March 17, 2023
Project Number: 210561-01

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

Re: Nunavut Water Board (NWB) 2022 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 2022-2023 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 (USAF) used the site from 1955 to 1963 as a metal dump for vehicles, truck bodies, barrels and scrap metal. This debris was scattered over a large area. Additionally, when the US Military left Frobisher Bay in 1963, shops, buildings, and other materials were bulldozed over the cliff.

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. BluMetric also completed the Year 4 supplemental monitoring program. The field program described herein was conducted in accordance with the year 5 Performance and Long-Term Monitoring (PLTMP) recommendations. The field program described herein was conducted in accordance with the year 5 PLTMP recommendations.

The 2022 LTM field program took place on August 18 and 19, 2022 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 Plan (PLTMP) (Arcadis, August 2017).

Exceedances to the environmental quality guidelines (EQG) for surface water samples in 2022 were limited to total zinc at LTM-SW7 and LTM-SW8. EQG exceedances for sediment samples in 2022 were noted at LTM-SD4, SD5, SD6, SD7, and SD8 for various parameters.

The 2022 field and analytical program represents Year 5 of monitoring and the completion of Phase I of LTM of the remediated site (Arcadis, 2017). Based on the findings of the Years 1-5 of the LTM Program and the requirements of the NWB Water Licence (1BR-MDR2126), it is recommended to conduct surface water and sediment monitoring in 2024 (Year 7 post-remediation) and then evaluate whether to continue monitoring after Year 7.

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. BluMetric also completed the Year 4 supplemental monitoring program. The field program described herein was conducted in accordance with the year 5 PLTMP recommendations.

ENVIRONMENTAL QUALITY GUIDELINES

The applicable EQG for the Site were established as part of the Long Term Monitoring Plan (Arcadis, 2018). As per the Plan, results from the 2022 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 18 and 19, 2022 for surface water sampling purposes. No other water was used or diverted during the 2022 LTM activities.

LONG TERM MONITORING

The 2022 Long Term Monitoring requirements for the Iqaluit Former Metal Dump were completed on August 18 and 19, 2022. Results from the 2022 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 18 and 19, 2022. Photos were taken of points of interest at standard photo locations as specified within the LTM Plan. Locations were confirmed with a handheld GPS.

Similar to previous years, All-Terrain Vehicle (ATV) tracks were observed at the top of the landfill. A few tents were observed northwest and southeast of the landfill, but none were observed on Site in 2022. Remnants of shelters (i.e., tarps, mattresses, firepits) were observed just west of the mound. Plastic and debris (likely garbage) were also observed near the surface water sampling locations LTM-SW6, LTM-SW5 and LTM-SW4, as well as further upstream in the ditch near LTM-SW8. The landfill liner was visible at the bottom of the landfill on the northwest corner where the slope meets the ground. The three landfill signs located on Site (on the mound near the access road, on exposed bedrock north of the mound, and west of the mound) continue to be missing. Otherwise, Site features and Site structure were observed to be in a similar state to that observed during previous monitoring events.

MONITORING OF THE NATURAL ENVIRONMENT

Monitoring of the natural environment was conducted as part of the LTM activities on August 18 and 19, 2022. Observations indicate use of the Site by local residents. These observations included ATV tracks on the top of the landfill and remnants of tents and firepits on the southwest side of the landfill. 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, as well as a small lemming near LTM-SW5 were the only wildlife observed in in the vicinity of the Site. Vegetation near the surface water locations was observed to be abundant and healthy, but sparse at the base of the mound.

SAMPLING

All sampling conducted throughout the 2022 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 18 and 19, 2022. Field parameters recorded at each sampling location are included in Table B-1 (Attachment B). The August 2022 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 2022 were limited to total zinc at LTM-SW7 and LTM-SW8. 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	2022
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	Zinc
LTM-SW8	NA	NA	Zinc	--	--	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 18 and 19, 2022. The August 2022 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	2022
LTM-SD1	--	--	--	--	--
LTM-SD2	--	--	--	--	--
LTM-SD3	--	--	Chromium	Lead	--
LTM-SD4	--	--	Lead	Total PCBs	PCBs
LTM-SD5	F3, Cadmium, Lead, Zinc, Total PCBs	F3, Cadmium, Zinc, Total PCBs	F2, F3, Cadmium, Lead, Zinc, Total PCBs	F3, PCBs	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	Cadmium, Zinc, PCBs
LTM-SD7	Zinc, Total PCBs	Zinc	Zinc, Total PCBs	Lead, Zinc, PCBs	Chromium
LTM-SD8	NA	Zinc	--	Zinc	Zinc

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

CONCLUSIONS

The 2022 Long Term Monitoring requirements for the Iqaluit Former Metal Dump were completed on August 18 and 19, 2022. Exceedances to the EQGs for surface water samples in 2022 were limited to total zinc at LTM-SW7 and LTM-SW8. EQG exceedances for sediment samples in 2022 were noted at LTM-SD4, SD5, SD6, SD7, and SD8 for various parameters.

The 2022 field and analytical program represents Year 5 of monitoring and the completion of Phase I of LTM of the remediated site (Arcadis, 2017). Based on the findings of the Years 1-5 LTM Program and the NWB Water Licence (1BR-MDR2126), it is recommended to conduct surface water and sediment monitoring in 2024 (Year 7 post-remediation) and then evaluate whether to continue monitoring after Year 7.

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.

Respectfully Submitted,
BluMetric Environmental Inc.

Andrée Pilon, B.Sc.
Environmental Scientist
apilon@blumetric.ca

Heather Wolczanski, M.Sc.
Geoscientist
hwolczanski@blumetric.ca

Andrea Jenney P.Eng. (NU/NT)
Senior Project Engineer
ajenney@blumetric.ca

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

Ref: 210561 - Iqaluit Former Metal Dump 2022 NWB Report_March 17th.docx

ATTACHMENT A

Figures

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

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
210561	October 13, 2022

DRAWN	CHECKED	FIG NO.	REV
KG	HW	01	0

N:\GIS_PROJECTS\210000\210561 - P06846 - PSPC - Iqaluit Metals Dump - Iqaluit NU\MXD\2022-10-13\210561 - Fig1-SiteLocation.mxd

LEGEND

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

REV.	DESCRIPTION	YY/MM/DD	BY	CHK
1				

REFERENCES

DO NOT SCALE DRAWING.
THIS DRAWING MAY HAVE BEEN REDUCED. ALL SCALE NOTATIONS INDICATED ARE BASED ON 11"x17" FORMAT DRAWINGS.

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
210561	October 13, 2022

DRAWN	CHECKED	FIG NO.	REV
KG	HW	02	0

N:\GIS_PROJECTS\210000\210561 - P06846 - PSPC - Iqaluit Metals Dump - Iqaluit NU\MXD\2022-10-13\210561 - Fig2-SitePlan.mxd

ATTACHMENT B

Chemistry Results

Table 1: Field Parameters and Purge Water Observations

Well ID	Date	Temperature (°C)	Electrical Conductivity (mS/cm)	Dissolved Oxygen (mg/L)	pH	Oxygen Reducing Potential (mV)
SW-1	2022-08-18	8	1246	17.05	7.63	312.4
SW-2	2022-08-18	8.3	3225.0	16.54	7.28	319.7
SW-3	2022-08-18	8.2	7573	17.49	7.73	355.2
SW-4	2022-08-18	7	1496	21.46	7.16	329.1
SW-5	2022-08-18	6	85.5	21.48	6.24	318.4
SW-6	2022-08-18	6.5	798	19.19	6.25	313.7
SW-7	2022-08-18	6	113.4	20.35	6.39	289.9
SW-8	2022-08-19	9.8	78.4	13.3	6.18	358.2

Notes:

°C - Degrees Celcius

mS/cm - Millisiemens per Centimeter

mg/L - Milligrams per Liter

Table 2: Surface Water Analytical Results - General Chemistry

Sample ID					SW-1*								SW-2						
					LTM1	DUP 1	LTM1-SW1-18	LTM1-SW1-19	LTM2-DUP-19-SW	LTM-SW1	SW-1	LTM-SW1	LTM2	LTM2	LTM1-SW2-18	LTM2-SW2-19	LTM-SW2	SW-2	LTM-SW2
Date Sampled	**RDL**	**Units**	**CWQG Freshwater[1]**	**CWQG Marine[2]**	**2017-09-21**	**2017-09-21**	**2018-09-19**	**2019-07-30**	**2019-07-30**	**2020-09-19**	**2021-08-25**	**2022-08-18**	**2017-09-21**	**2017-10-03**	**2018-09-19**	**2019-07-30**	**2020-09-19**	**2021-08-25**	**2022-08-18**
BV Labs ID					--	--	--	--	--	**NSD389**	**QNY919**	**TNG131**	--	--	--	--	**NSD390**	**QNY920**	**TNG130**
Hardness (CaCO3)	1.0	mg/L	NV	NV	--	--	350	300	280	3600	380	180	--	--	250	310	2500	68	480
Conductivity	1.0	mS/cm	NV	NV	--	--	3.13	1.16	--	32	3.9	2100.0	--	--	2.56	2.90	22	0.66	4900.00
Total Dissolved Solids	10.0	mg/L	NV	NV	--	--	1,880	1,520	1,410	24400	2220	1030	--	--	1340	1700	15400	350	2790
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	7.67	6.64	7.49	7.77	7.48	7.55	7.47
Total Suspended Solids	1	mg/L	NV	NV	--	--	7	2	3	11	10	1	--	--	1	6	12	2	3

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 2: Surface Water Analytical Results - General Ch

Sample ID					SW-3*							SW-4*						
					LTM3	LTM3	LTM1-SW3-18	LTM2-SW3-19	LTM-SW3	SW-3	LTM-SW3	LTM4	LTM4	LTM1-SW4-18	LTM2-SW4-19	LTM-SW4	SW-4	LTM-SW4
Date Sampled	RDL	Units	CWQG Freshwater[1]	CWQG Marine[2]	2017-09-21	2017-10-03	2018-09-19	2019-07-30	2020-09-19	2021-08-25	2022-08-18	2017-09-21	2017-10-03	2018-09-19	2019-07-30	2020-09-19	2021-08-25	2022-08-18
BV Labs ID					--	--	--	--	NSD391	QNY921	TNG132	--	--	--	--	NSD392	QNY922	TNG133
Hardness (CaCO3)	1.0	mg/L	NV	NV	--	--	840	1000	2000	140	1200	--	--	110	440	2500	93	220
Conductivity	1.0	mS/cm	NV	NV	--	--	8.92	8.44	19	1.4	12000.0	--	--	1.27	4.09	23	1	2300
Total Dissolved Solids	10.0	mg/L	NV	NV	--	--	4740	5760	12400	840	7270	--	--	395	2630	16300	455	1240
pH	NV	pH	6.5 - 9.0	7.0 - 8.7	7.53	6.79	7.52	8.22	7.69	8	7	7.64	7.43	7.62	8.37	7.72	7.72	8
Total Suspended Solids	1	mg/L	NV	NV	--	--	5	3	7	2	5	--	--	1	2	13	1	3

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 2: Surface Water Analytical Results - General Ch

Sample ID					SW-5							SW-6						
					LTM5	LTM5	LTM1-SW5-18	LTM2-SW5-19	LTM-SW5	SW-5	LTM-SW5	LTM6	LTM6	LTM1-SW6-18	LTM2-SW6-19	LTM-SW6	SW-6	LTM-SW6
Date Sampled	RDL	Units	CWQG Freshwater[1]	CWQG Marine[2]	2017-09-21	2017-10-03	2018-09-19	2019-07-30	2020-09-19	2021-08-25	2022-08-18	2017-09-21	2017-10-03	2018-09-19	2019-07-31	2020-09-19	2021-08-25	2022-08-18
BV Labs ID					--	--	--	--	NSD393	QNY923	TNG134	--	--	--	--	NSD394	QNY924	TNG135
Hardness (CaCO3)	1.0	mg/L	NV	NV	--	--	46	71	1700	39	51	--	--	44	70	89	40	48
Conductivity	1.0	mS/cm	NV	NV	--	--	0.15	0.13	17	0.10	140.00	--	--	0.11	0.15	0.28	0.10	120.00
Total Dissolved Solids	10.0	mg/L	NV	NV	--	--	170	110	11200	55	85	--	--	130	85	165	70	85
pH	NV	pH	6.5 - 9.0	7.0 - 8.7	7.61	7.41	7.45	7.70	7.44	7.62	7.56	7.63	7.37	7.42	7.59	7.60	7.59	7.58
Total Suspended Solids	1	mg/L	NV	NV	--	--	28	5	10	1	2	--	--	64	42	3	2	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 2: Surface Water Analytical Results - General Ch

Sample ID					SW-7											SW-8			
					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)	LTM-SW7	DUP 1	LTM2-SW8-19	LTM-SW8	SW-8	LTM-SW8
Date Sampled	RDL	Units	CWQG Freshwater[1]	CWQG Marine[2]	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	2022-08-18	2022-08-18	2019-07-31	2020-09-19	2021-08-25	2022-08-19
BV Labs ID					--	--	--	--	--	NSD395	NSD397	QNY925	QNY927	TNG136	TNG138	--	NSD396	QNY926	TNG137
Hardness (CaCO3)	1.0	mg/L	NV	NV	--	--	--	50	65	28	21	47	47	47	46	74	44	49	46
Conductivity	1.0	mS/cm	NV	NV	--	--	--	0.12	0.13	0.10	0.09	0.12	0.12	120	110	0.12	0.12	0.12	110.00
Total Dissolved Solids	10.0	mg/L	NV	NV	--	--	--	80	95	85	90	95	80	90	90	115	100	90	90
pH	NV	pH	6.5 - 9.0	7.0 - 8.7	7.31	7.23	7.22	7.29	7.22	7.13	6.87	7.32	7.31	7.26	7.27	7.19	7.09	7.14	7.05
Total Suspended Solids	1	mg/L	NV	NV	--	--	--	1	530	61	14	6	5	17	23	12	8	8	6

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 3: Surface Water Analytical Results - Total Metals

Sample ID					SW-1*								SW-2						
					LTM1	DUP1	LTM1-SW1-18	LTM2-SW1-19	LTM2-DUP-19- SW	LTM-SW1	SW-1	LTM-SW1	LTM2	LTM2	LTM1-SW2-18	LTM2-SW2-19	LTM-SW2	SW-2	LTM-SW2
Date Sampled	**RDL**	**Units**	**CWQG Freshwater[1]**	**CWQG Marine[2]**	**2017-09-21**	**2017-09-21**	**2018-09-19**	**2019-07-30**	**2019-07-30**	**2020-09-19**	**2021-08-25**	**2022-08-18**	**2017-09-21**	**2017-10-03**	**2018-09-19**	**2019-07-30**	**2020-09-19**	**2021-08-25**	**2022-08-18**
BV Labs ID					--	--	--	--	--	NSD389	QNY919	TNG131	..	..	..	..	NSD390	QNY920	TNG130
Total Arsenic (As)	1.0	µg/L	5	12.5	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<0.10	<0.10	<1.0	<1.0	<5.0	<1.0	<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	<0.090	<0.010	0.111	<0.10	<0.10	<0.45	<0.090	<0.090
Total Chromium (Cr)	5.0	µg/L	NV	NV	<10	<10	<5	<5.0	<5.0	<25	<5.0	<5.0	<1.0	<1.0	<5	<5.0	<25	<5.0	<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	<0.50	<0.20	0.33	<0.50	<0.50	<2.5	<0.50	<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	<0.50	0.64	2.31	<0.5	<0.50	<2.5	<0.50	<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	<1.0	1.3	<1	<1.0	<5.0	<1.0	<1.0
Total Zinc (Zn)	5.0	µg/L	7	NV	<50	<50	5.6	<5.0	<5.0	<25	<5.0	<5.0	<5.0	14.7	<5	<5.0	<25	<5.0	<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 3: Surface Water Analytical Results - Total Metals

Sample ID					SW-3*							SW-4*						
					LTM3	LTM3	LTM1-SW3-18	LTM2-SW3-19	LTM-SW3	SW-3	LTM-SW3	LTM4	LTM4	LTM1-SW4-18	LTM2-SW4-19	LTM-SW4	SW-4	LTM-SW4
Date Sampled	**RDL**	**Units**	**CWQG Freshwater[1]**	**CWQG Marine[2]**	**2017-09-21**	**2017-10-03**	**2018-09-19**	**2019-07-30**	**2020-09-19**	**2021-08-25**	**2022-08-18**	**2017-09-21**	**2017-10-03**	**2018-09-19**	**2019-07-30**	**2020-09-19**	**2021-08-25**	**2022-08-18**
BV Labs ID					..	..	..	..	**NSD391**	**QNY921**	**TNG132**	..	..	..	..	**NSD392**	**QNY922**	**TNG133**
Total Arsenic (As)	1.0	µg/L	5	12.5	<0.50	0.6	<1.0	<1.0	<5.0	<1.0	<1.0	<0.10	<0.10	<1.0	<1.0	<5.0	<1.0	<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	<0.090	0.021	0.04	<0.10	<0.10	<0.45	<0.090	<0.090
Total Chromium (Cr)	5.0	µg/L	NV	NV	<5.0	<1.0	<5	<5.0	<25	<5.0	<5.0	<1.0	<1.0	<5	<5.0	<25	<5.0	<5.0
Total Cobalt (Co)	0.5	µg/L	NV	NV	<1.0	0.54	<0.50	<0.50	<2.5	<0.50	<0.50	<0.20	<0.20	<0.50	<0.50	<2.5	<0.50	<0.50
Total Lead (Pb)	0.5	µg/L	7[5]	NV	<1.0	12.9	<0.5	<0.50	<2.5	<0.50	<0.50	<0.20	<0.20	<0.5	<0.50	<2.5	<0.50	<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	<1.0	<1	<1.0	<5.0	<1.0	<1.0
Total Zinc (Zn)	5.0	µg/L	7	NV	68	18.4	<5	<5.0	<25	<5.0	<5.0	<5.0	5.3	<5	<5.0	<25	<5.0	<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 3: Surface Water Analytical Results - Total Metals

Sample ID					SW-5							SW-6						
					LTM5	LTM5	LTM1-SW5-18	LTM2-SW5-19	LTM-SW5	SW-5	LTM-SW5	LTM6	LTM6	LTM1-SW6-18	LTM2-SW6-19	LTM-SW6	SW-6	LTM-SW6
Date Sampled	**RDL**	**Units**	**CWQG Freshwater[1]**	**CWQG Marine[2]**	**2017-09-21**	**2017-10-03**	**2018-09-19**	**2019-07-30**	**2020-09-19**	**2021-08-25**	**2022-08-18**	**2017-09-21**	**2017-10-03**	**2018-09-19**	**2019-07-31**	**2020-09-19**	**2021-08-25**	**2022-08-18**
BV Labs ID					--	--	--	--	NSD393	QNY923	TNG134	..	..	..	..	NSD394	QNY924	TNG135
Total Arsenic (As)	1.0	µg/L	5	12.5	<0.10	<0.10	<1.0	<1.0	<5.0	<1.0	<1.0	<0.10	<0.10	<1	<1.0	<1.0	<1.0	<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	<0.090	0.025	0.043	0.15	<0.10	<0.090	<0.090	<0.090
Total Chromium (Cr)	5.0	µg/L	NV	NV	<1.0	<1.0	<5	<5.0	<25	<5.0	<5.0	<1.0	<1.0	<5	<5.0	<5.0	<5.0	<5.0
Total Cobalt (Co)	0.5	µg/L	NV	NV	<0.20	0.22	0.54	<0.50	<2.5	<0.50	<0.50	<0.20	0.26	0.68	<0.50	<0.50	<0.50	<0.50
Total Lead (Pb)	0.5	µg/L	7[5]	NV	0.26	<0.20	1.8	<0.50	<2.5	<0.50	<0.50	<0.20	<0.20	2.4	0.51	<0.50	<0.50	<0.50
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	<1.0	<1	<1.0	<1.0	<1.0	<1.0
Total Zinc (Zn)	5.0	µg/L	7	NV	5.7	28	16	<5.0	<25	<5.0	<5.0	14.4	9.1	16	<5.0	<5.0	<5.0	<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 3: Surface Water Analytical Results - Total Metals

Sample ID					SW-7											SW-8			
					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)	LTM-SW7	DUP1	LTM2-SW8-19	LTM-SW8	SW-8	LTM-SW8
Date Sampled	RDL	Units	CWQG Freshwater[1]	CWQG Marine[2]	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	2022-08-18	2022-08-18	2019-07-31	2020-09-19	2021-08-25	2022-08-19
BV Labs ID					..	..	..	..	..	NSD395	NSD397	QNY925	QNY927	TNG136	TNG138	--	NSD396	QNY926	TNG137
Total Arsenic (As)	1.0	µg/L	5	12.5	0.15	0.17	0.17	<1.0	1.2	<1.0	<1.0	<1.0	<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	<0.010	0.01300	0.01900	<0.1	0.23	<0.090	<0.090	<0.090	<0.090	<0.090	<0.090	<0.10	<0.090	<0.090	<0.090
Total Chromium (Cr)	5.0	µg/L	NV	NV	<1.0	<1.0	<1.0	<5	<5.0	<5.0	<5.0	<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	<0.20	0.56	0.62	<0.50	6.8	0.64	3.9	0.51	<0.50	0.69	0.70	1.9	<0.50	<0.50	<0.50
Total Lead (Pb)	0.5	µg/L	7[5]	NV	0.21	0.61	0.62	<0.5	11	<0.50	<0.50	<0.50	<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	1.3	<1	4.2	1.2	1.2	<1.0	<1.0	<1.0	<1.0	1.1	<1.0	<1.0	<1.0
Total Zinc (Zn)	5.0	µg/L	7	NV	40.8	223	254	57	640	250	12	13	13	18	16	7.9	6.2	6.0	9.9

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 4: Surface Water Analytical Results - BTEX and PHCs

Sample ID						SW-1*								SW-2						
						LTM1	DUP1	LTM1-SW1-18	LTM2-SW1-19	LTM2-DUP-19- SW	LTM-SW1	SW-1	LTM-SW1	LTM2	LTM2	LTM1-SW2-18	LTM2-SW2-19	LTM-SW2	SW-2	LTM-SW2
Date Sampled	**RDL**	**Units**	**CWQG Freshwater**	**CWQG Marine[1]**	**Alberta Tier 1[3]**	**2017-09-21**	**2017-09-21**	**2018-09-19**	**2019-07-30**	**2019-07-30**	**2020-09-19**	**2021-08-25**	**2022-08-18**	**2017-09-21**	**2017-10-03**	**2018-09-19**	**2019-07-30**	**2020-09-19**	**2021-08-25**	**2022-08-18**
BV Labs ID						--	--	--	--	--	**NSD389**	**QNY919**	**TNG131**	--	--	--	--	**NSD390**	**QNY920**	**TNG130**
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	<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	<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,
2 - Canadian Council of Members of the Environment (CCME), Canadian Water Quality Guidelines (CWQG) for the Protection of Aquatic Life, Longterm Exposure,
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 4: Surface Water Analytical Results - BTEX and PHCs

Sample ID						SW-3*							SW-4*						
						LTM3	LTM3	LTM1-SW3-18	LTM2-SW3-19	LTM-SW3	SW-3	LTM-SW3	LTM4	LTM4	LTM1-SW4-18	LTM2-SW4-19	LTM-SW4	SW-4	LTM-SW4
Date Sampled	**RDL**	**Units**	**CWQG Freshwater**	**CWQG Marine[1]**	**Alberta Tier 1[3]**	**2017-09-21**	**2017-10-03**	**2018-09-19**	**2019-07-30**	**2020-09-19**	**2021-08-25**	**2022-08-18**	**2017-09-21**	**2017-10-03**	**2018-09-19**	**2019-07-30**	**2020-09-19**	**2021-08-25**	**2022-08-18**
BV Labs ID						--	--	--	--	NSD391	QNY921	TNG132	--	--	--	--	NSD392	QNY922	TNG133
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
Ethylbenzene	0.20	µg/L	90	25	NV	<0.20	0.69	<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
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
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
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
Hydrocarbons																			
F1 (C6-C10)	25	µg/L	NV	NV	2200	<25	56	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25
F1 (C6-C10) - BTEX	25	µg/L	NV	NV	NV	<25	56	<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
F3 (C16-C34)	200	µg/L	NV	NV	NV	<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
Reached Baseline at C50	NA	NA	NV	NV	NV	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,
2 - Canadian Council of Members of the Environment (CCME), Canadian Water Quality Guidelines (CWQG) for the Protection of Aquatic Life, Longterm Exposure,
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 4: Surface Water Analytical Results - BTEX and PHCs

Sample ID						SW-5							SW-6						
						LTM5	LTM5	LTM1-SW5-18	LTM2-SW5-19	LTM-SW5	SW-5	LTM-SW5	LTM6	LTM6	LTM1-SW6-18	LTM2-SW6-19	LTM-SW6	SW-6	LTM-SW6
Date Sampled	**RDL**	**Units**	**CWQG Freshwater**	**CWQG Marine[2]**	**Alberta Tier 1[3]**	**2017-09-21**	**2017-10-03**	**2018-09-19**	**2019-07-30**	**2020-09-19**	**2021-08-25**	**2022-08-18**	**2017-09-21**	**2017-10-03**	**2018-09-19**	**2019-07-31**	**2020-09-19**	**2021-08-25**	**2022-08-18**
BV Labs ID						--	--	--	--	NSD393	QNY923	TNG134	--	--	--	--	NSD394	QNY924	TNG135
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
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
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
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
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
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
Hydrocarbons																			
F1 (C6-C10)	25	µg/L	NV	NV	2200	<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
F2 (C10-C16)	100	µg/L	NV	NV	1100	<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
F4 (C34-C50)	200	µg/L	NV	NV	NV	<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

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,
2 - Canadian Council of Members of the Environment (CCME), Canadian Water Quality Guidelines (CWQG) for the Protection of Aquatic Life, Longterm Exposure,
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 4: Surface Water Analytical Results - BTEX and PHCs

Sample ID						SW-7											SW-8			
						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)	LTM-SW7	DUP1	LTM2-SW8-19	LTM-SW8	SW-8	LTM-SW8
Date Sampled	**RDL**	**Units**	**CWQG Freshwater**	**CWQG Marine[2]**	**Alberta Tier 1[3]**	**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**	**2022-08-18**	**2022-08-18**	**2019-07-31**	**2020-09-19**	**2021-08-25**	**2022-08-18**
BV Labs ID						--	--	--	--	--	**NSD395**	**NSD397**	**QNY925**	**QNY927**	**TNG136**	**TNG138**	**--**	**NSD396**	**QNY926**	**TNG137**
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	0.35	<0.20	<0.20
Toluene	0.20	µg/L	2	215	NV	<0.20	<0.20	<0.20	<0.20	1.1	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.24	<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,
2 - Canadian Council of Members of the Environment (CCME), Canadian Water Quality Guidelines (CWQG) for the Protection of Aquatic Life, Longterm Exposure,
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 5: Surface Water Analytical Results - PCBs

Sample ID					SW-1*								SW-2						
					LTM1	DUP1	LTM1-SW1-18	LTM2-SW1-19	LTM2-DUP-19-SW	LTM-SW1	SW-1	LTM-SW1	LTM2	LTM2	LTM1-SW2-18	LTM2-SW2-19	LTM-SW2	SW-2	LTM-SW2
Date Sampled	**RDL**	**Units**	**CWQG Freshwater[1]**	**CWQG Marine[2]**	**2017-09-21**	**2017-09-21**	**2018-09-19**	**2019-07-30**	**2019-07-30**	**2020-09-19**	**2021-08-25**	**2022-08-18**	**2017-09-21**	**2017-10-03**	**2018-09-19**	**2019-07-30**	**2020-09-19**	**2021-08-25**	**2022-08-18**
BV Labs ID					..	..	..	..	..	**NSD389**	**QNY919**	**TNG131**	..	..	..	..	**NSD390**	**QNY920**	**TNG130**
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*	<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
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
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
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

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 5: Surface Water Analytical Results - PCBs

Sample ID					SW-3*							SW-4*						
					LTM3	LTM3	LTM1-SW3-18	LTM2-SW3-19	LTM-SW3	SW-3	LTM-SW3	LTM4	LTM4	LTM1-SW4-18	LTM2-SW4-19	LTM-SW4	SW-4	LTM-SW4
Date Sampled	RDL	Units	CWQG Freshwater[1]	CWQG Marine[2]	2017-09-21	2017-10-03	2018-09-19	2019-07-30	2020-09-19	2021-08-25	2022-08-18	2017-09-21	2017-10-03	2018-09-19	2019-07-30	2020-09-19	2021-08-25	2022-08-18
BV Labs ID					..	..	..	..	NSD391	QNY921	TNG132	..	..	..	..	NSD392	QNY922	TNG133
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	<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
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
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
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

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 5: Surface Water Analytical Results - PCBs

Sample ID					SW-5							SW-6						
					LTM5	LTM5	LTM1-SW5-18	LTM2-SW5-19	LTM-SW5	SW-5	LTM-SW5	LTM6	LTM6	LTM1-SW6-18	LTM2-SW6-19	LTM-SW6	SW-6	LTM-SW6
Date Sampled	RDL	Units	CWQG Freshwater[1]	CWQG Marine[2]	2017-09-21	2017-10-03	2018-09-19	2019-07-30	2020-09-19	2021-08-25	2022-08-18	2017-09-21	2017-10-03	2018-09-19	2019-07-31	2020-09-19	2021-08-25	2022-08-18
BV Labs ID					--	--	--	--	NSD393	QNY923	TNG134	..	..	..	..	NSD394	QNY924	TNG135
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	<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
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
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
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

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 5: Surface Water Analytical Results - PCBs

Sample ID					SW-7											SW-8			
					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)	LTM-SW7	DUP1	LTM2-SW8-19	LTM-SW8	SW-8	LTM-SW8
Date Sampled	**RDL**	**Units**	**CWQG Freshwater[1]**	**CWQG Marine[2]**	**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**	**2022-08-18**	**2022-08-18**	**2019-07-31**	**2020-09-19**	**2021-08-25**	**2022-08-19**
BV Labs ID					..	..	..	..	..	**NSD395**	**NSD397**	**QNY925**	**QNY927**	**TNG136**	**TNG138**	**--**	**NSD396**	**QNY926**	**TNG137**
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
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
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
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
Aroclor 1262	0.05	µg/L	NV	NV	--	--	--	--	--	<0.05	<0.05	<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	<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

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 6: Surface Water Analytical Results - PAHs

Sample ID	RDL	Units	CWQG Freshwater[1]	CWQG Marine[2]	LTM-SW8	SW-8	LTM-SW8
Date Sampled					2020-09-19	2021-08-25	2022-08-18
BV Labs ID					NSD396	QNY926	TNG137
Acenaphthene	0.1	µg/L	5.8	NV	<0.10	<0.10	<0.10
Acenaphthylene	0.1	µg/L	NV	NV	<0.10	<0.10	<0.10
Anthracene	0.01	µg/L	0.012	NV	<0.010	<0.010	<0.010
Benzo(a)anthracene	0.0085	µg/L	0.018	NV	<0.0085	<0.0085	<0.0085
Benzo(a)pyrene	0.0075	µg/L	0.015	NV	<0.0075	<0.0075	<0.0075
Benzo(b/j)fluoranthene	0.0085	µg/L	NV	NV	<0.0085	<0.0085	<0.0085
Benzo(ghi)perylene	0.0085	µg/L	NV	NV	-	0.01	<0.0085
Benzo(k)fluoranthene	0.0085	µg/L	NV	NV	<0.0085	<0.0085	<0.0085
Chrysene	0.0085	µg/L	NV	NV	<0.0085	<0.0085	<0.0085
Dibenzo(a,h)anthracene	0.0075	µg/L	NV	NV	<0.0075	<0.0075	<0.0075
Fluoranthene	0.01	µg/L	0.04	NV	<0.010	<0.010	<0.010
Fluorene	0.05	µg/L	3	NV	<0.050	<0.050	<0.050
Indeno(1,2,3-cd)pyrene	0.0085	µg/L	NV	NV	<0.0085	<0.0085	<0.0085
1-Methylnaphthalene	0.1	µg/L	NV	NV	<0.10	<0.10	<0.10
2-Methylnaphthalene	0.1	µg/L	NV	NV	<0.10	<0.10	<0.10
Naphthalene	0.1	µg/L	1.1	1.4	<0.10	<0.10	<0.10
Phenanthrene	0.05	µg/L	0.4	NV	<0.050	<0.050	<0.050
Pyrene	0.02	µg/L	0.025	NV	<0.020	<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 7: Sediment Analytical Results - BTEX and PHCs

Sample ID											SED-1*						SED-2				
											LTM-SD1-18	LTM2-SD1-19	LTM2-DUP-19-SD	LTM-SD1	SED-1	LTM-SED1	LTM-SD2-18	LTM2-SD2-19	LTM-SD2	SED-2	LTM-SED2
Date Sampled	**RDL**	**Units**	**SQGPAL Freshwater[1]**		**SQGPAL Marine[2]**		**CSQG[3] Residential / Parkland**	**CSQG[4] Commercial**	**CWS[5] Residential / Parkland**	**CWS[6] Commercial**	2018-09-19	2019-07-30	2019-07-30	2020-09-19	2021-08-25	2022-08-18	2018-09-19	2019-07-30	2020-09-19	2021-08-25	2022-08-18
BV Labs ID			ISQG	PEL	ISQG	PEL					--	--	--	NSD398	QNY959	TNG310	--	--	NSD399	QNY960	TNG311
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	<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	<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	<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	<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	<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	<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	<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	<10	<10
F2 (C10-C16)	10	µg/g	NV	NV	NV	NV	NV	NV	150	260	<10	<10	--	<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	<50	88	<50	<50
F4 (C34-C50)	50	µg/g	NV	NV	NV	NV	NV	NV	2800	3300	<50	<50	--	<50	<50	<50	<50	<50	<50	<50	<50
Reached Baseline at	NA	NA	NV	NV	NV	NV	NV	NV	NV	NV	--	Yes	--	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 7: Sediment Analytical Results - BTEX and PHCs

Sample ID											SED-3*					SED-4*				
											LTM-SD3-18	LTM2-SD3-19	LTM-SD3	SED-3	LTM-SED3	LTM-SD4-18	LTM2-SD4-19	LTM-SD4	SED-4	LTM-SED4
Date Sampled	**RDL**	**Units**	**SQGPAL Freshwater[1]**		**SQGPAL Marine[2]**		**CSQG[3] Residential / Parkland**	**CSQG[4] Commercial**	**CWS[5] Residential / Parkland**	**CWS[6] Commercial**	**2018-09-19**	**2019-07-30**	**2020-09-19**	**2021-08-25**	**2022-08-18**	**2018-09-19**	**2019-07-30**	**2020-09-19**	**2021-08-25**	**2022-08-18**
BV Labs ID			**ISQG**	**PEL**	**ISQG**	**PEL**					**--**	**--**	**NSD400**	**QNY961**	**TNG312**	**--**	**--**	**NSD401**	**QNY962**	**TNG313**
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	<0.012
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	<0.020
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	<0.020	<0.040
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	<0.040
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	<0.040
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	<0.040
Hydrocarbons																				
F1 (C6-C10)	10	µg/g	NV	NV	NV	NV	NV	NV	210	230	<10	<10	<10	<10	<10	<10	<10	<10	<10	<20
F1 (C6-C10) - BTEX	10	µg/g	NV	NV	NV	NV	NV	NV	NV	NV	<10	<10	<10	<10	<10	<10	<10	<10	<10	<20
F2 (C10-C16)	10	µg/g	NV	NV	NV	NV	NV	NV	150	260	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
F3 (C16-C34)	50	µg/g	NV	NV	NV	NV	NV	NV	300	1700	<50	97	<50	<50	<50	<50	<50	<50	<50	84
F4 (C34-C50)	50	µg/g	NV	NV	NV	NV	NV	NV	2800	3300	<50	53	<50	<50	<50	<50	<50	<50	<50	<50
Reached Baseline at	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 7: Sediment Analytical Results - BTEX and PHCs

Sample ID											SED-5						SED-6				
											LTM-SD5-18	LTM2-SD5-19	LTM-SD5	LTM-SD9 (DUP of SD5)	SED-5	LTM-SED5	LTM-SD6-18	LTM2-SD6-19	LTM-SD6	SED-6	LTM-SED6
Date Sampled	**RDL**	**Units**	**SQGPAL Freshwater[1]**		**SQGPAL Marine[2]**		**CSQG[3] Residential / Parkland**	**CSQG[4] Commercial**	**CWS[5] Residential / Parkland**	**CWS[6] Commercial**	**2018-09-19**	**2019-07-31**	**2020-09-19**	**2020-09-19**	**2021-08-25**	**2022-08-18**	**2018-09-19**	**2019-07-31**	**2020-09-19**	**2021-08-25**	**2022-08-18**
BV Labs ID			**ISQG**	**PEL**	**ISQG**	**PEL**					**--**	**--**	**NSD402**	**NSD406**	**QNY963**	**TNG314**	**--**	**--**	**NSD403**	**QNY964**	**TNG315**
BTEX																					
Benzene	0.006	µg/g	NV	NV	NV	NV	0.03	0.03	NV	NV	<0.036	<0.012	<0.0060	<0.012	<0.012	<0.0060	<0.018	<0.012	0.013	<0.0060	<0.0060
Ethylbenzene	0.010	µg/g	NV	NV	NV	NV	0.37	0.37	NV	NV	<0.060	<0.020	<0.010	<0.020	<0.020	<0.010	<0.030	<0.020	<0.020	<0.010	<0.010
Toluene	0.020	µg/g	NV	NV	NV	NV	0.082	0.082	NV	NV	<0.12	<0.040	<0.020	<0.040	<0.040	<0.020	0.10	<0.040	<0.040	<0.020	<0.020
o-Xylene	0.020	µg/g	NV	NV	NV	NV	NV	NV	NV	NV	<0.12	<0.040	<0.020	<0.040	<0.040	<0.020	<0.0060	<0.040	0.053	<0.020	<0.020
m+p-Xylene	0.020	µg/g	NV	NV	NV	NV	NV	NV	NV	NV	<0.12	<0.040	<0.020	<0.040	<0.040	<0.020	<0.0060	<0.040	<0.040	<0.020	<0.020
Xylenes	0.020	µg/g	NV	NV	NV	NV	11	11	NV	NV	<0.12	<0.040	<0.020	<0.040	<0.040	<0.020	<0.0060	<0.040	0.053	<0.020	<0.020
Hydrocarbons																					
F1 (C6-C10)	10	µg/g	NV	NV	NV	NV	NV	NV	210	230	<60	<20	<10	<20	<20	<10	<30	<20	31	<10	<10
F1 (C6-C10) - BTEX	10	µg/g	NV	NV	NV	NV	NV	NV	NV	NV	<60	<20	<10	<20	<20	<10	<30	<20	31	<10	<10
F2 (C10-C16)	10	µg/g	NV	NV	NV	NV	NV	NV	150	260	290	71	440	160	96	<10	2700	1300	2100	<10	13
F3 (C16-C34)	50	µg/g	NV	NV	NV	NV	NV	NV	300	1700	1400	350	490	280	460	71	1700	1400	1700	<50	91
F4 (C34-C50)	50	µg/g	NV	NV	NV	NV	NV	NV	2800	3300	<500	130	200	<150	170	<50	540	490	520	<50	<50
Reached Baseline at	NA	NA	NV	NV	NV	NV	NV	NV	NV	NV	--	Yes	Yes	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 7: Sediment Analytical Results - BTEX and PHCs

Sample ID											SED-7					SED-8					
											LTM-SD7-18	LTM2-SD7-19	LTM-SD7	SED-7	LTM-SED7	LTM2-SD8-19	LTM-SD8	SED-8	SED-DUP-1 (DUP of SED-8)	LTM-SED8	DUP2
Date Sampled	**RDL**	**Units**	**SQGPAL Freshwater[1]**		**SQGPAL Marine[2]**		**CSQG[3] Residential / Parkland**	**CSQG[4] Commercial**	**CWS[5] Residential / Parkland**	**CWS[6] Commercial**	**2018-09-19**	**2019-07-30**	**2020-09-19**	**2021-08-25**	**2022-08-18**	**2019-07-31**	**2020-09-19**	**2021-08-25**	**2021-08-25**	**2022-08-19**	**2022-08-19**
BV Labs ID			**ISQG**	**PEL**	**ISQG**	**PEL**					**--**	**--**	**NSD404**	**QNY965**	**TNG316**	**--**	**NSD405**	**QNY966**	**QNY967**	**TNG317**	**TNG318**
BTEX																					
Benzene	0.006	µg/g	NV	NV	NV	NV	0.03	0.03	NV	NV	<0.012	<0.0060	<0.0060	<0.14	<0.0060	<0.0060	<0.0060	<0.072	<0.066	<0.0060	<0.0060
Ethylbenzene	0.010	µg/g	NV	NV	NV	NV	0.37	0.37	NV	NV	<0.020	<0.010	<0.010	<0.23	<0.010	<0.010	<0.010	<0.12	<0.11	<0.010	<0.010
Toluene	0.020	µg/g	NV	NV	NV	NV	0.082	0.082	NV	NV	<0.040	<0.020	<0.020	<0.46	<0.020	<0.020	<0.020	<0.24	<0.22	<0.020	<0.020
o-Xylene	0.020	µg/g	NV	NV	NV	NV	NV	NV	NV	NV	<0.040	<0.020	<0.020	<0.46	<0.020	<0.020	<0.020	<0.24	<0.22	<0.020	<0.020
m+p-Xylene	0.020	µg/g	NV	NV	NV	NV	NV	NV	NV	NV	<0.040	<0.020	<0.020	<0.46	<0.020	<0.020	<0.020	<0.24	<0.22	<0.020	<0.020
Xylenes	0.020	µg/g	NV	NV	NV	NV	11	11	NV	NV	<0.040	<0.020	<0.020	<0.46	<0.020	<0.020	<0.020	<0.24	<0.22	<0.020	<0.020
Hydrocarbons																					
F1 (C6-C10)	10	µg/g	NV	NV	NV	NV	NV	NV	210	230	<20	<10	<10	<230	<10	<10	<10	<130	<110	<10	<10
F1 (C6-C10) - BTEX	10	µg/g	NV	NV	NV	NV	NV	NV	NV	NV	<20	<10	<10	<230	<10	<10	<10	<130	<110	<10	<10
F2 (C10-C16)	10	µg/g	NV	NV	NV	NV	NV	NV	150	260	<30	<10	300	<30	<10	<10	<20	<10	<20	<10	<10
F3 (C16-C34)	50	µg/g	NV	NV	NV	NV	NV	NV	300	1700	290	140	800	<150	61	200	370	<50	<100	51	<50
F4 (C34-C50)	50	µg/g	NV	NV	NV	NV	NV	NV	2800	3300	<150	61	230	<150	<50	71	120	<50	<100	<50	<50
Reached Baseline at	NA	NA	NV	NV	NV	NV	NV	NV	NV	NV	--	No	Yes	Yes	Yes	No	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 8: Sediment Analytical Results - Metals

Sample ID							SED-1*						SED-2				
							LTM-SD1-18	LTM2-SD1-19	LTM2-DUP-19-SD	LTM-SD1	SED-1	LTM-SED1	LTM-SD2-18	LTM2-SD2-19	LTM-SD2	SED-2	LTM-SED2
Date Sampled	RDL	Units	SQGPAL Freshwater[1]		SQGPAL Marine[2]		2018-09-19	2019-07-30	2019-07-30	2020-09-19	2021-08-25	2022-08-18	2018-09-19	2019-07-30	2020-09-19	2021-08-25	2022-08-18
BV Labs ID			ISQG	PEL	ISQG	PEL	--	--	--	NSD398	QNY959	TNG310	--	--	NSD399	QNY960	TNG311
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	<1.0	1.6	<1.0	<1.0	<1.0	1.1
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	<0.10	0.18	<0.10	<0.10	<0.10	<0.10
Acid Extractable Chromium (Cr)	1.0	µg/g	37.3	90	52.3	160	28	29	25	22	18	21	22	21	14	20	25
Acid Extractable Cobalt (Co)	0.10	µg/g	NV	NV	NV	NV	4.4	3.6	3.6	3.8	2.9	2.9	4.5	3.4	2.3	2.7	3.5
Acid Extractable Lead (Pb)	1.0	µg/g	35	91.3	30.2	112	3.6	3.4	3	4.6	3.1	5.3	3.6	4.7	6.8	2.7	3.4
Acid Extractable Nickel (Ni)	0.50	µg/g	NV	NV	NV	NV	7.5	6.8	6.2	7.0	5.4	4.6	8.2	5.5	4.3	5.4	6.0
Acid Extractable Zinc (Zn)	5.0	µg/g	123	315	124	271	40	46	31	30	33	26	56	33	28	29	31

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 8: Sediment Analytical Results - Metals

Sample ID							SED-3*					SED-4*				
							LTM-SD3-18	LTM2-SD3-19	LTM-SD3	SED-3	LTM-SED3	LTM-SD4-18	LTM2-SD4-19	LTM-SD4	SED-4	LTM-SED4
Date Sampled	RDL	Units	SQGPAL Freshwater[1]		SQGPAL Marine[2]		2018-09-19	2019-07-30	2020-09-19	2021-08-25	2022-08-18	2018-09-19	2019-07-30	2020-09-19	2021-08-25	2022-08-18
BV Labs ID			ISQG	PEL	ISQG	PEL	--	--	NSD400	QNY961	TNG312	--	--	NSD401	QNY962	TNG313
Acid Extractable Arsenic (As)	1.0	µg/g	5.9	17.0	7.2	41.6	1.2	2.6	1.7	1.8	<1.0	1.6	1.6	1.6	1.2	2.0
Acid Extractable Cadmium (Cd)	0.10	µg/g	0.6	3.5	0.7	4.2	<0.10	0.13	<0.10	<0.10	<0.10	0.2	0.11	0.19	<0.10	0.27
Acid Extractable Chromium (Cr)	1.0	µg/g	37.3	90	52.3	160	19	18	38	20	22	17	15	16	18	19
Acid Extractable Cobalt (Co)	0.10	µg/g	NV	NV	NV	NV	5.3	3.7	4.5	19	3.1	3.6	3.3	4.7	2.9	4.2
Acid Extractable Lead (Pb)	1.0	µg/g	35	91.3	30.2	112	8.9	23	7.3	74	8.2	6.5	10	110	3.1	9.0
Acid Extractable Nickel (Ni)	0.50	µg/g	NV	NV	NV	NV	5.5	6.5	7.4	20	5.8	5.3	4.9	7.8	4.6	7.2
Acid Extractable Zinc (Zn)	5.0	µg/g	123	315	124	271	46	48	40	84	36	52	49	53	36	74

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 8: Sediment Analytical Results - Metals

Sample ID							SED-5						SED-6				
							LTM-SD5-18	LTM2-SD5-19	LTM-SD5	LTM-SD9 (DUP of SD5)	SED-5	LTM-SED5	LTM-SD6-18	LTM2-SD6-19	LTM-SD6	SED-6	LTM-SED6
Date Sampled	RDL	Units	SQGPAL Freshwater[1]		SQGPAL Marine[2]		2018-09-19	2019-07-31	2020-09-19	2020-09-19	2021-08-25	2022-08-18	2018-09-19	2019-07-31	2020-09-19	2021-08-25	2022-08-18
BV Labs ID			ISQG	PEL	ISQG	PEL	--	--	NSD402	NSD406	QNY963	TNG314	--	--	NSD403	QNY964	TNG315
Acid Extractable Arsenic (As)	1.0	µg/g	5.9	17.0	7.2	41.6	1.8	1.4	1.5	1.9	<1.0	<1.0	1.8	3.3	1.5	<1.0	2.1
Acid Extractable Cadmium (Cd)	0.10	µg/g	0.6	3.5	0.7	4.2	4.9	0.75	1.9	1.3	0.32	0.48	3.9	7.4	2.9	0.12	0.72
Acid Extractable Chromium (Cr)	1.0	µg/g	37.3	90	52.3	160	23	20.0	22	24	14	14	28	36	27	26	22
Acid Extractable Cobalt (Co)	0.10	µg/g	NV	NV	NV	NV	7.5	5.6	6.0	6.2	2.8	4.0	7.8	17.0	7.7	3.5	17
Acid Extractable Lead (Pb)	1.0	µg/g	35	91.3	30.2	112	69	22	73	36	11	13	100	130	89	6.0	26
Acid Extractable Nickel (Ni)	0.50	µg/g	NV	NV	NV	NV	14	11	11	8.5	5.9	5.5	12	16	11	5.9	12
Acid Extractable Zinc (Zn)	5.0	µg/g	123	315	124	271	250	190	210	130	87	76	240	350	280	47	150

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 8: Sediment Analytical Results - Metals

Sample ID							SED-7					SED-8					
							LTM-SD7-18	LTM2-SD7-19	LTM-SD7	SED-7	LTM-SED7	LTM2-SD8-19	LTM-SD8	SED-8	SED-DUP-1 (DUP of SED-8)	LTM-SED8	DUP2
Date Sampled	**RDL**	**Units**	**SQGPAL Freshwater[1]**		**SQGPAL Marine[2]**		**2018-09-19**	**2019-07-30**	**2020-09-19**	**2021-08-25**	**2022-08-18**	**2019-07-31**	**2020-09-19**	**2021-08-25**	**2021-08-25**	**2022-08-19**	**2022-08-19**
BV Labs ID			**ISQG**	**PEL**	**ISQG**	**PEL**	**--**	**--**	**NSD404**	**QNY965**	**TNG316**	**--**	**NSD405**	**QNY966**	**QNY967**	**TNG317**	**TNG318**
Acid Extractable Arsenic (As)	1.0	µg/g	5.9	17.0	7.2	41.6	2.7	<1.0	2.1	4.0	<1.0	1.2	1.0	4.6	4.4	<1.0	<1.0
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	<0.10	0.29	0.36	0.10	<0.10
Acid Extractable Chromium (Cr)	1.0	µg/g	37.3	90	52.3	160	43	34	36	27	63	19	25	15	20	21	26
Acid Extractable Cobalt (Co)	0.10	µg/g	NV	NV	NV	NV	10.0	5.8	9.4	12	7.3	4.4	4.4	14	12	5.7	5.8
Acid Extractable Lead (Pb)	1.0	µg/g	35	91.3	30.2	112	20	12	31	49	7.5	11	4.6	31	22	12	13
Acid Extractable Nickel (Ni)	0.50	µg/g	NV	NV	NV	NV	15	9.9	20	13	16	7.9	7.2	12	10	8.9	10
Acid Extractable Zinc (Zn)	5.0	µg/g	123	315	124	271	230	190	140	340	65	140	27	200	460	220	210

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 9: Sediment Analytical Results - PCBs

Sample ID							SED-1*						SED-2				
							LTM-SD1-18	LTM2-SD1-19	LTM2-DUP-19-SD	LTM-SD1	SED-1	LTM-SED1	LTM-SD2-18	LTM2-SD2-19	LTM-SD2	SED-2	LTM-SED2
Date Sampled	RDL	Units	SQGPAL Freshwater[1]		SQGPAL Marine[2]		2018-09-19	2019-07-30	2019-07-30	2020-09-19	2021-08-25	2022-08-18	2018-09-19	2019-07-30	2020-09-19	2021-08-25	2022-08-18
BV Labs ID			ISQG	PEL	ISQG	PEL	--	--	--	NSD398	QNY959	TNG310	--	--	NSD399	QNY960	TNG311
Aroclor 1242	0.010	µg/g	NV	NV	NV	NV	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.020	<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	<0.010	<0.020	<0.010	<0.010
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	<0.010	<0.020	<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	<0.010	0.025	<0.010	<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	<0.010	0.025	<0.010	<0.010

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 9: Sediment Analytical Results - PCBs

Sample ID							SED-3*					SED-4*				
							LTM-SD3-18	LTM2-SD3-19	LTM-SD3	SED-3	LTM-SED3	LTM-SD4-18	LTM2-SD4-19	LTM-SD4	SED-4	LTM-SED4
Date Sampled	RDL	Units	SQGPAL Freshwater[1]		SQGPAL Marine[2]		2018-09-19	2019-07-30	2020-09-19	2021-08-25	2022-08-18	2018-09-19	2019-07-30	2020-09-19	2021-08-25	2022-08-18
BV Labs ID			ISQG	PEL	ISQG	PEL	--	--	NSD400	QNY961	TNG312	--	--	NSD401	QNY962	TNG313
Aroclor 1242	0.010	µg/g	NV	NV	NV	NV	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.020
Aroclor 1248	0.010	µg/g	NV	NV	NV	NV	<0.010	<0.010	<0.010	0.012	<0.010	<0.010	<0.010	<0.010	0.014	<0.020
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	<0.010	<0.010	<0.020
Aroclor 1260	0.010	µg/g	NV	NV	NV	NV	<0.010	<0.010	0.017	<0.010	0.011	<0.010	<0.010	0.011	0.012	0.11
Total PCB	0.010	µg/g	0.0341	0.277	0.0215	0.189	<0.010	<0.010	0.017	0.012	0.011	<0.010	<0.010	0.011	0.027	0.11

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 9: Sediment Analytical Results - PCBs

Sample ID							SED-5						SED-6				
							LTM-SD5-18	LTM2-SD5-19	LTM-SD5	LTM-SD9 (DUP of SD5)	SED-5	LTM-SED5	LTM-SD6-18	LTM2-SD6-19	LTM-SD6	SED-6	LTM-SED6
Date Sampled	RDL	Units	SQGPAL Freshwater[1]		SQGPAL Marine[2]		2018-09-19	2019-07-31	2020-09-19	2020-09-19	2021-08-25	2022-08-18	2018-09-19	2019-07-31	2020-09-19	2021-08-25	2022-08-18
BV Labs ID			ISQG	PEL	ISQG	PEL	--	--	NSD402	NSD406	QNY963	TNG314	--	--	NSD403	QNY964	TNG315
Aroclor 1242	0.010	µg/g	NV	NV	NV	NV	<0.090	<0.020	<0.020	<0.030	<0.020	<0.020	<0.60	<0.40	<0.30	<0.010	<0.010
Aroclor 1248	0.010	µg/g	NV	NV	NV	NV	<0.090	<0.020	<0.020	<0.030	<0.020	<0.020	<0.60	<0.40	<0.30	0.011	<0.010
Aroclor 1254	0.010	µg/g	0.06	0.34	0.0633	0.709	<0.090	<0.020	<0.020	<0.030	<0.020	<0.020	<0.60	<0.40	<0.30	<0.010	<0.010
Aroclor 1260	0.010	µg/g	NV	NV	NV	NV	1.4	0.17	0.21	1.3	0.082	0.041	3.4	3.9	3.4	0.023	0.066
Total PCB	0.010	µg/g	0.0341	0.277	0.0215	0.189	1.4	0.17	0.21	1.3	0.082	0.041	3.4	3.9	3.4	0.035	0.066

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 9: Sediment Analytical Results - PCBs

Sample ID							SED-7					SED-8					
							LTM-SD7-18	LTM2-SD7-19	LTM-SD7	SED-7	LTM-SED7	LTM2-SD8-19	LTM-SD8	SED-8	SED-DUP-1 (DUP of SED-8)	LTM-SED8	DUP2
Date Sampled	**RDL**	**Units**	**SQGPAL Freshwater[1]**		**SQGPAL Marine[2]**		**2018-09-19**	**2019-07-30**	**2020-09-19**	**2021-08-25**	**2022-08-18**	**2019-07-31**	**2020-09-19**	**2021-08-25**	**2021-08-25**	**2022-08-19**	**2022-08-19**
BV Labs ID			**ISQG**	**PEL**	**ISQG**	**PEL**	**--**	**--**	**NSD404**	**QNY965**	**TNG316**	**--**	**NSD405**	**QNY966**	**QNY967**	**TNG317**	**TNG318**
Aroclor 1242	0.010	µg/g	NV	NV	NV	NV	<0.040	<0.020	<0.020	<0.15	<0.010	<0.020	<0.020	<0.060	<0.070	<0.010	<0.010
Aroclor 1248	0.010	µg/g	NV	NV	NV	NV	<0.040	<0.020	<0.020	<0.15	<0.010	<0.020	<0.020	<0.060	<0.070	<0.010	<0.010
Aroclor 1254	0.010	µg/g	0.06	0.34	0.0633	0.709	<0.040	<0.020	<0.020	0.17	<0.010	<0.020	<0.020	<0.060	<0.070	<0.010	<0.010
Aroclor 1260	0.010	µg/g	NV	NV	NV	NV	0.59	<0.020	0.082	1.8	<0.010	<0.020	<0.020	<0.060	<0.070	<0.010	<0.010
Total PCB	0.010	µg/g	0.0341	0.277	0.0215	0.189	0.59	<0.020	0.082	1.9	<0.010	<0.020	<0.020	<0.060	<0.070	<0.010	<0.010

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 10: Sediment Analytical Results - PAHs

Sample ID			SQGPAL Freshwater[1]		SQGPAL Marine[2]		LTM-SD8	LTM-SED8
Date Sampled							2020-09-19	2022-08-19
BV Labs ID	RDL	Units	ISQG	PEL	ISQG	PEL	NSD405	TNG317
Acenaphthene	0.005	ug/kg	0.00671	0.0889	0.00671	0.0889	<0.005	<0.0050
Acenaphthylene	0.005	ug/kg	0.00587	0.128	0.00587	0.128	<0.005	<0.0050
Anthracene	0.004	ug/kg	0.0469	0.245	0.0469	0.245	<0.004	<0.0040
Benzo(a)anthracene	0.005	ug/kg	0.0317	0.285	0.0748	0.693	0.012	<0.0050
Benzo(a)pyrene	0.005	ug/kg	0.0319	0.782	0.0888	0.763	0.019	<0.0050
Benzo(b/j)fluoranthene	0.005	ug/kg	NV	NV	NV	NV	0.03	0.011
Benzo(ghi)perylene	-	ug/kg	NV	NV	NV	NV	-	0.0059
Benzo(k)fluoranthene	0.005	ug/kg	NV	NV	NV	NV	0.0099	<0.0050
Chrysene	0.005	ug/kg	0.0571	0.862	0.108	0.846	0.014	<0.0050
Dibenzo(a,h)anthracene	0.005	ug/kg	0.00622	0.135	0.00622	0.135	<0.005	<0.0050
Fluoranthene	0.005	ug/kg	0.111	2.355	0.113	1.494	0.038	0.014
Fluorene	0.005	ug/kg	0.0212	0.144	0.0212	0.144	<0.005	<0.0050
Indeno(1,2,3-cd)pyrene	0.005	ug/kg	NV	NV	NV	NV	0.025	0.0072
1-Methylnaphthalene	0.005	ug/kg	NV	NV	NV	NV	<0.005	<0.0050
2-Methylnaphthalene	0.005	ug/kg	0.0202	0.201	0.0202	0.201	0.011	<0.0050
Naphthalene	0.005	ug/kg	0.0346	0.391	0.0346	0.391	0.025	<0.0050
Phenanthrene	0.005	ug/kg	0.0419	0.515	0.0867	0.544	0.018	0.0069
Pyrene	0.005	ug/kg	0.053	0.875	0.153	1.398	0.034	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)

ug/L - micrograms per litre

NV - No Value

RDL - Reportable Detection Limit

Table 11: Surface Water Analytical Results - QAQC

Sample ID	RDL	5x	Units	LTM-SW7	DUP1	RPD
Date Sampled				2022-08-18	2022-08-18	
BV Lab ID						
General Chemistry						
Hardness (CaCO3)	1.0	5	mg/L	47	46	2%
Conductivity	1.0	5	umho/cm	120	110	9%
Total Dissolved Solids	20	100	mg/L	90	90	0%
Total Suspended Solids	1	5	mg/L	7.26	7.27	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	0.69	0.7	1%
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	18	16	12%
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 12: Sediment Analytical Results - QAQC

Sample ID	RDL	5x	Units	LTM-SED8	DUP2	RPD
Date Sampled				2022-08-19	2022-08-19	
BV Lab ID				TNG317	TNG318	
Metals						
Total Arsenic (As)	1.0	5	ug/g	<1.0	<1.0	NC
Total Cadmium (Cd)	0.1	0.5	ug/g	0.10	<0.10	NC
Total Chromium (Cr)	1.0	5	ug/g	21	26	21%
Total Cobalt (Co)	0.1	0.5	ug/g	5.7	5.8	2%
Total Lead (Pb)	1.0	5	ug/g	12	13	8%
Total Nickel (Ni)	0.5	2.5	ug/g	8.9	10	12%
Total Zinc (Zn)	5.0	25	ug/g	220	210	5%
BTEX						
Benzene	0.01	0.1	ug/L	<0.0060	<0.0060	NC
Ethylbenzene	0.02	0.1	ug/L	<0.010	<0.010	NC
Toluene	0.04	0.2	ug/L	<0.020	<0.020	NC
o-Xylene	0.04	0.2	ug/L	<0.020	<0.020	NC
m+p-Xylene	0.40	2.0	ug/L	<0.020	<0.020	NC
Xylenes	0.40	2.0	ug/L	<0.020	<0.020	NC
Hydrocarbons						
F1 (C6-C10)	20	100	ug/L	<10	<10	NC
F1 (C6-C10) - BTEX	20	100	ug/L	<10	<10	NC
F2 (C10-C16)	30.00	150	ug/L	<10	<10	NC
F3 (C16-C34)	150.00	750	ug/L	51	<50	NC
F4 (C34-C50)	150.00	750	ug/L	<50	<50	NC
Reached Baseline at C50	NA	NA	NA	Yes	Yes	NC
PCBs						
Aroclor 1242	0.030	0.15	ug/L	<0.010	<0.010	NC
Aroclor 1248	0.030	0.15	ug/L	<0.010	<0.010	NC
Aroclor 1254	0.030	0.15	ug/L	<0.010	<0.010	NC
Aroclor 1260	0.030	0.15	ug/L	<0.010	<0.010	NC
Total PCB	0.030	0.15	ug/L	<0.010	<0.010	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:** 2022

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 2022/2023 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, 2023	
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 C.O.C. #: 892229-01-01

Attention: Heather Wolczanski

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

Report Date: 2022/08/31
Report #: R7277399
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C2N9750
Received: 2022/08/22, 13:00

Sample Matrix: Sediment
Samples Received: 9

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Petroleum Hydrocarbons F2-F4 in Soil (1, 3)	1	2022/08/25	2022/08/26	CAM SOP-00316	CCME CWS m
Petroleum Hydrocarbons F2-F4 in Soil (1, 3)	7	2022/08/25	2022/08/27	CAM SOP-00316	CCME CWS m
Petroleum Hydrocarbons F2-F4 in Soil (1, 3)	1	2022/08/28	2022/08/29	CAM SOP-00316	CCME CWS m
Acid Extractable Metals by ICPMS (1)	9	2022/08/25	2022/08/26	CAM SOP-00447	EPA 6020B m
Moisture (Subcontracted) (2, 4)	1	N/A	2022/08/28	AB SOP-00002	CCME PHC-CWS m
CCME Index of Additive Cancer Risk (2)	1	2022/08/24	2022/08/29		CCME PHC-CWS
B[a]P Total Potency Equivalent (2)	1	N/A	2022/08/29		CCME
PAH in Soil by GC/MS (2)	1	2022/08/27	2022/08/29	AB SOP-00036/AB SOP-00003	EPA 3540C/8270E m
Moisture (1)	9	N/A	2022/08/24	CAM SOP-00445	Carter 2nd ed 51.2 m
Polychlorinated Biphenyl in Soil (1)	1	2022/08/24	2022/08/25	CAM SOP-00309	EPA 8082A m
Polychlorinated Biphenyl in Soil (1)	7	2022/08/25	2022/08/26	CAM SOP-00309	EPA 8082A m
Polychlorinated Biphenyl in Soil (1)	1	2022/08/25	2022/08/30	CAM SOP-00309	EPA 8082A m
Volatile Organic Compounds and F1 PHCs (1)	7	N/A	2022/08/26	CAM SOP-00230	EPA 8260C m
Volatile Organic Compounds and F1 PHCs (1)	2	N/A	2022/08/29	CAM SOP-00230	EPA 8260C 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.

Your C.O.C. #: 892229-01-01

Attention: Heather Wolczanski

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

Report Date: 2022/08/31
Report #: R7277399
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C2N9750

Received: 2022/08/22, 13:00

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) This test was performed by Bureau Veritas Mississauga, 6740 Campobello Rd , Mississauga, ON, L5N 2L8
(2) This test was performed by Bureau Veritas Calgary (19th), 4000 19th Street NE , Calgary, AB, T2E 6P8
(3) All CCME PHC results met required criteria unless otherwise stated in the report. The CWS PHC methods employed by Bureau Veritas 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.
(4) Offsite analysis requires that subcontracted moisture be reported.

Encryption Key

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

==========

Bureau Veritas 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)

Bureau Veritas ID		TNG310			TNG310			TNG311		
Sampling Date		2022/08/18 12:15			2022/08/18 12:15			2022/08/18 11:45		
COC Number		892229-01-01			892229-01-01			892229-01-01		
	UNITS	LTM-SED 1	RDL	QC Batch	LTM-SED 1 Lab-Dup	RDL	QC Batch	LTM-SED 2	RDL	QC Batch
Inorganics										
Moisture	%	15	1.0	8184541				20	1.0	8185000
Volatile Organics										
Acetone (2-Propanone)	ug/g	<0.49	0.49	8184762				<0.49	0.49	8184762
Benzene	ug/g	<0.0060	0.0060	8184762				<0.0060	0.0060	8184762
Bromodichloromethane	ug/g	<0.040	0.040	8184762				<0.040	0.040	8184762
Bromoform	ug/g	<0.040	0.040	8184762				<0.040	0.040	8184762
Bromomethane	ug/g	<0.040	0.040	8184762				<0.040	0.040	8184762
Carbon Tetrachloride	ug/g	<0.040	0.040	8184762				<0.040	0.040	8184762
Chlorobenzene	ug/g	<0.040	0.040	8184762				<0.040	0.040	8184762
Chloroform	ug/g	<0.040	0.040	8184762				<0.040	0.040	8184762
Dibromochloromethane	ug/g	<0.040	0.040	8184762				<0.040	0.040	8184762
1,2-Dichlorobenzene	ug/g	<0.040	0.040	8184762				<0.040	0.040	8184762
1,3-Dichlorobenzene	ug/g	<0.040	0.040	8184762				<0.040	0.040	8184762
1,4-Dichlorobenzene	ug/g	<0.040	0.040	8184762				<0.040	0.040	8184762
Dichlorodifluoromethane (FREON 12)	ug/g	<0.040	0.040	8184762				<0.040	0.040	8184762
1,1-Dichloroethane	ug/g	<0.040	0.040	8184762				<0.040	0.040	8184762
1,2-Dichloroethane	ug/g	<0.049	0.049	8184762				<0.049	0.049	8184762
1,1-Dichloroethylene	ug/g	<0.040	0.040	8184762				<0.040	0.040	8184762
cis-1,2-Dichloroethylene	ug/g	<0.040	0.040	8184762				<0.040	0.040	8184762
trans-1,2-Dichloroethylene	ug/g	<0.040	0.040	8184762				<0.040	0.040	8184762
1,2-Dichloropropane	ug/g	<0.040	0.040	8184762				<0.040	0.040	8184762
cis-1,3-Dichloropropene	ug/g	<0.030	0.030	8184762				<0.030	0.030	8184762
trans-1,3-Dichloropropene	ug/g	<0.040	0.040	8184762				<0.040	0.040	8184762
Ethylbenzene	ug/g	<0.010	0.010	8184762				<0.010	0.010	8184762
Ethylene Dibromide	ug/g	<0.040	0.040	8184762				<0.040	0.040	8184762
Hexane	ug/g	<0.040	0.040	8184762				<0.040	0.040	8184762
Methylene Chloride(Dichloromethane)	ug/g	<0.049	0.049	8184762				<0.049	0.049	8184762
Methyl Ethyl Ketone (2-Butanone)	ug/g	<0.40	0.40	8184762				<0.40	0.40	8184762
Methyl Isobutyl Ketone	ug/g	<0.40	0.40	8184762				<0.40	0.40	8184762
Methyl t-butyl ether (MTBE)	ug/g	<0.040	0.040	8184762				<0.040	0.040	8184762

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

CCME PETROLEUM HYDROCARBONS SOIL (SEDIMENT)

Bureau Veritas ID		TNG310			TNG310			TNG311		
Sampling Date		2022/08/18 12:15			2022/08/18 12:15			2022/08/18 11:45		
COC Number		892229-01-01			892229-01-01			892229-01-01		
	UNITS	**LTM-SED 1**	**RDL**	**QC Batch**	**LTM-SED 1 Lab-Dup**	**RDL**	**QC Batch**	**LTM-SED 2**	**RDL**	**QC Batch**
Styrene	ug/g	<0.040	0.040	8184762				<0.040	0.040	8184762
1,1,1,2-Tetrachloroethane	ug/g	<0.040	0.040	8184762				<0.040	0.040	8184762
1,1,2,2-Tetrachloroethane	ug/g	<0.040	0.040	8184762				<0.040	0.040	8184762
Tetrachloroethylene	ug/g	<0.040	0.040	8184762				<0.040	0.040	8184762
Toluene	ug/g	<0.020	0.020	8184762				<0.020	0.020	8184762
1,1,1-Trichloroethane	ug/g	<0.040	0.040	8184762				<0.040	0.040	8184762
1,1,2-Trichloroethane	ug/g	<0.040	0.040	8184762				<0.040	0.040	8184762
Trichloroethylene	ug/g	<0.010	0.010	8184762				<0.010	0.010	8184762
Trichlorofluoromethane (FREON 11)	ug/g	<0.040	0.040	8184762				<0.040	0.040	8184762
Vinyl Chloride	ug/g	<0.019	0.019	8184762				<0.019	0.019	8184762
p+m-Xylene	ug/g	<0.020	0.020	8184762				<0.020	0.020	8184762
o-Xylene	ug/g	<0.020	0.020	8184762				<0.020	0.020	8184762
Total Xylenes	ug/g	<0.020	0.020	8184762				<0.020	0.020	8184762
F1 (C6-C10)	ug/g	<10	10	8184762				<10	10	8184762
F1 (C6-C10) - BTEX	ug/g	<10	10	8184762				<10	10	8184762
F2-F4 Hydrocarbons										
F2 (C10-C16 Hydrocarbons)	ug/g	<10	10	8188219	<10	10	8188219	<10	10	8188219
F3 (C16-C34 Hydrocarbons)	ug/g	<50	50	8188219	<50	50	8188219	<50	50	8188219
F4 (C34-C50 Hydrocarbons)	ug/g	<50	50	8188219	<50	50	8188219	<50	50	8188219
Reached Baseline at C50	ug/g	Yes		8188219	Yes		8188219	Yes		8188219
Surrogate Recovery (%)										
o-Terphenyl	%	83		8188219	85		8188219	84		8188219
4-Bromofluorobenzene	%	99		8184762				99		8184762
D10-o-Xylene	%	90		8184762				97		8184762
D4-1,2-Dichloroethane	%	98		8184762				99		8184762
D8-Toluene	%	101		8184762				101		8184762

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

CCME PETROLEUM HYDROCARBONS SOIL (SEDIMENT)

Bureau Veritas ID		TNG312		TNG313			TNG314		
Sampling Date		2022/08/18 11:15		2022/08/18 10:45			2022/08/18 10:15		
COC Number		892229-01-01		892229-01-01			892229-01-01		
	UNITS	LTM-SED 3	RDL	LTM-SED 4	RDL	QC Batch	LTM-SED 5	RDL	QC Batch
Inorganics									
Moisture	%	14	1.0	41	1.0	8185000	33	1.0	8185000
Volatile Organics									
Acetone (2-Propanone)	ug/g	<0.49	0.49	<0.98	0.98	8184762	<0.49	0.49	8184762
Benzene	ug/g	<0.0060	0.0060	<0.012	0.012	8184762	<0.0060	0.0060	8184762
Bromodichloromethane	ug/g	<0.040	0.040	<0.080	0.080	8184762	<0.040	0.040	8184762
Bromoform	ug/g	<0.040	0.040	<0.080	0.080	8184762	<0.040	0.040	8184762
Bromomethane	ug/g	<0.040	0.040	<0.080	0.080	8184762	<0.040	0.040	8184762
Carbon Tetrachloride	ug/g	<0.040	0.040	<0.080	0.080	8184762	<0.040	0.040	8184762
Chlorobenzene	ug/g	<0.040	0.040	<0.080	0.080	8184762	<0.040	0.040	8184762
Chloroform	ug/g	<0.040	0.040	<0.080	0.080	8184762	<0.040	0.040	8184762
Dibromochloromethane	ug/g	<0.040	0.040	<0.080	0.080	8184762	<0.040	0.040	8184762
1,2-Dichlorobenzene	ug/g	<0.040	0.040	<0.080	0.080	8184762	<0.040	0.040	8184762
1,3-Dichlorobenzene	ug/g	<0.040	0.040	<0.080	0.080	8184762	<0.040	0.040	8184762
1,4-Dichlorobenzene	ug/g	<0.040	0.040	<0.080	0.080	8184762	<0.040	0.040	8184762
Dichlorodifluoromethane (FREON 12)	ug/g	<0.040	0.040	<0.080	0.080	8184762	<0.040	0.040	8184762
1,1-Dichloroethane	ug/g	<0.040	0.040	<0.080	0.080	8184762	<0.040	0.040	8184762
1,2-Dichloroethane	ug/g	<0.049	0.049	<0.098	0.098	8184762	<0.049	0.049	8184762
1,1-Dichloroethylene	ug/g	<0.040	0.040	<0.080	0.080	8184762	<0.040	0.040	8184762
cis-1,2-Dichloroethylene	ug/g	<0.040	0.040	<0.080	0.080	8184762	<0.040	0.040	8184762
trans-1,2-Dichloroethylene	ug/g	<0.040	0.040	<0.080	0.080	8184762	<0.040	0.040	8184762
1,2-Dichloropropane	ug/g	<0.040	0.040	<0.080	0.080	8184762	<0.040	0.040	8184762
cis-1,3-Dichloropropene	ug/g	<0.030	0.030	<0.060	0.060	8184762	<0.030	0.030	8184762
trans-1,3-Dichloropropene	ug/g	<0.040	0.040	<0.080	0.080	8184762	<0.040	0.040	8184762
Ethylbenzene	ug/g	<0.010	0.010	<0.020	0.020	8184762	<0.010	0.010	8184762
Ethylene Dibromide	ug/g	<0.040	0.040	<0.080	0.080	8184762	<0.040	0.040	8184762
Hexane	ug/g	<0.040	0.040	0.13	0.080	8184762	<0.040	0.040	8184762
Methylene Chloride(Dichloromethane)	ug/g	<0.049	0.049	<0.098	0.098	8184762	<0.049	0.049	8184762
Methyl Ethyl Ketone (2-Butanone)	ug/g	<0.40	0.40	<0.80	0.80	8184762	<0.40	0.40	8184762
Methyl Isobutyl Ketone	ug/g	<0.40	0.40	<0.80	0.80	8184762	<0.40	0.40	8184762
Methyl t-butyl ether (MTBE)	ug/g	<0.040	0.040	<0.080	0.080	8184762	<0.040	0.040	8184762
Styrene	ug/g	<0.040	0.040	<0.080	0.080	8184762	<0.040	0.040	8184762

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

CCME PETROLEUM HYDROCARBONS SOIL (SEDIMENT)

Bureau Veritas ID		TNG312		TNG313			TNG314		
Sampling Date		2022/08/18 11:15		2022/08/18 10:45			2022/08/18 10:15		
COC Number		892229-01-01		892229-01-01			892229-01-01		
	UNITS	LTM-SED 3	RDL	LTM-SED 4	RDL	QC Batch	LTM-SED 5	RDL	QC Batch
1,1,1,2-Tetrachloroethane	ug/g	<0.040	0.040	<0.080	0.080	8184762	<0.040	0.040	8184762
1,1,2,2-Tetrachloroethane	ug/g	<0.040	0.040	<0.080	0.080	8184762	<0.040	0.040	8184762
Tetrachloroethylene	ug/g	<0.040	0.040	<0.080	0.080	8184762	<0.040	0.040	8184762
Toluene	ug/g	<0.020	0.020	<0.040	0.040	8184762	<0.020	0.020	8184762
1,1,1-Trichloroethane	ug/g	<0.040	0.040	<0.080	0.080	8184762	<0.040	0.040	8184762
1,1,2-Trichloroethane	ug/g	<0.040	0.040	<0.080	0.080	8184762	<0.040	0.040	8184762
Trichloroethylene	ug/g	<0.010	0.010	<0.020	0.020	8184762	<0.010	0.010	8184762
Trichlorofluoromethane (FREON 11)	ug/g	<0.040	0.040	<0.080	0.080	8184762	<0.040	0.040	8184762
Vinyl Chloride	ug/g	<0.019	0.019	<0.038	0.038	8184762	<0.019	0.019	8184762
p+m-Xylene	ug/g	<0.020	0.020	<0.040	0.040	8184762	<0.020	0.020	8184762
o-Xylene	ug/g	<0.020	0.020	<0.040	0.040	8184762	<0.020	0.020	8184762
Total Xylenes	ug/g	<0.020	0.020	<0.040	0.040	8184762	<0.020	0.020	8184762
F1 (C6-C10)	ug/g	<10	10	<20	20	8184762	<10	10	8184762
F1 (C6-C10) - BTEX	ug/g	<10	10	<20	20	8184762	<10	10	8184762
F2-F4 Hydrocarbons									
F2 (C10-C16 Hydrocarbons)	ug/g	<10	10	<10	10	8188219	<10	10	8192780
F3 (C16-C34 Hydrocarbons)	ug/g	<50	50	84	50	8188219	71	50	8192780
F4 (C34-C50 Hydrocarbons)	ug/g	<50	50	<50	50	8188219	<50	50	8192780
Reached Baseline at C50	ug/g	Yes		Yes		8188219	Yes		8192780
Surrogate Recovery (%)									
o-Terphenyl	%	90		86		8188219	91		8192780
4-Bromofluorobenzene	%	99		98		8184762	99		8184762
D10-o-Xylene	%	129		96		8184762	105		8184762
D4-1,2-Dichloroethane	%	101		98		8184762	102		8184762
D8-Toluene	%	99		99		8184762	99		8184762

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

CCME PETROLEUM HYDROCARBONS SOIL (SEDIMENT)

Bureau Veritas ID		TNG315		TNG316		TNG317	TNG318		
Sampling Date		2022/08/18 09:45		2022/08/18 13:15		2022/08/18 11:20	2022/08/18 11:25		
COC Number		892229-01-01		892229-01-01		892229-01-01	892229-01-01		
	UNITS	LTM-SED 6	QC Batch	LTM-SED 7	QC Batch	LTM-SED 8	DUP2	RDL	QC Batch
Inorganics									
Moisture	%	21	8185000	24	8184541	19	18	1.0	8185000
Volatile Organics									
Acetone (2-Propanone)	ug/g	<0.49	8184762	<0.49	8184762	<0.49	<0.49	0.49	8184762
Benzene	ug/g	<0.0060	8184762	<0.0060	8184762	<0.0060	<0.0060	0.0060	8184762
Bromodichloromethane	ug/g	<0.040	8184762	<0.040	8184762	<0.040	<0.040	0.040	8184762
Bromoform	ug/g	<0.040	8184762	<0.040	8184762	<0.040	<0.040	0.040	8184762
Bromomethane	ug/g	<0.040	8184762	<0.040	8184762	<0.040	<0.040	0.040	8184762
Carbon Tetrachloride	ug/g	<0.040	8184762	<0.040	8184762	<0.040	<0.040	0.040	8184762
Chlorobenzene	ug/g	<0.040	8184762	<0.040	8184762	<0.040	<0.040	0.040	8184762
Chloroform	ug/g	<0.040	8184762	<0.040	8184762	<0.040	<0.040	0.040	8184762
Dibromochloromethane	ug/g	<0.040	8184762	<0.040	8184762	<0.040	<0.040	0.040	8184762
1,2-Dichlorobenzene	ug/g	<0.040	8184762	<0.040	8184762	<0.040	<0.040	0.040	8184762
1,3-Dichlorobenzene	ug/g	<0.040	8184762	<0.040	8184762	<0.040	<0.040	0.040	8184762
1,4-Dichlorobenzene	ug/g	<0.040	8184762	<0.040	8184762	<0.040	<0.040	0.040	8184762
Dichlorodifluoromethane (FREON 12)	ug/g	<0.040	8184762	<0.040	8184762	<0.040	<0.040	0.040	8184762
1,1-Dichloroethane	ug/g	<0.040	8184762	<0.040	8184762	<0.040	<0.040	0.040	8184762
1,2-Dichloroethane	ug/g	<0.049	8184762	<0.049	8184762	<0.049	<0.049	0.049	8184762
1,1-Dichloroethylene	ug/g	<0.040	8184762	<0.040	8184762	<0.040	<0.040	0.040	8184762
cis-1,2-Dichloroethylene	ug/g	<0.040	8184762	<0.040	8184762	<0.040	<0.040	0.040	8184762
trans-1,2-Dichloroethylene	ug/g	<0.040	8184762	<0.040	8184762	<0.040	<0.040	0.040	8184762
1,2-Dichloropropane	ug/g	<0.040	8184762	<0.040	8184762	<0.040	<0.040	0.040	8184762
cis-1,3-Dichloropropene	ug/g	<0.030	8184762	<0.030	8184762	<0.030	<0.030	0.030	8184762
trans-1,3-Dichloropropene	ug/g	<0.040	8184762	<0.040	8184762	<0.040	<0.040	0.040	8184762
Ethylbenzene	ug/g	<0.010	8184762	<0.010	8184762	<0.010	<0.010	0.010	8184762
Ethylene Dibromide	ug/g	<0.040	8184762	<0.040	8184762	<0.040	<0.040	0.040	8184762
Hexane	ug/g	0.058	8184762	0.071	8184762	0.068	0.061	0.040	8184762
Methylene Chloride(Dichloromethane)	ug/g	<0.049	8184762	<0.049	8184762	<0.049	<0.049	0.049	8184762
Methyl Ethyl Ketone (2-Butanone)	ug/g	<0.40	8184762	<0.40	8184762	<0.40	<0.40	0.40	8184762
Methyl Isobutyl Ketone	ug/g	<0.40	8184762	<0.40	8184762	<0.40	<0.40	0.40	8184762
Methyl t-butyl ether (MTBE)	ug/g	<0.040	8184762	<0.040	8184762	<0.040	<0.040	0.040	8184762
Styrene	ug/g	<0.040	8184762	<0.040	8184762	<0.040	<0.040	0.040	8184762

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

CCME PETROLEUM HYDROCARBONS SOIL (SEDIMENT)

Bureau Veritas ID		TNG315		TNG316		TNG317	TNG318		
Sampling Date		2022/08/18 09:45		2022/08/18 13:15		2022/08/18 11:20	2022/08/18 11:25		
COC Number		892229-01-01		892229-01-01		892229-01-01	892229-01-01		
	UNITS	LTM-SED 6	QC Batch	LTM-SED 7	QC Batch	LTM-SED 8	DUP2	RDL	QC Batch
1,1,1,2-Tetrachloroethane	ug/g	<0.040	8184762	<0.040	8184762	<0.040	<0.040	0.040	8184762
1,1,2,2-Tetrachloroethane	ug/g	<0.040	8184762	<0.040	8184762	<0.040	<0.040	0.040	8184762
Tetrachloroethylene	ug/g	<0.040	8184762	<0.040	8184762	<0.040	<0.040	0.040	8184762
Toluene	ug/g	<0.020	8184762	<0.020	8184762	<0.020	<0.020	0.020	8184762
1,1,1-Trichloroethane	ug/g	<0.040	8184762	<0.040	8184762	<0.040	<0.040	0.040	8184762
1,1,2-Trichloroethane	ug/g	<0.040	8184762	<0.040	8184762	<0.040	<0.040	0.040	8184762
Trichloroethylene	ug/g	<0.010	8184762	<0.010	8184762	<0.010	<0.010	0.010	8184762
Trichlorofluoromethane (FREON 11)	ug/g	<0.040	8184762	<0.040	8184762	<0.040	<0.040	0.040	8184762
Vinyl Chloride	ug/g	<0.019	8184762	<0.019	8184762	<0.019	<0.019	0.019	8184762
p+m-Xylene	ug/g	<0.020	8184762	<0.020	8184762	<0.020	<0.020	0.020	8184762
o-Xylene	ug/g	<0.020	8184762	<0.020	8184762	<0.020	<0.020	0.020	8184762
Total Xylenes	ug/g	<0.020	8184762	<0.020	8184762	<0.020	<0.020	0.020	8184762
F1 (C6-C10)	ug/g	<10	8184762	<10	8184762	<10	<10	10	8184762
F1 (C6-C10) - BTEX	ug/g	<10	8184762	<10	8184762	<10	<10	10	8184762
F2-F4 Hydrocarbons									
F2 (C10-C16 Hydrocarbons)	ug/g	13	8189716	<10	8188219	<10	<10	10	8188219
F3 (C16-C34 Hydrocarbons)	ug/g	91	8189716	61	8188219	51	<50	50	8188219
F4 (C34-C50 Hydrocarbons)	ug/g	<50	8189716	<50	8188219	<50	<50	50	8188219
Reached Baseline at C50	ug/g	Yes	8189716	Yes	8188219	Yes	Yes		8188219
Surrogate Recovery (%)									
o-Terphenyl	%	90	8189716	85	8188219	90	91		8188219
4-Bromofluorobenzene	%	98	8184762	99	8184762	99	98		8184762
D10-o-Xylene	%	101	8184762	94	8184762	101	109		8184762
D4-1,2-Dichloroethane	%	98	8184762	98	8184762	98	99		8184762
D8-Toluene	%	100	8184762	100	8184762	101	101		8184762

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

CCME ICPMS METALS (SEDIMENT)

Bureau Veritas ID		TNG310	TNG311	TNG312	TNG312	TNG313		
Sampling Date		2022/08/18 12:15	2022/08/18 11:45	2022/08/18 11:15	2022/08/18 11:15	2022/08/18 10:45		
COC Number		892229-01-01	892229-01-01	892229-01-01	892229-01-01	892229-01-01		
	UNITS	LTM-SED 1	LTM-SED 2	LTM-SED 3	LTM-SED 3 Lab-Dup	LTM-SED 4	RDL	QC Batch
Metals								
Acid Extractable Antimony (Sb)	ug/g	<0.20	<0.20	<0.20	<0.20	0.24	0.20	8187917
Acid Extractable Arsenic (As)	ug/g	<1.0	1.1	<1.0	<1.0	2.0	1.0	8187917
Acid Extractable Barium (Ba)	ug/g	17	20	19	20	22	0.50	8187917
Acid Extractable Beryllium (Be)	ug/g	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	8187917
Acid Extractable Boron (B)	ug/g	<5.0	<5.0	<5.0	<5.0	6.4	5.0	8187917
Acid Extractable Cadmium (Cd)	ug/g	<0.10	<0.10	<0.10	<0.10	0.27	0.10	8187917
Acid Extractable Chromium (Cr)	ug/g	21	25	22	22	19	1.0	8187917
Acid Extractable Cobalt (Co)	ug/g	2.9	3.5	3.1	3.1	4.2	0.10	8187917
Acid Extractable Copper (Cu)	ug/g	8.7	5.9	7.9	8.3	9.0	0.50	8187917
Acid Extractable Lead (Pb)	ug/g	5.3	3.4	8.2	8.2	9.0	1.0	8187917
Acid Extractable Molybdenum (Mo)	ug/g	0.73	1.3	1.3	1.2	3.2	0.50	8187917
Acid Extractable Nickel (Ni)	ug/g	4.6	6.0	5.8	5.7	7.2	0.50	8187917
Acid Extractable Selenium (Se)	ug/g	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	8187917
Acid Extractable Silver (Ag)	ug/g	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	8187917
Acid Extractable Thallium (Tl)	ug/g	<0.050	<0.050	<0.050	<0.050	0.051	0.050	8187917
Acid Extractable Tin (Sn)	ug/g	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	8187917
Acid Extractable Uranium (U)	ug/g	0.72	0.72	0.86	0.85	0.79	0.050	8187917
Acid Extractable Vanadium (V)	ug/g	46	57	49	49	46	5.0	8187917
Acid Extractable Zinc (Zn)	ug/g	26	31	36	36	74	5.0	8187917
Acid Extractable Mercury (Hg)	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	8187917

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

CCME ICPMS METALS (SEDIMENT)

Bureau Veritas ID		TNG314	TNG315	TNG316	TNG317	TNG318		
Sampling Date		2022/08/18 10:15	2022/08/18 09:45	2022/08/18 13:15	2022/08/18 11:20	2022/08/18 11:25		
COC Number		892229-01-01	892229-01-01	892229-01-01	892229-01-01	892229-01-01		
	UNITS	LTM-SED 5	LTM-SED 6	LTM-SED 7	LTM-SED 8	DUP2	RDL	QC Batch
Metals								
Acid Extractable Antimony (Sb)	ug/g	0.23	0.54	<0.20	<0.20	0.81	0.20	8187917
Acid Extractable Arsenic (As)	ug/g	<1.0	2.1	<1.0	<1.0	<1.0	1.0	8187917
Acid Extractable Barium (Ba)	ug/g	23	57	24	34	31	0.50	8187917
Acid Extractable Beryllium (Be)	ug/g	<0.20	0.24	<0.20	<0.20	<0.20	0.20	8187917
Acid Extractable Boron (B)	ug/g	<5.0	<5.0	<5.0	<5.0	<5.0	5.0	8187917
Acid Extractable Cadmium (Cd)	ug/g	0.48	0.72	<0.10	0.10	<0.10	0.10	8187917
Acid Extractable Chromium (Cr)	ug/g	14	22	63	21	26	1.0	8187917
Acid Extractable Cobalt (Co)	ug/g	4.0	17	7.3	5.7	5.8	0.10	8187917
Acid Extractable Copper (Cu)	ug/g	6.9	27	7.7	22	24	0.50	8187917
Acid Extractable Lead (Pb)	ug/g	13	26	7.5	12	13	1.0	8187917
Acid Extractable Molybdenum (Mo)	ug/g	1.9	2.1	1.1	0.91	0.98	0.50	8187917
Acid Extractable Nickel (Ni)	ug/g	5.5	12	16	8.9	10	0.50	8187917
Acid Extractable Selenium (Se)	ug/g	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	8187917
Acid Extractable Silver (Ag)	ug/g	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	8187917
Acid Extractable Thallium (Tl)	ug/g	<0.050	0.056	<0.050	<0.050	<0.050	0.050	8187917
Acid Extractable Tin (Sn)	ug/g	<1.0	2.0	1.1	1.8	12	1.0	8187917
Acid Extractable Uranium (U)	ug/g	0.87	1.1	0.44	0.52	0.66	0.050	8187917
Acid Extractable Vanadium (V)	ug/g	27	39	100	37	47	5.0	8187917
Acid Extractable Zinc (Zn)	ug/g	76	150	65	220	210	5.0	8187917
Acid Extractable Mercury (Hg)	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	8187917

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

CCME PAHS (SEDIMENT)

Bureau Veritas ID		TNG317		
Sampling Date		2022/08/18 11:20		
COC Number		892229-01-01		
	UNITS	LTM-SED 8	RDL	QC Batch
Physical Testing				
Moisture-Subcontracted	%	18	0.30	8194533
Calculated Parameters				
Index of Additive Cancer Risk -IACR	N/A	0.11	0.05	8194534
Polyaromatic Hydrocarbons				
Acenaphthene	mg/kg	<0.0050	0.0050	8194536
Benzo(a)pyrene Total Potency Equiv.	mg/kg	<0.0071	0.0071	8194535
Acenaphthylene	mg/kg	<0.0050	0.0050	8194536
Acridine	mg/kg	<0.010	0.010	8194536
Anthracene	mg/kg	<0.0040	0.0040	8194536
Benzo(a)anthracene	mg/kg	<0.0050	0.0050	8194536
Benzo(b/j)fluoranthene	mg/kg	0.011	0.0050	8194536
Benzo(k)fluoranthene	mg/kg	<0.0050	0.0050	8194536
Benzo(g,h,i)perylene	mg/kg	0.0059	0.0050	8194536
Benzo(c)phenanthrene	mg/kg	<0.0050	0.0050	8194536
Benzo(a)pyrene	mg/kg	<0.0050	0.0050	8194536
Benzo(e)pyrene	mg/kg	0.0074	0.0050	8194536
Chrysene	mg/kg	<0.0050	0.0050	8194536
Dibenzo(a,h)anthracene	mg/kg	<0.0050	0.0050	8194536
Fluoranthene	mg/kg	0.014	0.0050	8194536
Fluorene	mg/kg	<0.0050	0.0050	8194536
Indeno(1,2,3-cd)pyrene	mg/kg	0.0072	0.0050	8194536
1-Methylnaphthalene	mg/kg	<0.0050	0.0050	8194536
2-Methylnaphthalene	mg/kg	<0.0050	0.0050	8194536
Naphthalene	mg/kg	<0.0050	0.0050	8194536
Phenanthrene	mg/kg	0.0069	0.0050	8194536
Perylene	mg/kg	<0.0050	0.0050	8194536
Pyrene	mg/kg	0.012	0.0050	8194536
Quinoline	mg/kg	<0.010	0.010	8194536
Surrogate Recovery (%)				
D10-Anthracene	%	81		8194536
D14-Terphenyl	%	98		8194536
D8-Acenaphthylene	%	75		8194536

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

CCME PAHS (SEDIMENT)

Bureau Veritas ID		TNG317		
Sampling Date		2022/08/18 11:20		
COC Number		892229-01-01		
	UNITS	**LTM-SED 8**	**RDL**	**QC Batch**
D8-Naphthalene	%	75		8194536

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

O.REG 153 PCBS (SOIL)

Bureau Veritas ID		TNG310		TNG311	TNG312		TNG313	TNG314		
Sampling Date		2022/08/18 12:15		2022/08/18 11:45	2022/08/18 11:15		2022/08/18 10:45	2022/08/18 10:15		
COC Number		892229-01-01		892229-01-01	892229-01-01		892229-01-01	892229-01-01		
	UNITS	LTM-SED 1	QC Batch	LTM-SED 2	LTM-SED 3	RDL	LTM-SED 4	LTM-SED 5	RDL	QC Batch
PCBs										
Aroclor 1242	ug/g	<0.010	8186294	<0.010	<0.010	0.010	<0.020	<0.020	0.020	8187909
Aroclor 1248	ug/g	<0.010	8186294	<0.010	<0.010	0.010	<0.020	<0.020	0.020	8187909
Aroclor 1254	ug/g	<0.010	8186294	<0.010	<0.010	0.010	<0.020	<0.020	0.020	8187909
Aroclor 1260	ug/g	<0.010	8186294	<0.010	0.011	0.010	0.11	0.041	0.020	8187909
Total PCB	ug/g	<0.010	8186294	<0.010	0.011	0.010	0.11	0.041	0.020	8187909
Surrogate Recovery (%)										
Decachlorobiphenyl	%	98	8186294	104	113		116	94		8187909

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas ID		TNG315	TNG316	TNG317	TNG318		
Sampling Date		2022/08/18 09:45	2022/08/18 13:15	2022/08/18 11:20	2022/08/18 11:25		
COC Number		892229-01-01	892229-01-01	892229-01-01	892229-01-01		
	UNITS	LTM-SED 6	LTM-SED 7	LTM-SED 8	DUP2	RDL	QC Batch
PCBs							
Aroclor 1242	ug/g	<0.010	<0.010	<0.010	<0.010	0.010	8187909
Aroclor 1248	ug/g	<0.010	<0.010	<0.010	<0.010	0.010	8187909
Aroclor 1254	ug/g	<0.010	<0.010	<0.010	<0.010	0.010	8187909
Aroclor 1260	ug/g	0.066	<0.010	<0.010	<0.010	0.010	8187909
Total PCB	ug/g	0.066	<0.010	<0.010	<0.010	0.010	8187909
Surrogate Recovery (%)							
Decachlorobiphenyl	%	105	120	85	92		8187909

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

GENERAL COMMENTS

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

Package 1	7.3°C

Sample TNG313 [LTM-SED 4] : VOCF1 Analysis: Detection limits were raised due to high moisture content and low weight of soil provided.
PCB analysis: Detection limits were adjusted for high moisture content.

Sample TNG314 [LTM-SED 5] : PCB analysis: Detection limits were adjusted for high moisture content.

Results relate only to the items tested.

Bureau Veritas 100 – 36 Antares Dr. Nepean, ON, K2E 7W5 Phone: 613-274-0573 Website: www.bvna.com

QUALITY ASSURANCE REPORT

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8184762	4-Bromofluorobenzene	2022/08/26	99	60 - 140	100	60 - 140	98	%		
8184762	D10-o-Xylene	2022/08/26	95	60 - 130	103	60 - 130	108	%		
8184762	D4-1,2-Dichloroethane	2022/08/26	100	60 - 140	100	60 - 140	100	%		
8184762	D8-Toluene	2022/08/26	100	60 - 140	100	60 - 140	101	%		
8186294	Decachlorobiphenyl	2022/08/25	117	60 - 130	103	60 - 130	105	%		
8187909	Decachlorobiphenyl	2022/08/26	102	60 - 130	104	60 - 130	100	%		
8188219	o-Terphenyl	2022/08/27	82	60 - 130	87	60 - 130	84	%		
8189716	o-Terphenyl	2022/08/26	88	60 - 130	89	60 - 130	95	%		
8192780	o-Terphenyl	2022/08/28	93	60 - 130	91	60 - 130	94	%		
8194536	D10-Anthracene	2022/08/28	100	50 - 130	103	50 - 130	105	%		
8194536	D14-Terphenyl	2022/08/28	137 (1)	50 - 130	138 (1)	50 - 130	147 (1)	%		
8194536	D8-Acenaphthylene	2022/08/28	90	50 - 130	93	50 - 130	97	%		
8194536	D8-Naphthalene	2022/08/28	95	50 - 130	97	50 - 130	101	%		
8184541	Moisture	2022/08/24							1.3	20
8184762	1,1,1,2-Tetrachloroethane	2022/08/26	92	60 - 140	95	60 - 130	<0.040	ug/g	NC	50
8184762	1,1,1-Trichloroethane	2022/08/26	91	60 - 140	95	60 - 130	<0.040	ug/g	NC	50
8184762	1,1,2,2-Tetrachloroethane	2022/08/26	87	60 - 140	90	60 - 130	<0.040	ug/g	NC	50
8184762	1,1,2-Trichloroethane	2022/08/26	92	60 - 140	95	60 - 130	<0.040	ug/g	NC	50
8184762	1,1-Dichloroethane	2022/08/26	87	60 - 140	91	60 - 130	<0.040	ug/g	NC	50
8184762	1,1-Dichloroethylene	2022/08/26	92	60 - 140	96	60 - 130	<0.040	ug/g	NC	50
8184762	1,2-Dichlorobenzene	2022/08/26	91	60 - 140	95	60 - 130	<0.040	ug/g	NC	50
8184762	1,2-Dichloroethane	2022/08/26	87	60 - 140	91	60 - 130	<0.049	ug/g	NC	50
8184762	1,2-Dichloropropane	2022/08/26	88	60 - 140	92	60 - 130	<0.040	ug/g	NC	50
8184762	1,3-Dichlorobenzene	2022/08/26	90	60 - 140	94	60 - 130	<0.040	ug/g	NC	50
8184762	1,4-Dichlorobenzene	2022/08/26	104	60 - 140	109	60 - 130	<0.040	ug/g	NC	50
8184762	Acetone (2-Propanone)	2022/08/26	87	60 - 140	92	60 - 140	<0.49	ug/g	NC	50
8184762	Benzene	2022/08/26	84	60 - 140	87	60 - 130	<0.0060	ug/g	NC	50
8184762	Bromodichloromethane	2022/08/26	90	60 - 140	94	60 - 130	<0.040	ug/g	NC	50
8184762	Bromoform	2022/08/26	90	60 - 140	93	60 - 130	<0.040	ug/g	NC	50
8184762	Bromomethane	2022/08/26	87	60 - 140	91	60 - 140	<0.040	ug/g	NC	50
8184762	Carbon Tetrachloride	2022/08/26	91	60 - 140	94	60 - 130	<0.040	ug/g	NC	50
8184762	Chlorobenzene	2022/08/26	92	60 - 140	96	60 - 130	<0.040	ug/g	NC	50
8184762	Chloroform	2022/08/26	89	60 - 140	93	60 - 130	<0.040	ug/g	NC	50

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8184762	cis-1,2-Dichloroethylene	2022/08/26	93	60 - 140	98	60 - 130	<0.040	ug/g	NC	50
8184762	cis-1,3-Dichloropropene	2022/08/26	87	60 - 140	92	60 - 130	<0.030	ug/g	NC	50
8184762	Dibromochloromethane	2022/08/26	89	60 - 140	93	60 - 130	<0.040	ug/g	NC	50
8184762	Dichlorodifluoromethane (FREON 12)	2022/08/26	95	60 - 140	97	60 - 140	<0.040	ug/g	NC	50
8184762	Ethylbenzene	2022/08/26	86	60 - 140	89	60 - 130	<0.010	ug/g	NC	50
8184762	Ethylene Dibromide	2022/08/26	87	60 - 140	90	60 - 130	<0.040	ug/g	NC	50
8184762	F1 (C6-C10) - BTEX	2022/08/26					<10	ug/g	NC	30
8184762	F1 (C6-C10)	2022/08/26	76	60 - 140	96	80 - 120	<10	ug/g	NC	30
8184762	Hexane	2022/08/26	91	60 - 140	94	60 - 130	<0.040	ug/g	NC	50
8184762	Methyl Ethyl Ketone (2-Butanone)	2022/08/26	100	60 - 140	105	60 - 140	<0.40	ug/g	NC	50
8184762	Methyl Isobutyl Ketone	2022/08/26	90	60 - 140	95	60 - 130	<0.40	ug/g	NC	50
8184762	Methyl t-butyl ether (MTBE)	2022/08/26	87	60 - 140	90	60 - 130	<0.040	ug/g	NC	50
8184762	Methylene Chloride(Dichloromethane)	2022/08/26	85	60 - 140	89	60 - 130	<0.049	ug/g	NC	50
8184762	o-Xylene	2022/08/26	86	60 - 140	89	60 - 130	<0.020	ug/g	NC	50
8184762	p+m-Xylene	2022/08/26	90	60 - 140	93	60 - 130	<0.020	ug/g	NC	50
8184762	Styrene	2022/08/26	94	60 - 140	98	60 - 130	<0.040	ug/g	NC	50
8184762	Tetrachloroethylene	2022/08/26	86	60 - 140	89	60 - 130	<0.040	ug/g	NC	50
8184762	Toluene	2022/08/26	84	60 - 140	88	60 - 130	<0.020	ug/g	NC	50
8184762	Total Xylenes	2022/08/26					<0.020	ug/g	NC	50
8184762	trans-1,2-Dichloroethylene	2022/08/26	87	60 - 140	91	60 - 130	<0.040	ug/g	NC	50
8184762	trans-1,3-Dichloropropene	2022/08/26	90	60 - 140	95	60 - 130	<0.040	ug/g	NC	50
8184762	Trichloroethylene	2022/08/26	95	60 - 140	99	60 - 130	<0.010	ug/g	NC	50
8184762	Trichlorofluoromethane (FREON 11)	2022/08/26	91	60 - 140	95	60 - 130	<0.040	ug/g	NC	50
8184762	Vinyl Chloride	2022/08/26	81	60 - 140	84	60 - 130	<0.019	ug/g	NC	50
8185000	Moisture	2022/08/24							4.4	20
8186294	Aroclor 1242	2022/08/25					<0.010	ug/g	NC	50
8186294	Aroclor 1248	2022/08/25					<0.010	ug/g	NC	50
8186294	Aroclor 1254	2022/08/25					<0.010	ug/g	NC	50
8186294	Aroclor 1260	2022/08/25	100	30 - 130	106	30 - 130	<0.010	ug/g	NC	50
8186294	Total PCB	2022/08/25	100	30 - 130	106	30 - 130	<0.010	ug/g	NC	50
8187909	Aroclor 1242	2022/08/26					<0.010	ug/g	NC	50
8187909	Aroclor 1248	2022/08/26					<0.010	ug/g	NC	50
8187909	Aroclor 1254	2022/08/26					<0.010	ug/g	NC	50

Bureau Veritas 100 – 36 Antares Dr. Nepean, ON, K2E 7W5 Phone: 613-274-0573 Website: www.bvna.com

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8187909	Aroclor 1260	2022/08/26	108	30 - 130	109	30 - 130	<0.010	ug/g	NC	50
8187909	Total PCB	2022/08/26	108	30 - 130	109	30 - 130	<0.010	ug/g	NC	50
8187917	Acid Extractable Antimony (Sb)	2022/08/26	102	75 - 125	98	80 - 120	<0.20	ug/g	NC	30
8187917	Acid Extractable Arsenic (As)	2022/08/26	105	75 - 125	98	80 - 120	<1.0	ug/g	NC	30
8187917	Acid Extractable Barium (Ba)	2022/08/26	108	75 - 125	99	80 - 120	<0.50	ug/g	6.3	30
8187917	Acid Extractable Beryllium (Be)	2022/08/26	105	75 - 125	96	80 - 120	<0.20	ug/g	NC	30
8187917	Acid Extractable Boron (B)	2022/08/26	99	75 - 125	96	80 - 120	<5.0	ug/g	NC	30
8187917	Acid Extractable Cadmium (Cd)	2022/08/26	105	75 - 125	97	80 - 120	<0.10	ug/g	NC	30
8187917	Acid Extractable Chromium (Cr)	2022/08/26	105	75 - 125	97	80 - 120	<1.0	ug/g	1.8	30
8187917	Acid Extractable Cobalt (Co)	2022/08/26	105	75 - 125	96	80 - 120	<0.10	ug/g	2.0	30
8187917	Acid Extractable Copper (Cu)	2022/08/26	106	75 - 125	96	80 - 120	<0.50	ug/g	4.6	30
8187917	Acid Extractable Lead (Pb)	2022/08/26	110	75 - 125	100	80 - 120	<1.0	ug/g	0.40	30
8187917	Acid Extractable Mercury (Hg)	2022/08/26	95	75 - 125	90	80 - 120	<0.050	ug/g	NC	30
8187917	Acid Extractable Molybdenum (Mo)	2022/08/26	108	75 - 125	100	80 - 120	<0.50	ug/g	6.9	30
8187917	Acid Extractable Nickel (Ni)	2022/08/26	102	75 - 125	95	80 - 120	<0.50	ug/g	1.8	30
8187917	Acid Extractable Selenium (Se)	2022/08/26	107	75 - 125	99	80 - 120	<0.50	ug/g	NC	30
8187917	Acid Extractable Silver (Ag)	2022/08/26	111	75 - 125	103	80 - 120	<0.20	ug/g	NC	30
8187917	Acid Extractable Thallium (Tl)	2022/08/26	110	75 - 125	102	80 - 120	<0.050	ug/g	NC	30
8187917	Acid Extractable Tin (Sn)	2022/08/26	102	75 - 125	97	80 - 120	<1.0	ug/g	NC	30
8187917	Acid Extractable Uranium (U)	2022/08/26	109	75 - 125	100	80 - 120	<0.050	ug/g	1.2	30
8187917	Acid Extractable Vanadium (V)	2022/08/26	NC	75 - 125	98	80 - 120	<5.0	ug/g	0.30	30
8187917	Acid Extractable Zinc (Zn)	2022/08/26	NC	75 - 125	95	80 - 120	<5.0	ug/g	0.69	30
8188219	F2 (C10-C16 Hydrocarbons)	2022/08/27	90	60 - 130	95	80 - 120	<10	ug/g	NC	30
8188219	F3 (C16-C34 Hydrocarbons)	2022/08/27	90	60 - 130	96	80 - 120	<50	ug/g	NC	30
8188219	F4 (C34-C50 Hydrocarbons)	2022/08/27	96	60 - 130	101	80 - 120	<50	ug/g	NC	30
8189716	F2 (C10-C16 Hydrocarbons)	2022/08/26	99	60 - 130	99	80 - 120	<10	ug/g	NC	30
8189716	F3 (C16-C34 Hydrocarbons)	2022/08/26	104	60 - 130	105	80 - 120	<50	ug/g	NC	30
8189716	F4 (C34-C50 Hydrocarbons)	2022/08/26	108	60 - 130	109	80 - 120	<50	ug/g	NC	30
8192780	F2 (C10-C16 Hydrocarbons)	2022/08/29	101	60 - 130	102	80 - 120	<10	ug/g	2.4	30
8192780	F3 (C16-C34 Hydrocarbons)	2022/08/29	NC	60 - 130	104	80 - 120	<50	ug/g	22	30
8192780	F4 (C34-C50 Hydrocarbons)	2022/08/29	95	60 - 130	106	80 - 120	<50	ug/g	NC	30
8194533	Moisture-Subcontracted	2022/08/28					<0.30	%		
8194536	1-Methylnaphthalene	2022/08/28	78	50 - 130	82	50 - 130	<0.0050	mg/kg		

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8194536	2-Methylnaphthalene	2022/08/28	99	50 - 130	101	50 - 130	<0.0050	mg/kg		
8194536	Acenaphthene	2022/08/28	93	50 - 130	95	50 - 130	<0.0050	mg/kg		
8194536	Acenaphthylene	2022/08/28	88	50 - 130	91	50 - 130	<0.0050	mg/kg		
8194536	Acridine	2022/08/28	63	50 - 130	64	50 - 130	<0.010	mg/kg		
8194536	Anthracene	2022/08/28	87	50 - 130	89	50 - 130	<0.0040	mg/kg		
8194536	Benzo(a)anthracene	2022/08/28	95	50 - 130	98	50 - 130	<0.0050	mg/kg		
8194536	Benzo(a)pyrene	2022/08/28	93	50 - 130	87	50 - 130	<0.0050	mg/kg		
8194536	Benzo(b/j)fluoranthene	2022/08/28	95	50 - 130	95	50 - 130	<0.0050	mg/kg		
8194536	Benzo(c)phenanthrene	2022/08/28	109	50 - 130	112	50 - 130	<0.0050	mg/kg		
8194536	Benzo(e)pyrene	2022/08/28	93	50 - 130	96	50 - 130	<0.0050	mg/kg		
8194536	Benzo(g,h,i)perylene	2022/08/28	101	50 - 130	105	50 - 130	<0.0050	mg/kg		
8194536	Benzo(k)fluoranthene	2022/08/28	108	50 - 130	106	50 - 130	<0.0050	mg/kg		
8194536	Chrysene	2022/08/28	107	50 - 130	111	50 - 130	<0.0050	mg/kg		
8194536	Dibenzo(a,h)anthracene	2022/08/28	100	50 - 130	107	50 - 130	<0.0050	mg/kg		
8194536	Fluoranthene	2022/08/28	89	50 - 130	93	50 - 130	<0.0050	mg/kg		
8194536	Fluorene	2022/08/28	92	50 - 130	95	50 - 130	<0.0050	mg/kg		
8194536	Indeno(1,2,3-cd)pyrene	2022/08/28	84	50 - 130	89	50 - 130	<0.0050	mg/kg		
8194536	Naphthalene	2022/08/28	98	50 - 130	99	50 - 130	<0.0050	mg/kg		
8194536	Perylene	2022/08/28	84	50 - 130	84	50 - 130	<0.0050	mg/kg		
8194536	Phenanthrene	2022/08/28	87	50 - 130	90	50 - 130	<0.0050	mg/kg		
8194536	Pyrene	2022/08/28	89	50 - 130	90	50 - 130	<0.0050	mg/kg		
8194536	Quinoline	2022/08/28	94	50 - 130	94	50 - 130	<0.010	mg/kg		

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.

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).

(1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

Bureau Veritas 100 – 36 Antares Dr. Nepean, ON, K2E 7W5 Phone: 613-274-0573 Website: www.bvna.com

VALIDATION SIGNATURE PAGE

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

Anastassia Hamanov, Scientific Specialist

Veronica Falk, B.Sc., P.Chem., QP, Scientific Specialist, Organics

Ewa Pranjic, M.Sc., C.Chem, Scientific Specialist

Janet Gao, B.Sc., QP, Supervisor, Organics

Bureau Veritas 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.

Bureau Veritas 100 – 36 Antares Dr. Nepean, ON, K2E 7W5 Phone: 613-274-0573 Website: www.bvna.com

Your C.O.C. #: 892227-01-01

Attention: Heather Wolczanski

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

Report Date: 2022/08/30
Report #: R7275916
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C2N9717
Received: 2022/08/22, 13:00

Sample Matrix: Water
Samples Received: 10

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Chloride by Automated Colourimetry (1)	9	N/A	2022/08/27	CAM SOP-00463	SM 23 4500-Cl E m
Conductivity (1)	9	N/A	2022/08/27	CAM SOP-00414	SM 23 2510 m
Free (WAD) Cyanide (1)	9	N/A	2022/08/24	CAM SOP-00457	OMOE E3015 m
Total Cyanide (1)	9	2022/08/24	2022/08/24	CAM SOP-00457	OMOE E3015 5 m
Petroleum Hydro. CCME F1 & BTEX in Water (1)	9	N/A	2022/08/27	CAM SOP-00315	CCME PHC-CWS m
Petroleum Hydro. CCME F1 & BTEX in Water (1)	1	N/A	2022/08/29	CAM SOP-00315	CCME PHC-CWS m
Petroleum Hydrocarbons F2-F4 in Water (1, 3)	1	2022/08/25	2022/08/27	CAM SOP-00316	CCME PHC-CWS m
Petroleum Hydrocarbons F2-F4 in Water (1, 3)	8	2022/08/26	2022/08/27	CAM SOP-00316	CCME PHC-CWS m
Fluoride (1)	9	2022/08/24	2022/08/27	CAM SOP-00449	SM 23 4500-F C m
Hardness (calculated as CaCO3) (1)	9	N/A	2022/08/26	CAM SOP 00102/00408/00447	SM 2340 B
Total Metals Analysis by ICPMS (1)	7	N/A	2022/08/26	CAM SOP-00447	EPA 6020B m
Total Metals Analysis by ICPMS (1)	2	N/A	2022/08/29	CAM SOP-00447	EPA 6020B m
B[a]P Total Potency Equivalent (2, 4)	1	N/A	2022/08/29		CCME
PAH in Water by GC/MS (2)	1	2022/08/28	2022/08/28	AB SOP-00037/AB SOP-00003	EPA 3510C/8270E m
Total Ammonia-N (1)	9	N/A	2022/08/25	CAM SOP-00441	USGS I-2522-90 m
Nitrate & Nitrite as Nitrogen in Water (1, 5)	9	N/A	2022/08/26	CAM SOP-00440	SM 23 4500-NO3I/NO2B
Polychlorinated Biphenyl in Water (1)	9	2022/08/25	2022/08/26	CAM SOP-00309	EPA 8082A m
pH (1)	9	2022/08/24	2022/08/27	CAM SOP-00413	SM 4500H+ B m
Sulphate by Automated Colourimetry (1)	9	N/A	2022/08/29	CAM SOP-00464	EPA 375.4 m
Sulphide (1)	9	N/A	2022/08/25	CAM SOP-00455	SM 23 4500-S G m
Total Dissolved Solids (1)	9	2022/08/25	2022/08/26	CAM SOP-00428	SM 23 2540C m
Low Level Total Suspended Solids (1)	9	2022/08/24	2022/08/25	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

Your C.O.C. #: 892227-01-01

Attention: Heather Wolczanski

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

Report Date: 2022/08/30
Report #: R7275916
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C2N9717
Received: 2022/08/22, 13:00

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) This test was performed by Bureau Veritas Mississauga, 6740 Campobello Rd , Mississauga, ON, L5N 2L8
(2) This test was performed by Bureau Veritas Calgary (19th), 4000 19th Street NE , Calgary, AB, T2E 6P8
(3) All CCME PHC results met required criteria unless otherwise stated in the report. The CWS PHC methods employed by Bureau Veritas 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.
(4) 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.
(5) Values for calculated parameters may not appear to add up due to rounding of raw data and significant figures.

Encryption Key

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
==========
Bureau Veritas 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 PAHS (WATER)

Bureau Veritas ID		TNG137		
Sampling Date		2022/08/19 11:10		
COC Number		892227-01-01		
	UNITS	LTM-SW8	RDL	QC Batch
Polyaromatic Hydrocarbons				
Benzo(a)pyrene Total Potency Equiv.	ug/L	<0.010	0.010	8193662
Acenaphthene	ug/L	<0.10	0.10	8195913
Acenaphthylene	ug/L	<0.10	0.10	8195913
Acridine	ug/L	<0.040	0.040	8195913
Anthracene	ug/L	<0.010	0.010	8195913
Benzo(a)anthracene	ug/L	<0.0085	0.0085	8195913
Benzo(b/j)fluoranthene	ug/L	<0.0085	0.0085	8195913
Benzo(k)fluoranthene	ug/L	<0.0085	0.0085	8195913
Benzo(g,h,i)perylene	ug/L	<0.0085	0.0085	8195913
Benzo(c)phenanthrene	ug/L	<0.050	0.050	8195913
Benzo(a)pyrene	ug/L	<0.0075	0.0075	8195913
Benzo(e)pyrene	ug/L	<0.050	0.050	8195913
Chrysene	ug/L	<0.0085	0.0085	8195913
Dibenzo(a,h)anthracene	ug/L	<0.0075	0.0075	8195913
Fluoranthene	ug/L	<0.010	0.010	8195913
Fluorene	ug/L	<0.050	0.050	8195913
Indeno(1,2,3-cd)pyrene	ug/L	<0.0085	0.0085	8195913
1-Methylnaphthalene	ug/L	<0.10	0.10	8195913
2-Methylnaphthalene	ug/L	<0.10	0.10	8195913
Naphthalene	ug/L	<0.10	0.10	8195913
Phenanthrene	ug/L	<0.050	0.050	8195913
Perylene	ug/L	<0.050	0.050	8195913
Pyrene	ug/L	<0.020	0.020	8195913
Quinoline	ug/L	<0.20	0.20	8195913
Surrogate Recovery (%)				
D10-Anthracene	%	126		8195913
D14-Terphenyl	%	153 (1)		8195913
D8-Acenaphthylene	%	109		8195913
D8-Naphthalene	%	82		8195913

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
(1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

Bureau Veritas 100 – 36 Antares Dr. Nepean, ON, K2E 7W5 Phone: 613-274-0573 Website: www.bvna.com

CCME PHCS, BTEX/F1-F4 (WATER)

Bureau Veritas ID		TNG130	TNG131			TNG131			TNG132		
Sampling Date		2022/08/18 12:00	2022/08/18 11:30			2022/08/18 11:30			2022/08/18 11:00		
COC Number		892227-01-01	892227-01-01			892227-01-01			892227-01-01		
	UNITS	LTM-SW2	LTM-SW1	RDL	QC Batch	LTM-SW1 Lab-Dup	RDL	QC Batch	LTM-SW3	RDL	QC Batch
BTEX & F1 Hydrocarbons											
Benzene	ug/L	<0.20	<0.20	0.20	8191651				<0.20	0.20	8191651
Toluene	ug/L	<0.20	<0.20	0.20	8191651				<0.20	0.20	8191651
Ethylbenzene	ug/L	<0.20	<0.20	0.20	8191651				<0.20	0.20	8191651
o-Xylene	ug/L	<0.20	<0.20	0.20	8191651				<0.20	0.20	8191651
p+m-Xylene	ug/L	<0.40	<0.40	0.40	8191651				<0.40	0.40	8191651
Total Xylenes	ug/L	<0.40	<0.40	0.40	8191651				<0.40	0.40	8191651
F1 (C6-C10)	ug/L	<25	<25	25	8191651				<25	25	8191651
F1 (C6-C10) - BTEX	ug/L	<25	<25	25	8191651				<25	25	8191651
F2-F4 Hydrocarbons											
F2 (C10-C16 Hydrocarbons)	ug/L	<100	<100	100	8189304	<100	100	8189304	<100	100	8189304
F3 (C16-C34 Hydrocarbons)	ug/L	<200	<200	200	8189304	<200	200	8189304	<200	200	8189304
F4 (C34-C50 Hydrocarbons)	ug/L	<200	<200	200	8189304	<200	200	8189304	<200	200	8189304
Reached Baseline at C50	ug/L	Yes	Yes		8189304	Yes		8189304	Yes		8189304
Surrogate Recovery (%)											
1,4-Difluorobenzene	%	92	90		8191651				89		8191651
4-Bromofluorobenzene	%	98	98		8191651				99		8191651
D10-o-Xylene	%	94	93		8191651				90		8191651
D4-1,2-Dichloroethane	%	91	92		8191651				90		8191651
o-Terphenyl	%	98	97		8189304	97		8189304	96		8189304

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

CCME PHCS, BTEX/F1-F4 (WATER)

Bureau Veritas ID		TNG133	TNG134	TNG135	TNG136	TNG137	TNG138		
Sampling Date		2022/08/18 10:30	2022/08/18 10:00	2022/08/18 09:30	2022/08/18 13:00	2022/08/19 11:10	2022/08/18 13:05		
COC Number		892227-01-01	892227-01-01	892227-01-01	892227-01-01	892227-01-01	892227-01-01		
	UNITS	**LTM-SW4**	**LTM-SW5**	**LTM-SW6**	**LTM-SW7**	**LTM-SW8**	**DUP1**	**RDL**	**QC Batch**
BTEX & F1 Hydrocarbons									
Benzene	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	8191651
Toluene	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	8191651
Ethylbenzene	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	8191651
o-Xylene	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	8191651
p+m-Xylene	ug/L	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	0.40	8191651
Total Xylenes	ug/L	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	0.40	8191651
F1 (C6-C10)	ug/L	<25	<25	<25	<25	<25	<25	25	8191651
F1 (C6-C10) - BTEX	ug/L	<25	<25	<25	<25	<25	<25	25	8191651
F2-F4 Hydrocarbons									
F2 (C10-C16 Hydrocarbons)	ug/L	<100	<100	<100	<100	<100	<100	100	8189304
F3 (C16-C34 Hydrocarbons)	ug/L	<200	<200	<200	<200	<200	<200	200	8189304
F4 (C34-C50 Hydrocarbons)	ug/L	<200	<200	<200	<200	<200	<200	200	8189304
Reached Baseline at C50	ug/L	Yes	Yes	Yes	Yes	Yes	Yes		8189304
Surrogate Recovery (%)									
1,4-Difluorobenzene	%	90	92	88	89	91	95		8191651
4-Bromofluorobenzene	%	100	102	97	100	98	104		8191651
D10-o-Xylene	%	90	92	92	90	91	97		8191651
D4-1,2-Dichloroethane	%	92	94	90	91	91	94		8191651
o-Terphenyl	%	96	100	97	97	98	97		8189304

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		TNG130			TNG130			TNG131		
Sampling Date		2022/08/18 12:00			2022/08/18 12:00			2022/08/18 11:30		
COC Number		892227-01-01			892227-01-01			892227-01-01		
	UNITS	LTM-SW2	RDL	QC Batch	LTM-SW2 Lab-Dup	RDL	QC Batch	LTM-SW1	RDL	QC Batch
Calculated Parameters										
Hardness (CaCO3)	mg/L	480	1.0	8182775				180	1.0	8182775
Inorganics										
Total Ammonia-N	mg/L	<0.050	0.050	8186779				<0.050	0.050	8186779
Conductivity	umho/cm	4900	1.0	8186205				2100	1.0	8186205
Total Dissolved Solids	mg/L	2790	10	8187453				1030	10	8187453
Fluoride (F-)	mg/L	0.11	0.10	8186207				<0.10	0.10	8186207
pH	pH	7.47		8186202				7.42		8186202
Total Suspended Solids	mg/L	3	1	8185612				1	1	8185612
Dissolved Sulphate (SO4)	mg/L	210	1.0	8186234				78	1.0	8186234
Sulphide	mg/L	<0.020	0.020	8186184	<0.020	0.020	8186184	<0.020	0.020	8186184
Total Cyanide (CN)	mg/L	<0.0050	0.0050	8184500				<0.0050	0.0050	8184500
WAD Cyanide (Free)	mg/L	<0.0010	0.0010	8184290				<0.0010	0.0010	8184290
Dissolved Chloride (Cl-)	mg/L	1400	15	8186225				560	6.0	8186225
Nitrite (N)	mg/L	<0.010	0.010	8186173				<0.010	0.010	8186183
Nitrate (N)	mg/L	<0.10	0.10	8186173				<0.10	0.10	8186183
Nitrate + Nitrite (N)	mg/L	<0.10	0.10	8186173				<0.10	0.10	8186183

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

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		TNG132			TNG132			TNG133		
Sampling Date		2022/08/18 11:00			2022/08/18 11:00			2022/08/18 10:30		
COC Number		892227-01-01			892227-01-01			892227-01-01		
	UNITS	LTM-SW3	RDL	QC Batch	LTM-SW3 Lab-Dup	RDL	QC Batch	LTM-SW4	RDL	QC Batch
Calculated Parameters										
Hardness (CaCO3)	mg/L	1200	1.0	8182775				220	1.0	8182775
Inorganics										
Total Ammonia-N	mg/L	<0.050	0.050	8186779				<0.050	0.050	8186779
Conductivity	umho/cm	12000	1.0	8186205	12000	1.0	8186205	2300	1.0	8186205
Total Dissolved Solids	mg/L	7270	20	8187453				1240	10	8187453
Fluoride (F-)	mg/L	0.23	0.10	8186207	0.23	0.10	8186207	<0.10	0.10	8186207
pH	pH	7.46		8186202	7.61		8186202	7.69		8186202
Total Suspended Solids	mg/L	5	1	8185612				3	1	8185612
Dissolved Sulphate (SO4)	mg/L	460	5.0	8186234	460	5.0	8186234	86	1.0	8186234
Sulphide	mg/L	<0.020	0.020	8186184				<0.020	0.020	8186184
Total Cyanide (CN)	mg/L	<0.0050	0.0050	8184500				<0.0050	0.0050	8184500
WAD Cyanide (Free)	mg/L	<0.0010	0.0010	8184290				<0.0010	0.0010	8184290
Dissolved Chloride (Cl-)	mg/L	3500	40	8186225	3600	40	8186225	630	7.0	8186225
Nitrite (N)	mg/L	<0.010	0.010	8186173				<0.010	0.010	8186183
Nitrate (N)	mg/L	<0.10	0.10	8186173				0.12	0.10	8186183
Nitrate + Nitrite (N)	mg/L	<0.10	0.10	8186173				0.12	0.10	8186183

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

Bureau Veritas 100 – 36 Antares Dr. Nepean, ON, K2E 7W5 Phone: 613-274-0573 Website: www.bvna.com

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		TNG134	TNG135		TNG136		TNG137		
Sampling Date		2022/08/18 10:00	2022/08/18 09:30		2022/08/18 13:00		2022/08/19 11:10		
COC Number		892227-01-01	892227-01-01		892227-01-01		892227-01-01		
	UNITS	LTM-SW5	LTM-SW6	QC Batch	LTM-SW7	QC Batch	LTM-SW8	RDL	QC Batch
Calculated Parameters									
Hardness (CaCO3)	mg/L	51	48	8182775	47	8182775	46	1.0	8182775
Inorganics									
Total Ammonia-N	mg/L	<0.050	<0.050	8186779	0.27	8186779	0.17	0.050	8186779
Conductivity	umho/cm	140	120	8186205	120	8186205	110	1.0	8186205
Total Dissolved Solids	mg/L	85	85	8187453	90	8187453	90	10	8187453
Fluoride (F-)	mg/L	<0.10	<0.10	8186207	<0.10	8186207	<0.10	0.10	8186207
pH	pH	7.56	7.58	8186202	7.26	8186202	7.05		8186202
Total Suspended Solids	mg/L	2	2	8185612	17	8185612	6	1	8185612
Dissolved Sulphate (SO4)	mg/L	3.8	2.6	8186234	1.4	8186234	1.7	1.0	8186234
Sulphide	mg/L	<0.020	<0.020	8186184	<0.020	8186184	<0.020	0.020	8186184
Total Cyanide (CN)	mg/L	<0.0050	<0.0050	8184500	<0.0050	8184500	<0.0050	0.0050	8184500
WAD Cyanide (Free)	mg/L	<0.0010	<0.0010	8184290	<0.0010	8184290	<0.0010	0.0010	8184290
Dissolved Chloride (Cl-)	mg/L	13	8.3	8186225	6.3	8186225	6.1	1.0	8186225
Nitrite (N)	mg/L	<0.010	<0.010	8186183	<0.010	8186173	<0.010	0.010	8186183
Nitrate (N)	mg/L	0.19	0.20	8186183	0.25	8186173	0.22	0.10	8186183
Nitrate + Nitrite (N)	mg/L	0.19	0.20	8186183	0.25	8186173	0.22	0.10	8186183

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		TNG138		
Sampling Date		2022/08/18 13:05		
COC Number		892227-01-01		
	UNITS	DUP1	RDL	QC Batch
Calculated Parameters				
Hardness (CaCO3)	mg/L	46	1.0	8182775
Inorganics				
Total Ammonia-N	mg/L	0.28	0.050	8186779
Conductivity	umho/cm	110	1.0	8186205
Total Dissolved Solids	mg/L	90	10	8187453
Fluoride (F-)	mg/L	<0.10	0.10	8186207
pH	pH	7.27		8186202
Total Suspended Solids	mg/L	23	5	8185612
Dissolved Sulphate (SO4)	mg/L	1.1	1.0	8186234
Sulphide	mg/L	<0.020	0.020	8186184
Total Cyanide (CN)	mg/L	<0.0050	0.0050	8184500
WAD Cyanide (Free)	mg/L	<0.0010	0.0010	8184290
Dissolved Chloride (Cl-)	mg/L	6.6	1.0	8186225
Nitrite (N)	mg/L	<0.010	0.010	8186173
Nitrate (N)	mg/L	0.28	0.10	8186173
Nitrate + Nitrite (N)	mg/L	0.28	0.10	8186173

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID		TNG130		TNG131		TNG132		TNG133	TNG134		
Sampling Date		2022/08/18 12:00		2022/08/18 11:30		2022/08/18 11:00		2022/08/18 10:30	2022/08/18 10:00		
COC Number		892227-01-01		892227-01-01		892227-01-01		892227-01-01	892227-01-01		
	UNITS	LTM-SW2	RDL	LTM-SW1	RDL	LTM-SW3	RDL	LTM-SW4	LTM-SW5	RDL	QC Batch
Metals											
Total Aluminum (Al)	ug/L	12	4.9	16	4.9	12	4.9	13	13	4.9	8189666
Total Antimony (Sb)	ug/L	<0.50	0.50	<0.50	0.50	<0.50	0.50	<0.50	<0.50	0.50	8189666
Total Arsenic (As)	ug/L	<1.0	1.0	<1.0	1.0	<1.0	1.0	<1.0	<1.0	1.0	8189666
Total Barium (Ba)	ug/L	<2.0	2.0	<2.0	2.0	3.0	2.0	2.3	2.4	2.0	8189666
Total Beryllium (Be)	ug/L	<0.40	0.40	<0.40	0.40	<0.40	0.40	<0.40	<0.40	0.40	8189666
Total Bismuth (Bi)	ug/L	<1.0	1.0	<1.0	1.0	<1.0	1.0	<1.0	<1.0	1.0	8189666
Total Boron (B)	ug/L	350	10	170	10	890	10	190	23	10	8189666
Total Cadmium (Cd)	ug/L	<0.090	0.090	<0.090	0.090	<0.090	0.090	<0.090	<0.090	0.090	8189666
Total Calcium (Ca)	ug/L	37000	200	16000	200	88000	200	26000	16000	200	8189666
Total Chromium (Cr)	ug/L	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	<5.0	5.0	8189666
Total Cobalt (Co)	ug/L	<0.50	0.50	<0.50	0.50	<0.50	0.50	<0.50	<0.50	0.50	8189666
Total Copper (Cu)	ug/L	<0.90	0.90	<0.90	0.90	<0.90	0.90	<0.90	<0.90	0.90	8189666
Total Iron (Fe)	ug/L	120	100	200	100	120	100	1100	1500	100	8189666
Total Lead (Pb)	ug/L	<0.50	0.50	<0.50	0.50	<0.50	0.50	<0.50	<0.50	0.50	8189666
Total Lithium (Li)	ug/L	13	5.0	6.1	5.0	34	5.0	7.0	<5.0	5.0	8189666
Total Magnesium (Mg)	ug/L	96000	50	36000	50	240000	50	40000	3400	50	8189666
Total Manganese (Mn)	ug/L	9.0	2.0	10	2.0	31	2.0	68	80	2.0	8189666
Total Molybdenum (Mo)	ug/L	1.0	0.50	<0.50	0.50	2.4	0.50	<0.50	<0.50	0.50	8189666
Total Nickel (Ni)	ug/L	<1.0	1.0	<1.0	1.0	<1.0	1.0	<1.0	<1.0	1.0	8189666
Total Potassium (K)	ug/L	30000	200	13000	200	78000	200	14000	410	200	8189666
Total Selenium (Se)	ug/L	<2.0	2.0	<2.0	2.0	<2.0	2.0	<2.0	<2.0	2.0	8189666
Total Silicon (Si)	ug/L	1100	50	1400	50	1100	50	3600	4000	50	8189666
Total Silver (Ag)	ug/L	<0.090	0.090	<0.090	0.090	<0.090	0.090	<0.090	<0.090	0.090	8189666
Total Sodium (Na)	ug/L	840000	500	330000	100	2100000	500	360000	7500	100	8189666
Total Strontium (Sr)	ug/L	570	1.0	220	1.0	1400	1.0	250	40	1.0	8189666
Total Tellurium (Te)	ug/L	<1.0	1.0	<1.0	1.0	<1.0	1.0	<1.0	<1.0	1.0	8189666
Total Thallium (Tl)	ug/L	<0.050	0.050	<0.050	0.050	<0.050	0.050	<0.050	<0.050	0.050	8189666
Total Tin (Sn)	ug/L	<1.0	1.0	<1.0	1.0	<1.0	1.0	<1.0	<1.0	1.0	8189666
Total Titanium (Ti)	ug/L	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	<5.0	5.0	8189666
Total Tungsten (W)	ug/L	<1.0	1.0	<1.0	1.0	<1.0	1.0	<1.0	<1.0	1.0	8189666
Total Uranium (U)	ug/L	0.15	0.10	<0.10	0.10	0.38	0.10	<0.10	<0.10	0.10	8189666
Total Vanadium (V)	ug/L	<0.50	0.50	<0.50	0.50	<0.50	0.50	<0.50	<0.50	0.50	8189666

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID		TNG130		TNG131		TNG132		TNG133	TNG134		
Sampling Date		2022/08/18 12:00		2022/08/18 11:30		2022/08/18 11:00		2022/08/18 10:30	2022/08/18 10:00		
COC Number		892227-01-01		892227-01-01		892227-01-01		892227-01-01	892227-01-01		
	UNITS	**LTM-SW2**	**RDL**	**LTM-SW1**	**RDL**	**LTM-SW3**	**RDL**	**LTM-SW4**	**LTM-SW5**	**RDL**	**QC Batch**
Total Zinc (Zn)	ug/L	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	<5.0	5.0	8189666
Total Zirconium (Zr)	ug/L	<1.0	1.0	<1.0	1.0	<1.0	1.0	<1.0	<1.0	1.0	8189666

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas 100 – 36 Antares Dr. Nepean, ON, K2E 7W5 Phone: 613-274-0573 Website: www.bvna.com

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID		TNG135	TNG136	TNG137	TNG138		
Sampling Date		2022/08/18 09:30	2022/08/18 13:00	2022/08/19 11:10	2022/08/18 13:05		
COC Number		892227-01-01	892227-01-01	892227-01-01	892227-01-01		
	UNITS	LTM-SW6	LTM-SW7	LTM-SW8	DUP1	RDL	QC Batch
Metals							
Total Aluminum (Al)	ug/L	14	66	36	59	4.9	8189666
Total Antimony (Sb)	ug/L	<0.50	<0.50	<0.50	<0.50	0.50	8189666
Total Arsenic (As)	ug/L	<1.0	<1.0	<1.0	<1.0	1.0	8189666
Total Barium (Ba)	ug/L	2.4	6.5	7.2	5.2	2.0	8189666
Total Beryllium (Be)	ug/L	<0.40	<0.40	<0.40	<0.40	0.40	8189666
Total Bismuth (Bi)	ug/L	<1.0	<1.0	<1.0	<1.0	1.0	8189666
Total Boron (B)	ug/L	15	12	11	12	10	8189666
Total Cadmium (Cd)	ug/L	<0.090	<0.090	<0.090	<0.090	0.090	8189666
Total Calcium (Ca)	ug/L	14000	15000	14000	14000	200	8189666
Total Chromium (Cr)	ug/L	<5.0	<5.0	<5.0	<5.0	5.0	8189666
Total Cobalt (Co)	ug/L	<0.50	0.69	<0.50	0.70	0.50	8189666
Total Copper (Cu)	ug/L	<0.90	1.4	1.1	1.4	0.90	8189666
Total Iron (Fe)	ug/L	1700	4600	2800	4400	100	8189666
Total Lead (Pb)	ug/L	<0.50	<0.50	<0.50	<0.50	0.50	8189666
Total Lithium (Li)	ug/L	<5.0	<5.0	<5.0	<5.0	5.0	8189666
Total Magnesium (Mg)	ug/L	2700	2700	2600	2600	50	8189666
Total Manganese (Mn)	ug/L	45	160	150	150	2.0	8189666
Total Molybdenum (Mo)	ug/L	<0.50	<0.50	<0.50	<0.50	0.50	8189666
Total Nickel (Ni)	ug/L	<1.0	<1.0	<1.0	<1.0	1.0	8189666
Total Potassium (K)	ug/L	230	380	290	370	200	8189666
Total Selenium (Se)	ug/L	<2.0	<2.0	<2.0	<2.0	2.0	8189666
Total Silicon (Si)	ug/L	3600	2100	1800	1900	50	8189666
Total Silver (Ag)	ug/L	<0.090	<0.090	<0.090	<0.090	0.090	8189666
Total Sodium (Na)	ug/L	4900	4000	3900	3900	100	8189666
Total Strontium (Sr)	ug/L	36	50	48	47	1.0	8189666
Total Tellurium (Te)	ug/L	<1.0	<1.0	<1.0	<1.0	1.0	8189666
Total Thallium (Tl)	ug/L	<0.050	<0.050	<0.050	<0.050	0.050	8189666
Total Tin (Sn)	ug/L	<1.0	<1.0	<1.0	<1.0	1.0	8189666
Total Titanium (Ti)	ug/L	<5.0	6.1	<5.0	5.4	5.0	8189666
Total Tungsten (W)	ug/L	<1.0	<1.0	<1.0	<1.0	1.0	8189666
Total Uranium (U)	ug/L	<0.10	<0.10	<0.10	<0.10	0.10	8189666
Total Vanadium (V)	ug/L	<0.50	0.50	<0.50	0.53	0.50	8189666

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID		TNG135	TNG136	TNG137	TNG138		
Sampling Date		2022/08/18 09:30	2022/08/18 13:00	2022/08/19 11:10	2022/08/18 13:05		
COC Number		892227-01-01	892227-01-01	892227-01-01	892227-01-01		
	UNITS	**LTM-SW6**	**LTM-SW7**	**LTM-SW8**	**DUP1**	**RDL**	**QC Batch**
Total Zinc (Zn)	ug/L	<5.0	18	9.9	16	5.0	8189666
Total Zirconium (Zr)	ug/L	<1.0	<1.0	<1.0	<1.0	1.0	8189666

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

PETROLEUM HYDROCARBONS (CCME)

Bureau Veritas ID		TNG139		
Sampling Date		2022/08/18		
COC Number		892227-01-01		
	UNITS	TRIP BLANK	RDL	QC Batch
BTEX & F1 Hydrocarbons				
Benzene	ug/L	<0.20	0.20	8191651
Toluene	ug/L	<0.20	0.20	8191651
Ethylbenzene	ug/L	<0.20	0.20	8191651
o-Xylene	ug/L	<0.20	0.20	8191651
p+m-Xylene	ug/L	<0.40	0.40	8191651
Total Xylenes	ug/L	<0.40	0.40	8191651
F1 (C6-C10)	ug/L	<25	25	8191651
F1 (C6-C10) - BTEX	ug/L	<25	25	8191651
Surrogate Recovery (%)				
1,4-Difluorobenzene	%	89		8191651
4-Bromofluorobenzene	%	95		8191651
D10-o-Xylene	%	90		8191651
D4-1,2-Dichloroethane	%	89		8191651

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

POLYCHLORINATED BIPHENYLS BY GC-ECD (WATER)

Bureau Veritas ID		TNG130	TNG131	TNG132	TNG133	TNG134	TNG135		
Sampling Date		2022/08/18 12:00	2022/08/18 11:30	2022/08/18 11:00	2022/08/18 10:30	2022/08/18 10:00	2022/08/18 09:30		
COC Number		892227-01-01	892227-01-01	892227-01-01	892227-01-01	892227-01-01	892227-01-01		
	UNITS	LTM-SW2	LTM-SW1	LTM-SW3	LTM-SW4	LTM-SW5	LTM-SW6	RDL	QC Batch
PCBs									
Aroclor 1016	ug/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	8187656
Aroclor 1221	ug/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	8187656
Aroclor 1232	ug/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	8187656
Aroclor 1242	ug/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	8187656
Aroclor 1248	ug/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	8187656
Aroclor 1254	ug/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	8187656
Aroclor 1260	ug/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	8187656
Aroclor 1262	ug/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	8187656
Aroclor 1268	ug/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	8187656
Total PCB	ug/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	8187656
Surrogate Recovery (%)									
Decachlorobiphenyl	%	100	114	101	97	98	88		8187656

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas ID		TNG136	TNG137	TNG137	TNG138		
Sampling Date		2022/08/18 13:00	2022/08/19 11:10	2022/08/19 11:10	2022/08/18 13:05		
COC Number		892227-01-01	892227-01-01	892227-01-01	892227-01-01		
	UNITS	LTM-SW7	LTM-SW8	LTM-SW8 Lab-Dup	DUP1	RDL	QC Batch
PCBs							
Aroclor 1016	ug/L	<0.05	<0.05	<0.05	<0.05	0.05	8187656
Aroclor 1221	ug/L	<0.05	<0.05	<0.05	<0.05	0.05	8187656
Aroclor 1232	ug/L	<0.05	<0.05	<0.05	<0.05	0.05	8187656
Aroclor 1242	ug/L	<0.05	<0.05	<0.05	<0.05	0.05	8187656
Aroclor 1248	ug/L	<0.05	<0.05	<0.05	<0.05	0.05	8187656
Aroclor 1254	ug/L	<0.05	<0.05	<0.05	<0.05	0.05	8187656
Aroclor 1260	ug/L	<0.05	<0.05	<0.05	<0.05	0.05	8187656
Aroclor 1262	ug/L	<0.05	<0.05	<0.05	<0.05	0.05	8187656
Aroclor 1268	ug/L	<0.05	<0.05	<0.05	<0.05	0.05	8187656
Total PCB	ug/L	<0.05	<0.05	<0.05	<0.05	0.05	8187656
Surrogate Recovery (%)							
Decachlorobiphenyl	%	88	93	89	85		8187656

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

GENERAL COMMENTS

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

Package 1	8.0°C

Sample TNG132 [LTM-SW3] : Metals: Due to the sample matrix, the sample required dilution. Detection limits were adjusted accordingly.

Results relate only to the items tested.

Bureau Veritas 100 – 36 Antares Dr. Nepean, ON, K2E 7W5 Phone: 613-274-0573 Website: www.bvna.com

QUALITY ASSURANCE REPORT

			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
8187656	Decachlorobiphenyl	2022/08/26	97	60 - 130	102	60 - 130	91	%				
8189304	o-Terphenyl	2022/08/27	99	60 - 130	99	60 - 130	97	%				
8191651	1,4-Difluorobenzene	2022/08/27	90	70 - 130	88	70 - 130	105	%				
8191651	4-Bromofluorobenzene	2022/08/27	101	70 - 130	99	70 - 130	99	%				
8191651	D10-o-Xylene	2022/08/27	96	70 - 130	95	70 - 130	90	%				
8191651	D4-1,2-Dichloroethane	2022/08/27	85	70 - 130	83	70 - 130	124	%				
8195913	D10-Anthracene	2022/08/28			105	50 - 130	130	%				
8195913	D14-Terphenyl	2022/08/28			131 (1)	50 - 130	166 (1)	%				
8195913	D8-Acenaphthylene	2022/08/28			89	50 - 130	110	%				
8195913	D8-Naphthalene	2022/08/28			75	50 - 130	88	%				
8184290	WAD Cyanide (Free)	2022/08/24	113	80 - 120	104	80 - 120	<0.0010	mg/L	NC	20		
8184500	Total Cyanide (CN)	2022/08/24	83	80 - 120	107	80 - 120	<0.0050	mg/L	NC	20		
8185612	Total Suspended Solids	2022/08/25					<1	mg/L	0	25	101	85 - 115
8186173	Nitrate (N)	2022/08/26	96	80 - 120	100	80 - 120	<0.10	mg/L	NC	20		
8186173	Nitrite (N)	2022/08/26	108	80 - 120	103	80 - 120	<0.010	mg/L	NC	20		
8186183	Nitrate (N)	2022/08/26	106	80 - 120	98	80 - 120	<0.10	mg/L				
8186183	Nitrite (N)	2022/08/26	108	80 - 120	103	80 - 120	<0.010	mg/L				
8186184	Sulphide	2022/08/25	99	80 - 120	95	80 - 120	<0.020	mg/L	NC	20		
8186202	pH	2022/08/27			102	98 - 103			2.1	N/A		
8186205	Conductivity	2022/08/27			99	85 - 115	<1.0	umho/cm	0	25		
8186207	Fluoride (F-)	2022/08/27	86	80 - 120	104	80 - 120	<0.10	mg/L	1.9	20		
8186225	Dissolved Chloride (Cl-)	2022/08/27	NC	80 - 120	102	80 - 120	<1.0	mg/L	3.4	20		
8186234	Dissolved Sulphate (SO4)	2022/08/29	NC	75 - 125	104	80 - 120	<1.0	mg/L	1.7	20		
8186779	Total Ammonia-N	2022/08/25	94	75 - 125	96	80 - 120	<0.050	mg/L	1.1	20		
8187453	Total Dissolved Solids	2022/08/26					<10	mg/L	3.2	25	102	90 - 110
8187656	Aroclor 1016	2022/08/26					<0.05	ug/L	NC	40		
8187656	Aroclor 1221	2022/08/26					<0.05	ug/L	NC	40		
8187656	Aroclor 1232	2022/08/26					<0.05	ug/L	NC	40		
8187656	Aroclor 1242	2022/08/26					<0.05	ug/L	NC	30		
8187656	Aroclor 1248	2022/08/26					<0.05	ug/L	NC	30		
8187656	Aroclor 1254	2022/08/26					<0.05	ug/L	NC	30		
8187656	Aroclor 1260	2022/08/26	81	60 - 130	96	60 - 130	<0.05	ug/L	NC	30		

			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
8187656	Aroclor 1262	2022/08/26					<0.05	ug/L	NC	40		
8187656	Aroclor 1268	2022/08/26					<0.05	ug/L	NC	40		
8187656	Total PCB	2022/08/26	81	60 - 130	96	60 - 130	<0.05	ug/L	NC	40		
8189304	F2 (C10-C16 Hydrocarbons)	2022/08/27	102	60 - 130	102	60 - 130	<100	ug/L	NC	30		
8189304	F3 (C16-C34 Hydrocarbons)	2022/08/27	103	60 - 130	104	60 - 130	<200	ug/L	NC	30		
8189304	F4 (C34-C50 Hydrocarbons)	2022/08/27	104	60 - 130	105	60 - 130	<200	ug/L	NC	30		
8189666	Total Aluminum (Al)	2022/08/26	100	80 - 120	98	80 - 120	<4.9	ug/L	1.3	20		
8189666	Total Antimony (Sb)	2022/08/26	107	80 - 120	103	80 - 120	<0.50	ug/L	NC	20		
8189666	Total Arsenic (As)	2022/08/26	102	80 - 120	99	80 - 120	<1.0	ug/L	0.45	20		
8189666	Total Barium (Ba)	2022/08/26	99	80 - 120	97	80 - 120	<2.0	ug/L	0.90	20		
8189666	Total Beryllium (Be)	2022/08/26	102	80 - 120	101	80 - 120	<0.40	ug/L	NC	20		
8189666	Total Bismuth (Bi)	2022/08/26	96	80 - 120	99	80 - 120	<1.0	ug/L	NC	20		
8189666	Total Boron (B)	2022/08/26	96	80 - 120	97	80 - 120	<10	ug/L	3.2	20		
8189666	Total Cadmium (Cd)	2022/08/26	100	80 - 120	100	80 - 120	<0.090	ug/L	NC	20		
8189666	Total Calcium (Ca)	2022/08/26	NC	80 - 120	97	80 - 120	<200	ug/L	1.3	20		
8189666	Total Chromium (Cr)	2022/08/26	99	80 - 120	98	80 - 120	<5.0	ug/L	NC	20		
8189666	Total Cobalt (Co)	2022/08/26	99	80 - 120	100	80 - 120	<0.50	ug/L	1.2	20		
8189666	Total Copper (Cu)	2022/08/26	99	80 - 120	97	80 - 120	<0.90	ug/L	3.4	20		
8189666	Total Iron (Fe)	2022/08/26	98	80 - 120	99	80 - 120	<100	ug/L	1.6	20		
8189666	Total Lead (Pb)	2022/08/26	99	80 - 120	100	80 - 120	<0.50	ug/L	1.0	20		
8189666	Total Lithium (Li)	2022/08/26	100	80 - 120	99	80 - 120	<5.0	ug/L	6.2	20		
8189666	Total Magnesium (Mg)	2022/08/26	NC	80 - 120	96	80 - 120	<50	ug/L	0.26	20		
8189666	Total Manganese (Mn)	2022/08/26	99	80 - 120	99	80 - 120	<2.0	ug/L	0.74	20		
8189666	Total Molybdenum (Mo)	2022/08/26	106	80 - 120	101	80 - 120	<0.50	ug/L	0.55	20		
8189666	Total Nickel (Ni)	2022/08/26	98	80 - 120	101	80 - 120	<1.0	ug/L	7.3	20		
8189666	Total Potassium (K)	2022/08/26	97	80 - 120	97	80 - 120	<200	ug/L	0.84	20		
8189666	Total Selenium (Se)	2022/08/26	105	80 - 120	105	80 - 120	<2.0	ug/L	NC	20		
8189666	Total Silicon (Si)	2022/08/26	96	80 - 120	94	80 - 120	<50	ug/L	1.4	20		
8189666	Total Silver (Ag)	2022/08/26	99	80 - 120	103	80 - 120	<0.090	ug/L	NC	20		
8189666	Total Sodium (Na)	2022/08/26	NC	80 - 120	98	80 - 120	<100	ug/L	0.24	20		
8189666	Total Strontium (Sr)	2022/08/26	NC	80 - 120	97	80 - 120	<1.0	ug/L	0.44	20		
8189666	Total Tellurium (Te)	2022/08/26	99	80 - 120	101	80 - 120	<1.0	ug/L	NC	20		
8189666	Total Thallium (Tl)	2022/08/26	100	80 - 120	102	80 - 120	<0.050	ug/L	NC	20		

			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
8189666	Total Tin (Sn)	2022/08/26	103	80 - 120	98	80 - 120	<1.0	ug/L	NC	20		
8189666	Total Titanium (Ti)	2022/08/26	98	80 - 120	96	80 - 120	<5.0	ug/L	NC	20		
8189666	Total Tungsten (W)	2022/08/26	103	80 - 120	100	80 - 120	<1.0	ug/L	NC	20		
8189666	Total Uranium (U)	2022/08/26	80	80 - 120	78 (1)	80 - 120	<0.10	ug/L	6.2	20		
8189666	Total Vanadium (V)	2022/08/26	101	80 - 120	98	80 - 120	<0.50	ug/L	12	20		
8189666	Total Zinc (Zn)	2022/08/26	99	80 - 120	104	80 - 120	<5.0	ug/L	5.4	20		
8189666	Total Zirconium (Zr)	2022/08/26	105	80 - 120	99	80 - 120	<1.0	ug/L	NC	20		
8191651	Benzene	2022/08/27	75	50 - 140	74	50 - 140	<0.20	ug/L	NC	30		
8191651	Ethylbenzene	2022/08/27	95	50 - 140	99	50 - 140	<0.20	ug/L	NC	30		
8191651	F1 (C6-C10) - BTEX	2022/08/27					<25	ug/L				
8191651	F1 (C6-C10)	2022/08/27	93	60 - 140	93	60 - 140	<25	ug/L				
8191651	o-Xylene	2022/08/27	97	50 - 140	96	50 - 140	<0.20	ug/L	NC	30		
8191651	p+m-Xylene	2022/08/27	101	50 - 140	104	50 - 140	<0.40	ug/L	NC	30		
8191651	Toluene	2022/08/27	78	50 - 140	93	50 - 140	<0.20	ug/L	NC	30		
8191651	Total Xylenes	2022/08/27					<0.40	ug/L	NC	30		
8195913	1-Methylnaphthalene	2022/08/28			68	50 - 130	<0.10	ug/L				
8195913	2-Methylnaphthalene	2022/08/28			83	50 - 130	<0.10	ug/L				
8195913	Acenaphthene	2022/08/28			84	50 - 130	<0.10	ug/L				
8195913	Acenaphthylene	2022/08/28			91	50 - 130	<0.10	ug/L				
8195913	Acridine	2022/08/28			91	50 - 130	<0.040	ug/L				
8195913	Anthracene	2022/08/28			92	50 - 130	<0.010	ug/L				
8195913	Benzo(a)anthracene	2022/08/28			110	50 - 130	<0.0085	ug/L				
8195913	Benzo(a)pyrene	2022/08/28			100	50 - 130	<0.0075	ug/L				
8195913	Benzo(b/j)fluoranthene	2022/08/28			103	50 - 130	<0.0085	ug/L				
8195913	Benzo(c)phenanthrene	2022/08/28			112	50 - 130	<0.050	ug/L				
8195913	Benzo(e)pyrene	2022/08/28			99	50 - 130	<0.050	ug/L				
8195913	Benzo(g,h,i)perylene	2022/08/28			103	50 - 130	<0.0085	ug/L				
8195913	Benzo(k)fluoranthene	2022/08/28			108	50 - 130	<0.0085	ug/L				
8195913	Chrysene	2022/08/28			105	50 - 130	<0.0085	ug/L				
8195913	Dibenzo(a,h)anthracene	2022/08/28			107	50 - 130	<0.0075	ug/L				
8195913	Fluoranthene	2022/08/28			114	50 - 130	<0.010	ug/L				
8195913	Fluorene	2022/08/28			93	50 - 130	<0.050	ug/L				
8195913	Indeno(1,2,3-cd)pyrene	2022/08/28			106	50 - 130	<0.0085	ug/L				

			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
8195913	Naphthalene	2022/08/28			86	50 - 130	<0.10	ug/L				
8195913	Perylene	2022/08/28			99	50 - 130	<0.050	ug/L				
8195913	Phenanthrene	2022/08/28			93	50 - 130	<0.050	ug/L				
8195913	Pyrene	2022/08/28			106	50 - 130	<0.020	ug/L				
8195913	Quinoline	2022/08/28			96	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)

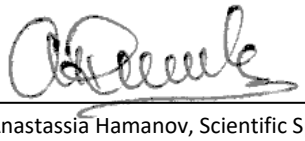
NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

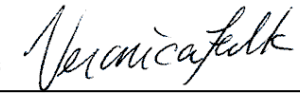
Bureau Veritas 100 – 36 Antares Dr. Nepean, ON, K2E 7W5 Phone: 613-274-0573 Website: www.bvna.com

VALIDATION SIGNATURE PAGE

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



Anastassia Hamanov, Scientific Specialist



Veronica Falk, B.Sc., P.Chem., QP, Scientific Specialist, Organics

Bureau Veritas 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.

Bureau Veritas 100 – 36 Antares Dr. Nepean, ON, K2E 7W5 Phone: 613-274-0573 Website: www.bvna.com

ATTACHMENT E

Quality Assurance/Quality Control Plan

COMPLIANCE LONG TERM MONITORING FOR TRANSPORT CANADA AT THE FORMER IQALUIT METAL DUMPIQALUIT, NUNAVUT

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

17 August 2022

TABLE OF CONTENTS

LIST OF TABLES

LIST OF APPENDICES

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 2022-2023 Compliance Long Term Monitoring requirements at the Former Iqaluit Metal Dump, located in Iqaluit NU. The following sampling 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 2022.

The purpose of the Sampling Plan is to detail the recommended methodologies and level of effort to conduct the 2022-2023 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 are. The site was remediated during Fiscal Year 2017/2-18. LTM activities have been completed 2018/2019, 2019/2020, 2020/2021, 2021-2022, and 2022/2023.

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, March 2022)

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 handheld 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 Solids); 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 handheld 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

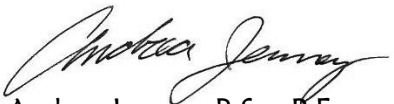
The conclusions presented in this report are based upon the analysis of historical information made available to BluMetric Environmental Inc. Any additional information received after the date of delivery of this report will be analysed and submitted in a timely manner in the form of an addendum or a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

DO NOT SCALE DRAWING.
THIS DRAWING MAY HAVE BEEN REDUCED. ALL SCALE NOTATIONS INDICATED ARE BASED ON 11"x17" FORMAT DRAWINGS.

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

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

N:\GIS_PROJECTS\200000\200607 - P05950 - PSPC Iqaluit Former Metal Dump\MXD\2020-10-27\200607 - Fig2-SitePlan.mxd

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

scc ccn

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)

BluMetric Environmental Inc.

1682 Woodward Drive
Ottawa, Ontario
Canada K2C 3R8
Tel: 613.839.3053
ottawa@blumetric.ca

4 Cataraqui Street
The Tower, The Woolen Mill
Kingston, Ontario
Canada K7K 1Z7
Tel: 613.531.2725
kingston@blumetric.ca

209 Frederick Street
Unit 3B
Kitchener, Ontario
Canada N2H 2M7
Tel: 519.742.6685
kitchener@blumetric.ca

825 Milner Avenue
Toronto, Ontario
Canada M1B 3C3
Tel: 877.487.8436
toronto@blumetric.ca

410 Falconbridge Road
Unit 6
Sudbury, Ontario
Canada P3A 4S4
Tel: 705.525.6075
sudbury@blumetric.ca

1046 Gorham Street
Thunder Bay, Ontario
Canada P7B 5X5
Tel: 807.707.4736
thunderbay@blumetric.ca

4-41 de Valcourt Street
Gatineau, Quebec
Canada J8T 8G9
Tel: 819.243.7555
gatineau@blumetric.ca

200-1500 Du College Street
Saint-Laurent, Quebec
Canada H4L 5G6
Tel: 514.844.7199
montreal@blumetric.ca

4916 – 49th Street
Yellowknife, NT
Canada X1A 1P3
Tel: 867.873.3500
Fax: 867.873.3499
yellowknife@blumetric.ca

202b Strickland Street
Whitehorse, Yukon
Canada Y1A 2J8
Tel: 867.689.8465
whitehorse@blumetric.ca

www.blumetric.ca