extractable Zinc (Zn)	ug/g	47	340	7562906	200	7563966	460	5.0	7562906
Acid Extractable Mercury (Hg)	ug/g	<0.050	0.054	7562906	0.061	7563966	<0.050	0.050	7562906

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

CCME PAHS (WATER)

BV Labs ID		QNY926		
Sampling Date		2021/08/25 11:00		
COC Number		841901-01-01		
	UNITS	SW-8	RDL	QC Batch
Polyaromatic Hydrocarbons				
Benzo(a)pyrene Total Potency Equiv.	ug/L	<0.010	0.010	7574001
Acenaphthene	ug/L	<0.10	0.10	7574002
Acenaphthylene	ug/L	<0.10	0.10	7574002
Acridine	ug/L	<0.040	0.040	7574002
Anthracene	ug/L	<0.010	0.010	7574002
Benzo(a)anthracene	ug/L	<0.0085	0.0085	7574002
Benzo(b/j)fluoranthene	ug/L	<0.0085	0.0085	7574002
Benzo(k)fluoranthene	ug/L	<0.0085	0.0085	7574002
Benzo(g,h,i)perylene	ug/L	0.010	0.0085	7574002
Benzo(c)phenanthrene	ug/L	<0.050	0.050	7574002
Benzo(a)pyrene	ug/L	<0.0075	0.0075	7574002
Benzo(e)pyrene	ug/L	<0.050	0.050	7574002
Chrysene	ug/L	<0.0085	0.0085	7574002
Dibenzo(a,h)anthracene	ug/L	<0.0075	0.0075	7574002
Fluoranthene	ug/L	<0.010	0.010	7574002
Fluorene	ug/L	<0.050	0.050	7574002
Indeno(1,2,3-cd)pyrene	ug/L	<0.0085	0.0085	7574002
1-Methylnaphthalene	ug/L	<0.10	0.10	7574002
2-Methylnaphthalene	ug/L	<0.10	0.10	7574002
Naphthalene	ug/L	<0.10	0.10	7574002
Phenanthrene	ug/L	<0.050	0.050	7574002
Perylene	ug/L	<0.050	0.050	7574002
Pyrene	ug/L	<0.020	0.020	7574002
Quinoline	ug/L	<0.20	0.20	7574002
Surrogate Recovery (%)				
D10-Anthracene	%	126		7574002
D14-Terphenyl	%	101		7574002
D8-Acenaphthylene	%	117		7574002
D8-Naphthalene	%	85		7574002

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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CCME PHCS, BTEX/F1-F4 (WATER)

BV Labs ID		QNY919			QNY919			QNY920	QNY921		
Sampling Date		2021/08/25 11:00			2021/08/25 11:00			2021/08/25 11:00	2021/08/25 11:00		
COC Number		841901-01-01			841901-01-01			841901-01-01	841901-01-01		
	UNITS	**SW-1**	**RDL**	**QC Batch**	**SW-1 Lab-Dup**	**RDL**	**QC Batch**	**SW-2**	**SW-3**	**RDL**	**QC Batch**
BTEX & F1 Hydrocarbons											
Benzene	ug/L	<0.20	0.20	7561803	<0.20	0.20	7561803	<0.20	<0.20	0.20	7561803
Toluene	ug/L	<0.20	0.20	7561803	<0.20	0.20	7561803	<0.20	<0.20	0.20	7561803
Ethylbenzene	ug/L	<0.20	0.20	7561803	<0.20	0.20	7561803	<0.20	<0.20	0.20	7561803
o-Xylene	ug/L	<0.20	0.20	7561803	<0.20	0.20	7561803	<0.20	<0.20	0.20	7561803
p+m-Xylene	ug/L	<0.40	0.40	7561803	<0.40	0.40	7561803	<0.40	<0.40	0.40	7561803
Total Xylenes	ug/L	<0.40	0.40	7561803	<0.40	0.40	7561803	<0.40	<0.40	0.40	7561803
F1 (C6-C10)	ug/L	<25	25	7561803	<25	25	7561803	<25	<25	25	7561803
F1 (C6-C10) - BTEX	ug/L	<25	25	7561803	<25	25	7561803	<25	<25	25	7561803
F2-F4 Hydrocarbons											
F2 (C10-C16 Hydrocarbons)	ug/L	<100	100	7562568				<100	<100	100	7562568
F3 (C16-C34 Hydrocarbons)	ug/L	<200	200	7562568				<200	<200	200	7562568
F4 (C34-C50 Hydrocarbons)	ug/L	<200	200	7562568				<200	<200	200	7562568
Reached Baseline at C50	ug/L	Yes		7562568				Yes	Yes		7562568
Surrogate Recovery (%)											
1,4-Difluorobenzene	%	103		7561803	105		7561803	102	101		7561803
4-Bromofluorobenzene	%	91		7561803	89		7561803	86	99		7561803
D10-o-Xylene	%	109		7561803	109		7561803	109	108		7561803
D4-1,2-Dichloroethane	%	99		7561803	96		7561803	98	98		7561803
o-Terphenyl	%	91		7562568				90	89		7562568

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate

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CCME PHCS, BTEX/F1-F4 (WATER)

BV Labs ID		QNY922			QNY922			QNY923		
Sampling Date		2021/08/25 11:00			2021/08/25 11:00			2021/08/25 11:00		
COC Number		841901-01-01			841901-01-01			841901-01-01		
	UNITS	SW-4	RDL	QC Batch	SW-4 Lab-Dup	RDL	QC Batch	SW-5	RDL	QC Batch
BTEX & F1 Hydrocarbons										
Benzene	ug/L	<0.20	0.20	7561803				<0.20	0.20	7561803
Toluene	ug/L	<0.20	0.20	7561803				<0.20	0.20	7561803
Ethylbenzene	ug/L	<0.20	0.20	7561803				<0.20	0.20	7561803
o-Xylene	ug/L	<0.20	0.20	7561803				<0.20	0.20	7561803
p+m-Xylene	ug/L	<0.40	0.40	7561803				<0.40	0.40	7561803
Total Xylenes	ug/L	<0.40	0.40	7561803				<0.40	0.40	7561803
F1 (C6-C10)	ug/L	<25	25	7561803				<25	25	7561803
F1 (C6-C10) - BTEX	ug/L	<25	25	7561803				<25	25	7561803
F2-F4 Hydrocarbons										
F2 (C10-C16 Hydrocarbons)	ug/L	<100	100	7562568	<100	100	7562568	<100	100	7562568
F3 (C16-C34 Hydrocarbons)	ug/L	<200	200	7562568	<200	200	7562568	<200	200	7562568
F4 (C34-C50 Hydrocarbons)	ug/L	<200	200	7562568	<200	200	7562568	<200	200	7562568
Reached Baseline at C50	ug/L	Yes		7562568	Yes		7562568	Yes		7562568
Surrogate Recovery (%)										
1,4-Difluorobenzene	%	103		7561803				102		7561803
4-Bromofluorobenzene	%	95		7561803				89		7561803
D10-o-Xylene	%	107		7561803				103		7561803
D4-1,2-Dichloroethane	%	100		7561803				102		7561803
o-Terphenyl	%	92		7562568	91		7562568	89		7562568

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate

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CCME PHCS, BTEX/F1-F4 (WATER)

BV Labs ID		QNY924	QNY925	QNY926	QNY927		
Sampling Date		2021/08/25 11:00	2021/08/25 11:00	2021/08/25 11:00	2021/08/25 11:00		
COC Number		841901-01-01	841901-01-01	841901-01-01	841901-01-01		
	UNITS	SW-6	SW-7	SW-8	SW-DUP-1	RDL	QC Batch
BTEX & F1 Hydrocarbons							
Benzene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	7561803
Toluene	ug/L	<0.20	<0.20	0.24	<0.20	0.20	7561803
Ethylbenzene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	7561803
o-Xylene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	7561803
p+m-Xylene	ug/L	<0.40	<0.40	<0.40	<0.40	0.40	7561803
Total Xylenes	ug/L	<0.40	<0.40	<0.40	<0.40	0.40	7561803
F1 (C6-C10)	ug/L	<25	<25	<25	<25	25	7561803
F1 (C6-C10) - BTEX	ug/L	<25	<25	<25	<25	25	7561803
F2-F4 Hydrocarbons							
F2 (C10-C16 Hydrocarbons)	ug/L	<100	<100	<100	<100	100	7562555
F3 (C16-C34 Hydrocarbons)	ug/L	<200	<200	<200	<200	200	7562555
F4 (C34-C50 Hydrocarbons)	ug/L	<200	<200	<200	<200	200	7562555
Reached Baseline at C50	ug/L	Yes	Yes	Yes	Yes		7562555
Surrogate Recovery (%)							
1,4-Difluorobenzene	%	103	102	105	100		7561803
4-Bromofluorobenzene	%	88	95	93	99		7561803
D10-o-Xylene	%	105	101	111	100		7561803
D4-1,2-Dichloroethane	%	103	103	99	106		7561803
o-Terphenyl	%	93	94	94	93		7562555

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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O.REG 153 PCBS (SOIL)

BV Labs ID		QNY959		QNY960		QNY961	QNY962		
Sampling Date		2021/08/25 11:00		2021/08/25 11:00		2021/08/25 11:00	2021/08/25 11:00		
COC Number		841901-02-01		841901-02-01		841901-02-01	841901-02-01		
	UNITS	SED-1	QC Batch	SED-2	QC Batch	SED-3	SED-4	RDL	QC Batch
PCBs									
Aroclor 1242	ug/g	<0.010	7562736	<0.010	7561627	<0.010	<0.010	0.010	7562736
Aroclor 1248	ug/g	0.011	7562736	<0.010	7561627	0.012	0.014	0.010	7562736
Aroclor 1254	ug/g	<0.010	7562736	<0.010	7561627	<0.010	<0.010	0.010	7562736
Aroclor 1260	ug/g	<0.010	7562736	<0.010	7561627	<0.010	0.012	0.010	7562736
Total PCB	ug/g	0.011	7562736	<0.010	7561627	0.012	0.027	0.010	7562736
Surrogate Recovery (%)									
Decachlorobiphenyl	%	97	7562736	127	7561627	113	102		7562736

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

BV Labs ID		QNY963		QNY964	QNY964			QNY965		
Sampling Date		2021/08/25 11:00		2021/08/25 11:00	2021/08/25 11:00			2021/08/25 11:00		
COC Number		841901-02-01		841901-02-01	841901-02-01			841901-02-01		
	UNITS	SED-5	RDL	SED-6	SED-6 Lab-Dup	RDL	QC Batch	SED-7	RDL	QC Batch
PCBs										
Aroclor 1242	ug/g	<0.020	0.020	<0.010	<0.010	0.010	7562736	<0.15	0.15	7568973
Aroclor 1248	ug/g	<0.020	0.020	0.011	0.012	0.010	7562736	<0.15	0.15	7568973
Aroclor 1254	ug/g	<0.020	0.020	<0.010	<0.010	0.010	7562736	0.17	0.15	7568973
Aroclor 1260	ug/g	0.082	0.020	0.023	0.024	0.010	7562736	1.8	0.15	7568973
Total PCB	ug/g	0.082	0.020	0.035	0.036	0.010	7562736	1.9	0.15	7568973
Surrogate Recovery (%)										
Decachlorobiphenyl	%	103		96	95		7562736	113		7568973

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate

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O.REG 153 PCBS (SOIL)

BV Labs ID		QNY966		QNY967		
Sampling Date		2021/08/25 11:00		2021/08/25 11:00		
COC Number		841901-02-01		841901-02-01		
	UNITS	SED-8	RDL	SED-DUP-1	RDL	QC Batch
PCBs						
Aroclor 1242	ug/g	<0.060	0.060	<0.070	0.070	7562736
Aroclor 1248	ug/g	<0.060	0.060	<0.070	0.070	7562736
Aroclor 1254	ug/g	<0.060	0.060	<0.070	0.070	7562736
Aroclor 1260	ug/g	<0.060	0.060	<0.070	0.070	7562736
Total PCB	ug/g	<0.060	0.060	<0.070	0.070	7562736
Surrogate Recovery (%)						
Decachlorobiphenyl	%	126		105		7562736

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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VOLATILE ORGANICS BY GC/MS (SEDIMENT)

BV Labs ID		QNY959	QNY960	QNY961	QNY962		QNY963		
Sampling Date		2021/08/25 11:00	2021/08/25 11:00	2021/08/25 11:00	2021/08/25 11:00		2021/08/25 11:00		
COC Number		841901-02-01	841901-02-01	841901-02-01	841901-02-01		841901-02-01		
	UNITS	SED-1	SED-2	SED-3	SED-4	RDL	SED-5	RDL	QC Batch
Volatile Organics									
Acetone (2-Propanone)	ug/g	<0.49	<0.49	<0.49	<0.49	0.49	1.3	0.98	7562153
Benzene	ug/g	<0.0060	<0.0060	<0.0060	<0.0060	0.0060	<0.012	0.012	7562153
Bromodichloromethane	ug/g	<0.040	<0.040	<0.040	<0.040	0.040	<0.080	0.080	7562153
Bromoform	ug/g	<0.040	<0.040	<0.040	<0.040	0.040	<0.080	0.080	7562153
Bromomethane	ug/g	<0.040	<0.040	<0.040	<0.040	0.040	<0.080	0.080	7562153
Carbon Tetrachloride	ug/g	<0.040	<0.040	<0.040	<0.040	0.040	<0.080	0.080	7562153
Chlorobenzene	ug/g	<0.040	<0.040	<0.040	<0.040	0.040	<0.080	0.080	7562153
Chloroform	ug/g	<0.040	<0.040	<0.040	<0.040	0.040	<0.080	0.080	7562153
Dibromochloromethane	ug/g	<0.040	<0.040	<0.040	<0.040	0.040	<0.080	0.080	7562153
1,2-Dichlorobenzene	ug/g	<0.040	<0.040	<0.040	<0.040	0.040	<0.080	0.080	7562153
1,3-Dichlorobenzene	ug/g	<0.040	<0.040	<0.040	<0.040	0.040	<0.080	0.080	7562153
1,4-Dichlorobenzene	ug/g	<0.040	<0.040	<0.040	<0.040	0.040	<0.080	0.080	7562153
Dichlorodifluoromethane (FREON 12)	ug/g	<0.040	<0.040	<0.040	<0.040	0.040	<0.080	0.080	7562153
1,1-Dichloroethane	ug/g	<0.040	<0.040	<0.040	<0.040	0.040	<0.080	0.080	7562153
1,2-Dichloroethane	ug/g	<0.049	<0.049	<0.049	<0.049	0.049	<0.098	0.098	7562153
1,1-Dichloroethylene	ug/g	<0.040	<0.040	<0.040	<0.040	0.040	<0.080	0.080	7562153
cis-1,2-Dichloroethylene	ug/g	<0.040	<0.040	<0.040	<0.040	0.040	<0.080	0.080	7562153
trans-1,2-Dichloroethylene	ug/g	<0.040	<0.040	<0.040	<0.040	0.040	<0.080	0.080	7562153
1,2-Dichloropropane	ug/g	<0.040	<0.040	<0.040	<0.040	0.040	<0.080	0.080	7562153
cis-1,3-Dichloropropene	ug/g	<0.030	<0.030	<0.030	<0.030	0.030	<0.060	0.060	7562153
trans-1,3-Dichloropropene	ug/g	<0.040	<0.040	<0.040	<0.040	0.040	<0.080	0.080	7562153
Ethylbenzene	ug/g	<0.010	<0.010	<0.010	<0.010	0.010	<0.020	0.020	7562153
Ethylene Dibromide	ug/g	<0.040	<0.040	<0.040	<0.040	0.040	<0.080	0.080	7562153
Hexane	ug/g	<0.040	<0.040	<0.040	<0.040	0.040	<0.080	0.080	7562153
Methylene Chloride(Dichloromethane)	ug/g	<0.049	<0.049	<0.049	<0.049	0.049	<0.098	0.098	7562153
Methyl Ethyl Ketone (2-Butanone)	ug/g	<0.40	<0.40	<0.40	<0.40	0.40	<0.80	0.80	7562153
Methyl Isobutyl Ketone	ug/g	<0.40	<0.40	<0.40	<0.40	0.40	<0.80	0.80	7562153
Methyl t-butyl ether (MTBE)	ug/g	<0.040	<0.040	<0.040	<0.040	0.040	<0.080	0.080	7562153
Styrene	ug/g	<0.040	<0.040	<0.040	<0.040	0.040	<0.080	0.080	7562153
1,1,1,2-Tetrachloroethane	ug/g	<0.040	<0.040	<0.040	<0.040	0.040	<0.080	0.080	7562153
1,1,2,2-Tetrachloroethane	ug/g	<0.040	<0.040	<0.040	<0.040	0.040	<0.080	0.080	7562153

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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VOLATILE ORGANICS BY GC/MS (SEDIMENT)

BV Labs ID		QNY959	QNY960	QNY961	QNY962		QNY963		
Sampling Date		2021/08/25 11:00	2021/08/25 11:00	2021/08/25 11:00	2021/08/25 11:00		2021/08/25 11:00		
COC Number		841901-02-01	841901-02-01	841901-02-01	841901-02-01		841901-02-01		
	UNITS	SED-1	SED-2	SED-3	SED-4	RDL	SED-5	RDL	QC Batch
Tetrachloroethylene	ug/g	<0.040	<0.040	<0.040	<0.040	0.040	<0.080	0.080	7562153
Toluene	ug/g	<0.020	<0.020	<0.020	<0.020	0.020	<0.040	0.040	7562153
1,1,1-Trichloroethane	ug/g	<0.040	<0.040	<0.040	<0.040	0.040	<0.080	0.080	7562153
1,1,2-Trichloroethane	ug/g	<0.040	<0.040	<0.040	<0.040	0.040	<0.080	0.080	7562153
Trichloroethylene	ug/g	<0.010	<0.010	<0.010	<0.010	0.010	<0.020	0.020	7562153
Trichlorofluoromethane (FREON 11)	ug/g	<0.040	<0.040	<0.040	<0.040	0.040	<0.080	0.080	7562153
Vinyl Chloride	ug/g	<0.019	<0.019	<0.019	<0.019	0.019	<0.038	0.038	7562153
p+m-Xylene	ug/g	<0.020	<0.020	<0.020	<0.020	0.020	<0.040	0.040	7562153
o-Xylene	ug/g	<0.020	<0.020	<0.020	<0.020	0.020	<0.040	0.040	7562153
Total Xylenes	ug/g	<0.020	<0.020	<0.020	<0.020	0.020	<0.040	0.040	7562153
F1 (C6-C10)	ug/g	<10	<10	<10	<10	10	<20	20	7562153
F1 (C6-C10) - BTEX	ug/g	<10	<10	<10	<10	10	<20	20	7562153
Surrogate Recovery (%)									
4-Bromofluorobenzene	%	96	97	96	97		97		7562153
D10-o-Xylene	%	96	91	101	90		82		7562153
D4-1,2-Dichloroethane	%	107	114	106	116		117		7562153
D8-Toluene	%	104	101	104	100		100		7562153

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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VOLATILE ORGANICS BY GC/MS (SEDIMENT)

BV Labs ID		QNY964	QNY964		QNY965		QNY966		
Sampling Date		2021/08/25 11:00	2021/08/25 11:00		2021/08/25 11:00		2021/08/25 11:00		
COC Number		841901-02-01	841901-02-01		841901-02-01		841901-02-01		
	UNITS	SED-6	SED-6 Lab-Dup	RDL	SED-7	RDL	SED-8	RDL	QC Batch
Volatile Organics									
Acetone (2-Propanone)	ug/g	<0.49	<0.49	0.49	<11	11	<5.9	5.9	7562153
Benzene	ug/g	<0.0060	<0.0060	0.0060	<0.14	0.14	<0.072	0.072	7562153
Bromodichloromethane	ug/g	<0.040	<0.040	0.040	<0.92	0.92	<0.48	0.48	7562153
Bromoform	ug/g	<0.040	<0.040	0.040	<0.92	0.92	<0.48	0.48	7562153
Bromomethane	ug/g	<0.040	<0.040	0.040	<0.92	0.92	<0.48	0.48	7562153
Carbon Tetrachloride	ug/g	<0.040	<0.040	0.040	<0.92	0.92	<0.48	0.48	7562153
Chlorobenzene	ug/g	<0.040	<0.040	0.040	<0.92	0.92	<0.48	0.48	7562153
Chloroform	ug/g	<0.040	<0.040	0.040	<0.92	0.92	<0.48	0.48	7562153
Dibromochloromethane	ug/g	<0.040	<0.040	0.040	<0.92	0.92	<0.48	0.48	7562153
1,2-Dichlorobenzene	ug/g	<0.040	<0.040	0.040	<0.92	0.92	<0.48	0.48	7562153
1,3-Dichlorobenzene	ug/g	<0.040	<0.040	0.040	<0.92	0.92	<0.48	0.48	7562153
1,4-Dichlorobenzene	ug/g	<0.040	<0.040	0.040	<0.92	0.92	<0.48	0.48	7562153
Dichlorodifluoromethane (FREON 12)	ug/g	<0.040	<0.040	0.040	<0.92	0.92	<0.48	0.48	7562153
1,1-Dichloroethane	ug/g	<0.040	<0.040	0.040	<0.92	0.92	<0.48	0.48	7562153
1,2-Dichloroethane	ug/g	<0.049	<0.049	0.049	<1.1	1.1	<0.59	0.59	7562153
1,1-Dichloroethylene	ug/g	<0.040	<0.040	0.040	<0.92	0.92	<0.48	0.48	7562153
cis-1,2-Dichloroethylene	ug/g	<0.040	<0.040	0.040	<0.92	0.92	<0.48	0.48	7562153
trans-1,2-Dichloroethylene	ug/g	<0.040	<0.040	0.040	<0.92	0.92	<0.48	0.48	7562153
1,2-Dichloropropane	ug/g	<0.040	<0.040	0.040	<0.92	0.92	<0.48	0.48	7562153
cis-1,3-Dichloropropene	ug/g	<0.030	<0.030	0.030	<0.69	0.69	<0.36	0.36	7562153
trans-1,3-Dichloropropene	ug/g	<0.040	<0.040	0.040	<0.92	0.92	<0.48	0.48	7562153
Ethylbenzene	ug/g	<0.010	<0.010	0.010	<0.23	0.23	<0.12	0.12	7562153
Ethylene Dibromide	ug/g	<0.040	<0.040	0.040	<0.92	0.92	<0.48	0.48	7562153
Hexane	ug/g	<0.040	<0.040	0.040	<0.92	0.92	<0.48	0.48	7562153
Methylene Chloride(Dichloromethane)	ug/g	<0.049	<0.049	0.049	<1.1	1.1	<0.59	0.59	7562153
Methyl Ethyl Ketone (2-Butanone)	ug/g	<0.40	<0.40	0.40	<9.2	9.2	<4.8	4.8	7562153
Methyl Isobutyl Ketone	ug/g	<0.40	<0.40	0.40	<9.2	9.2	<4.8	4.8	7562153
Methyl t-butyl ether (MTBE)	ug/g	<0.040	<0.040	0.040	<0.92	0.92	<0.48	0.48	7562153
Styrene	ug/g	<0.040	<0.040	0.040	<0.92	0.92	<0.48	0.48	7562153
1,1,1,2-Tetrachloroethane	ug/g	<0.040	<0.040	0.040	<0.92	0.92	<0.48	0.48	7562153
1,1,2,2-Tetrachloroethane	ug/g	<0.040	<0.040	0.040	<0.92	0.92	<0.48	0.48	7562153

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate

VOLATILE ORGANICS BY GC/MS (SEDIMENT)

BV Labs ID		QNY964	QNY964		QNY965		QNY966		
Sampling Date		2021/08/25 11:00	2021/08/25 11:00		2021/08/25 11:00		2021/08/25 11:00		
COC Number		841901-02-01	841901-02-01		841901-02-01		841901-02-01		
	UNITS	SED-6	SED-6 Lab-Dup	RDL	SED-7	RDL	SED-8	RDL	QC Batch
Tetrachloroethylene	ug/g	<0.040	<0.040	0.040	<0.92	0.92	<0.48	0.48	7562153
Toluene	ug/g	<0.020	<0.020	0.020	<0.46	0.46	<0.24	0.24	7562153
1,1,1-Trichloroethane	ug/g	<0.040	<0.040	0.040	<0.92	0.92	<0.48	0.48	7562153
1,1,2-Trichloroethane	ug/g	<0.040	<0.040	0.040	<0.92	0.92	<0.48	0.48	7562153
Trichloroethylene	ug/g	<0.010	<0.010	0.010	<0.23	0.23	<0.12	0.12	7562153
Trichlorofluoromethane (FREON 11)	ug/g	<0.040	<0.040	0.040	<0.92	0.92	<0.48	0.48	7562153
Vinyl Chloride	ug/g	<0.019	<0.019	0.019	<0.44	0.44	<0.23	0.23	7562153
p+m-Xylene	ug/g	<0.020	<0.020	0.020	<0.46	0.46	<0.24	0.24	7562153
o-Xylene	ug/g	<0.020	<0.020	0.020	<0.46	0.46	<0.24	0.24	7562153
Total Xylenes	ug/g	<0.020	<0.020	0.020	<0.46	0.46	<0.24	0.24	7562153
F1 (C6-C10)	ug/g	<10	<10	10	<230	230	<120	120	7562153
F1 (C6-C10) - BTEX	ug/g	<10	<10	10	<230	230	<120	120	7562153
Surrogate Recovery (%)									
4-Bromofluorobenzene	%	97	97		97		96		7562153
D10-o-Xylene	%	88	89		91		89		7562153
D4-1,2-Dichloroethane	%	117	113		111		109		7562153
D8-Toluene	%	100	102		102		102		7562153

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate

VOLATILE ORGANICS BY GC/MS (SEDIMENT)

BV Labs ID		QNY967		
Sampling Date		2021/08/25 11:00		
COC Number		841901-02-01		
	UNITS	SED-DUP-1	RDL	QC Batch
Volatile Organics				
Acetone (2-Propanone)	ug/g	<5.4	5.4	7562153
Benzene	ug/g	<0.066	0.066	7562153
Bromodichloromethane	ug/g	<0.44	0.44	7562153
Bromoform	ug/g	<0.44	0.44	7562153
Bromomethane	ug/g	<0.44	0.44	7562153
Carbon Tetrachloride	ug/g	<0.44	0.44	7562153
Chlorobenzene	ug/g	<0.44	0.44	7562153
Chloroform	ug/g	<0.44	0.44	7562153
Dibromochloromethane	ug/g	<0.44	0.44	7562153
1,2-Dichlorobenzene	ug/g	<0.44	0.44	7562153
1,3-Dichlorobenzene	ug/g	<0.44	0.44	7562153
1,4-Dichlorobenzene	ug/g	<0.44	0.44	7562153
Dichlorodifluoromethane (FREON 12)	ug/g	<0.44	0.44	7562153
1,1-Dichloroethane	ug/g	<0.44	0.44	7562153
1,2-Dichloroethane	ug/g	<0.54	0.54	7562153
1,1-Dichloroethylene	ug/g	<0.44	0.44	7562153
cis-1,2-Dichloroethylene	ug/g	<0.44	0.44	7562153
trans-1,2-Dichloroethylene	ug/g	<0.44	0.44	7562153
1,2-Dichloropropane	ug/g	<0.44	0.44	7562153
cis-1,3-Dichloropropene	ug/g	<0.33	0.33	7562153
trans-1,3-Dichloropropene	ug/g	<0.44	0.44	7562153
Ethylbenzene	ug/g	<0.11	0.11	7562153
Ethylene Dibromide	ug/g	<0.44	0.44	7562153
Hexane	ug/g	<0.44	0.44	7562153
Methylene Chloride(Dichloromethane)	ug/g	<0.54	0.54	7562153
Methyl Ethyl Ketone (2-Butanone)	ug/g	<4.4	4.4	7562153
Methyl Isobutyl Ketone	ug/g	<4.4	4.4	7562153
Methyl t-butyl ether (MTBE)	ug/g	<0.44	0.44	7562153
Styrene	ug/g	<0.44	0.44	7562153
1,1,1,2-Tetrachloroethane	ug/g	<0.44	0.44	7562153
1,1,2,2-Tetrachloroethane	ug/g	<0.44	0.44	7562153

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

VOLATILE ORGANICS BY GC/MS (SEDIMENT)

BV Labs ID		QNY967		
Sampling Date		2021/08/25 11:00		
COC Number		841901-02-01		
	UNITS	SED-DUP-1	RDL	QC Batch
Tetrachloroethylene	ug/g	<0.44	0.44	7562153
Toluene	ug/g	<0.22	0.22	7562153
1,1,1-Trichloroethane	ug/g	<0.44	0.44	7562153
1,1,2-Trichloroethane	ug/g	<0.44	0.44	7562153
Trichloroethylene	ug/g	<0.11	0.11	7562153
Trichlorofluoromethane (FREON 11)	ug/g	<0.44	0.44	7562153
Vinyl Chloride	ug/g	<0.21	0.21	7562153
p+m-Xylene	ug/g	<0.22	0.22	7562153
o-Xylene	ug/g	<0.22	0.22	7562153
Total Xylenes	ug/g	<0.22	0.22	7562153
F1 (C6-C10)	ug/g	<110	110	7562153
F1 (C6-C10) - BTEX	ug/g	<110	110	7562153
Surrogate Recovery (%)				
4-Bromofluorobenzene	%	96		7562153
D10-o-Xylene	%	88		7562153
D4-1,2-Dichloroethane	%	116		7562153
D8-Toluene	%	101		7562153

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

BV Labs Job #: C1P2295
Report Date: 2021/09/13

BluMetric Environmental Inc
Client Project #: 210561
Sampler Initials: DN

RESULTS OF ANALYSES OF WATER

BV Labs ID		QNY919			QNY919			QNY920		
Sampling Date		2021/08/25 11:00			2021/08/25 11:00			2021/08/25 11:00		
COC Number		841901-01-01			841901-01-01			841901-01-01		
	UNITS	SW-1	RDL	QC Batch	SW-1 Lab-Dup	RDL	QC Batch	SW-2	RDL	QC Batch
Calculated Parameters										
Hardness (CaCO3)	mg/L	380	1.0	7558603				68	1.0	7558603
Inorganics										
Total Ammonia-N	mg/L	<0.050	0.050	7562724	<0.050	0.050	7562724	<0.050	0.050	7562724
Conductivity	umho/cm	3900	1.0	7564134				660	1.0	7564134
Total Dissolved Solids	mg/L	2220	10	7560686				350	10	7560686
Fluoride (F-)	mg/L	0.16	0.10	7564128				<0.10	0.10	7564128
pH	pH	7.60		7564124				7.55		7564124
Total Suspended Solids	mg/L	10	1	7560498				2	1	7560498
Dissolved Sulphate (SO4)	mg/L	160	1.0	7563954				29	1.0	7563954
Sulphide	mg/L	<0.020	0.020	7562446				<0.020	0.020	7562446
Total Cyanide (CN)	mg/L	<0.0050	0.0050	7567668	<0.0050	0.0050	7567668	<0.0050	0.0050	7567668
WAD Cyanide (Free)	mg/L	<0.0010	0.0010	7567661	<0.0010	0.0010	7567661	<0.0010	0.0010	7567661
Dissolved Chloride (Cl-)	mg/L	1100	15	7563949				160	2.0	7563949
Nitrite (N)	mg/L	<0.010	0.010	7564117				<0.010	0.010	7564117
Nitrate (N)	mg/L	<0.10	0.10	7564117				<0.10	0.10	7564117
Nitrate + Nitrite (N)	mg/L	<0.10	0.10	7564117				<0.10	0.10	7564117

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate

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BV Labs Job #: C1P2295
Report Date: 2021/09/13

BluMetric Environmental Inc
Client Project #: 210561
Sampler Initials: DN

RESULTS OF ANALYSES OF WATER

BV Labs ID		QNY921			QNY921			QNY922		
Sampling Date		2021/08/25 11:00			2021/08/25 11:00			2021/08/25 11:00		
COC Number		841901-01-01			841901-01-01			841901-01-01		
	UNITS	SW-3	RDL	QC Batch	SW-3 Lab-Dup	RDL	QC Batch	SW-4	RDL	QC Batch
Calculated Parameters										
Hardness (CaCO3)	mg/L	140	1.0	7558603				93	1.0	7558603
Inorganics										
Total Ammonia-N	mg/L	<0.050	0.050	7562724				<0.050	0.050	7562724
Conductivity	umho/cm	1400	1.0	7564134				790	1.0	7564134
Total Dissolved Solids	mg/L	840	10	7560686	845	10	7560686	455	10	7560686
Fluoride (F-)	mg/L	<0.10	0.10	7564128				<0.10	0.10	7564128
pH	pH	7.62		7564124				7.72		7564124
Total Suspended Solids	mg/L	2	1	7560498				1	1	7560498
Dissolved Sulphate (SO4)	mg/L	62	1.0	7563954				33	1.0	7563954
Sulphide	mg/L	<0.020	0.020	7562446				<0.020	0.020	7562446
Total Cyanide (CN)	mg/L	<0.0050	0.0050	7567668				<0.0050	0.0050	7567668
WAD Cyanide (Free)	mg/L	<0.0010	0.0010	7567661				<0.0010	0.0010	7567661
Dissolved Chloride (Cl-)	mg/L	380	5.0	7563949				190	2.0	7563949
Nitrite (N)	mg/L	<0.010	0.010	7564117				<0.010	0.010	7564117
Nitrate (N)	mg/L	<0.10	0.10	7564117				<0.10	0.10	7564117
Nitrate + Nitrite (N)	mg/L	<0.10	0.10	7564117				<0.10	0.10	7564117

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate

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BV Labs Job #: C1P2295
Report Date: 2021/09/13

BluMetric Environmental Inc
Client Project #: 210561
Sampler Initials: DN

RESULTS OF ANALYSES OF WATER

BV Labs ID		QNY923	QNY924	QNY925	QNY926		
Sampling Date		2021/08/25 11:00	2021/08/25 11:00	2021/08/25 11:00	2021/08/25 11:00		
COC Number		841901-01-01	841901-01-01	841901-01-01	841901-01-01		
	UNITS	SW-5	SW-6	SW-7	SW-8	RDL	QC Batch
Calculated Parameters							
Hardness (CaCO3)	mg/L	39	40	47	49	1.0	7558603
Inorganics							
Total Ammonia-N	mg/L	0.052	0.052	0.67	0.65	0.050	7562724
Conductivity	umho/cm	100	100	120	120	1.0	7564134
Total Dissolved Solids	mg/L	55	70	95	90	10	7560686
Fluoride (F-)	mg/L	<0.10	<0.10	<0.10	<0.10	0.10	7564128
pH	pH	7.62	7.59	7.32	7.14		7564124
Total Suspended Solids	mg/L	1	2	6	8	1	7560498
Dissolved Sulphate (SO4)	mg/L	3.6	5.8	3.6	4.1	1.0	7563954
Sulphide	mg/L	<0.020	<0.020	<0.020	<0.020	0.020	7562446
Total Cyanide (CN)	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	7567668
WAD Cyanide (Free)	mg/L	<0.0010	<0.0010	0.0011	0.0010	0.0010	7567661
Dissolved Chloride (Cl-)	mg/L	9.2	8.2	7.6	6.6	1.0	7563949
Nitrite (N)	mg/L	<0.010	0.012	<0.010	0.012	0.010	7564117
Nitrate (N)	mg/L	0.12	0.21	0.28	0.35	0.10	7564117
Nitrate + Nitrite (N)	mg/L	0.12	0.23	0.28	0.36	0.10	7564117

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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RESULTS OF ANALYSES OF WATER

BV Labs ID		QNY926			QNY927		
Sampling Date		2021/08/25 11:00			2021/08/25 11:00		
COC Number		841901-01-01			841901-01-01		
	UNITS	SW-8 Lab-Dup	RDL	QC Batch	SW-DUP-1	RDL	QC Batch
Calculated Parameters							
Hardness (CaCO3)	mg/L				47	1.0	7558603
Inorganics							
Total Ammonia-N	mg/L				0.69	0.050	7562724
Conductivity	umho/cm				120	1.0	7564134
Total Dissolved Solids	mg/L				80	10	7560686
Fluoride (F-)	mg/L				<0.10	0.10	7564128
pH	pH				7.31		7564124
Total Suspended Solids	mg/L				5	1	7560498
Dissolved Sulphate (SO4)	mg/L				3.8	1.0	7563954
Sulphide	mg/L				<0.020	0.020	7562446
Total Cyanide (CN)	mg/L				<0.0050	0.0050	7567668
WAD Cyanide (Free)	mg/L				0.0010	0.0010	7567661
Dissolved Chloride (Cl-)	mg/L				7.1	1.0	7563949
Nitrite (N)	mg/L	0.013	0.010	7564117	<0.010	0.010	7564117
Nitrate (N)	mg/L	0.35	0.10	7564117	0.28	0.10	7564117
Nitrate + Nitrite (N)	mg/L	0.36	0.10	7564117	0.28	0.10	7564117

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate

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ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

BV Labs ID		QNY919	QNY919		QNY920		QNY921	QNY922		
Sampling Date		2021/08/25 11:00	2021/08/25 11:00		2021/08/25 11:00		2021/08/25 11:00	2021/08/25 11:00		
COC Number		841901-01-01	841901-01-01		841901-01-01		841901-01-01	841901-01-01		
	UNITS	SW-1	SW-1 Lab-Dup	RDL	SW-2	QC Batch	SW-3	SW-4	RDL	QC Batch
Metals										
Total Aluminum (Al)	ug/L	53	54	4.9	29	7564115	17	14	4.9	7564177
Total Antimony (Sb)	ug/L	<0.50	<0.50	0.50	<0.50	7564115	<0.50	<0.50	0.50	7564177
Total Arsenic (As)	ug/L	<1.0	<1.0	1.0	<1.0	7564115	<1.0	<1.0	1.0	7564177
Total Barium (Ba)	ug/L	2.1	2.0	2.0	<2.0	7564115	<2.0	<2.0	2.0	7564177
Total Beryllium (Be)	ug/L	<0.40	<0.40	0.40	<0.40	7564115	<0.40	<0.40	0.40	7564177
Total Bismuth (Bi)	ug/L	<1.0	<1.0	1.0	<1.0	7564115	<1.0	<1.0	1.0	7564177
Total Boron (B)	ug/L	320	320	10	74	7564115	150	66	10	7564177
Total Cadmium (Cd)	ug/L	<0.090	<0.090	0.090	<0.090	7564115	<0.090	<0.090	0.090	7564177
Total Calcium (Ca)	ug/L	29000	29000	200	8000	7564115	15000	13000	200	7564177
Total Chromium (Cr)	ug/L	<5.0	<5.0	5.0	<5.0	7564115	<5.0	<5.0	5.0	7564177
Total Cobalt (Co)	ug/L	<0.50	<0.50	0.50	<0.50	7564115	<0.50	<0.50	0.50	7564177
Total Copper (Cu)	ug/L	1.1	1.1	0.90	1.4	7564115	<0.90	<0.90	0.90	7564177
Total Iron (Fe)	ug/L	180	210	100	170	7564115	160	380	100	7564177
Total Lead (Pb)	ug/L	<0.50	<0.50	0.50	<0.50	7564115	<0.50	<0.50	0.50	7564177
Total Lithium (Li)	ug/L	11	12	5.0	<5.0	7564115	5.2	<5.0	5.0	7564177
Total Magnesium (Mg)	ug/L	72000	74000	50	11000	7564115	24000	14000	50	7564177
Total Manganese (Mn)	ug/L	5.6	5.9	2.0	5.1	7564115	21	23	2.0	7564177
Total Molybdenum (Mo)	ug/L	1.3	1.4	0.50	<0.50	7564115	0.81	0.63	0.50	7564177
Total Nickel (Ni)	ug/L	<1.0	<1.0	1.0	<1.0	7564115	<1.0	<1.0	1.0	7564177
Total Potassium (K)	ug/L	24000	25000	200	4300	7564115	8600	4000	200	7564177
Total Selenium (Se)	ug/L	<2.0	<2.0	2.0	<2.0	7564115	<2.0	<2.0	2.0	7564177
Total Silicon (Si)	ug/L	1200	1200	50	1300	7564115	1100	2000	50	7564177
Total Silver (Ag)	ug/L	<0.090	<0.090	0.090	<0.090	7564115	<0.090	<0.090	0.090	7564177
Total Sodium (Na)	ug/L	640000	640000	500	100000	7564115	220000	110000	100	7564177
Total Strontium (Sr)	ug/L	430	440	1.0	70	7564115	150	89	1.0	7564177
Total Tellurium (Te)	ug/L	<1.0	<1.0	1.0	<1.0	7564115	<1.0	<1.0	1.0	7564177
Total Thallium (Tl)	ug/L	<0.050	<0.050	0.050	<0.050	7564115	<0.050	<0.050	0.050	7564177
Total Tin (Sn)	ug/L	<1.0	<1.0	1.0	<1.0	7564115	<1.0	<1.0	1.0	7564177
Total Titanium (Ti)	ug/L	<5.0	<5.0	5.0	<5.0	7564115	<5.0	<5.0	5.0	7564177
Total Tungsten (W)	ug/L	<1.0	<1.0	1.0	<1.0	7564115	<1.0	<1.0	1.0	7564177
Total Uranium (U)	ug/L	0.20	0.20	0.10	<0.10	7564115	<0.10	<0.10	0.10	7564177

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate

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ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

BV Labs ID		QNY919	QNY919		QNY920		QNY921	QNY922		
Sampling Date		2021/08/25 11:00	2021/08/25 11:00		2021/08/25 11:00		2021/08/25 11:00	2021/08/25 11:00		
COC Number		841901-01-01	841901-01-01		841901-01-01		841901-01-01	841901-01-01		
	UNITS	SW-1	SW-1 Lab-Dup	RDL	SW-2	QC Batch	SW-3	SW-4	RDL	QC Batch
Total Vanadium (V)	ug/L	<0.50	<0.50	0.50	<0.50	7564115	<0.50	<0.50	0.50	7564177
Total Zinc (Zn)	ug/L	<5.0	<5.0	5.0	<5.0	7564115	<5.0	<5.0	5.0	7564177
Total Zirconium (Zr)	ug/L	<1.0	<1.0	1.0	<1.0	7564115	<1.0	<1.0	1.0	7564177

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate

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ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

BV Labs ID		QNY923	QNY924		QNY925	QNY926	QNY927		
Sampling Date		2021/08/25 11:00	2021/08/25 11:00		2021/08/25 11:00	2021/08/25 11:00	2021/08/25 11:00		
COC Number		841901-01-01	841901-01-01		841901-01-01	841901-01-01	841901-01-01		
	UNITS	SW-5	SW-6	QC Batch	SW-7	SW-8	SW-DUP-1	RDL	QC Batch
Metals									
Total Aluminum (Al)	ug/L	12	12	7564115	33	25	32	4.9	7564177
Total Antimony (Sb)	ug/L	<0.50	<0.50	7564115	<0.50	<0.50	<0.50	0.50	7564177
Total Arsenic (As)	ug/L	<1.0	<1.0	7564115	<1.0	<1.0	<1.0	1.0	7564177
Total Barium (Ba)	ug/L	<2.0	2.1	7564115	5.7	5.5	5.5	2.0	7564177
Total Beryllium (Be)	ug/L	<0.40	<0.40	7564115	<0.40	<0.40	<0.40	0.40	7564177
Total Bismuth (Bi)	ug/L	<1.0	<1.0	7564115	<1.0	<1.0	<1.0	1.0	7564177
Total Boron (B)	ug/L	14	16	7564115	<10	<10	<10	10	7564177
Total Cadmium (Cd)	ug/L	<0.090	<0.090	7564115	<0.090	<0.090	<0.090	0.090	7564177
Total Calcium (Ca)	ug/L	10000	12000	7564115	14000	15000	14000	200	7564177
Total Chromium (Cr)	ug/L	<5.0	<5.0	7564115	<5.0	<5.0	<5.0	5.0	7564177
Total Cobalt (Co)	ug/L	<0.50	<0.50	7564115	0.51	<0.50	<0.50	0.50	7564177
Total Copper (Cu)	ug/L	<0.90	<0.90	7564115	1.0	<0.90	0.99	0.90	7564177
Total Iron (Fe)	ug/L	650	670	7564115	3000	2300	2900	100	7564177
Total Lead (Pb)	ug/L	<0.50	<0.50	7564115	<0.50	<0.50	<0.50	0.50	7564177
Total Lithium (Li)	ug/L	<5.0	<5.0	7564115	<5.0	<5.0	<5.0	5.0	7564177
Total Magnesium (Mg)	ug/L	2500	2600	7564115	2700	2700	2600	50	7564177
Total Manganese (Mn)	ug/L	40	35	7564115	110	73	100	2.0	7564177
Total Molybdenum (Mo)	ug/L	<0.50	<0.50	7564115	<0.50	1.7	<0.50	0.50	7564177
Total Nickel (Ni)	ug/L	<1.0	<1.0	7564115	<1.0	<1.0	<1.0	1.0	7564177
Total Potassium (K)	ug/L	350	320	7564115	520	540	500	200	7564177
Total Selenium (Se)	ug/L	<2.0	<2.0	7564115	<2.0	<2.0	<2.0	2.0	7564177
Total Silicon (Si)	ug/L	2600	2900	7564115	2100	1900	2000	50	7564177
Total Silver (Ag)	ug/L	<0.090	<0.090	7564115	<0.090	<0.090	<0.090	0.090	7564177
Total Sodium (Na)	ug/L	5800	5200	7564115	4300	4100	4200	100	7564177
Total Strontium (Sr)	ug/L	29	31	7564115	46	49	44	1.0	7564177
Total Tellurium (Te)	ug/L	<1.0	<1.0	7564115	<1.0	<1.0	<1.0	1.0	7564177
Total Thallium (Tl)	ug/L	<0.050	<0.050	7564115	<0.050	<0.050	<0.050	0.050	7564177
Total Tin (Sn)	ug/L	<1.0	<1.0	7564115	<1.0	<1.0	<1.0	1.0	7564177
Total Titanium (Ti)	ug/L	<5.0	<5.0	7564115	<5.0	<5.0	<5.0	5.0	7564177
Total Tungsten (W)	ug/L	<1.0	<1.0	7564115	<1.0	<1.0	<1.0	1.0	7564177
Total Uranium (U)	ug/L	<0.10	<0.10	7564115	<0.10	<0.10	<0.10	0.10	7564177

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

BV Labs ID		QNY923	QNY924		QNY925	QNY926	QNY927		
Sampling Date		2021/08/25 11:00	2021/08/25 11:00		2021/08/25 11:00	2021/08/25 11:00	2021/08/25 11:00		
COC Number		841901-01-01	841901-01-01		841901-01-01	841901-01-01	841901-01-01		
	UNITS	**SW-5**	**SW-6**	**QC Batch**	**SW-7**	**SW-8**	**SW-DUP-1**	**RDL**	**QC Batch**
Total Vanadium (V)	ug/L	<0.50	<0.50	7564115	<0.50	<0.50	<0.50	0.50	7564177
Total Zinc (Zn)	ug/L	<5.0	<5.0	7564115	13	6.0	13	5.0	7564177
Total Zirconium (Zr)	ug/L	<1.0	<1.0	7564115	<1.0	<1.0	<1.0	1.0	7564177

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

PETROLEUM HYDROCARBONS (CCME)

BV Labs ID		QNY928		
Sampling Date		2021/08/25 11:00		
COC Number		841901-01-01		
	UNITS	TRIP BLANK	RDL	QC Batch
BTEX & F1 Hydrocarbons				
Benzene	ug/L	<0.20	0.20	7561803
Toluene	ug/L	<0.20	0.20	7561803
Ethylbenzene	ug/L	<0.20	0.20	7561803
o-Xylene	ug/L	<0.20	0.20	7561803
p+m-Xylene	ug/L	<0.40	0.40	7561803
Total Xylenes	ug/L	<0.40	0.40	7561803
F1 (C6-C10)	ug/L	<25	25	7561803
F1 (C6-C10) - BTEX	ug/L	<25	25	7561803
Surrogate Recovery (%)				
1,4-Difluorobenzene	%	105		7561803
4-Bromofluorobenzene	%	94		7561803
D10-o-Xylene	%	107		7561803
D4-1,2-Dichloroethane	%	96		7561803

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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POLYCHLORINATED BIPHENYLS BY GC-ECD (WATER)

BV Labs ID		QNY919	QNY920	QNY921	QNY922	QNY922	QNY923		
Sampling Date		2021/08/25 11:00	2021/08/25 11:00	2021/08/25 11:00	2021/08/25 11:00	2021/08/25 11:00	2021/08/25 11:00		
COC Number		841901-01-01	841901-01-01	841901-01-01	841901-01-01	841901-01-01	841901-01-01		
	UNITS	SW-1	SW-2	SW-3	SW-4	SW-4 Lab-Dup	SW-5	RDL	QC Batch
PCBs									
Aroclor 1016	ug/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	7562932
Aroclor 1221	ug/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	7562932
Aroclor 1232	ug/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	7562932
Aroclor 1242	ug/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	7562932
Aroclor 1248	ug/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	7562932
Aroclor 1254	ug/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	7562932
Aroclor 1260	ug/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	7562932
Aroclor 1262	ug/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	7562932
Aroclor 1268	ug/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	7562932
Total PCB	ug/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	7562932
Surrogate Recovery (%)									
Decachlorobiphenyl	%	105	106	97	100	104	106		7562932

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate

BV Labs ID		QNY924	QNY925	QNY926	QNY927		
Sampling Date		2021/08/25 11:00	2021/08/25 11:00	2021/08/25 11:00	2021/08/25 11:00		
COC Number		841901-01-01	841901-01-01	841901-01-01	841901-01-01		
	UNITS	SW-6	SW-7	SW-8	SW-DUP-1	RDL	QC Batch
PCBs							
Aroclor 1016	ug/L	<0.05	<0.05	<0.05	<0.05	0.05	7562932
Aroclor 1221	ug/L	<0.05	<0.05	<0.05	<0.05	0.05	7562932
Aroclor 1232	ug/L	<0.05	<0.05	<0.05	<0.05	0.05	7562932
Aroclor 1242	ug/L	<0.05	<0.05	<0.05	<0.05	0.05	7562932
Aroclor 1248	ug/L	<0.05	<0.05	<0.05	<0.05	0.05	7562932
Aroclor 1254	ug/L	<0.05	<0.05	<0.05	<0.05	0.05	7562932
Aroclor 1260	ug/L	<0.05	<0.05	<0.05	<0.05	0.05	7562932
Aroclor 1262	ug/L	<0.05	<0.05	<0.05	<0.05	0.05	7562932
Aroclor 1268	ug/L	<0.05	<0.05	<0.05	<0.05	0.05	7562932
Total PCB	ug/L	<0.05	<0.05	<0.05	<0.05	0.05	7562932
Surrogate Recovery (%)							
Decachlorobiphenyl	%	111	94	96	101		7562932

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	23.0°C
Package 2	22.0°C
Package 3	23.0°C
Package 4	23.0°C
Package 5	23.0°C
Package 6	21.7°C

PCB Analysis: Detection limits were adjusted for high moisture content.

Sample QNY926 [SW-8] : Sample was analyzed past method specified hold time for PAH in Water by GC/MS.

Sample QNY963 [SED-5] : VOCF1 Analysis: Detection limits were raised due to high moisture content of soil provided.

Sample QNY965 [SED-7] : F2-F4 Analysis: Detection limits were adjusted for high moisture content.

PCB Analysis: Detection limits were adjusted for high moisture content.

VOCF1 Analysis: Detection limits were raised due to high moisture content of soil provided.

Sample QNY966 [SED-8] : VOCF1 Analysis: Detection limits were raised due to high moisture content of soil provided.

Sample QNY967 [SED-DUP-1] : F2-F4 Analysis: Detection limits were adjusted for high moisture content.

VOCF1 Analysis: Detection limits were raised due to high moisture content of soil provided.

Results relate only to the items tested.

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BV Labs Job #: C1P2295
Report Date: 2021/09/13

QUALITY ASSURANCE REPORT

BluMetric Environmental Inc
Client Project #: 210561
Sampler Initials: DN

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
7561627	Decachlorobiphenyl	2021/09/07	108	60 - 130	113	60 - 130	108	%				
7561803	1,4-Difluorobenzene	2021/09/07	102	70 - 130	104	70 - 130	104	%				
7561803	4-Bromofluorobenzene	2021/09/07	99	70 - 130	101	70 - 130	91	%				
7561803	D10-o-Xylene	2021/09/07	94	70 - 130	99	70 - 130	106	%				
7561803	D4-1,2-Dichloroethane	2021/09/07	92	70 - 130	89	70 - 130	100	%				
7562153	4-Bromofluorobenzene	2021/09/08	99	60 - 140	98	60 - 140	98	%				
7562153	D10-o-Xylene	2021/09/08	89	60 - 130	96	60 - 130	87	%				
7562153	D4-1,2-Dichloroethane	2021/09/08	115	60 - 140	109	60 - 140	117	%				
7562153	D8-Toluene	2021/09/08	102	60 - 140	104	60 - 140	101	%				
7562555	o-Terphenyl	2021/09/07	95	60 - 130	94	60 - 130	95	%				
7562568	o-Terphenyl	2021/09/07	93	60 - 130	94	60 - 130	94	%				
7562736	Decachlorobiphenyl	2021/09/07	101	60 - 130	106	60 - 130	110	%				
7562932	Decachlorobiphenyl	2021/09/08	108	60 - 130	104	60 - 130	102	%				
7563026	o-Terphenyl	2021/09/08	92	60 - 130	95	60 - 130	100	%				
7568973	Decachlorobiphenyl	2021/09/10	76	60 - 130	82	60 - 130	90	%				
7574002	D10-Anthracene	2021/09/11			111	50 - 130	103	%				
7574002	D14-Terphenyl	2021/09/11			104	50 - 130	96	%				
7574002	D8-Acenaphthylene	2021/09/11			91	50 - 130	76	%				
7574002	D8-Naphthalene	2021/09/11			73	50 - 130	53	%				
7560498	Total Suspended Solids	2021/09/07					<1	mg/L	5.4	25	100	85 - 115
7560553	Moisture	2021/09/04							2.6	20		
7560618	Moisture	2021/09/04							0	20		
7560686	Total Dissolved Solids	2021/09/07					<10	mg/L	0.59	25	100	90 - 110
7561627	Aroclor 1242	2021/09/07					<0.010	ug/g	NC	50		
7561627	Aroclor 1248	2021/09/07					<0.010	ug/g	NC	50		
7561627	Aroclor 1254	2021/09/07					<0.010	ug/g	NC	50		
7561627	Aroclor 1260	2021/09/07	127	30 - 130	122	30 - 130	<0.010	ug/g	NC	50		
7561627	Total PCB	2021/09/07	127	30 - 130	122	30 - 130	<0.010	ug/g	NC	50		
7561803	Benzene	2021/09/07	100	50 - 140	103	50 - 140	<0.20	ug/L	NC	30		
7561803	Ethylbenzene	2021/09/07	107	50 - 140	113	50 - 140	<0.20	ug/L	NC	30		
7561803	F1 (C6-C10) - BTEX	2021/09/07					<25	ug/L	NC	30		

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QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
7561803	F1 (C6-C10)	2021/09/07	84	60 - 140	90	60 - 140	<25	ug/L	NC	30		
7561803	o-Xylene	2021/09/07	103	50 - 140	107	50 - 140	<0.20	ug/L	NC	30		
7561803	p+m-Xylene	2021/09/07	103	50 - 140	105	50 - 140	<0.40	ug/L	NC	30		
7561803	Toluene	2021/09/07	97	50 - 140	100	50 - 140	<0.20	ug/L	NC	30		
7561803	Total Xylenes	2021/09/07					<0.40	ug/L	NC	30		
7562153	1,1,1,2-Tetrachloroethane	2021/09/08	101	60 - 140	102	60 - 130	<0.040	ug/g	NC	50		
7562153	1,1,1-Trichloroethane	2021/09/08	113	60 - 140	115	60 - 130	<0.040	ug/g	NC	50		
7562153	1,1,2,2-Tetrachloroethane	2021/09/08	95	60 - 140	91	60 - 130	<0.040	ug/g	NC	50		
7562153	1,1,2-Trichloroethane	2021/09/08	116	60 - 140	113	60 - 130	<0.040	ug/g	NC	50		
7562153	1,1-Dichloroethane	2021/09/08	103	60 - 140	102	60 - 130	<0.040	ug/g	NC	50		
7562153	1,1-Dichloroethylene	2021/09/08	114	60 - 140	115	60 - 130	<0.040	ug/g	NC	50		
7562153	1,2-Dichlorobenzene	2021/09/08	103	60 - 140	106	60 - 130	<0.040	ug/g	NC	50		
7562153	1,2-Dichloroethane	2021/09/08	116	60 - 140	111	60 - 130	<0.049	ug/g	NC	50		
7562153	1,2-Dichloropropane	2021/09/08	103	60 - 140	100	60 - 130	<0.040	ug/g	NC	50		
7562153	1,3-Dichlorobenzene	2021/09/08	94	60 - 140	98	60 - 130	<0.040	ug/g	NC	50		
7562153	1,4-Dichlorobenzene	2021/09/08	111	60 - 140	114	60 - 130	<0.040	ug/g	NC	50		
7562153	Acetone (2-Propanone)	2021/09/08	96	60 - 140	89	60 - 140	<0.49	ug/g	NC	50		
7562153	Benzene	2021/09/08	89	60 - 140	89	60 - 130	<0.0060	ug/g	NC	50		
7562153	Bromodichloromethane	2021/09/08	113	60 - 140	110	60 - 130	<0.040	ug/g	NC	50		
7562153	Bromoform	2021/09/08	100	60 - 140	96	60 - 130	<0.040	ug/g	NC	50		
7562153	Bromomethane	2021/09/08	108	60 - 140	102	60 - 140	<0.040	ug/g	NC	50		
7562153	Carbon Tetrachloride	2021/09/08	117	60 - 140	119	60 - 130	<0.040	ug/g	NC	50		
7562153	Chlorobenzene	2021/09/08	97	60 - 140	98	60 - 130	<0.040	ug/g	NC	50		
7562153	Chloroform	2021/09/08	109	60 - 140	107	60 - 130	<0.040	ug/g	NC	50		
7562153	cis-1,2-Dichloroethylene	2021/09/08	101	60 - 140	99	60 - 130	<0.040	ug/g	NC	50		
7562153	cis-1,3-Dichloropropene	2021/09/08	105	60 - 140	96	60 - 130	<0.030	ug/g	NC	50		
7562153	Dibromochloromethane	2021/09/08	97	60 - 140	95	60 - 130	<0.040	ug/g	NC	50		
7562153	Dichlorodifluoromethane (FREON 12)	2021/09/08	93	60 - 140	97	60 - 140	<0.040	ug/g	NC	50		
7562153	Ethylbenzene	2021/09/08	93	60 - 140	96	60 - 130	<0.010	ug/g	NC	50		
7562153	Ethylene Dibromide	2021/09/08	91	60 - 140	88	60 - 130	<0.040	ug/g	NC	50		
7562153	F1 (C6-C10) - BTEX	2021/09/08					<10	ug/g	NC	30		

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
7562153	F1 (C6-C10)	2021/09/08	85	60 - 140	87	80 - 120	<10	ug/g	NC	30		
7562153	Hexane	2021/09/08	100	60 - 140	106	60 - 130	<0.040	ug/g	NC	50		
7562153	Methyl Ethyl Ketone (2-Butanone)	2021/09/08	96	60 - 140	88	60 - 140	<0.40	ug/g	NC	50		
7562153	Methyl Isobutyl Ketone	2021/09/08	104	60 - 140	95	60 - 130	<0.40	ug/g	NC	50		
7562153	Methyl t-butyl ether (MTBE)	2021/09/08	94	60 - 140	92	60 - 130	<0.040	ug/g	NC	50		
7562153	Methylene Chloride(Dichloromethane)	2021/09/08	96	60 - 140	93	60 - 130	<0.049	ug/g	NC	50		
7562153	o-Xylene	2021/09/08	94	60 - 140	97	60 - 130	<0.020	ug/g	NC	50		
7562153	p+m-Xylene	2021/09/08	97	60 - 140	100	60 - 130	<0.020	ug/g	NC	50		
7562153	Styrene	2021/09/08	97	60 - 140	99	60 - 130	<0.040	ug/g	NC	50		
7562153	Tetrachloroethylene	2021/09/08	87	60 - 140	92	60 - 130	<0.040	ug/g	NC	50		
7562153	Toluene	2021/09/08	98	60 - 140	101	60 - 130	<0.020	ug/g	NC	50		
7562153	Total Xylenes	2021/09/08					<0.020	ug/g	NC	50		
7562153	trans-1,2-Dichloroethylene	2021/09/08	100	60 - 140	101	60 - 130	<0.040	ug/g	NC	50		
7562153	trans-1,3-Dichloropropene	2021/09/08	101	60 - 140	89	60 - 130	<0.040	ug/g	NC	50		
7562153	Trichloroethylene	2021/09/08	106	60 - 140	107	60 - 130	<0.010	ug/g	NC	50		
7562153	Trichlorofluoromethane (FREON 11)	2021/09/08	113	60 - 140	116	60 - 130	<0.040	ug/g	NC	50		
7562153	Vinyl Chloride	2021/09/08	108	60 - 140	111	60 - 130	<0.019	ug/g	NC	50		
7562446	Sulphide	2021/09/07	NC	80 - 120	103	80 - 120	<0.020	mg/L	0	20		
7562555	F2 (C10-C16 Hydrocarbons)	2021/09/07	NC	60 - 130	99	60 - 130	<100	ug/L	1.4	30		
7562555	F3 (C16-C34 Hydrocarbons)	2021/09/07	100	60 - 130	101	60 - 130	<200	ug/L	NC	30		
7562555	F4 (C34-C50 Hydrocarbons)	2021/09/07	98	60 - 130	99	60 - 130	<200	ug/L	NC	30		
7562568	F2 (C10-C16 Hydrocarbons)	2021/09/08	91	60 - 130	101	60 - 130	<100	ug/L	NC	30		
7562568	F3 (C16-C34 Hydrocarbons)	2021/09/08	88	60 - 130	102	60 - 130	<200	ug/L	NC	30		
7562568	F4 (C34-C50 Hydrocarbons)	2021/09/08	91	60 - 130	102	60 - 130	<200	ug/L	NC	30		
7562724	Total Ammonia-N	2021/09/08	88	75 - 125	100	80 - 120	<0.050	mg/L	NC	20		
7562736	Aroclor 1242	2021/09/08					<0.010	ug/g	NC	50		
7562736	Aroclor 1248	2021/09/08					<0.010	ug/g	7.9	50		
7562736	Aroclor 1254	2021/09/08					<0.010	ug/g	NC	50		
7562736	Aroclor 1260	2021/09/08	129	30 - 130	124	30 - 130	<0.010	ug/g	2.6	50		
7562736	Total PCB	2021/09/08	129	30 - 130	124	30 - 130	<0.010	ug/g	4.3	50		
7562906	Acid Extractable Antimony (Sb)	2021/09/09	87	75 - 125	99	80 - 120	<0.20	ug/g	NC	30		

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QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
7562906	Acid Extractable Arsenic (As)	2021/09/09	95	75 - 125	99	80 - 120	<1.0	ug/g	10	30		
7562906	Acid Extractable Barium (Ba)	2021/09/09	NC	75 - 125	102	80 - 120	<0.50	ug/g	7.3	30		
7562906	Acid Extractable Beryllium (Be)	2021/09/09	99	75 - 125	98	80 - 120	<0.20	ug/g	1.8	30		
7562906	Acid Extractable Boron (B)	2021/09/09	90	75 - 125	95	80 - 120	<5.0	ug/g	3.3	30		
7562906	Acid Extractable Cadmium (Cd)	2021/09/09	100	75 - 125	103	80 - 120	<0.10	ug/g	7.9	30		
7562906	Acid Extractable Chromium (Cr)	2021/09/09	NC	75 - 125	103	80 - 120	<1.0	ug/g	6.0	30		
7562906	Acid Extractable Cobalt (Co)	2021/09/09	94	75 - 125	103	80 - 120	<0.10	ug/g	3.5	30		
7562906	Acid Extractable Copper (Cu)	2021/09/09	NC	75 - 125	99	80 - 120	<0.50	ug/g	8.5	30		
7562906	Acid Extractable Lead (Pb)	2021/09/09	94	75 - 125	104	80 - 120	<1.0	ug/g	9.2	30		
7562906	Acid Extractable Mercury (Hg)	2021/09/09	92	75 - 125	98	80 - 120	<0.050	ug/g	NC	30		
7562906	Acid Extractable Molybdenum (Mo)	2021/09/09	102	75 - 125	102	80 - 120	<0.50	ug/g	3.1	30		
7562906	Acid Extractable Nickel (Ni)	2021/09/09	NC	75 - 125	105	80 - 120	<0.50	ug/g	6.7	30		
7562906	Acid Extractable Selenium (Se)	2021/09/09	101	75 - 125	103	80 - 120	<0.50	ug/g	NC	30		
7562906	Acid Extractable Silver (Ag)	2021/09/09	101	75 - 125	100	80 - 120	<0.20	ug/g	NC	30		
7562906	Acid Extractable Thallium (Tl)	2021/09/09	101	75 - 125	103	80 - 120	<0.050	ug/g	11	30		
7562906	Acid Extractable Tin (Sn)	2021/09/09	100	75 - 125	101	80 - 120	<1.0	ug/g				
7562906	Acid Extractable Uranium (U)	2021/09/09	105	75 - 125	105	80 - 120	<0.050	ug/g	2.3	30		
7562906	Acid Extractable Vanadium (V)	2021/09/09	NC	75 - 125	103	80 - 120	<5.0	ug/g	7.1	30		
7562906	Acid Extractable Zinc (Zn)	2021/09/09	NC	75 - 125	102	80 - 120	<5.0	ug/g	2.4	30		
7562932	Aroclor 1016	2021/09/08					<0.05	ug/L	NC	40		
7562932	Aroclor 1221	2021/09/08					<0.05	ug/L	NC	40		
7562932	Aroclor 1232	2021/09/08					<0.05	ug/L	NC	40		
7562932	Aroclor 1242	2021/09/08					<0.05	ug/L	NC	30		
7562932	Aroclor 1248	2021/09/08					<0.05	ug/L	NC	30		
7562932	Aroclor 1254	2021/09/08					<0.05	ug/L	NC	30		
7562932	Aroclor 1260	2021/09/08	107	60 - 130	104	60 - 130	<0.05	ug/L	NC	30		
7562932	Aroclor 1262	2021/09/08					<0.05	ug/L	NC	40		
7562932	Aroclor 1268	2021/09/08					<0.05	ug/L	NC	40		
7562932	Total PCB	2021/09/08	107	60 - 130	104	60 - 130	<0.05	ug/L	NC	40		
7563026	F2 (C10-C16 Hydrocarbons)	2021/09/08	99	50 - 130	100	80 - 120	<10	ug/g	8.7	30		
7563026	F3 (C16-C34 Hydrocarbons)	2021/09/08	96	50 - 130	96	80 - 120	<50	ug/g	14	30		

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
7563026	F4 (C34-C50 Hydrocarbons)	2021/09/08	97	50 - 130	98	80 - 120	<50	ug/g	NC	30		
7563949	Dissolved Chloride (Cl-)	2021/09/08	NC	80 - 120	104	80 - 120	<1.0	mg/L	4.9	20		
7563954	Dissolved Sulphate (SO4)	2021/09/08	NC	75 - 125	102	80 - 120	<1.0	mg/L	0.59	20		
7563966	Acid Extractable Antimony (Sb)	2021/09/08	98	75 - 125	102	80 - 120	<0.20	ug/g	1.6	30		
7563966	Acid Extractable Arsenic (As)	2021/09/08	99	75 - 125	100	80 - 120	<1.0	ug/g	2.6	30		
7563966	Acid Extractable Barium (Ba)	2021/09/08	NC	75 - 125	100	80 - 120	<0.50	ug/g	4.8	30		
7563966	Acid Extractable Beryllium (Be)	2021/09/08	98	75 - 125	99	80 - 120	<0.20	ug/g	3.5	30		
7563966	Acid Extractable Boron (B)	2021/09/08	91	75 - 125	97	80 - 120	<5.0	ug/g	0.96	30		
7563966	Acid Extractable Cadmium (Cd)	2021/09/08	103	75 - 125	99	80 - 120	<0.10	ug/g	4.9	30		
7563966	Acid Extractable Chromium (Cr)	2021/09/08	103	75 - 125	101	80 - 120	<1.0	ug/g	6.3	30		
7563966	Acid Extractable Cobalt (Co)	2021/09/08	93	75 - 125	98	80 - 120	<0.10	ug/g	5.6	30		
7563966	Acid Extractable Copper (Cu)	2021/09/08	NC	75 - 125	100	80 - 120	<0.50	ug/g	2.5	30		
7563966	Acid Extractable Lead (Pb)	2021/09/08	NC	75 - 125	101	80 - 120	<1.0	ug/g	3.2	30		
7563966	Acid Extractable Mercury (Hg)	2021/09/08	98	75 - 125	95	80 - 120	<0.050	ug/g	NC	30		
7563966	Acid Extractable Molybdenum (Mo)	2021/09/08	105	75 - 125	101	80 - 120	<0.50	ug/g	15	30		
7563966	Acid Extractable Nickel (Ni)	2021/09/08	98	75 - 125	101	80 - 120	<0.50	ug/g	4.0	30		
7563966	Acid Extractable Selenium (Se)	2021/09/08	102	75 - 125	102	80 - 120	<0.50	ug/g	NC	30		
7563966	Acid Extractable Silver (Ag)	2021/09/08	98	75 - 125	99	80 - 120	<0.20	ug/g	NC	30		
7563966	Acid Extractable Thallium (Tl)	2021/09/08	99	75 - 125	100	80 - 120	<0.050	ug/g	15	30		
7563966	Acid Extractable Tin (Sn)	2021/09/08	103	75 - 125	102	80 - 120	<1.0	ug/g				
7563966	Acid Extractable Uranium (U)	2021/09/08	103	75 - 125	104	80 - 120	<0.050	ug/g	0.77	30		
7563966	Acid Extractable Vanadium (V)	2021/09/08	106	75 - 125	102	80 - 120	<5.0	ug/g	4.1	30		
7563966	Acid Extractable Zinc (Zn)	2021/09/08	NC	75 - 125	105	80 - 120	<5.0	ug/g	0.20	30		
7564115	Total Aluminum (Al)	2021/09/08	105	80 - 120	97	80 - 120	<4.9	ug/L	1.1	20		
7564115	Total Antimony (Sb)	2021/09/08	103	80 - 120	99	80 - 120	<0.50	ug/L	NC	20		
7564115	Total Arsenic (As)	2021/09/08	101	80 - 120	102	80 - 120	<1.0	ug/L	NC	20		
7564115	Total Barium (Ba)	2021/09/08	97	80 - 120	96	80 - 120	<2.0	ug/L	4.1	20		
7564115	Total Beryllium (Be)	2021/09/08	98	80 - 120	99	80 - 120	<0.40	ug/L	NC	20		
7564115	Total Bismuth (Bi)	2021/09/08	93	80 - 120	99	80 - 120	<1.0	ug/L	NC	20		
7564115	Total Boron (B)	2021/09/08	92	80 - 120	94	80 - 120	<10	ug/L	1.2	20		
7564115	Total Cadmium (Cd)	2021/09/08	97	80 - 120	101	80 - 120	<0.090	ug/L	NC	20		

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
7564115	Total Calcium (Ca)	2021/09/08	NC	80 - 120	96	80 - 120	<200	ug/L	1.8	20		
7564115	Total Chromium (Cr)	2021/09/08	99	80 - 120	97	80 - 120	<5.0	ug/L	NC	20		
7564115	Total Cobalt (Co)	2021/09/08	97	80 - 120	97	80 - 120	<0.50	ug/L	NC	20		
7564115	Total Copper (Cu)	2021/09/08	101	80 - 120	97	80 - 120	<0.90	ug/L	3.3	20		
7564115	Total Iron (Fe)	2021/09/08	96	80 - 120	96	80 - 120	<100	ug/L	13	20		
7564115	Total Lead (Pb)	2021/09/08	91	80 - 120	94	80 - 120	<0.50	ug/L	NC	20		
7564115	Total Lithium (Li)	2021/09/08	99	80 - 120	97	80 - 120	<5.0	ug/L	1.7	20		
7564115	Total Magnesium (Mg)	2021/09/08	NC	80 - 120	98	80 - 120	<50	ug/L	3.1	20		
7564115	Total Manganese (Mn)	2021/09/08	98	80 - 120	98	80 - 120	<2.0	ug/L	4.9	20		
7564115	Total Molybdenum (Mo)	2021/09/08	105	80 - 120	98	80 - 120	<0.50	ug/L	4.7	20		
7564115	Total Nickel (Ni)	2021/09/08	95	80 - 120	98	80 - 120	<1.0	ug/L	NC	20		
7564115	Total Potassium (K)	2021/09/08	100	80 - 120	96	80 - 120	<200	ug/L	2.4	20		
7564115	Total Selenium (Se)	2021/09/08	102	80 - 120	106	80 - 120	<2.0	ug/L	NC	20		
7564115	Total Silicon (Si)	2021/09/08	102	80 - 120	96	80 - 120	<50	ug/L	1.4	20		
7564115	Total Silver (Ag)	2021/09/08	96	80 - 120	97	80 - 120	<0.090	ug/L	NC	20		
7564115	Total Sodium (Na)	2021/09/08	NC	80 - 120	98	80 - 120	<100	ug/L	0.19	20		
7564115	Total Strontium (Sr)	2021/09/08	96	80 - 120	96	80 - 120	<1.0	ug/L	2.2	20		
7564115	Total Tellurium (Te)	2021/09/08	98	80 - 120	102	80 - 120	<1.0	ug/L	NC	20		
7564115	Total Thallium (Tl)	2021/09/08	90	80 - 120	94	80 - 120	<0.050	ug/L	NC	20		
7564115	Total Tin (Sn)	2021/09/08	100	80 - 120	97	80 - 120	<1.0	ug/L	NC	20		
7564115	Total Titanium (Ti)	2021/09/08	99	80 - 120	96	80 - 120	<5.0	ug/L	NC	20		
7564115	Total Tungsten (W)	2021/09/08	98	80 - 120	96	80 - 120	<1.0	ug/L	NC	20		
7564115	Total Uranium (U)	2021/09/08	101	80 - 120	101	80 - 120	<0.10	ug/L	3.0	20		
7564115	Total Vanadium (V)	2021/09/08	101	80 - 120	97	80 - 120	<0.50	ug/L	NC	20		
7564115	Total Zinc (Zn)	2021/09/08	96	80 - 120	105	80 - 120	<5.0	ug/L	NC	20		
7564115	Total Zirconium (Zr)	2021/09/08	107	80 - 120	99	80 - 120	<1.0	ug/L	NC	20		
7564117	Nitrate (N)	2021/09/08	92	80 - 120	97	80 - 120	<0.10	mg/L	0.51	20		
7564117	Nitrite (N)	2021/09/08	106	80 - 120	102	80 - 120	<0.010	mg/L	6.3	20		
7564124	pH	2021/09/08			102	98 - 103			0.83	N/A		
7564128	Fluoride (F-)	2021/09/08	108	80 - 120	100	80 - 120	<0.10	mg/L	7.1	20		

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QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
7564134	Conductivity	2021/09/08			101	85 - 115	<1.0	umho/cm	0.74	25		
7564177	Total Aluminum (Al)	2021/09/09	99	80 - 120	102	80 - 120	<4.9	ug/L	NC	20		
7564177	Total Antimony (Sb)	2021/09/09	107	80 - 120	105	80 - 120	<0.50	ug/L	NC	20		
7564177	Total Arsenic (As)	2021/09/09	97	80 - 120	100	80 - 120	<1.0	ug/L	NC	20		
7564177	Total Barium (Ba)	2021/09/09	96	80 - 120	94	80 - 120	<2.0	ug/L	8.9	20		
7564177	Total Beryllium (Be)	2021/09/09	95	80 - 120	99	80 - 120	<0.40	ug/L	NC	20		
7564177	Total Bismuth (Bi)	2021/09/09	94	80 - 120	96	80 - 120	<1.0	ug/L	NC	20		
7564177	Total Boron (B)	2021/09/09	91	80 - 120	94	80 - 120	<10	ug/L	9.3	20		
7564177	Total Cadmium (Cd)	2021/09/09	97	80 - 120	98	80 - 120	<0.090	ug/L	NC	20		
7564177	Total Calcium (Ca)	2021/09/09	NC	80 - 120	100	80 - 120	<200	ug/L	9.6	20		
7564177	Total Chromium (Cr)	2021/09/09	93	80 - 120	96	80 - 120	<5.0	ug/L	NC	20		
7564177	Total Cobalt (Co)	2021/09/09	95	80 - 120	102	80 - 120	<0.50	ug/L	NC	20		
7564177	Total Copper (Cu)	2021/09/09	97	80 - 120	101	80 - 120	<0.90	ug/L	13	20		
7564177	Total Iron (Fe)	2021/09/09	96	80 - 120	98	80 - 120	<100	ug/L	11	20		
7564177	Total Lead (Pb)	2021/09/09	95	80 - 120	98	80 - 120	<0.50	ug/L	1.4	20		
7564177	Total Lithium (Li)	2021/09/09	99	80 - 120	108	80 - 120	<5.0	ug/L	16	20		
7564177	Total Magnesium (Mg)	2021/09/09	NC	80 - 120	100	80 - 120	<50	ug/L	10	20		
7564177	Total Manganese (Mn)	2021/09/09	93	80 - 120	98	80 - 120	<2.0	ug/L	10	20		
7564177	Total Molybdenum (Mo)	2021/09/09	97	80 - 120	96	80 - 120	<0.50	ug/L	0.14	20		
7564177	Total Nickel (Ni)	2021/09/09	93	80 - 120	99	80 - 120	<1.0	ug/L	NC	20		
7564177	Total Potassium (K)	2021/09/09	98	80 - 120	99	80 - 120	<200	ug/L	10	20		
7564177	Total Selenium (Se)	2021/09/09	99	80 - 120	102	80 - 120	<2.0	ug/L	NC	20		
7564177	Total Silicon (Si)	2021/09/09	99	80 - 120	100	80 - 120	<50	ug/L	9.9	20		
7564177	Total Silver (Ag)	2021/09/09	94	80 - 120	95	80 - 120	<0.090	ug/L	NC	20		
7564177	Total Sodium (Na)	2021/09/09	NC	80 - 120	100	80 - 120	<100	ug/L	9.6	20		
7564177	Total Strontium (Sr)	2021/09/09	NC	80 - 120	94	80 - 120	<1.0	ug/L	9.1	20		
7564177	Total Tellurium (Te)	2021/09/09	94	80 - 120	91	80 - 120	<1.0	ug/L	NC	20		
7564177	Total Thallium (Tl)	2021/09/09	96	80 - 120	100	80 - 120	<0.050	ug/L	NC	20		
7564177	Total Tin (Sn)	2021/09/09	97	80 - 120	99	80 - 120	<1.0	ug/L	NC	20		
7564177	Total Titanium (Ti)	2021/09/09	95	80 - 120	95	80 - 120	<5.0	ug/L	6.7	20		

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QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
7564177	Total Tungsten (W)	2021/09/09	100	80 - 120	99	80 - 120	<1.0	ug/L	NC	20		
7564177	Total Uranium (U)	2021/09/09	97	80 - 120	99	80 - 120	<0.10	ug/L	3.7	20		
7564177	Total Vanadium (V)	2021/09/09	93	80 - 120	96	80 - 120	<0.50	ug/L	NC	20		
7564177	Total Zinc (Zn)	2021/09/09	93	80 - 120	99	80 - 120	<5.0	ug/L	5.4	20		
7564177	Total Zirconium (Zr)	2021/09/09	103	80 - 120	101	80 - 120	<1.0	ug/L	NC	20		
7567661	WAD Cyanide (Free)	2021/09/10	97	80 - 120	98	80 - 120	<0.0010	mg/L	NC	20		
7567668	Total Cyanide (CN)	2021/09/10	98	80 - 120	101	80 - 120	<0.0050	mg/L	NC	20		
7568973	Aroclor 1242	2021/09/10					<0.010	ug/g	NC	50		
7568973	Aroclor 1248	2021/09/10					<0.010	ug/g	NC	50		
7568973	Aroclor 1254	2021/09/10					<0.010	ug/g	NC	50		
7568973	Aroclor 1260	2021/09/10	79	30 - 130	91	30 - 130	<0.010	ug/g	13	50		
7568973	Total PCB	2021/09/10	79	30 - 130	91	30 - 130	<0.010	ug/g	13	50		
7574002	1-Methylnaphthalene	2021/09/11			69	50 - 130	<0.10	ug/L				
7574002	2-Methylnaphthalene	2021/09/11			85	50 - 130	<0.10	ug/L				
7574002	Acenaphthene	2021/09/11			93	50 - 130	<0.10	ug/L				
7574002	Acenaphthylene	2021/09/11			97	50 - 130	<0.10	ug/L				
7574002	Acridine	2021/09/11			97	50 - 130	<0.040	ug/L				
7574002	Anthracene	2021/09/11			87	50 - 130	<0.010	ug/L				
7574002	Benzo(a)anthracene	2021/09/11			98	50 - 130	<0.0085	ug/L				
7574002	Benzo(a)pyrene	2021/09/11			103	50 - 130	<0.0075	ug/L				
7574002	Benzo(b/j)fluoranthene	2021/09/11			96	50 - 130	<0.0085	ug/L				
7574002	Benzo(c)phenanthrene	2021/09/11			93	50 - 130	<0.050	ug/L				
7574002	Benzo(e)pyrene	2021/09/11			96	50 - 130	<0.050	ug/L				
7574002	Benzo(g,h,i)perylene	2021/09/11			104	50 - 130	<0.0085	ug/L				
7574002	Benzo(k)fluoranthene	2021/09/11			103	50 - 130	<0.0085	ug/L				
7574002	Chrysene	2021/09/11			103	50 - 130	<0.0085	ug/L				
7574002	Dibenzo(a,h)anthracene	2021/09/11			107	50 - 130	<0.0075	ug/L				
7574002	Fluoranthene	2021/09/11			109	50 - 130	<0.010	ug/L				
7574002	Fluorene	2021/09/11			95	50 - 130	<0.050	ug/L				
7574002	Indeno(1,2,3-cd)pyrene	2021/09/11			101	50 - 130	<0.0085	ug/L				
7574002	Naphthalene	2021/09/11			89	50 - 130	<0.10	ug/L				

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			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
7574002	Perylene	2021/09/11			104	50 - 130	<0.050	ug/L				
7574002	Phenanthrene	2021/09/11			93	50 - 130	<0.050	ug/L				
7574002	Pyrene	2021/09/11			108	50 - 130	<0.020	ug/L				
7574002	Quinoline	2021/09/11			98	50 - 130	<0.20	ug/L				

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

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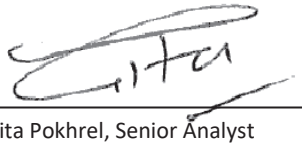
VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Brad Newman, B.Sc., C.Chem., Scientific Service Specialist



Gita Pokhrel, Senior Analyst

BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

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Services Quotation - C13207

Company	BluMetric Environmental Inc	**Project Manager**	**Account Manager**
Attention	Heather Wolczanski	Christine Gripton	Andrew White
Project	P06846	(519) 652-9444	
Date Issued	Jun 28, 2021	(226) 378-5999	(416) 881-2537
Effective	Jun 28, 2021 to Jun 28, 2022	Christine.Gripton@bureauveritas.com	Andrew.White@bureauveritas.com
Primary Lab	Bureau Veritas Mississauga		

PACKAGE / TEST	METHOD REFERENCE	MATRIX	QTY.	UNIT FEE	TOTAL
Non hazardous disposal/container supply	N/A	N/A	19	$5.00	$95.00
Terra Core Soil Samplers	N/A	N/A	9	$1.75	$15.75
Surfacewater PAHs					
CCME PAHs[1]	Multiple	Soil	1	$101.20	$101.20
Methanol Sampling Vial (Single Vial)	N/A	N/A	9	$1.75	$15.75
Surfacewater					
Surfacewater			10	$416.80	$4,168.00
Chloride by Automated Colourimetry	SM 23 4500-Cl E m	Water	10	$8.55	$85.50
Conductivity	SM 23 2510 m	Water	10	$8.55	$85.50
Free (WAD) Cyanide	OMOE E3015 m	Water	10	$19.20	$192.00
Total Cyanide	OMOE E3015 5 m	Water	10	$19.20	$192.00
Fluoride	SM 23 4500-F C m	Water	10	$8.55	$85.50
Hardness (calculated as CaCO3)	SM 2340 B	Water	10	$0.00	$0.00
Dissolved Calcium and Magnesium	EPA 6010D m	Water	10	$32.00	$320.00
Total Metals Analysis by ICPMS	EPA 6020B m	Water	10	$38.35	$383.50
Total Ammonia-N	USGS I-2522-90 m	Water	10	$19.20	$192.00
Nitrate (NO3) and Nitrite (NO2) in Water	SM 23 4500-NO3I/NO2B	Water	10	$17.05	$170.50
Polychlorinated Biphenyl in Water	EPA 8082A m	Water	10	$63.90	$639.00
pH	SM 4500H+ B m	Water	10	$8.55	$85.50
Sulphate by Automated Colourimetry	EPA 375.4 m	Water	10	$8.55	$85.50
Sulphide	SM 23 4500-S G m	Water	10	$33.00	$330.00
Total Dissolved Solids	SM 23 2540C m	Water	10	$12.80	$128.00
Low Level Total Suspended Solids	SM 23 2540D m	Water	10	$12.80	$128.00
CCME PHCs, BTEX/F1-F4	CCME PHC-CWS m	Water	10	$106.55	$1,065.50
Surfacewater PAHs					
CCME PAHs[1]	Multiple	Water	1	$101.20	$101.20
Sediment					
Sediment			9	$214.15	$1,927.35
CCME Petroleum Hydrocarbons Soil	Multiple	Soil	9	$106.55	$958.95
CCME ICPMS Metals	EPA 6020B m	Soil	9	$43.70	$393.30
O.Reg 153 PCBs (Soil)	Multiple	Soil	9	$63.90	$575.10
Soil					
Soil			1	$214.15	$214.15
CCME Petroleum Hydrocarbons Soil	Multiple	Soil	1	$106.55	$106.55
CCME ICPMS Metals	EPA 6020B m	Soil	1	$43.70	$43.70
O.Reg 153 PCBs (Soil)	Multiple	Soil	1	$63.90	$63.90

Services Quotation - C13207

Company	BluMetric Environmental Inc	**Project Manager**	**Account Manager**
Attention	Heather Wolczanski	Christine Gripton	Andrew White
Project	P06846	(519) 652-9444	
Date Issued	Jun 28, 2021	(226) 378-5999	(416) 881-2537
Effective	Jun 28, 2021 to Jun 28, 2022	Christine.Gripton@bureauveritas.com	Andrew.White@bureauveritas.com
Primary Lab	Bureau Veritas Mississauga		

PACKAGE / TEST	METHOD REFERENCE	MATRIX	QTY.	UNIT FEE	TOTAL
				TOTAL(CAD):	**$6,638.40**

COMMENTS:

- Prices quoted do not include applicable taxes.
- All TAT quoted is in business days (TAT is calculated from the time of receipt at the testing laboratory).

(1)Test Location: Bureau Veritas Calgary (19th)

- Pricing for any analyses sent to a facility outside the BV network is set by the subcontract lab and is therefore subject to change.
- Unless otherwise agreed to in writing, quotations and services are subject to Bureau Veritas' standard Terms and Conditions, which are available at www.bvna.com.

Parameter Details - C13207

PROFILE/GROUP	TEST	PARAMETER	RDL	UNIT
CCME ICPMS Metals	Acid Extractable Metals by ICPMS	Antimony (Sb)	0.20	ug/g
		Arsenic (As)	1.0	ug/g
		Barium (Ba)	0.50	ug/g
		Beryllium (Be)	0.20	ug/g
		Boron (B)	5.0	ug/g
		Cadmium (Cd)	0.10	ug/g
		Chromium (Cr)	1.0	ug/g
		Cobalt (Co)	0.10	ug/g
		Copper (Cu)	0.50	ug/g
		Lead (Pb)	1.0	ug/g
		Mercury (Hg)	0.050	ug/g
		Molybdenum (Mo)	0.50	ug/g
		Nickel (Ni)	0.50	ug/g
		Selenium (Se)	0.50	ug/g
		Silver (Ag)	0.20	ug/g
		Thallium (Tl)	0.050	ug/g
		Tin (Sn)	1.0	ug/g
		Uranium (U)	0.050	ug/g
		Vanadium (V)	5.0	ug/g
		Zinc (Zn)	5.0	ug/g
CCME Petroleum Hydrocarbons Soil	Moisture	Moisture	1.0	%
	Petroleum Hydrocarbons F2-F4 in Soil	F2 (C10-C16 Hydrocarbons)	10	ug/g
		F3 (C16-C34 Hydrocarbons)	50	ug/g
		F4 (C34-C50 Hydrocarbons)	50	ug/g
		Reached Baseline at C50	0	ug/g
	Volatile Organic Compounds and F1 PHCs	Benzene	0.0060	ug/g
		Ethylbenzene	0.010	ug/g
		F1 (C6-C10)	10	ug/g
		F1 (C6-C10) - BTEX	10	ug/g
		o-Xylene	0.020	ug/g
		p+m-Xylene	0.020	ug/g
		Toluene	0.020	ug/g
		Total Xylenes	0.020	ug/g
O.Reg 153 PCBs (Soil)	Moisture	Moisture	1.0	%
	Polychlorinated Biphenyl in Soil	Aroclor 1242	0.010	ug/g
		Aroclor 1248	0.010	ug/g
		Aroclor 1254	0.010	ug/g
		Aroclor 1260	0.010	ug/g
		Total PCB	0.010	ug/g
CCME ICPMS Metals	Acid Extractable Metals by ICPMS	Antimony (Sb)	0.20	ug/g

Parameter Details - C13207

PROFILE/GROUP	TEST	PARAMETER	RDL	UNIT
		Arsenic (As)	1.0	ug/g
		Barium (Ba)	0.50	ug/g
		Beryllium (Be)	0.20	ug/g
		Boron (B)	5.0	ug/g
		Cadmium (Cd)	0.10	ug/g
		Chromium (Cr)	1.0	ug/g
		Cobalt (Co)	0.10	ug/g
		Copper (Cu)	0.50	ug/g
		Lead (Pb)	1.0	ug/g
		Mercury (Hg)	0.050	ug/g
		Molybdenum (Mo)	0.50	ug/g
		Nickel (Ni)	0.50	ug/g
		Selenium (Se)	0.50	ug/g
		Silver (Ag)	0.20	ug/g
		Thallium (Tl)	0.050	ug/g
		Tin (Sn)	1.0	ug/g
		Uranium (U)	0.050	ug/g
		Vanadium (V)	5.0	ug/g
		Zinc (Zn)	5.0	ug/g
CCME Petroleum Hydrocarbons Soil	Moisture	Moisture	1.0	%
	Petroleum Hydrocarbons F2-F4 in Soil	F2 (C10-C16 Hydrocarbons)	10	ug/g
		F3 (C16-C34 Hydrocarbons)	50	ug/g
		F4 (C34-C50 Hydrocarbons)	50	ug/g
		Reached Baseline at C50	0	ug/g
	Volatile Organic Compounds and F1 PHCs	Benzene	0.0060	ug/g
		Ethylbenzene	0.010	ug/g
		F1 (C6-C10)	10	ug/g
		F1 (C6-C10) - BTEX	10	ug/g
		o-Xylene	0.020	ug/g
		p+m-Xylene	0.020	ug/g
		Toluene	0.020	ug/g
		Total Xylenes	0.020	ug/g
O.Reg 153 PCBs (Soil)	Moisture	Moisture	1.0	%
	Polychlorinated Biphenyl in Soil	Aroclor 1242	0.010	ug/g
		Aroclor 1248	0.010	ug/g
		Aroclor 1254	0.010	ug/g
		Aroclor 1260	0.010	ug/g
		Total PCB	0.010	ug/g
Surfacewater	Chloride by Automated Colourimetry	Chloride (Cl-)	1.0	mg/L
	Conductivity	Conductivity	1.0	umho/cm

Parameter Details - C13207

PROFILE/GROUP	TEST	PARAMETER	RDL	UNIT
	Fluoride	Fluoride (F-)	0.10	mg/L
	Free (WAD) Cyanide	WAD Cyanide (Free)	0.0010	mg/L
	Hardness (calculated as CaCO3)	Hardness (CaCO3)	1.0	mg/L
	Low Level Total Suspended Solids	Solids	1	mg/L
	Nitrate (NO3) and Nitrite (NO2) in Water	Nitrate (N)	0.10	mg/L
		Nitrate + Nitrite (N)	0.10	mg/L
		Nitrite (N)	0.010	mg/L
	pH	pH	0	pH
	Polychlorinated Biphenyl in Water	Aroclor 1016	0.05	ug/L
		Aroclor 1221	0.05	ug/L
		Aroclor 1232	0.05	ug/L
		Aroclor 1242	0.05	ug/L
		Aroclor 1248	0.05	ug/L
		Aroclor 1254	0.05	ug/L
		Aroclor 1260	0.05	ug/L
		Aroclor 1262	0.05	ug/L
		Aroclor 1268	0.05	ug/L
		Total PCB	0.05	ug/L
	Sulphate by Automated Colourimetry	Sulphate (SO4)	1.0	mg/L
	Sulphide	Sulphide	0.020	mg/L
	Total Ammonia-N	Ammonia-N	0.050	mg/L
	Total Cyanide	Total Cyanide (CN)	0.0050	mg/L
	Total Dissolved Solids	Dissolved Solids	10	mg/L
	Total Metals Analysis by ICPMS	Aluminum (Al)	4.9	ug/L
		Antimony (Sb)	0.50	ug/L
		Arsenic (As)	1.0	ug/L
		Barium (Ba)	2.0	ug/L
		Beryllium (Be)	0.40	ug/L
		Bismuth (Bi)	1.0	ug/L
		Boron (B)	10	ug/L
		Cadmium (Cd)	0.090	ug/L
		Calcium (Ca)	200	ug/L
		Chromium (Cr)	5.0	ug/L
		Cobalt (Co)	0.50	ug/L
		Copper (Cu)	0.90	ug/L
		Iron (Fe)	100	ug/L
		Lead (Pb)	0.50	ug/L
		Lithium (Li)	5.0	ug/L
		Magnesium (Mg)	50	ug/L
		Manganese (Mn)	2.0	ug/L

Parameter Details - C13207

PROFILE/GROUP	TEST	PARAMETER	RDL	UNIT
		Molybdenum (Mo)	0.50	ug/L
		Nickel (Ni)	1.0	ug/L
		Potassium (K)	200	ug/L
		Selenium (Se)	2.0	ug/L
		Silicon (Si)	50	ug/L
		Silver (Ag)	0.090	ug/L
		Sodium (Na)	100	ug/L
		Strontium (Sr)	1.0	ug/L
		Tellurium (Te)	1.0	ug/L
		Thallium (Tl)	0.050	ug/L
		Tin (Sn)	1.0	ug/L
		Titanium (Ti)	5.0	ug/L
		Tungsten (W)	1.0	ug/L
		Uranium (U)	0.10	ug/L
		Vanadium (V)	0.50	ug/L
		Zinc (Zn)	5.0	ug/L
		Zirconium (Zr)	1.0	ug/L
CCME PHCs, BTEX/F1-F4	Petroleum Hydro. CCME F1 & BTEX in Water	Benzene	0.20	ug/L
		Ethylbenzene	0.20	ug/L
		F1 (C6-C10)	25	ug/L
		F1 (C6-C10) - BTEX	25	ug/L
		o-Xylene	0.20	ug/L
		p+m-Xylene	0.40	ug/L
		Toluene	0.20	ug/L
		Total Xylenes	0.40	ug/L
	Petroleum Hydrocarbons F2-F4 in Water	F2 (C10-C16 Hydrocarbons)	100	ug/L
		F3 (C16-C34 Hydrocarbons)	200	ug/L
		F4 (C34-C50 Hydrocarbons)	200	ug/L
		Reached Baseline at C50	0	ug/L
CCME PAHs	B[a]P Total Potency Equivalent	Benzo(a)pyrene Total Potency Equiv.	0.10	mg/kg
		Benzo(a)pyrene Total Potency Equiv.	0.010	ug/L
	CCME Index of Additive Cancer Risk	Index of Additive Cancer Risk -IACR	0	N/A
	Moisture (Subcontracted)	Moisture-Subcontracted	0.30	%
	PAH in Soil by GC/MS	1-Methylnaphthalene	0.0050	mg/kg
		2-Methylnaphthalene	0.0050	mg/kg
		Acenaphthene	0.0050	mg/kg
		Acenaphthylene	0.0050	mg/kg
		Acridine	0.010	mg/kg
		Anthracene	0.0040	mg/kg
		Benzo(a)anthracene	0.0050	mg/kg

Parameter Details - C13207

PROFILE/GROUP	TEST	PARAMETER	RDL	UNIT
		Benzo(a)pyrene	0.0050	mg/kg
		Benzo(b/j)fluoranthene	0.0050	mg/kg
		Benzo(c)phenanthrene	0.0050	mg/kg
		Benzo(e)pyrene	0.0050	mg/kg
		Benzo(g,h,i)perylene	0.0050	mg/kg
		Benzo(k)fluoranthene	0.0050	mg/kg
		Chrysene	0.0050	mg/kg
		Dibenzo(a,h)anthracene	0.0050	mg/kg
		Fluoranthene	0.0050	mg/kg
		Fluorene	0.0050	mg/kg
		Indeno(1,2,3-cd)pyrene	0.0050	mg/kg
		Naphthalene	0.0050	mg/kg
		Perylene	0.0050	mg/kg
		Phenanthrene	0.0050	mg/kg
		Pyrene	0.0050	mg/kg
		Quinoline	0.010	mg/kg
	PAH in Water by GC/MS	1-Methylnaphthalene	0.10	ug/L
		2-Methylnaphthalene	0.10	ug/L
		Acenaphthene	0.10	ug/L
		Acenaphthylene	0.10	ug/L
		Acridine	0.050	ug/L
		Anthracene	0.010	ug/L
		Benzo(a)anthracene	0.0085	ug/L
		Benzo(a)pyrene	0.0075	ug/L
		Benzo(b/j)fluoranthene	0.0085	ug/L
		Benzo(c)phenanthrene	0.050	ug/L
		Benzo(e)pyrene	0.050	ug/L
		Benzo(g,h,i)perylene	0.0085	ug/L
		Benzo(k)fluoranthene	0.0085	ug/L
		Chrysene	0.0085	ug/L
		Dibenzo(a,h)anthracene	0.0075	ug/L
		Fluoranthene	0.010	ug/L
		Fluorene	0.050	ug/L
		Indeno(1,2,3-cd)pyrene	0.0085	ug/L
		Naphthalene	0.10	ug/L
		Perylene	0.050	ug/L
		Phenanthrene	0.050	ug/L
		Pyrene	0.020	ug/L
		Quinoline	0.20	ug/L

Rush Surcharges - C13207

	SAMEDAY	1 DAY	2 DAY	3 DAY	4 DAY	5 DAY	7 DAY	10 DAY	15 DAY	20 DAY
STANDARD TAT										
Default	100%	100%								
5 DAY	200%	100%	50%	25%		**Standard**				
7 DAY	200%	200%	200%	100%	50%	25%	**Standard**			
10 DAY	200%	200%	200%	100%	100%	50%	25%	**Standard**		
15 DAY	200%	200%	200%	200%	200%	100%	100%	50%	**Standard**	
20 DAY	200%	200%	200%	200%	100%	100%	100%	50%	25%	**Standard**

- All TAT quoted is in business days (TAT is calculated from the time of receipt at the testing laboratory).
- Samples received after 3:00 pm or on weekends or holidays are considered as having arrived the next business day.
- Business days do not include weekends or holidays. For weekend, holiday or emergency response additional charges apply.
- In the case of subcontracted analyses, TAT is calculated based on time of receipt at the subcontractor laboratory.
- In the event of incomplete or conflicting submission information, TAT begins immediately once resolved.
- Results reported by 6:00 pm on the day that they are due are considered on-time.
- Surcharges are only charged for actual TAT received, not TAT requested.
- Same day reporting is generally by end of day, but is dependent on matrix and concentration challenges.

ATTACHMENT E

Quality Assurance/Quality Control Plan

COMPLIANCE LONG TERM MONITORING FOR TRANSPORT CANADA AT THE FORMER IQALUIT METAL DUMP, IQALUIT, NU

SAMPLING AND QUALITY ASSURANCE / QUALITY CONTROL PLAN

Submitted to:

Public Services and Procurement Canada
Western Region
10025 Jasper Avenue
Edmonton, AB T5J 1S6
On behalf of:
Transport Canada

Prepared by:

BluMetric Environmental Inc.
4916 49th Street
Yellowknife, NT X1A 1P3

BluMetric Project Number: 210561

31 March 2022

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1. INTRODUCTION

BluMetric Environmental Inc. (BluMetric™), has been retained by the Public Services and Procurement (PSCP) Western Region on behalf of Transport Canada to complete the 2021-2022 Compliance Long Term Monitoring requirements at the Former Iqaluit Metal Dump, located in Iqaluit NU. The following Sampling and Quality Assurance / Quality Control (QA/QC) Plan has been written in accordance with the Statement of Work (SOW) entitled "Compliance Long Term Monitoring for Transport Canada at the Former Iqaluit Metal Dump, Iqaluit NU" dated June 2021.

The purpose of the Sampling and QA/QC Plan is to detail the recommended methodologies and level of effort to conduct the 2021-2022 Compliance Long Term Monitoring program.

2. SCOPE OF WORK

The following sampling plan includes:

- **Visual Monitoring**;
- **Seepage Monitoring** (sampling as needed, if seepage identified);
- **Soil Sampling** (as needed, if seepage identified);
- **Surface Water Monitoring**;
- **Sediment Sampling**;
- **Natural Environment Monitoring**; and
- **Upgradient Surface Water Sampling**.

All samples will be collected following the procedures outlines in the Performance and Long Term Monitoring Plan (Arcadis 2018).

3. SITE DESCRIPTION

Iqaluit is located on the southern tip of Baffin Island. The Iqaluit Former Metal Dump/Community Landfill (UTM, Zone 19 coordinates E521904.94, N7067812.69) is located 1.7 km southwest of the City of Iqaluit, Nunavut on the border of Sylvia Grinnell Territorial Park and the Sylvia Grinnell River. The site covers an area of approximately 72,500 m^2. The United States Air Force (USAF) used the site from 1955 to 1963 as a metal dump for vehicles, truck bodies, barrels, and scrap metal. The majority of materials were deposited in 1963 when the US Military left the Frobisher Bay and was scattered over a large area. The site was remediated during Fiscal Year 2017/2-18. LTM activities have been completed 2018/2019, 2019/2020, and 2020/2021.

Two main areas of waste are present at the site as a result of former land us activities:

1) The main debris/community landfill are located in the central portion of the site and spanning the top, and toe of a bedrock escarpment that runs northwest/southeast; and
2) The vehicle dump located approximately to the south and parallel with the main landfill.

4. GUIDANCE DOCUMENTS

1) Nunavut Water Board (NWB) Water License 1BR-MDR1721
2) Arcadis Canada Inc. Performance and Long Term Monitoring Plan (LTM), former Metal Dump and Community Landfill, Iqaluit, NU (Mar. 2018)
3) Arcadis Canada Inc. NWB 2017 Annual Reporting (Mar 2018)
4) Dillon/Outcome NWB Annual Reporting (Mar 2019, 2020)
5) BluMetric NWB Annual Reporting (March, 2021)

5. APPLICABLE STANDARDS

BluMetric will conduct the activities and reporting requirements associated with the Iqaluit Site in accordance with the LTMP. All services will conform to the following guidelines and standards, and data analysis will be compared to the following guidelines and standards to determine if and where exceedances exist at the Site:

Summary of Site-Specific Environmental Quality Criteria

The LTM divided the site into three (3) sectors; the upper, lower eastern and lower western. Table 1 outlines each sector, the associated LTM stations and the EQG classification, as established in the Nunavut Water Board submissions and the LTM Plan prepared by Arcadis.

Table 1: EQG Classification for LTM Stations (Arcadis, 2017)

Sector	LTM Station (s)	EQG
Upper	7	Commercial, Freshwater, Coarse-grained soil
Lower – Eastern Portion	2, 5, 6	Wildland, Freshwater, Coarse-grained Soil
Lower – Western Portion	1, 3, 4	Wildland, Lowest of Marine or Freshwater, Coarse-grained soil

The federal EQG are based on the level of risk a contaminant poses to humans, plants and wildlife. The EQG are used in the RAP to identify the areas where mitigation of exposure to chemicals of concern is required and are also incorporated as site-specific remedial objectives.
The specific guidelines that will be used to evaluate the impact to surface water, sediment and soil are as follows:

- Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health (CSQGs) (CCME, 1999, with updates).
- Canada-Wide Standards for Petroleum Hydrocarbons in Soil (CWS-PHC) (CCME, 2008).
- Canadian Soil Quality Guidelines (CSQG) Polycyclic Aromatic Hydrocarbons factsheet (CCME, 2010).
- Canadian Environmental Quality Guidelines. Canadian Sediment Quality Guidelines (CSedQG) for the Protection of Aquatic Life (CCME, 2007, with updates)
- Canadian Environmental Quality Guidelines. Canadian Water Quality Guidelines (CWQG) for the Protection of Aquatic Life (CCME, 2007, with updates)

6. FIELD WORK DESCRIPTION AND METHODOLOGY

BluMetric will ensure that all field tasks will be conducted in accordance with the guidance documentation. Photographs will be taken from standard photo points as specified in the LTM to document any change over time, as well as logging and/or recording of any observations, measurements or activity. In addition, a hand-held GPS will also be utilized to determine the coordinates of all sample locations, features and observations.

6.1 VISUAL INSPECTIONS

The following site features will be inspected:

1. Isolation Cover Surface
    - Settlement
    - Erosion
    - Lateral Movement
    - Frost Action
    - Sloughing
    - Cracking
    - Animal Burrows
    - Vegetation re-establishment
    - Vegetation stress

- Seepage points and/or ponded water
- Debris and/or exposed geotextile
- Features of note/other relevant observations (eg. Signs of activity, ruts etc.)

2. Access Roadway
    - Culverts
    - Down-gradient Ponds
        - Staining
        - Vegetation stress

6.2 NATURAL ENVIRONMENT MONITORING

Natural Environment Monitoring will be collected during site visits as well as during community meetings with people who use or visit the site/area frequently. This data will provide anecdotal information related to the presence of wildlife and changes over time.

- BluMetric will collect the following site-specific data:
- Wildlife sightings (species, number, general, juveniles);
- Other evidence of recent wildlife presence (dropping, tracks, feathers/fur, carcass remains etc.);
- Wildlife activity (summering/nesting/denning, migratory/passing through);
- Qualitative assessments of relative numbers vs previous years (more, same, less); and,
- Revegetation of disturbed areas vs previous years (more, same, less).

Information regarding observations of the site by local people may also be collected through consultations with local community members, and may include:

- Wildlife sightings;
- Use by people for traditional activities;
- Season(s);
- Activities (hunting, trapping, dishing, camping, harvesting, other);
- Relative frequency vs previous years (more, same, less);
- Wildlife species present (sightings or evidence);
- Wildlife presence vs previous years (more, same, less);
- Health of wildlife observed or harvested (good, average, poor); and,
- Relative health of wildlife vs previous years (better, same, worse).

6.3 SAMPLING PROGRAMS

6.3.1 Seepage Monitoring/Sampling

Any observed areas of seepage on the surface and edges of the landfill isolation cover will be noted during the Visual Inspection.

Seepage field parameters will be recorded with a multi-parameter instrument (YSI Pro Plus or equivalent). Seepage samples will be collected where sufficient volume exists and analyzed. Results will be compared to baseline samples as well as CCME guidelines.

Seepage sample parameters:

- BTEX/PHCs;
- Metals (arsenic, cadmium, chromium, cobalt, lead, nickel and zinc);
- PCBs;
- General Chemistry (major ions, hardness, Total Dissolved Solids, Total Suspended Solid)s; and,
- pH, conductivity, temperature.

6.3.2 Soil Sampling

Soil sampling will be employed on an as needed basis in the event of staining or seepage through, below or around the land fill isolation cover. When required, soil samples will be collected over the intervals of 0 to 0.15 m and 0.35 to 0.5 m in depth (where possible).

Soil sampling will be completed following the protocol outlined in CCME 2016 "Guidance Manual for Environmental Site Characterization in Support of Environmental and Human Health Risk Assessment", Volume 3 "Standard Operating Procedures". Detailed logging of the soil stratigraphy will be conducted for each test pit location. Soil will be sampled with a clean stainless steel trowel directly from the excavation. A geological and visual description of the subsurface materials will be recorded in detail in order to define potentially contaminated horizons. Additionally, a photographic record will be generated for each test pit advanced at the Site.

Soil sample parameters:

- BTEX/PHCs;
- Metals (arsenic, cadmium, cobalt, lead, nickel and zinc);
- PCBs.

6.3.3 Surface Water Sampling

Surface water sampling will be conducted at LTM sampling stations LTM-SW1 to LTM-SW7 and the up-gradient sample location LTM-SW8 (Figure 1 and Table 2).

Table 2: Sampling Locations - Coordinates

Location ID	Feature	Northing	Easting
LTM1	Pond 1	7067946.256	521750.251
LTM2	Pond 2	7067986.503	521800.108
LTM3	Pond 3	7067795.774	521836.893
LTM4	Pond 4	7067686.315	521860.124
LTM5	Pond 5	7067718.731	521915.011
LTM6	Pond 6	7067744.086	521936.764
LTM7	Culvert	7067865.856	522027.627
LTM8	Drainage system	7068013.000	522064.000

Surface water sampling will be completed following the protocol outlined in CCME 2016 "Guidance Manual for Environmental Site Characterization in Support of Environmental and Human Health Risk Assessment", Volume 3 "Standard Operating Procedures". Surface water samples will be collected manually by dipping a clean, collection bottle without preservative, into the water without disturbing the sediments or vegetation. The water will then be decanted into pre-labeled sample bottles. The sampling and preservation procedures to be utilized are compliant with the CCME Water Sampling Protocol. Appropriate PPE (nitrile gloves) will be utilized at all times during sample collection. Indicator parameters including pH, conductivity and temperature will be measured in the field with a multi-parameter instrument (YSI Pro Plus or equivalent) and recorded.

Surface water samples will be analysed for:

- BTEX/PHCs;
- Metals (arsenic, cadmium, cobalt, chromium, lead, nickel, and zinc);
- PCBs;
- PAHs (LTM-SW8 only);
- General Chemistry (major ions, hardness, total dissolved solids, total suspended solids); and,
- pH, conductivity, and temperature

6.3.4 Sediment Sampling

Sediment samples will be collected at pre-determines LTM monitoring sampling stations along the down-gradient drainage and pond system in accordance with the LTM Plan (Arcadis, 2017). These stations correspond with the LTM surface water stations (Figure 1, Table 2). The samples will be analysed and the results will be compared to baseline/background samples, as well as applicable CCME guidelines

Sediment sampling will be completed following the protocol outlined in CCME 2016 "Guidance Manual for Environmental Site Characterization in Support of Environmental and Human Health Risk Assessment", Volume 3 "Standard Operating Procedures". Sediment samples will be collected from each surface water sampling location to assess potential impacts and contaminant migration. Sediment samples will be taken as grab samples from depths. Grab samples will be taken manually by using a clean trowel or an Eckman grab sampler. A trowel will then be used to transfer the samples to the proper laboratory containers for analysis.

Sediment parameters:

- BTEX/PHCs
- Metals (arsenic, cadmium, cobalt, chromium, lead, nickel, and zinc);
- PCBs;

6.3.5 Quality Assurance/Quality Control (QA/QC)

The objective of the BluMetric QA/QC program is to meet and/or exceed the requirements of the *CCME Guidance Manual on Sampling, Analysis, and Data Management for Contaminated Sites (December 1993)*, and *Environment Canada's Technical Assistance Bulletins on Contaminated Sites (1992)*.

A QA/QC program will be followed to ensure that the sampling and analytical data is interpretable, meaningful and reproducible. Two stages of QA/QC will be completed, with one stage completed as part of the standard field procedures performed by BluMetric, and the other a part of the laboratory analytical protocols.

To demonstrate that the field sampling techniques utilized by BluMetric are capable of yielding reproducible results, BluMetric collects blind field duplicate (BD) samples, collected from the same location and at the same time as the original sample. The blind field duplicates are submitted to the laboratory under "blind label" for the same analyses as the original sample. The number of duplicates collected will be approximately 10% of the total number of samples collected for each media type.

Other field quality control measures to be implemented are trip blanks (one per water sample shipment), field blanks (10% of water samples), regular testing and calibration of field screening instruments as required by the laboratory standard operating procedures (SOPs), use of new sampling materials at each sampling point (Ziploc® bags, nitrile gloves, jars, stainless steel shovel) or cleaned prior to each use (using distilled water and Alconox detergent and rinsed).

Samples will be collected into laboratory-provided containers with appropriate preservative (where required). Samples will be identified with numbers on their lids, and laboratory-provided labels indicating sample ID, date, and analysis.

Samples will be placed into coolers with ice for preservation until shipment to the laboratory. Samples will be shipped to the laboratory accompanied by chain of custody forms identifying samples, volumes, dates, and other pertinent information.

Sample collection, preservation and analyses will be conducted in accordance with methods prescribed in the current edition of "Standard Methods for the Examination of Water and Wastewater" in accordance with Part K, condition 2 of the Water Licence. Analyses will be performed in a Canadian Association of Laboratory Accreditation (CALA) - certified Laboratory and will conform to ISO/IEC Standard 17025 (Part K, condition 3).

All samples will be analyzed by Bureau Veritas Laboratories (BV); a CALA-certified laboratory that uses CCME recognized methods to conduct laboratory analyses and conforms to the ISO/IEC standard referenced above. As conveyed by the laboratory, method blanks, control standards samples, certified reference material standards, method spikes, replicates, duplicates and instrument blanks are routinely analyzed as part of their internal QA/QC programs. As an internal quality control measure, the project laboratory routinely reports the results of laboratory prepared QA/QC analyses. The results of the laboratory QA/QC are reported in the laboratory certificates. Laboratory accreditation scope and certificate are attached in Appendix B.

As part of the development of the sampling and analysis plan, BluMetric will verify with BV that the selected analytical methods will have minimum detection limits that are less than the applicable environmental quality criteria. If these criteria are not met, the laboratory will be asked by BluMetric to either re-analyze the affected samples or qualify the results. BluMetric acknowledges that due to the remote nature of the Site, some recommended sample hold times may be exceeded due to shipping limitations.

6.3.6 Analytical Program Summary

A summary of the proposed analyses is outlines in **Table 3**, below.

Table 3: Analytical Program Summary

Parameter	# of Samples (QAQC Samples)			
	Surface Water	Sediment	Seep Water	Soil
BTEX/PHCs	9	9	tbd	tbd
Metals*	9	9	tbd	tbd
PCBs	9	9	tbd	tbd
General Chemistry**	9	--	tbd	--
pH, conductivity, temperature	9	--	tbd	--
PAHs (LTM-ST8 only)	1	--	--	--

Notes:
**Metals - arsenic, cadmium, chromium, cobalt, lead, nickel, and zinc)*
*** General Chemistry - major ions, hardness, TDS, and TSS*
*tbd – samples will only be collected if seepage is observe*d

7. SITE SURVEY, GPS METHODS

BluMetric will utilize a hand-held GPS for recording the coordinates of sample locations and any key features or observations encountered during each sampling/monitoring visit. In addition, photographs will be taken from standard photo points as specified in the LTM to document any change over time, as well as logging and/or recording of any observations, measurements or activity during the site monitoring visit.

8. CLOSURE

The conclusions presented in this report are based upon the analysis of historical information made available to BluMetric Environmental Inc. Any additional information received after the date of delivery of this report will be analysed and submitted in a timely manner in the form of an addendum or a memorandum.

BluMetric Environmental Inc., makes no warranty as to the accuracy or completeness of the information provided by others, or of conclusions and recommendations predicated on the accuracy of that information.

This report has been prepared for the Public Services and Procurement Canada and Transport Canada. Any use a third party makes of this report, any reliance on the report, or decisions based upon the report, are the responsibility of those third parties unless authorization is received from BluMetric Environmental Inc. in writing. BluMetric Environmental Inc. accepts no responsibility for any loss or damages suffered by any unauthorized third party as a result of decisions made or actions taken based on this report.

Respectfully submitted,
BluMetric Environmental Inc.

Andrea Jenney, B.Sc., P.Eng
Senior Engineer (NAPEG)

APPENDIX A

Figures

Site Location

Hubbard Rd.

Akiliiq Rd

LEGEND

Road

Elevation Contour (10 m)

REV.	DESCRIPTION	YY/MM/DD	BY	CHK
1				

REFERENCES

N W E S

0 50 100 Metres

1:5,000

CLIENT

Public Service and Procurement Canada

PROJECT

Compliance Long Term Monitoring for Transport Canada at the Former Iqaluit Dump

TITLE

Site Location

BluMetric™ Environmental

4916 49th Street,
PO Box 11086
Yellowknife, NT, X1A 1P3
TEL: (867) 873-3500
FAX: (867) 873-3499
Email: info@blumetric.ca
Web: http://www.blumetric.ca

PROJECT #	DATE
200607-00	October 27, 2020

DRAWN	CHECKED	FIG NO.	REV
GM	HW	01	0

N:\GIS_PROJECTS\200000\200607 - P05950 - PSPC Iqaluit Former Metal Dump\MXD\2020-10-27\P05950 - Fig1-SiteLocation.mxd

LEGEND

- ArcadisSampleLocations
- Approximate Limit of Former Landfill
- Road
- Elevation Contour (10 m)

REV.	DESCRIPTION	YY/MM/DD	BY	CHK
1				

REFERENCES

N, W, E, S

0 50 100 Metres

1:2,000

CLIENT

Public Service and Procurement Canada

PROJECT

Compliance Long Term Monitoring for Transport Canada at the Former Iqaluit Dump

TITLE

Site Plan

BluMetric™ Environmental

4916 49th Street,
PO Box 11086
Yellowknife, NT, X1A 1P3
TEL: (867) 873-3500
FAX: (867) 873-3499
Email: info@blumetric.ca
Web: http://www.blumetric.ca

PROJECT #	DATE
200607-00	October 27, 2020

DRAWN	CHECKED	FIG NO.	REV
GM	HW	02	0

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APPENDIX B

Laboratory Accreditation Scope
Laboratory Certificate of Accreditation

TESTING AND CALIBRATION LABORATORY ACCREDITATION PROGRAM (LAP)

Scope of Accreditation

Accredited Laboratory No. 160

Legal Name of Accredited Laboratory:	**Bureau Veritas**
Location Name or Operating as (if applicable):	Edmonton Laboratory
Contact Name:	Lalaine Mabanta
Address:	6744-50 Street NW Edmonton, AB T6B 3M9
Telephone:	+780 577-7151
Fax:	+780 378-8699
Website:	www.bvna.com
Email:	Edmonton-QA-CA@bureauveritas.com

SCC File Number:	15229
Accreditation Standard(s):	ISO/IEC 17025:2017 General requirements for the competence of testing and calibration laboratories
Fields of Testing:	Biological Chemical/Physical
Program Specialty Area:	Environmental Testing (ET)
Initial Accreditation:	1995-03-06
Most Recent Accreditation:	2021-08-16
Accreditation Valid to:	2023-03-06

SCC Group Accreditation:
This laboratory is a part of a Group Accreditation with the following facilities in accordance with SCC's policy on Group Accreditation documented in the Accreditation Services Accreditation Program Overview.

151039 - Bureau Veritas - Unit D, 675 Berry St., Winnipeg, MB, R3H 1A7, Accredited Laboratory No. 837
151043 - Bureau Veritas - 2021 - 41st Avenue, N.E., Calgary, AB, T2E 6P2, Accredited Laboratory No. 836

Note: Environmental Testing except for Adsorbable Organic Halides, Total Sulfide by Titration, and Air Matrices are performed at:

Bureau Veritas
Edmonton Environmental
9331 48 Street NW,
Edmonton, AB
T6B 2R4

ENVIRONMENTAL AND OCCUPATIONAL HEALTH AND SAFETY

Environmental:

Air

PTC SOP – 00128	VOCs by Thermal Desorption Diffusive Tube [EPA 325B] 1, 3-Butadiene Benzene Ethylbenzene m,p-Xylenes o-Xylene Toluene
PTC SOP – 00148	Monitoring NO2 in the Atmosphere by using All-Season Passive Samplers [AWMA 91st PAPER 98-TP44.03] Nitrite
PTC SOP – 00149	Monitoring SO2 in the Atmosphere by using All-Season Passive Samplers [H. Tang, B. Brassard, R. Brassard and E. Peake, "A New Passive Sampling System for Monitoring SO2 in the Atmosphere" Proceedings, Clean Air '96: Second North American Conference and Exhibition, Nov. 19-22, 1996 Orlando USA] Sulfite
PTC SOP – 00150	Monitoring H2S in the Atmosphere by using All-Season Passive Samplers [Hongmao Tang "A New All-Season Passive Sampling System for Monitoring H2S in Air" The Scientific World, (2002)2, 155-168] Hydrogen Sulfide

PTC SOP – 00156	Volatile Organic Compounds on Passive Samplers using GC/MS [Modified from BP 36-126-NIOSH Method 1500 and Aromatic-NIOSH Method 1501] 1,1,1-Trichloroethane 1,1,2-Trichloroethane 1,2,4-Trimethylbenzene 1,2-Dichlorobenzene 1,3,5-Trimethylbenzene 1,4-Dichlorobenzene 2-Hexanone 2-methyl-4-Pentanone (MIBK) 3-Ethyltoluene Benzene Chlorobenzene Chloroform Decane d-Limonene Dodecane Ethylbenzene Heptane Isopropylbenzene Methylcyclohexane Naphthalene Nonane Octane Styrene Tetrachloroethylene Toluene Trichloroethylene Undecane Xylene, Total
PTC SOP – 00157	Monitoring NH3 in the Atm by using the Ogawa Passive Samplers [ASTM D6919] Ammonia
PTC SOP – 00197	Monitoring Ozone in the Atmosphere by using Maxxam All-Season Passive Samplers [H. Tang and T. Lau "A New All-Season Passive Sampling System for Monitoring Ozone in Air", Environmental Monitoring and Assessment, 65 (1-2) 129-137, 2000.] Ozone

Air Filter

PTC SOP – 00151	Mass Determination of Particulate Matter (PM 2.5 and 10) Gravimetric [Modified from US EPA, Quality Assurance Guidance Document, 2.12: Monitoring PM2.5 in Ambient Air Using Designated Reference or Class I Equivalent Methods] PM10 PM2.5
PTC SOP – 00180	Dustfall, Total and Fixed, Gravimetric [Modified from AMD, Appendix 4-6] Dustfall, Fixed Dustfall, Total

Water (Inorganic)

AB SOP-00016	Chemical Oxygen Demand (Total and Dissolved) [Modified From SM 5220 D, Colorimetric] COD
AB SOP-00058	Dissolved Oxygen- Modified Winkler Method [Modified from SM 4500-O C, Titrimetric] Dissolved Oxygen
AB SOP-00061	Total Suspended Solids, Total Fixed Solids, and Total Volatile Solids [Modified from SM 2540 D and E, Gravimetric] Fixed Solids Total Suspended Solids Volatile Suspended Solids
EENVSOP-00159	pH Analysis in Bioassay Lab [Modified From SM 4500-H+ B, pH Meter] pH
PTC SOP-00173	Sulphide - Total, Titration Method [SM 4500-S2 F]

Water (Organic)

PTC SOP-00056	Adsorbable Organic Halogens [AE128.1] Colormetric Titration
AB SOP-00040	Analysis of Extractable Hydrocarbons in Water and Soils by GCFID [Modified from Static Sheen Test (EPA Method 1617), Visual] Sheen

Water (Toxicology)

EENVSOP-00154	48-Hr Acute Static Bioassay using Daphnia magna [EPS 1/Rm/11 and EPS 1/RM/14, Acute Lethality (Survival)] Daphnia LC50 (48 h) Daphnia Single Concentration (48h)
EENVSOP-00155	Ceriodaphnia dubia Reproduction Inhibition and 7-Day Survival Chronic [EPS 1/RM/21, Survival and Reproduction Inhibition] Ceriodaphnia dubia (7d)
EENVSOP-00156	Fathead Minnow Larval Growth and Survival 7 Day Chronic Test [EPS 1/RM/22, Survival and Growth Inhibition] Fathead Minnow (7d)
EENVSOP-00160	96-Hour Acute Static Bioassay using Rainbow Trout [EPS 1/RM/9 and EPS 1/RM/13, Acute Lethality (Survival)] Trout LC50 (96 h) Trout Single Concentration (96h)

NON-METALLIC MINERALS AND PRODUCTS

Petroleum Refinery Products (including asphalt materials, petrochemicals, fuels and lubricants):

Fuels and Lubricants

PTC SOP-00010	Determination of Water in Lubricating Oil by the Visual Crackle Test [Fitch, J. C., The Lubrication Field Test and Inspection Guide, Noria Publishing, Booklet, 2000]
PTC SOP-00011	Additives, Wear Metals and Contaminants in Lubricating Oils by ICPOES [ASTM D5185]
PTC SOP-00012	Kinematic Viscosity of Lubricating Oils [ASTM D7279]
PTC SOP-00013	Oxidation, Nitration, Sulphation and Soot of Engine oils by FTIR [ASTM D7418]
PTC SOP-00014	Determination of Fuel Dilution for In-Service Engine Oils by GC [ASTM D7593]

PTC SOP-00017	Base Number of Lubricating Oils by Potentiometric Titration [D4739]
PTC SOP-00018	Water Content in Lubricating Oils by Coulometric KF Titration [ASTM D6304]
PTC SOP-00020	ISO Particle Count of Lubricating Oils Using an Optical Particle Counter [ISO 11500:2008]
PTC SOP-00029	Analysis of Hydrocarbon Condensates by Heated Flash [GPA 2286 and 2261]
PTC SOP-00030	Analysis of C4 Components in Condensate [Modified GPA 2177]
PTC SOP-00031	Calibration and Analysis of Trace Sulfur Compounds in Petroleum Products [ASTM D-5504 Modified]
PTC SOP-00033	Calibration and Analysis of Trace Sulfur Compounds in Petroleum Products [Modified ASTM D5623]
PTC SOP-00036	Hydrocarbon C30 Analysis by Gas Chromatography [ASTM D2887/CAN/CGSB 3.0, No.14.3]
PTC SOP-00037	Density of Light Hydrocarbons (condensate) by Digital Densitometer [ASTM D4052/ ASTM D5002]
PTC SOP-00038	Trace Methanol by Gas Chromatography [UOP 569 (modified)]
PTC SOP-00039	Boiling Range Distribution by ASTM D7900
PTC SOP-00044	Analysis of LPG/NGL to C15+ (Extended) [GPA 2186]
PTC SOP-00045	Ponau Analysis [CAN/CGSB 3.0 No. 14.3 and ASTM D6729]
PTC SOP-00048	Hydrocarbon C100 Analysis by Gas Chromatography [ASTM D6352/ASTM D7169]
PTC SOP-00049	Component Analysis of Glycols, Amines, and Sulfinols by GC [UOP 523 modified]
PTC SOP-00050	Total Organic Halogens and Organic Chlorides [modified ASTM D4929]

PTC SOP-00051	Boiling Range Distribution of Petroleum Fractions by Gas Chromatography [ASTM D2887]
PTC SOP-00052	High Pressure Density [ASTM D4052/5002]
PTC SOP-00055	Boiling Range Distribution by ASTM D6352
PTC SOP-00058	Molecular Weight by Freezing Point Depression [Cryette Instrument Manual]
PTC SOP-00062	Analysis of Hydrocarbon Gas [GPA 2286]
PTC SOP-00067	Measurement of Viscosity by Cannon - Fenske Opaque Viscometer [ASTM D445]
PTC SOP-00068	Pour Point Analysis of Petroleum Products [ASTM D97; D5853]
PTC SOP-00071	Distillation of Petroleum Products at Atmospheric Pressure [ASTM D86]
PTC SOP-00072	Reid Vapor Pressure of Petroleum Products [ASTM D323A]
PTC SOP-00082	Flash-Point by Pensky-Martens Closed Cup Tester [ASTM D93]
PTC SOP-00083	Detection of Copper Corrosion from Petroleum Products by the Copper Strip [ASTM D130/ASTM D1838]
PTC SOP-00084	Water and Sediment in Crude by the Centrifuge Method (Laboratory Procedure) [ASTM D4007; ASTM D1796; ASTM D2709]
PTC SOP-00089	Aniline Point of Petroleum Products [ASTM D611]
PTC SOP-00091	Electrical Conductivity of Aviation and Distillate Fuels [ASTM D2624]
PTC SOP-00092	Free Water and Particulate Contamination in Distillate Fuels (Visual Inspection Procedures) [ASTM D4176]
PTC SOP-00093	Filterability of Diesel Fuels by Low Temperature Flow Test (LTFT) [ASTM D4539]

PTC SOP-00097	Determination of Bitumen, Water, Solids by Dean Stark Method [Alberta Research Council Oil Sands Analytical Method Manual, Chapter 1, Method 1.00]
PTC SOP-00099	Density and Relative Density of Liquids by Digital Density Meter [ASTM D4052]
PTC SOP-00100	Density and Relative Density of Crude Oils by Digital Density Analyzer [ASTM D5002]
PTC SOP-00103	Total Acid Number of Petroleum Products by Potentiometric Titration [ASTM D664]
PTC SOP-00105	Water in Petroleum Products by Coulometric Karl Fischer Titration [ASTM D4928/ASTM D6304]
PTC SOP-00107	Standard Test Method for Determination of Carbon Residue (Micro Method) [ASTM D4530]
PTC SOP-00111	Total Nitrogen Sulphur in Hydrocarbons by boat-inlet Antek [ASTM D5453-S, ASTM D5762 – N2, ASTM D4629 – Trace Nitrogen]
PTC SOP-00115	Sediment in Oil by Membrane Filtration [ASTM D4807]
PTC SOP-00116	Sulfur in Petroleum Products by Energy-Dispersive X-Ray Fluorescence Spectroscopy [ASTM D4294]
PTC SOP-00120	Cetane Number of Diesel Fuel Oil [ASTM D613]
PTC SOP-00121	Heat of Combustion of Liquid Hydrocarbon Fuels by Bomb Calorimeter [ASTM D240]
PTC SOP-00122	Lubricity of Diesel Fuels by High Frequency Reciprocating Rig [ASTM D6079]
PTC SOP-00126	Acid Number by Color-Indicator Titration [ASTM D974]
PTC SOP-00175	Ash Content [ASTM D482]
PTC SOP-00204	High Temperature Stability of Distillate Fuels [ASTM D6468]

PTC SOP-00206	Metals Analysis in Organics by ICPOES [ASTM D5708/ASTM D5185/ASTM D4951]: Silver (Ag), Aluminum (Al), Arsenic (As), Boron (B), Barium (Ba), Beryllium (Be), Calcium (Ca), Cadmium (Cd), Cobalt (Co), Chromium (Cr), Copper (Cu), Iron (Fe), Lithium (Li), Potassium (K), Magnesium (Mg), Manganese (Mn), Molybdenum (Mo), Sodium (Na), Nickel (Ni), Phosphorus (P), Lead (Pb), Selenium (Se), Silicon (Si), Tin (Sn), Strontium (Sr), Titanium (Ti), Vanadium (V), Zinc (Zn)
PTC SOP-00209	Trace Hydrocarbon Analysis by GC [ASTM D5442] Methane, Ethane, Propone, Isobutane, n-Butane, Isopentane, n-pentane, methylcyclopentane, benzene, cyclohexane, methylcyclohexane, toluene, ethylbenzene, meta and para-xylene, ortho-xylene, trimethylbenzene, hexanes (C6), heptanes (C7), octanes (C8), nonanes (C9), decanes (C10), undecanes (C11), dodecanes (C12), tridecanes (C13), tetradecanes (C14), pentadecanes (C15), hexadecanes (C16), heptadecanes (C17), octadecanes (C18), nonadecanes (C19), eicosanes (C20), heneicosanes (C21), docosanes (C22), triacosanes (C23), tetracosanes (C24), pentacosanes (C25), hexacosanes (C26), heptacosanes (C27), octacosanes (C28), nonacosanes (C29), triacontanes plus (C30+)
PTC SOP-00211	Light End Analysis in Stabilized Hydrocarbon Liquids [Modified ASTM D2887]
PTC SOP-00218	Boiling Range distribution by ASTM D7169
PTC SOP-00241	Carbon, Hydrogen, Nitrogen and Sulphur Analysis [ASTM D5373/ ASTM D3176 / ASTM D4239]
PTC SOP-00242	Proximate Analysis of Coal and Coke [ASTM D7582]
PTC SOP-00250	Preparation of Coal Samples and Determination of Moisture in Coal [ASTM D2013/D2013M and ASTM D3302/D3302M]
PTC SOP-00254	Heating Value of Coal and Coke by Bomb Calorimeter [ASTM D5865]
PTC SOP-00267	Viscosity by Stabinger [ASTM D7042]
PTC SOP-00275	Particle Size Distribution by Beckman Coulter Laser Analyzer

PTC SOP-00279	Total Mercury in Coal and Coal Combustion Residues [ASTM D6722]

Number of Scope Listings: 83

Notes:

ASTM: American Society for Testing and Materials
ISO/IEC 17025: 2017: General Requirements for the Competence of Testing and Calibration Laboratories
NIOASH: The National Institute for Occupational Safety and Health
CCME: Canadian Council of Ministers of the Environment
EPA: Environment Protection Agency
AEC: Alberta Environmental Centre
GPA: Gas Producers Association

This document forms part of the Certificate of Accreditation issued by the Standards Council of Canada (SCC). The original version is available in the Directory of Accredited Laboratories on the SCC website at www.scc.ca.

Elias Rafoul
Vice-President, Accreditation Services
Publication on: 2022-02-10

Certificate of Accreditation

Certificat d'accréditation

Bureau Veritas
Edmonton Laboratory

6744-50 Street NW, Edmonton, AB, T6B 3M9
9331 48 Street NW, Edmonton, AB, T6B 2R4

having been assessed by the Standards Council of Canada (SCC) and found to conform with the requirements of ISO/IEC 17025:2017 and the conditions for accreditation established by SCC is hereby recognized as an

ACCREDITED TESTING LABORATORY

for the specific tests or types of tests listed in the scope of accreditation approved by SCC and found on the SCC website at www.scc.ca.

ayant fait l'objet d'une évaluation du Conseil canadien des normes (CCN), et ayant été trouvé conforme aux exigences énoncées dans ISO/IEC 17025:2017 et aux conditions d'accréditation établies par le CCN, est de ce fait reconnu comme étant un

LABORATOIRE D'ESSAIS ACCRÉDITÉ

pour les essais ou types d'essais énumérés dans la portée d'accréditation approuvée par le CCN et figurant dans le site Web du CCN au www.ccn.ca.

SCC file number: / Dossier du CCN nº : 15229

Initial accreditation date: / Date de la première accréditation :1995-03-06

Vice-President – Accreditation Services / Vice-président – Services d'accréditation

Issued on: / Délivré le :2022-03-01

The validity of this certificate, including the date of last re-accreditation and its expiry can be confirmed by the accompanying Scope of Accreditation document in the Directory of Accredited Laboratories on the SCC website at www.scc.ca.

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017. The accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF communiqué dated April 2017).

Pour vérifier la validité du présent certificat, y compris la date de la dernière réaccréditation et la date d'expiration du certificat, consulter la portée d'accréditation qui se trouve dans le répertoire des laboratoires accrédités dans le site Web du CCN au www.ccn.ca.

Ce laboratoire est accrédité conformément à la Norme internationale reconnue ISO/IEC 17025:2017. Cette accréditation démontre la compétence technique d'un organisme pour une portée définie et l'exploitation d'un système de management de la qualité de laboratoire (cf. communiqué conjoint ISO-ILAC-IAF date d'avril 2017).

Standards Council of Canada established in 1970 — Conseil canadien des normes créé en 1970

Standards Council of Canada
Open a world of possibilities.

Conseil canadien des normes
Un monde de possibilités à votre portée.

Canada

Bureau Veritas Laboratories

Quality Assurance & Quality Control Program

COR FCD-00180 / 5

BUREAU VERITAS

Table of Contents

1.0 Laboratory Company Profile

For over 50 years, Bureau Veritas Laboratories (formerly Maxxam) has been a leader in analytical services and solutions to the energy, environmental, industrial hygiene, food and DNA industries. Our 2,200 dedicated employees proudly lead the industry in depth of technical and scientific expertise and serve customers through our national network of laboratories. In processing over 2.4 million samples and generating in excess of 43 million results annually, we skilfully combine efficiency and customer service with rigorous science and uncompromising quality management. We are committed to success with responsibility – to our stakeholders, to our communities, and to the environment.

Our mission is to improve our customers' performance, help reduce their risks and enable our custumers to meet or exceed challenges of quality, health and safety, environmental and social responsibility. We want to be the clear choice in testing, inspection and certification services.

A major focus is analytical services for an exhaustive list of environmental contaminants. Solid wastes, effluents, potable water, receiving waters, ground waters, soils, sediments, stack emissions, ambient air, plant, animal and fish tissues are analysed for everything from pH to Dioxins.

We provide these services to a wide range of customers in North America and over 20 foreign countries. Our clients include consulting engineers, industry, businesses, all levels of government as well as private individuals.

Our laboratories function as a tight network operating under a single Quality Management System, utilizing the strengths of each and working together to ensure customer requirements are met. All major laboratories provide the full range of environmental testing services using a uniform Quality System and IT infrastructure to deliver a standardized high quality service across the country. In addition, certain locations have special areas of expertise, such as seawater analysis at our Burnaby and Bedford facilities and High Resolution Dioxin analysis in our Mississauga and Ville St-Laurent facilities.

Operating within one Laboratory Information and Quality System across Canada provides uniform report formats, management performance measurements, turnaround time measurements, corrective action management, and a number of other key performance indicators making us a reliable partner.

Bureau Veritas is a world leader in laboratory testing, inspection and certification services. Established in 1828, the Group has more than 75,000 employees located in over 1,500 offices and laboratories around the globe. Since our founding our name has been synonymous with integrity - all the more crucial in an industry built on trust. As a business to business company that has a profound impact our world (or community) we are dedicated to building trust between client companies, public authorities and consumers.

2.0 Quality Program

Bureau Veritas Laboratories currently employs 35 full-time Quality Assurance (QA) staff. This group reports to the Senior Quality Assurance Manager, whose responsibility it is to ensure consistency of approach and program independence from operations. The QA team is strengthened through a web-based document control and management system that ensures consistent formats while minimizing routine administrative tasks. Authorized staff have immediate secure access to all corporate and individual laboratory SOPs and support documentation.

The Quality Program is designed to comply with or exceed the data quality objectives of Industry, Canadian Regulators, United States EPA and the International Standards Organization (ISO). The QA team is assisted in performing audits with the help of many trained internal auditors that are composed of operations and support services personnel. This brings many benefits to the customer and to our company. These benefits include improved client and accreditation audits, increased communication between groups within our company, greater variety of work for staff and increased understanding of ISO/IEC 17025, our customer requirements and our own quality requirements.

The keys to the Quality Program are Prevention and Verification.

2.1 Prevention through Quality Assurance

Extensive control charting practices ensure that analyses with biases or which are potentially out of control are recognized early so that potential problems can be rectified before exceedences occur. Comprehensive internal audits of methods, Quality Control (QC) practices, sample analyses, and quality system elements confirm adherence to Standard Operating Procedures. Regular system reviews and a structured Continuous Improvement Program combine to provide the strongest possible Quality System.

Evaluated monthly, score carding of key performance indicators such as Proficiency Testing Performance drives the Program, defining successes and highlighting areas for improvement. We also have a corporate Management of Change procedure whereby substantive changes in the laboratory are adequately reviewed, communicated and documented.

2.2 Training

Upon hire, personnel are required to participate in the Corporate New Employee Orientation Program (NEOP) where they are trained on the quality management system, Ethics & Integrity, and the Environment, Health and Safety program. In addition to their initial training, they are provided technical training, delivered by designated individuals (supervisor or senior analyst level) with comprehensive working knowledge and experience in the area they are training. To ensure full traceability and auditability, training records for all employees are maintained in our online document control system and in the employee's personal training file, which is maintained by his/her supervisor.

Analyst competence is essential to the production of accurate data. Prior to beginning work in the laboratory, technicians and analysts are required to thoroughly understand the QA objectives and the relevant SOP. This, in conjunction with hands-on training from a senior analyst, ensures successful transfer of information is effective. Demonstration of acceptable performance on laboratory control samples or reference materials by the analyst is required for final certification to perform the method. Ongoing demonstration of capability is provided through blind performance evaluation samples, audits and annual recertification.

2.3 Customer Complaints

Formal responses are required to any customer complaints, discrepancies, deficiencies or quality issues. The deficiencies are recorded in an electronic database and cascade to the supervisor and the analyst for immediate attention. An acknowledgment of the deficiency is required within a specified timeframe accompanied by an action plan, which must include any corrective measures taken along with results of these actions. A follow-up report on the same form must be completed and returned documenting the effectiveness of the improvements implemented. If closure of the issue is not done in the required timeframe the issue is escalated to the next management level promoting prompt resolution of the issue.

2.4 Ethics and Data Integrity

All employees are required to undergo annual ethics training and to read and sign an Ethics and Data Integrity Agreement annually, promising to not knowingly commit an unethical act or through inaction, allow a coworker to do so. Senior management reinforces the program through presentations, discussion and written tests.

2.5 Verification through Quality Control

Public safety, environmental impact and major financial decisions are routinely based on our analytical data. Legal data defensibility is essential to these activities and is verified through a comprehensive quality control program. The protocols and procedures described below are routinely employed and are described in detail in our Standard Operating Procedures (SOPs) for analysis, laboratory practice and staff training. The quality assurance objectives are translated into specific requirements that are written into all standard operating procedures.

2.6 Quality Control Protocols

Each project is conducted under a defined quality control program. Our standard quality control protocols meet or exceed the requirements of Canadian and United States regulators. In addition to this, most large projects have a defined Quality Assurance Project Plan (QAPP) that includes all required data quality objectives. The following table outlines the quality control practices routinely employed in all laboratories. Additional elements or different limits may be used on a project specific basis.

Elements of Quality Control		
Element	**Frequency**	**Limits***
Field QC		
Sample Containers	Precleaned to EPA Specs	Non Detect
Traveling Blanks	Project Specific	<RDL
Field Duplicates	Project Specific	Project Specific
Run QC, All Methods		
Method Blanks	1 in 20 or 1/batch	<RDL
Blank Spikes	1 in 20 or 1/batch	CCME or Provincial limits
Matrix Spikes	1 in 20 or 1/batch	CCME or Provincial limits
Duplicates Analysis	1 in 20 or 1/batch	± 20%-50%
Real Time Control Charts	Key parameters, all tests	± 3 SD, trend analysis
Inorganic QC		
Instrument Calibration	Multipoint	>0.995 correlation
Calibration Verification	Daily (second source)	± 10% of initial
Continuing Cal. Verification	Every 20 samples & at end	± 10% of initial
Standard Reference Material	Daily – As Required (if available)	SRM limits
Organic QC		
Instrument Calibration	Multipoint	RSD ± 20%
Calibration Verification	Daily (second source)	± 20% of initial
Continuing Cal. Verification	Every 20 samples & at end	RF or RRF ± 30% of initial
Surrogate Standards	All samples, all organic analyses	CCME or Provincial limits
Internal Standards (IS)	All Samples (method specific)	-50% to +100% of IS in Cal'n
Standard Reference Material	As required (if available)	SRM limits
External QC		
Interlaboratory Comparisons	>50/year	Top 10% overall, >95% acceptable
Double Blind Program	Annually (Inorganic and Organic where applicable)	Statistical Limits
Internal QC Checks	As required	In house limits

* Typical QC acceptance criteria. Values may vary for specific tests.

2.7 Accreditation

Bureau Veritas Laboratories hold several accreditations granted by Canadian and United States regulatory organizations. The intent of accreditation is to document through laboratory audit, check samples, and round robin studies, each laboratory's

conformance to ISO/IEC 17025, an internationally accepted quality system. The accreditation process is also an integral part of our philosophy of Continuous Improvement. The following organizations have endorsed our quality system. These endorsements are granted on a facility specific basis. In addition, many tier one industries have audited and approved our laboratories.

- Canadian Association for Laboratory Accreditation (CALA)
- Standards Council of Canada (SCC)
- Ministère de l'Environnement et de la Lutte contre les changements climatiques (MELCC)
- National Environmental Laboratory Accreditation (NELAC)
- National Voluntary Laboratory Accreditation Program (NVLAP)
- U.S. Environmental Protection Agency Contract Laboratory
- American Industrial Hygiene Association (AIHA)
- Various US States

2.8 Proficiency Testing

Our laboratories participate in many national and international proficiency testing and double blind check sample programs. As per ISO 17025 requirements, we are required to successfully participate in proficiency testing programs for tests included on our scope of accreditation. We go above and beyond these minimum requirements. Some of the programs in which we are currently participating include:

- Corporate Double Blind Program
- Proficiency Testing Canada (PT Canada) (formerly CALA)
- Phenova
- Environment and Climate Change Canada
- Collaborative Testing Services
- State of New York – Environmental Laboratory Approval Program

2.9 Double Blind Program

The Double Blind Program was implemented to measure the quality of data and service provided to customers. Proficiency testing samples are required as part of standard accreditation programs (ISO/IEC 17025), however they do not adequately simulate lab performance for client samples since the lab knows it is being tested. The double blind program involves using a sample from an accredited proficiency testing provider and having the sample "disguised" as a client sample so the lab is completely unaware their performance is being evaluated. The sample is sent to our laboratories as a regular sample, which upon completion is assessed by the Quality Assurance Department for turnaround time (TAT), data accuracy and traceability. This program best simulates lab performance for real client samples.

2.10 Customer Service / Project Management

The quality process extends beyond accreditations, methods and staff expertise. It includes the management system for all activities from project awards to follow-up

customer satisfaction surveys. The heart of the process is the Project Management (PM) team, the largest laboratory customer service team in Canada. This team consists of dedicated professionals whose responsibility it is to ensure the customer gets the tests meeting their requirements, when promised. Project managers are also aware of current and emerging regulations and thus are able to assist customers in choosing the correct testing protocol.

Supporting the PM team is our unique Laboratory Information Management System (MaxxLIMS). MaxxLIMS tracks and monitors all project information and provides a direct link between analysis and reporting. Employing barcodes, MaxxLIMS monitors each sample's progress through the lab as it is received and logged, extracted, analyzed and the resulting data is approved, validated and reported. Comprehensive sample tracking, combined with instrument capacity and staff commitment to customer service, allows clients to be confident in our ability to deliver quality data on time. Customer feedback and PM process insight has driven a number of innovations, mostly made possible through MaxxLIMS.

- Client website access to approved data
- Client website access to project status
- On line bottle orders
- Sample integrity forms
- Custom electronic and hard copy deliverables packages.
- Regulatory reports
- Consolidated invoicing
- Project summary performance reports
- Real time, automated sample log-in and data checks

2.11 The Quality Promise

The Quality Pyramid summarizes our quality promise to our customers. Each component of the pyramid strengthens the overall customer experience and ultimately converges at a single point, the promise to deliver accurate, defensible data to our clients.


Accurate,
Defensible Results
Blind Proficiency Testing
Internal Auditing Program &
Continuous Improvement
Customer Feedback Tools
(CAR, NCR, MOC)
Unbiased Customer Protection
QA Independent of Operations
Comprehensive Employee
Education & Training Program
Experienced, Ethusiastic,
Passionate Staff
Strong Core Values,
Data Integrity & Ethics
Quality Promise = ∑
(Ethics, Experience, Training,
Corporate Committment
Accreditation, Internal Audits,
Continuous Improvement,
Blind PTs)

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