REPORT

MCCARTHY QUARRY

2022 Environmental Compliance Approval Annual Report

Submitted to:

Chris Hyde

Ministry of the Environment, Conservation and Parks
Barrie District Office
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Submitted by:

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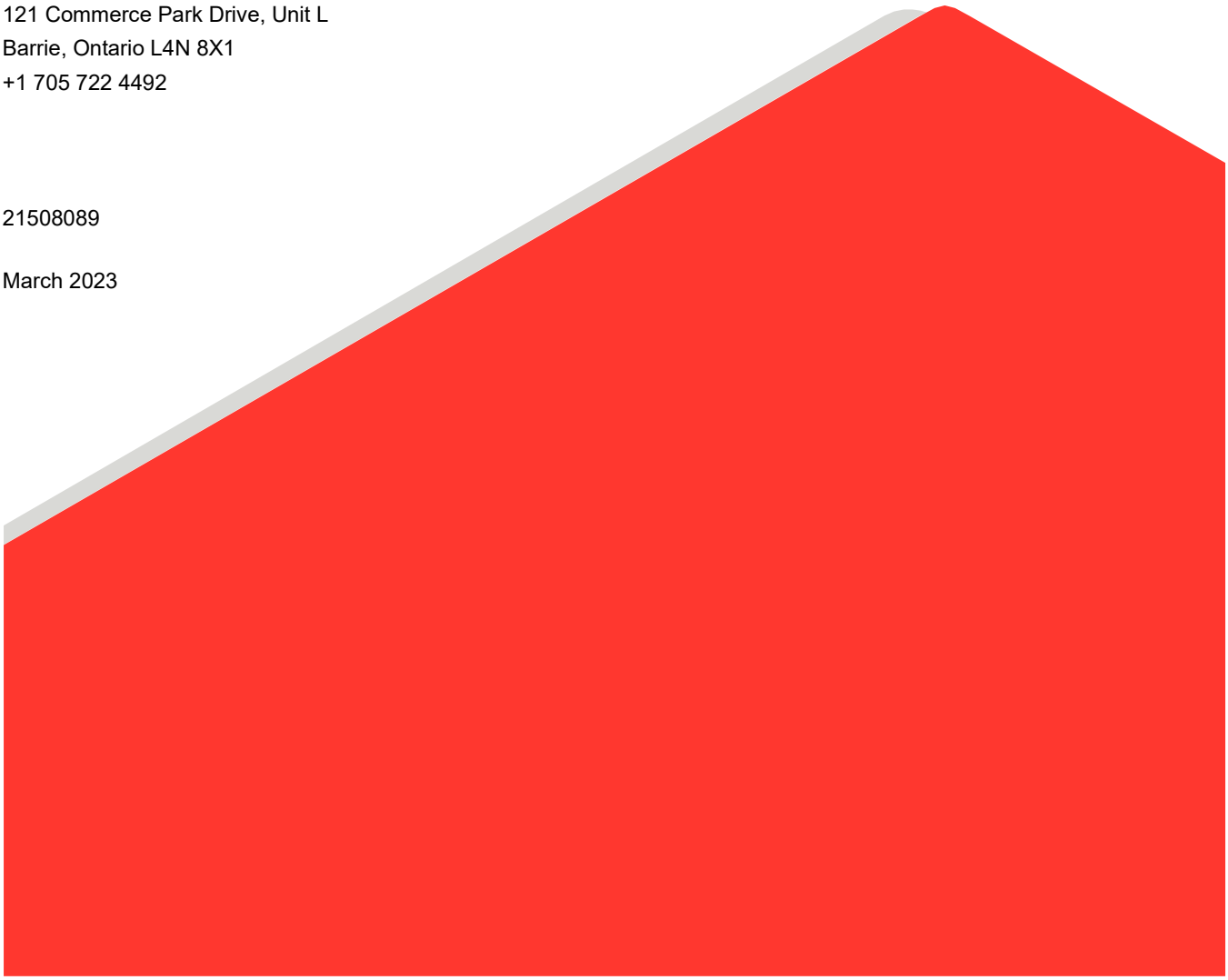
March 2023



Distribution List

1 Copy - Ministry of the Environment, Conservation and Parks

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Table of Contents

TABLES

FIGURES

APPENDICES

1.0 INTRODUCTION

WSP Canada Inc. (WSP) was retained by QBJR/Green Infrastructure Partners Inc. (Green) to prepare the annual compliance report for the McCarthy Quarry located in the Township of Ramara, County of Simcoe (Figure 1), as a requirement of Environmental Compliance Approval (ECA) No. 7737-BH6QEA issued on October 22, 2019. A copy of the ECA No. 7737-BH6QEA is provided in Appendix A.

The following report includes a summary of the requirements listed in Section 8(5) of the ECA for the period from January 1, 2022 to December 31, 2022. Included herein are a summary of:

- Interpretation of all monitoring data and a comparison to the effluent limits outlined in the ECA;
- Any operational problems encountered;
- Maintenance work completed on any part of the sewage works; and,
- Effluent discharge quality assurance or control measures undertaken.

2.0 BACKGROUND

The McCarthy Quarry dewatering system consists of the collection of groundwater and surface water at the base of the quarry floor to a settling pond to the south of the active quarry area (Figure 1). Groundwater and precipitation entering the quarry is collected in a sump in the quarry floor. The sump is equipped with a pump with a maximum discharge rate of 35 L/sec which is attached the discharge line that directs the water to a ditch that runs southward through the McCarthy property to the 14,000 m^3 settling pond. The water in the settling pond discharges via a Hickenbottom control structure to the roadside ditches along Concession Road 1. The water in the roadside ditch travels eastward along the north side of Concession Road 1 to a municipal drain and eventually discharges to the Talbot River, which in turn discharges to Lake Simcoe.

The dewatering activities from the McCarthy Quarry are currently carried out under the existing Permit to Take Water (PTTW) No. 1603-BKTPQH (Appendix B). The Permit is in place from January 31, 2020 to January 31, 2025. Under the current PTTW Green is permitted to pump water from the quarry sump at a rate of 4,545 L/min.

3.0 QUARRY DISCHARGE MONITORING

3.1 Quarry discharge Monitoring Requirements

Quarry discharge monitoring is required by the ECA at three locations, as shown on Figure 1:

- McCarthy Pond: the outfall of the settling pond;
- SW1: the culvert along Concession Road 1 at the McCarthy property downstream of the McCarthy Pond discharge location; and
- SW2: 260 m north of the intersection of Concession Road 1 and Mara Eldon Boundary Road, representing upstream conditions.

Condition 6(2) Table 2

Weekly quarry discharge monitoring is required at the McCarthy Pond for Total Suspended Solids (TSS), Oil and Grease and Phenols (4AAP). These results are summarized in Table 1 and the monthly averages are

summarized in Table 2. No sample was collected for the weeks when quarry staff reported there was no or very limited discharge at the time of sampling.

The weekly quarry discharge samples (Section 6(2)) were collected by staff at the McCarthy Quarry. The weekly quality samples were sent to Bureau Veritas Laboratories of Mississauga, Ontario for analysis. Laboratory analysis results are included in Appendix C.

Condition 6(2) Table 3

Additional water quality sampling is required under Section 6(2) Table 3 at a semi-annual frequency at all three locations. The parameters required for semi-annual water quality monitoring at all three locations are listed in Table 3 of the ECA.

The semi-annual water quality samples (Section 6(2)) were collected by WSP. The semi-annual water quality samples were sent to Bureau Veritas Laboratories of Mississauga, Ontario for analysis. The laboratory analysis results are included in Appendix C.

Condition 6(4)

Section 6(4) requires measurement, recording and calculation of the discharge rate and volume from the works during the discharge period. The flow rates are recorded and provided to WSP by staff at the McCarthy Quarry. These results are summarized in Table 6.

4.0 QUARRY DISCHARGE MONITORING RESULTS

Condition 6(2) Table 2

The TSS, pH, Oil and Grease and Phenols (4AAP) concentrations were all below the daily concentration limits of the ECA (Table 1).

The calculated monthly average of the TSS, Oil and Grease and Phenols (4AAP) concentrations were all below the monthly concentration limits stipulated in the ECA (Table 2).

Condition 6(2) Table 3

All of the parameters tested for samples collected at the McCarthy Pond location were reported at concentrations below the Provincial Water Quality Objectives (PWQO), with the exception of Total Iron in the Fall sample collection; results are provided in Table 3. As well it was reported there was limited pond discharge at the time of sampling. The elevated Iron is likely attributed to entrained sediment in the sample.

The Fall sample collected also showed elevated levels of Total Dissolved Solids (TDS) as compared to the Spring sample.

All of the parameters tested for samples collected at both the SW1 and SW2 locations were reported at concentrations below the PWQO with the exception of Total Phosphorous at SW1. A Fall sample was not collected at SW2 due to dry conditions in October. A second attempt was made in November, but the location remained dry. SW2 represents an upstream sampling location and the water quality at this location is not impacted by quarry operations. Results for SW1 and SW2 locations are provided in Tables 4 and 5, respectively.

5.0 MEASURED DISCHARGE FROM QUARRY SUMP

A continuous record of flow rates and discharge volumes has been maintained throughout this monitoring period. The pump records are provided by McCarthy Quarry staff. The pump records for January 1, 2022 to

December 31, 2022 are found in Table 6. The discharge rates were below the permitted rate of 4,545 L/min (6,544,800 L/day) throughout the monitoring period. There has been no indication of erosion and/or flooding of the downstream ditches.

6.0 OPERATIONAL PROBLEMS AND CORRECTIVE ACTIONS TAKEN

Green identified on November 17, 2021 that the sump pump required replacement and a rental pump was installed on November 21, 2021. In addition, Green reported that on December 17, 2021 it was identified that the discharge line that runs from the sump to the settling pond was damaged. Green stopped pumping for the remainder of the year and replacement of the discharge line was planned for 2022.

Green finalized set-up of a new sump location in March 2022 and started utilized this new sump location for pumping in April 2022. The initial sump location was creating operational issues as Green was not able to properly dewater the southern portion of the quarry. In addition, the previous set up was very inefficient due to the length of piping required from the sump to the horse-shoe shaped settling pond. The new sump location is shown on the attached Figure 1; Green has also adjusted the discharge piping that runs from the pump to the horse-shoe shaped settling pond. No changes were made to the discharge pond.

Green has indicated that no other operational problems were encountered with the dewatering system during the monitoring period of January to December 2022. Green also indicted that no spills occurred during the January to December 2022 monitoring period.

7.0 MAINTENANCE OF SEWAGE WORKS

Green started set up of a new sump in the southeastern corner of the sump in December 2021, and that was finished installation in March 2022. Green has also adjusted the discharge piping that runs from the pump to the horse-shoe shaped settling pond.

8.0 QUARRY DISCHARGE QUALITY ASSURANCE OR CONTROL MEASURES

Green indicated that no major quarry discharge quality assurance or control measures were put in place during this monitoring period.

9.0 SUMMARY

- ECA Condition 6(2) Table 2:
  - All of the weekly quarry discharge monitoring samples from the McCarthy Pond were below the permitted daily concentration limits; and
  - All of the monthly quarry discharge concentrations for the McCarthy Pond were below the permitted monthly concentration limits.
- Condition 6(2) Table 3:
  - At the McCarthy Pond, all parameters were below the PWQO, with the exception of Total Iron in the Fall sample which is attributed to limited pond discharge at the time of sampling. The elevated Iron is likely attributed to entrained sediment in the sample.

- At SW1, all parameters were below the PWQO, with the exception of Total Phosphorous in the Fall sample.
- At SW2, all parameters were below the PWQO. However, a Fall sample was not collected due to the stream bed being dry during the October and November visits.

- Condition 6(4):
  - A continuous record of flow rates has been maintained throughout the monitoring period and all water takings were below the permitted rate of 4,545 L/min (6,544,800 L/day).

Signature Page

WSP Canada Inc.

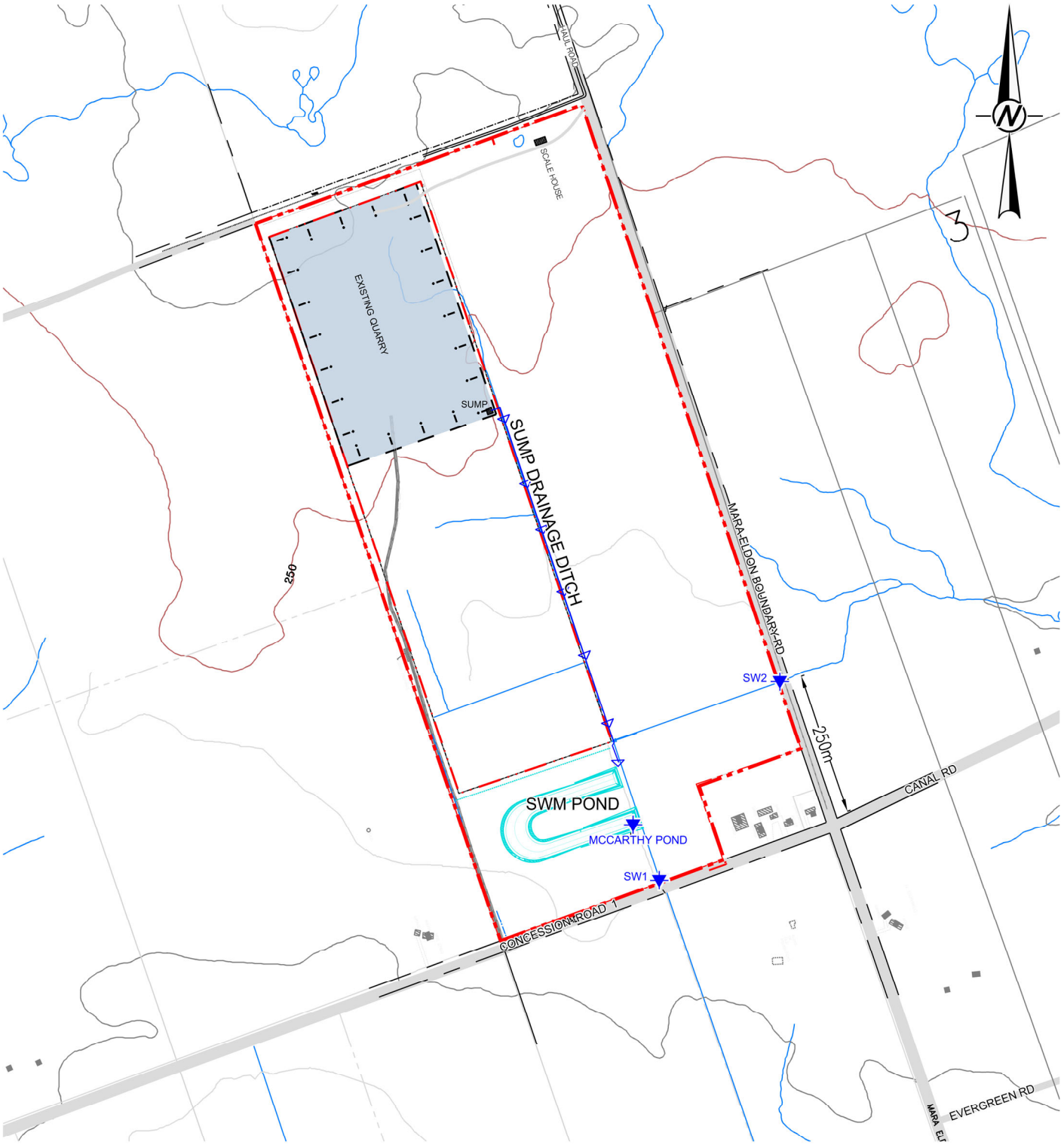
Colin Imrie, G.I.T.
Geo-Environmental Consultant

Sean McFarland, Ph.D., P.Geo.
Senior Principal/Fellow, Senior Hydrogeologist

CSI/SM/lb

https://golderassociates.sharepoint.com/sites/157344/project files/6 deliverables/eca annual report 2022/21508089-r-rev0-2022 eca annual report 28mar2023.docx

Figure



LEGEND

- Approximate Property Boundary
- Approximate Licenced Boundary
- 5 m Contour Line
- ECA Surface Water Sampling Location
- Approximate Extent of Quarry

REFERENCES AND NOTES

1. Projection UTM NAD83 Zone 17
2. Mapping based on ESRI Geography Network OBM Features and Bing Orthophotos
3. ECA Location SW2 is Historically (Former) SW1b

0 200 400 600 m

1:10000

CLIENT
GREEN INFRASTRUCTURE PARTNERS INC. / QBJR

PROJECT
STAN McCARTHY QUARRY

~~TITLE~~
LOCATION MAP

CONSULTANT

wsp

YYYY-MM-DD	2023-01-09
PREPARED	JPR
DESIGN	
REVIEW	CI
APPROVED	

PROJECT No.	CONTROL	Rev.	FIGURE
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IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI A

25 mm

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Tables

Table 1: Condition 6(2) McCarthy Pond Weekly Water Quality Results

	Unit	RDL	PWQO [1]	Daily Limit[2]	McCarthy Quarry												McCarthy Quarry	
Sample ID					**Pond**												**Pond**	
Date					04-Apr-22	11-Apr-22	18-Apr-22	25-Apr-22	02-May-22	09-May-22	24-May-22	30-May-22	06-Jun-22	13-Jun-22	20-Jun-22	08-Aug-22	27-Oct-22	16-Jan-23
pH	pH	n/a		6.0-9.5	8.10	8.09	8.25	8.23	8.22	8.43	8.94	8.85	8.45	8.43	8.15	7.37	8.05	7.42
Total Suspended Solids	mg/L	1		30	2	2	2	2	3	2	4	15	4	5	2	3	5	1
Total Oil and Grease	mg/L	0.5	Note 3	30	<0.5	<0.5	0.9	0.9	<0.5	<0.5	1.8	1.3	<0.5	<0.5	0.6	<0.5	1.5	0.7
Phenols (4AAP)	mg/L	<0.0010		0.04	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.0018	0.001	<0.001	<0.001	<0.001	<0.001	0.0011

Notes:

1. Provincial Water Quality Objectives (PWQO); shaded cells denote PWQO exceedance; some PWQOs are dependent on other water quality parameters hence the range in guideline values, refer to PWQO notes.
2. Daily Concentration Limit; bolded values denote exceedances in the Environmental Compliance Approval daily concentration limits.
3. The PWQO for Oil and Grease indicates that oil or petrochemicals should not be present in concentrations that: can be detected as a visible film, sheen or discolouration on the surface, can be detected by odour, can cause tainting of edible organisms, can form detectable deposits on shorelines and bottom sediments.
4. Results that are preceeded by "<" denote concentrations that are below the laboratory Reportable Detection Limit (RDL).

Table 2: Condition 6(2) McCarthy Pond Monthly Water Quality Results

	Unit	RDL	PWQO [1]	Monthly Concentration Limit[2]											
Sample ID															
Date					January 2022	February 2022	March 2022	April 2022	May 2022	June 2022	July 2022	August 2022	September 2022	October 2022	November 2022	December 2022
Total Suspended Solids	mg/L	1		15	-	-	-	2.0	6.0	3.7	-	3	-	5	-	-
Total Oil and Grease	mg/L	0.5	Note 3	15	-	-	-	0.7	1.025	0.5	-	<0.5	-	1.5	-	-
Phenols (4AAP)	mg/L	<0.0010		0.02	-	-	-	<0.001	0.001	0.001	-	<0.001	-	<0.001	-	-

Notes:

1. Provincial Water Quality Objectives (PWQO); shaded cells denote PWQO exceedance; some PWQOs are dependent on other water quality parameters hence the range in guideline values, refer to PWQO notes.
2. Monthyl Concentration Limit; bolded values denote exceedances in the Environmental Compliance Approval monthly concentration limits.
3. The PWQO for Oil and Grease indicates that oil or petrochemicals should not be present in concentrations that: can be detected as a visible film, sheen or discolouration on the surface, can be detected by odour, can cause tainting of edible organisms, can form detectable deposits on shorelines and bottom sediments.
4. Results that are preceeded by "<" denote concentrations that are below the laboratory Reportable Detection Limit (RDL).

Table 3: Condition 6(2) McCarthy Pond Water Quality Results

	Unit	Reportable Detection Limit (RDL)	PWQO [1]	Interim PWQO [2]	ECA Effluent Limits	McCarthy Quarry	
Sample ID						**Pond**	**Pond**
Date						**13-May-22**	**28-Oct-22**
Field Measured Parameters							
Conductivity	mS/cm					1054	1583
pH	pH	n/a	6.5-8.5		6.0-9.5	8.61	7.74
Temperature	°C	n/a				26.9	8.9
Calculated Parameters							
Hardness (CaCO3)	mg/L	1.0				360	470
Inorganics							
Total Ammonia-N	mg/L	0.050				<0.050	0.17
Conductivity	umho/cm	1.0				1,400.00	1,600.00
Total Dissolved Solids	mg/L	10				735	1080
Fluoride (F-)	mg/L	0.10				0.55	0.59
Total Kjeldahl Nitrogen (TKN)	mg/L	0.10				0.42	0.65
Dissolved Organic Carbon	mg/L	0.20				4.8	7.4
pH	pH	N/A	6.5-8.5		6.0-9.5	8.37	8.01
Phenols-4AAP	mg/L	0.0010	0.001		0.04	<0.0010	<0.0010
Total Phosphorus	mg/L	0.002		0.03[5b]		0.008	0.019
Total Suspended Solids	mg/L	10			30	<10	<10
Dissolved Sulphate (SO4)	mg/L	1				300	330
Alkalinity (Total as CaCO3)	mg/L	1.0				59	110
Dissolved Chloride (Cl)	mg/L	1				190	270
Nitrite (N)	mg/L	0.010				0.063	<0.010
Nitrate (N)	mg/L	0.10				0.86	<0.10
Petroleum Hydrocarbons							
Total Oil & Grease	mg/L	0.50	Note 3		30	<0.50	0.60
Metals							
Total Arsenic (As)	ug/L	1	100	5		<1.0	<1.0
Total Cadmium (Cd)	ug/L	0.1	0.2	0.1-0.5[5d]		<0.09	<0.09
Dissolved Calcium (Ca)	mg/L	0.05				76	99
Total Calcium (Ca)	ug/L	200				79000	1000000
Total Chromium (Cr)	ug/L	5	1-89[5e]			<5.0	<5.0
Total Copper (Cu)	ug/L	1	5	1-5[5f]		<0.9	<0.9
Total Iron (Fe)	ug/L	100	300			130	**320**
Total Lead (Pb)	ug/L	0.5	5-25[5g]	1-5[5h]		<0.50	<0.50
Dissolved Magnesium (Mg)	mg/L	0.05				42	54
Total Magnesium (Mg)	ug/L	50				44000	54000
Total Manganese (Mn)	ug/L	2				13	130
Total Nickel (Ni)	ug/L	1	25			<1.0	1.7
Dissolved Potassium (K)	mg/L	1				13.0	20.0
Total Potassium (K)	ug/L	200				12000	19000
Dissolved Sodium (Na)	mg/L	0.5				140	170
Total Sodium (Na)	ug/L	100				140000	170000
Total Zinc (Zn)	ug/L	5	30	20		<5.0	<5.0

1. Provincial Water Quality Objectives (PWQO); shaded cells denote PWQO exceedance; some PWQOs are dependent on other water quality parameters hence the range in guideline values, refer to PWQO notes.

2. Interim Provincial Water Quality Objectives (Interim PWQO); *shaded cells and italics denote Interim PWQO exceedance* ; some PWQOs are dependent on other water quality parameters hence the range in guideline values, refer to PQWO notes.

3. The PWQO for Oil and Grease indicates that oil or petrochemicals should not be present in concentrations that: can be detected as a visible film, sheen or discolouration on the surface, can be detected by odour, can cause tainting of edible organisms, can form detectable deposits on shorelines and bottom sediments.

4. Results that are preceeded by "<" denote concentrations that are below the laboratory Reportable Detection Limit (RDL).

5a. Aluminum (Interim):

- At pH 4.5 to 5.5 the Interim PWQO is 15 ug/L based on inorganic monomeric aluminum measured in clay-free samples.
- At pH >5.5 to 6.5, no condition should be permitted which would increase the acid soluble inorganic aluminum concentration in clay-free samples to more than 10% above natural background concentrations for waters representative of that geological area of the Province that are unaffected by man-made inputs.
- At pH >6.5 to 9.0, the Interim PWQO is 75 ug/L based on total aluminum measured in clay-free samples.
- If natural background aluminum concentrations in water bodies unaffected by manmade inputs are greater than the numerical Interim PWQO (above), no condition is permitted that would increase the aluminum concentration in clay-free samples by more than 10% of the natural background level.

5b. Phosphorus (Interim):

- Current scientific evidence is insufficient to develop a firm Objective at this time.
- Accordingly, the following phosphorus concentrations should be considered as general guidelines which should be supplemented by site-specific studies:
(a) To avoid nuisance concentrations of algae in lakes, average total phosphorus concentrations for the ice-free period should not exceed 20 ug/L;
(b) A high level of protection against aesthetic deterioration will be provided by a total phosphorus concentration for the ice-free period of 10 ug/L or less. This should apply to all lakes naturally below this value;
(c) Excessive plant growth in rivers and streams should be eliminated at a total phosphorus concentration below 30 ug/L.

5c. Beryllium :	If Hardness <75 mg/L (CaCO3), use 11 ug/L If Hardness >75 mg/L (CaCO3), use 1100 ug/L
5d. Cadmium: (Interim)	If Hardness 0-100 mg/L (CaCO3), then use 0.1 ug/L If Hardness >100 mg/L (CaCO3), then use 0.5 ug/L
5e. Chromium :	1 ug/L for hexavalent chromium (Cr VI) 8.9 ug/L for trivalent chromium (Cr III)
5f. Copper: (Interim)	If Hardness as CaCO3 (mg/L) is 0 - 20, then use 1 ug/L If Hardness as CaCO3 (mg/L) is >20, then use 5 ug/L
5g. Lead :	If Alkalinity as CaCO3 (mg/L) is < 20, use 5 ug/L If Alkalinity as CaCO3 (mg/L) is 20 to 40, use 10 ug/L If Alkalinity as CaCO3 (mg/L) is 40 to 80, use 20 ug/L If Alkalinity as CaCO3 (mg/L) is > 80, use 25 ug/L
5h. Lead: (Interim)	If Hardness as CaCO3 (mg/L) is < 30, then use 1 ug/L If Hardness as CaCO3 (mg/L) is 30 to 80, then use 3 ug/L If Hardness as CaCO3 (mg/L) is > 80, then use 5 ug/L

Table 4: Condition 6(2) SW1 Water Quality Results

	Unit	Reportable Detection Limit (RDL)	PWQO [1]	Interim PWQO [2]	ECA Effluent Limits	McCarthy Quarry	
Sample ID						**SW1**	**SW1**
Date						**13-May-22**	**28-Oct-22**
Field Measured Parameters							
Conductivity	mS/cm					1055	1836
pH	pH	n/a	6.5-8.5		6.0-9.5	7.98	7.87
Temperature	°C	n/a				27.6	7.6
Calculated Parameters							
Anion Sum	me/L	N/A				13.5	18.8
Cation Sum	me/L	N/A				14.1	20
Hardness (CaCO3)	mg/L	1.0				410	600
Inorganics							
Total Ammonia-N	mg/L	0.050				0.1	0.15
Conductivity	umho/cm	1.0				1,400.000	1,800.000
Total Dissolved Solids	mg/L	10				745	1060.0
Fluoride (F-)	mg/L	0.10				0.53	0.50
Total Kjeldahl Nitrogen (TKN)	mg/L	0.10				0.56	0.56
Dissolved Organic Carbon	mg/L	0.20				5.4	6.2
pH	pH	N/A	6.5-8.5		6.0-9.5	8.13	7.91
Phenols-4AAP	mg/L	0.0010			0.04	<0.0010	<0.0010
Total Phosphorus	mg/L	0.002		0.03[5b]		0.015	**0.021**
Total Suspended Solids	mg/L	10			30	10	12
Dissolved Sulphate (SO4)	mg/L	1				270	370
Alkalinity (Total as CaCO3)	mg/L	1.0				140	150
Dissolved Chloride (Cl)	mg/L	1				180	290
Nitrite (N)	mg/L	0.010				0.080	0.020
Nitrate (N)	mg/L	0.10				1.09	0.52
Petroleum Hydrocarbons							
Total Oil & Grease	mg/L	0.50	Note 3		30	<0.50	1.3
Metals							
Total Arsenic (As)	ug/L	1	100	5		<1.0	<1.0
Total Cadmium (Cd)	ug/L	0.1	0.2	0.1-0.5[5d]		<0.09	<0.09
Dissolved Calcium (Ca)	mg/L	0.05				100	150
Total Calcium (Ca)	ug/L	200				100000	160000
Total Chromium (Cr)	ug/L	5	1-89[5e]			<5.0	<5.0
Total Copper (Cu)	ug/L	1	5	1-5[5f]		<0.90	1.3
Total Iron (Fe)	ug/L	100	300			230	300
Total Lead (Pb)	ug/L	0.5	5-25[5g]	1-5[5h]		<0.50	<0.50
Dissolved Magnesium (Mg)	mg/L	0.05				39	53
Total Magnesium (Mg)	ug/L	50				42000	52000
Total Manganese (Mn)	ug/L	2				37	65
Total Nickel (Ni)	ug/L	1	25			1.8	1.6
Dissolved Potassium (K)	mg/L	1				12.0	17.0
Total Potassium (K)	ug/L	200				11000	17000
Dissolved Sodium (Na)	mg/L	0.5				130	170
Total Sodium (Na)	ug/L	100				130000	170000
Total Zinc (Zn)	ug/L	5	30	20		<5.0	5.2

1. Provincial Water Quality Objectives (PWQO); shaded cells denote PWQO exceedance; some PWQOs are dependent on other water quality parameters hence the range in guideline values, refer to PWQO notes.

2. Interim Provincial Water Quality Objectives (Interim PWQO); *shaded cells and italics denote Interim PWQO exceedance*; some PWQOs are dependent on other water quality parameters hence the range in guideline values, refer to PQWO notes.

3. The PWQO for Oil and Grease indicates that oil or petrochemicals should not be present in concentrations that: can be detected as a visible film, sheen or discolouration on the surface, can be detected by odour, can cause tainting of edible organisms, can form detectable deposits on shorelines and bottom sediments.

4. Results that are preceeded by "<" denote concentrations that are below the laboratory Reportable Detection Limit (RDL).

5a. Aluminum (Interim):

- At pH 4.5 to 5.5 the Interim PWQO is 15 ug/L based on inorganic monomeric aluminum measured in clay-free samples.
- At pH >5.5 to 6.5, no condition should be permitted which would increase the acid soluble inorganic aluminum concentration in clay-free samples to more than 10% above natural background concentrations for waters representative of that geological area of the Province that are unaffected by man-made inputs.
- At pH >6.5 to 9.0, the Interim PWQO is 75 ug/L based on total aluminum measured in clay-free samples.
- If natural background aluminum concentrations in water bodies unaffected by manmade inputs are greater than the numerical Interim PWQO (above), no condition is permitted that would increase the aluminum concentration in clay-free samples by more than 10% of the natural background level.

5b. Phosphorus (Interim):

- Current scientific evidence is insufficient to develop a firm Objective at this time.
- Accordingly, the following phosphorus concentrations should be considered as general guidelines which should be supplemented by site-specific studies:

(a) To avoid nuisance concentrations of algae in lakes, average total phosphorus concentrations for the ice-free period should not exceed 20 ug/L;

(b) A high level of protection against aesthetic deterioration will be provided by a total phosphorus concentration for the ice-free period of 10 ug/L or less. This should apply to all lakes naturally below this value;

(c) Excessive plant growth in rivers and streams should be eliminated at a total phosphorus concentration below 30 ug/L.

5c. Beryllium:	If Hardness <75 mg/L (CaCO3), use 11 ug/L If Hardness >75 mg/L (CaCO3), use 1100 ug/L
5d. Cadmium: (Interim)	If Hardness 0-100 mg/L (CaCO3), then use 0.1 ug/L If Hardness >100 mg/L (CaCO3), then use 0.5 ug/L
5e. Chromium:	1 ug/L for hexavalent chromium (Cr VI) 8.9 ug/L for trivalent chromium (Cr III)
5f. Copper: (Interim)	If Hardness as CaCO3 (mg/L) is 0 - 20, then use 1 ug/L If Hardness as CaCO3 (mg/L) is >20, then use 5 ug/L
5g. Lead:	If Alkalinity as CaCO3 (mg/L) is < 20, use 5 ug/L If Alkalinity as CaCO3 (mg/L) is 20 to 40, use 10 ug/L If Alkalinity as CaCO3 (mg/L) is 40 to 80, use 20 ug/L If Alkalinity as CaCO3 (mg/L) is > 80, use 25 ug/L
5h. Lead: (Interim)	If Hardness as CaCO3 (mg/L) is < 30, then use 1 ug/L If Hardness as CaCO3 (mg/L) is 30 to 80, then use 3 ug/L If Hardness as CaCO3 (mg/L) is > 80, then use 5 ug/L

Table 5: Condition 6(2) SW2 Water Quality Results

	Unit	Reportable Detection Limit (RDL)	PWQO [1]	Interim PWQO [2]	ECA Effluent Limits	McCarthy Quarry	
Sample ID						**SW2**	**SW2**
Date						**13-May-22**	**-**
Field Measured Parameters							
Conductivity	mS/cm					707	-
pH	pH	n/a	6.5-8.5		6.0-9.5	7.69	-
Temperature	°C	n/a				22.4	-
Calculated Parameters							-
Anion Sum	me/L	N/A				8.75	-
Cation Sum	me/L	N/A				9.15	-
Hardness (CaCO3)	mg/L	1.0				430	-
Inorganics							-
Total Ammonia-N	mg/L	0.050				<0.050	-
Conductivity	umho/cm	1.0				800.000	-
Total Dissolved Solids	mg/L	10				405	-
Fluoride (F-)	mg/L	0.10				<0.10	-
Total Kjeldahl Nitrogen (TKN)	mg/L	0.10				0.66	-
Dissolved Organic Carbon	mg/L	0.20				8.3	-
pH	pH	N/A	6.5-8.5		6.0-9.5	7.88	-
Phenols-4AAP	mg/L	0.0010	0.001		0.04	<0.0010	-
Total Phosphorus	mg/L	0.002		0.03[5b]		0.017	-
Total Suspended Solids	mg/L	10			30	<10	-
Dissolved Sulphate (SO4)	mg/L	1				100	-
Alkalinity (Total as CaCO3)	mg/L	1.0				310	-
Dissolved Chloride (Cl)	mg/L	1				16	-
Nitrite (N)	mg/L	0.010				<0.010	-
Nitrate (N)	mg/L	0.10				<0.10	-
Petroleum Hydrocarbons							-
Total Oil & Grease	mg/L	0.50	Note 3		30	<0.50	-
Metals							-
Total Arsenic (As)	ug/L	1	100	5		<1.0	-
Total Cadmium (Cd)	ug/L	0.1	0.2	0.1-0.5[5d]		<0.09	-
Dissolved Calcium (Ca)	mg/L	0.05				140	-
Total Calcium (Ca)	ug/L	200				130000	-
Total Chromium (Cr)	ug/L	5	1-89[5e]			<5.0	-
Total Copper (Cu)	ug/L	1	5	1-5[5f]		<0.9	-
Total Iron (Fe)	ug/L	100	300			<100	-
Total Lead (Pb)	ug/L	0.5	5-25[5g]	1-5[5h]		2.2	-
Dissolved Magnesium (Mg)	mg/L	0.05				19.0	-
Total Magnesium (Mg)	ug/L	50				21000	-
Total Manganese (Mn)	ug/L	2				9	-
Total Nickel (Ni)	ug/L	1	25			<1.0	-
Dissolved Potassium (K)	mg/L	1				1.0	-
Total Potassium (K)	ug/L	200				880	-
Dissolved Sodium (Na)	mg/L	0.5				13.0	-
Total Sodium (Na)	ug/L	100				14000	-
Total Zinc (Zn)	ug/L	5	30	20		<5.0	-

1. Provincial Water Quality Objectives (PWQO); shaded cells denote PWQO exceedance; some PWQOs are dependent on other water quality parameters hence the range in guideline values, refer to PWQO notes.

2. Interim Provincial Water Quality Objectives (Interim PWQO); *shaded cells and italics denote Interim PWQO exceedance*; some PWQOs are dependent on other water quality parameters hence the range in guideline values, refer to PQWO notes.

3. The PWQO for Oil and Grease indicates that oil or petrochemicals should not be present in concentrations that: can be detected as a visible film, sheen or discolouration on the surface, can be detected by odour, can cause tainting of edible organisms, can form detectable deposits on shorelines and bottom sediments.

4. Results that are preceeded by "<" denote concentrations that are below the laboratory Reportable Detection Limit (RDL).

5a. Aluminum (Interim):

- At pH 4.5 to 5.5 the Interim PWQO is 15 ug/L based on inorganic monomeric aluminum measured in clay-free samples.
- At pH >5.5 to 6.5, no condition should be permitted which would increase the acid soluble inorganic aluminum concentration in clay-free samples to more than 10% above natural background concentrations for waters representative of that geological area of the Province that are unaffected by man-made inputs.
- At pH >6.5 to 9.0, the Interim PWQO is 75 ug/L based on total aluminum measured in clay-free samples.
- If natural background aluminum concentrations in water bodies unaffected by manmade inputs are greater than the numerical Interim PWQO (above), no condition is permitted that would increase the aluminum concentration in clay-free samples by more than 10% of the natural background level.

5b. Phosphorus (Interim):

- Current scientific evidence is insufficient to develop a firm Objective at this time.
- Accordingly, the following phosphorus concentrations should be considered as general guidelines which should be supplemented by site-specific studies:

(a) To avoid nuisance concentrations of algae in lakes, average total phosphorus concentrations for the ice-free period should not exceed 20 ug/L;
(b) A high level of protection against aesthetic deterioration will be provided by a total phosphorus concentration for the ice-free period of 10 ug/L or less. This should apply to all lakes naturally below this value;
(c) Excessive plant growth in rivers and streams should be eliminated at a total phosphorus concentration below 30 ug/L.

5c. Beryllium:	If Hardness <75 mg/L (CaCO3), use 11 ug/L If Hardness >75 mg/L (CaCO3), use 1100 ug/L
5d. Cadmium: (Interim)	If Hardness 0-100 mg/L (CaCO3), then use 0.1 ug/L If Hardness >100 mg/L (CaCO3), then use 0.5 ug/L
5e. Chromium:	1 ug/L for hexavalent chromium (Cr VI) 8.9 ug/L for trivalent chromium (Cr III)
5f. Copper: (Interim)	If Hardness as CaCO3 (mg/L) is 0 - 20, then use 1 ug/L If Hardness as CaCO3 (mg/L) is >20, then use 5 ug/L
5g. Lead:	If Alkalinity as CaCO3 (mg/L) is < 20, use 5 ug/L If Alkalinity as CaCO3 (mg/L) is 20 to 40, use 10 ug/L If Alkalinity as CaCO3 (mg/L) is 40 to 80, use 20 ug/L If Alkalinity as CaCO3 (mg/L) is > 80, use 25 ug/L
5h. Lead: (Interim)	If Hardness as CaCO3 (mg/L) is < 30, then use 1 ug/L If Hardness as CaCO3 (mg/L) is 30 to 80, then use 3 ug/ If Hardness as CaCO3 (mg/L) is > 80, then use 5 ug/L

Table 6: Measured Water Volume and Rate of Discharge from Quarry Sump

Date	Start	Stop	Total Sec.	Total Min.	Total Litres	Rate of Taking (L/sec)	Rate of Taking (L/min)
ECA Permitted Rate					**6,544,800**	**76**	**4,545**
1-Jan-22	NO PUMP		0	0	-	-	-
2-Jan-22	NO PUMP		0	0	-	-	-
3-Jan-22	NO PUMP		0	0	-	-	-
4-Jan-22	NO PUMP		0	0	-	-	-
5-Jan-22	NO PUMP		0	0	-	-	-
6-Jan-22	NO PUMP		0	0	-	-	-
7-Jan-22	NO PUMP		0	0	-	-	-
8-Jan-22	NO PUMP		0	0	-	-	-
9-Jan-22	NO PUMP		0	0	-	-	-
10-Jan-22	NO PUMP		0	0	-	-	-
11-Jan-22	NO PUMP		0	0	-	-	-
12-Jan-22	NO PUMP		0	0	-	-	-
13-Jan-22	NO PUMP		0	0	-	-	-
14-Jan-22	NO PUMP		0	0	-	-	-
15-Jan-22	NO PUMP		0	0	-	-	-
16-Jan-22	NO PUMP		0	0	-	-	-
17-Jan-22	NO PUMP		0	0	-	-	-
18-Jan-22	NO PUMP		0	0	-	-	-
19-Jan-22	NO PUMP		0	0	-	-	-
20-Jan-22	NO PUMP		0	0	-	-	-
21-Jan-22	NO PUMP		0	0	-	-	-
22-Jan-22	NO PUMP		0	0	-	-	-
23-Jan-22	NO PUMP		0	0	-	-	-
24-Jan-22	NO PUMP		0	0	-	-	-
25-Jan-22	NO PUMP		0	0	-	-	-
26-Jan-22	NO PUMP		0	0	-	-	-
27-Jan-22	NO PUMP		0	0	-	-	-
28-Jan-22	NO PUMP		0	0	-	-	-
29-Jan-22	NO PUMP		0	0	-	-	-
30-Jan-22	NO PUMP		0	0	-	-	-
31-Jan-22	NO PUMP		0	0	-	-	-
1-Feb-22	NO PUMP		0	0	-	-	-
2-Feb-22	NO PUMP		0	0	-	-	-
3-Feb-22	NO PUMP		0	0	-	-	-
4-Feb-22	NO PUMP		0	0	-	-	-
5-Feb-22	NO PUMP		0	0	-	-	-
6-Feb-22	NO PUMP		0	0	-	-	-
7-Feb-22	NO PUMP		0	0	-	-	-
8-Feb-22	NO PUMP		0	0	-	-	-
9-Feb-22	NO PUMP		0	0	-	-	-
10-Feb-22	NO PUMP		0	0	-	-	-
11-Feb-22	NO PUMP		0	0	-	-	-
12-Feb-22	NO PUMP		0	0	-	-	-

Table 6: Measured Water Volume and Rate of Discharge from Quarry Sump

Date	Start	Stop	Total Sec.	Total Min.	Total Litres	Rate of Taking (L/sec)	Rate of Taking (L/min)
ECA Permitted Rate					**6,544,800**	**76**	**4,545**
13-Feb-22	NO PUMP		0	0	-	-	-
14-Feb-22	NO PUMP		0	0	-	-	-
15-Feb-22	NO PUMP		0	0	-	-	-
16-Feb-22	NO PUMP		0	0	-	-	-
17-Feb-22	NO PUMP		0	0	-	-	-
18-Feb-22	NO PUMP		0	0	-	-	-
19-Feb-22	NO PUMP		0	0	-	-	-
20-Feb-22	NO PUMP		0	0	-	-	-
21-Feb-22	NO PUMP		0	0	-	-	-
22-Feb-22	NO PUMP		0	0	-	-	-
23-Feb-22	NO PUMP		0	0	-	-	-
24-Feb-22	NO PUMP		0	0	-	-	-
25-Feb-22	NO PUMP		0	0	-	-	-
26-Feb-22	NO PUMP		0	0	-	-	-
27-Feb-22	NO PUMP		0	0	-	-	-
28-Feb-22	NO PUMP		0	0	-	-	-
1-Mar-22	NO PUMP		0	0	-	-	-
2-Mar-22	NO PUMP		0	0	-	-	-
3-Mar-22	NO PUMP		0	0	-	-	-
4-Mar-22	NO PUMP		0	0	-	-	-
5-Mar-22	NO PUMP		0	0	-	-	-
6-Mar-22	NO PUMP		0	0	-	-	-
7-Mar-22	NO PUMP		0	0	-	-	-
8-Mar-22	NO PUMP		0	0	-	-	-
9-Mar-22	NO PUMP		0	0	-	-	-
10-Mar-22	NO PUMP		0	0	-	-	-
11-Mar-22	NO PUMP		0	0	-	-	-
12-Mar-22	NO PUMP		0	0	-	-	-
13-Mar-22	NO PUMP		0	0	-	-	-
14-Mar-22	NO PUMP		0	0	-	-	-
15-Mar-22	NO PUMP		0	0	-	-	-
16-Mar-22	NO PUMP		0	0	-	-	-
17-Mar-22	NO PUMP		0	0	-	-	-
18-Mar-22	NO PUMP		0	0	-	-	-
19-Mar-22	NO PUMP		0	0	-	-	-
20-Mar-22	NO PUMP		0	0	-	-	-
21-Mar-22	NO PUMP		0	0	-	-	-
22-Mar-22	NO PUMP		0	0	-	-	-
23-Mar-22	NO PUMP		0	0	-	-	-
24-Mar-22	NO PUMP		0	0	-	-	-
25-Mar-22	NO PUMP		0	0	-	-	-
26-Mar-22	NO PUMP		0	0	-	-	-
27-Mar-22	NO PUMP		0	0	-	-	-

Table 6: Measured Water Volume and Rate of Discharge from Quarry Sump

Date	Start	Stop	Total Sec.	Total Min.	Total Litres	Rate of Taking (L/sec)	Rate of Taking (L/min)
ECA Permitted Rate					**6,544,800**	**76**	**4,545**
28-Mar-22	NO PUMP		0	0	-	-	-
29-Mar-22	NO PUMP		0	0	-	-	-
30-Mar-22	NO PUMP		0	0	-	-	-
31-Mar-22	NO PUMP		0	0	-	-	-
1-Apr-22	NO PUMP		0	0	-	-	-
2-Apr-22	NO PUMP		0	0	-	-	-
3-Apr-22	NO PUMP		0	0	-	-	-
4-Apr-22	7:00	4:00	32400	540	648,000	20	1,200
5-Apr-22	7:00	4:00	32400	540	648,000	20	1,200
6-Apr-22	7:00	4:00	32400	540	648,000	20	1,200
7-Apr-22	7:00	4:00	32400	540	648,000	20	1,200
8-Apr-22	7:00	4:00	32400	540	648,000	20	1,200
9-Apr-22	NO PUMP		0	0	-	-	-
10-Apr-22	NO PUMP		0	0	-	-	-
11-Apr-22	6:30	5:30	39600	660	792,000	20	1,200
12-Apr-22	6:30	5:30	39600	660	792,000	20	1,200
13-Apr-22	6:30	5:30	39600	660	792,000	20	1,200
14-Apr-22	6:30	5:30	39600	660	792,000	20	1,200
15-Apr-22	NO PUMP		0	0	-	-	-
16-Apr-22	NO PUMP		0	0	-	-	-
17-Apr-22	NO PUMP		0	0	-	-	-
18-Apr-22	6:30	5:30	39600	660	792,000	20	1,200
19-Apr-22	6:30	5:30	39600	660	792,000	20	1,200
20-Apr-22	6:30	5:30	39600	660	792,000	20	1,200
21-Apr-22	6:30	5:30	39600	660	792,000	20	1,200
22-Apr-22	6:30	5:30	39600	660	792,000	20	1,200
23-Apr-22	NO PUMP		0	0	-	-	-
24-Apr-22	NO PUMP		0	0	-	-	-
25-Apr-22	6:30	5:30	39600	660	792,000	20	1,200
26-Apr-22	6:30	5:30	39600	660	792,000	20	1,200
27-Apr-22	6:30	5:30	39600	660	792,000	20	1,200
28-Apr-22	6:30	5:30	39600	660	792,000	20	1,200
29-Apr-22	6:30	5:30	39600	660	792,000	20	1,200
30-Apr-22	NO PUMP		0	0	-	-	-
1-May-22	NO PUMP		0	0	-	-	-
2-May-22	NO PUMP		0	0	-	-	-
3-May-22	NO PUMP		0	0	-	-	-
4-May-22	10:00	5:00	25200	420	504,000	20	1,200
5-May-22	12:00	5:00	18000	300	360,000	20	1,200
6-May-22	7:00	5:00	36000	600	720,000	20	1,200
7-May-22	NO PUMP		0	0	-	-	-
8-May-22	NO PUMP		0	0	-	-	-
9-May-22	7:00	5:00	36000	600	720,000	20	1,200

Table 6: Measured Water Volume and Rate of Discharge from Quarry Sump

Date	Start	Stop	Total Sec.	Total Min.	Total Litres	Rate of Taking (L/sec)	Rate of Taking (L/min)
ECA Permitted Rate					**6,544,800**	**76**	**4,545**
10-May-22	7:00	5:00	36000	600	720,000	20	1,200
11-May-22	NO PUMP		0	0	-	-	-
12-May-22	NO PUMP		0	0	-	-	-
13-May-22	NO PUMP		0	0	-	-	-
14-May-22	NO PUMP		0	0	-	-	-
15-May-22	NO PUMP		0	0	-	-	-
16-May-22	NO PUMP		0	0	-	-	-
17-May-22	NO PUMP		0	0	-	-	-
18-May-22	8:00	5:00	32400	540	648,000	20	1,200
19-May-22	NO PUMP		0	0	-	-	-
20-May-22	8:00	5:00	32400	540	648,000	20	1,200
21-May-22	NO PUMP		0	0	-	-	-
22-May-22	NO PUMP		0	0	-	-	-
23-May-22	NO PUMP		0	0	-	-	-
24-May-22	NO PUMP		0	0	-	-	-
25-May-22	NO PUMP		0	0	-	-	-
26-May-22	12:00	5:00	18000	300	360,000	20	1,200
27-May-22	7:00	5:00	36000	600	720,000	20	1,200
28-May-22	NO PUMP		0	0	-	-	-
29-May-22	NO PUMP		0	0	-	-	-
30-May-22	NO PUMP		0	0	-	-	-
31-May-22	7:00	5:00	36000	600	720,000	20	1,200
1-Jun-22	NO PUMP		0	0	-	-	-
2-Jun-22	NO PUMP		0	0	-	-	-
3-Jun-22	7:00	5:00	36000	600	720,000	20	1,200
4-Jun-22	NO PUMP		0	0	-	-	-
5-Jun-22	NO PUMP		0	0	-	-	-
6-Jun-22	NO PUMP		0	0	-	-	-
7-Jun-22	NO PUMP		0	0	-	-	-
8-Jun-22	7:00	5:00	36000	600	720,000	20	1,200
9-Jun-22	7:00	5:00	36000	600	720,000	20	1,200
10-Jun-22	NO PUMP		0	0	-	-	-
11-Jun-22	NO PUMP		0	0	-	-	-
12-Jun-22	2:00	6:00	14400	240	288,000	20	1,200
13-Jun-22	7:00	5:00	36000	600	720,000	20	1,200
14-Jun-22	7:00	5:00	36000	600	720,000	20	1,200
15-Jun-22	7:00	5:00	36000	600	720,000	20	1,200
16-Jun-22	NO PUMP		0	0	-	-	-
17-Jun-22	NO PUMP		0	0	-	-	-

Table 6: Measured Water Volume and Rate of Discharge from Quarry Sump

Date	Start	Stop	Total Sec.	Total Min.	Total Litres	Rate of Taking (L/sec)	Rate of Taking (L/min)
ECA Permitted Rate					**6,544,800**	**76**	**4,545**
18-Jun-22	NO PUMP		0	0	-	-	-
19-Jun-22	NO PUMP		0	0	-	-	-
20-Jun-22	7:00	5:00	36000	600	-	-	-
21-Jun-22	NO PUMP		0	0	-	-	-
22-Jun-22	NO PUMP		0	0	-	-	-
23-Jun-22	7:00	5:00	36000	600	720,000	20	1,200
24-Jun-22	NO PUMP		0	0	-	-	-
25-Jun-22	NO PUMP		0	0	-	-	-
26-Jun-22	NO PUMP		0	0	-	-	-
27-Jun-22	7:00	5:00	36000	600	720,000	20	1,200
28-Jun-22	NO PUMP		0	0	-	-	-
29-Jun-22	NO PUMP		0	0	-	-	-
30-Jun-22	NO PUMP		0	0	-	-	-
1-Jul-22	NO PUMP		0	0	-	-	-
2-Jul-22	NO PUMP		0	0	-	-	-
3-Jul-22	NO PUMP		0	0	-	-	-
4-Jul-22	7:00	5:00	36000	600	720,000	20	1,200
5-Jul-22	NO PUMP		0	0	-	-	-
6-Jul-22	NO PUMP		0	0	-	-	-
7-Jul-22	NO PUMP		0	0	-	-	-
8-Jul-22	NO PUMP		0	0	-	-	-
9-Jul-22	NO PUMP		0	0	-	-	-
10-Jul-22	NO PUMP		0	0	-	-	-
11-Jul-22	7:00	9:00	7200	120	144,000	20	1,200
12-Jul-22	NO PUMP		0	0	-	-	-
13-Jul-22	NO PUMP		0	0	-	-	-
14-Jul-22	NO PUMP		0	0	-	-	-
15-Jul-22	NO PUMP		0	0	-	-	-
16-Jul-22	NO PUMP		0	0	-	-	-
17-Jul-22	NO PUMP		0	0	-	-	-
18-Jul-22	7AM	8:00 AM	3600	60	72,000	20	1,200
19-Jul-22	NO PUMP		0	0	-	-	-
20-Jul-22	NO PUMP		0	0	-	-	-
21-Jul-22	NO PUMP		0	0	-	-	-
22-Jul-22	NO PUMP		0	0	-	-	-
23-Jul-22	NO PUMP		0	0	-	-	-
24-Jul-22	NO PUMP		0	0	-	-	-
25-Jul-22	7AM	9:00 AM	7200	120	144,000	20	1,200
26-Jul-22	NO PUMP		0	0	-	-	-
27-Jul-22	NO PUMP		0	0	-	-	-
28-Jul-22	NO PUMP		0	0	-	-	-
29-Jul-22	NO PUMP		0	0	-	-	-
30-Jul-22	NO PUMP		0	0	-	-	-

Table 6: Measured Water Volume and Rate of Discharge from Quarry Sump

Date	Start	Stop	Total Sec.	Total Min.	Total Litres	Rate of Taking (L/sec)	Rate of Taking (L/min)
ECA Permitted Rate					**6,544,800**	**76**	**4,545**
31-Jul-22	NO PUMP		0	0	-	-	-
1-Aug-22	NO PUMP		0	0	-	-	-
2-Aug-22	NO PUMP		0	0	-	-	-
3-Aug-22	NO PUMP		0	0	-	-	-
4-Aug-22	NO PUMP		0	0	-	-	-
5-Aug-22	NO PUMP		0	0	-	-	-
6-Aug-22	NO PUMP		0	0	-	-	-
7-Aug-22	NO PUMP		0	0	-	-	-
8-Aug-22	7am	5pm	36000	600	720,000	20	1,200
9-Aug-22	NO PUMP		0	0	-	-	-
10-Aug-22	NO PUMP		0	0	-	-	-
11-Aug-22	NO PUMP		0	0	-	-	-
12-Aug-22	NO PUMP		0	0	-	-	-
13-Aug-22	NO PUMP		0	0	-	-	-
14-Aug-22	NO PUMP		0	0	-	-	-
15-Aug-22	NO PUMP		0	0	-	-	-
16-Aug-22	NO PUMP		0	0	-	-	-
17-Aug-22	7AM	5PM	36000	600	720,000	20	1,200
18-Aug-22	NO PUMP		0	0	-	-	-
19-Aug-22	NO PUMP		0	0	-	-	-
20-Aug-22	NO PUMP		0	0	-	-	-
21-Aug-22	NO PUMP		0	0	-	-	-
22-Aug-22	NO PUMP		0	0	-	-	-
23-Aug-22	7AM	5PM	36000	600	720,000	20	1,200
24-Aug-22	NO PUMP		0	0	-	-	-
25-Aug-22	NO PUMP		0	0	-	-	-
26-Aug-22	NO PUMP		0	0	-	-	-
27-Aug-22	NO PUMP		0	0	-	-	-
28-Aug-22	NO PUMP		0	0	-	-	-
29-Aug-22	NO PUMP		0	0	-	-	-
30-Aug-22	NO PUMP		0	0	-	-	-
31-Aug-22	NO PUMP		0	0	-	-	-
1-Sep-22	NO PUMP		0	0	-	-	-
2-Sep-22	NO PUMP		0	0	-	-	-
3-Sep-22	NO PUMP		0	0	-	-	-
4-Sep-22	NO PUMP		0	0	-	-	-
5-Sep-22	NO PUMP		0	0	-	-	-
6-Sep-22	NO PUMP		0	0	-	-	-
7-Sep-22	7:00 AM	10:00 AM	10800	180	216,000	20	1,200
8-Sep-22	NO PUMP		-3	-0.05	-	-	-
9-Sep-22	NO PUMP		-2	-0.033333	-	-	-
10-Sep-22	NO PUMP		-1	-0.016667	-	-	-
11-Sep-22	NO PUMP		0	0	-	-	-

Table 6: Measured Water Volume and Rate of Discharge from Quarry Sump

Date	Start	Stop	Total Sec.	Total Min.	Total Litres	Rate of Taking (L/sec)	Rate of Taking (L/min)
ECA Permitted Rate					**6,544,800**	**76**	**4,545**
12-Sep-22	NO PUMP		0	0	-	-	-
13-Sep-22	NO PUMP		0	0	-	-	-
14-Sep-22	NO PUMP		0	0	-	-	-
15-Sep-22	NO PUMP		0	0	-	-	-
16-Sep-22	NO PUMP		0	0	-	-	-
17-Sep-22	NO PUMP		0	0	-	-	-
18-Sep-22	NO PUMP		0	0	-	-	-
19-Sep-22	NO PUMP		0	0	-	-	-
20-Sep-22	7AM	9AM	7200	120	144,000	20	1,200
21-Sep-22	NO PUMP		0	0	-	-	-
22-Sep-22	7AM	10:30AM	12600	210	252,000	20	1,200
23-Sep-22	NO PUMP		0	0	-	-	-
24-Sep-22	NO PUMP		0	0	-	-	-
25-Sep-22	NO PUMP		0	0	-	-	-
26-Sep-22	NO PUMP		0	0	-	-	-
27-Sep-22	NO PUMP		0	0	-	-	-
28-Sep-22	7AM	9AM	7200	120	144,000	20	1,200
29-Sep-22	NO PUMP		0	0	-	-	-
30-Sep-22	NO PUMP		0	0	-	-	-
1-Oct-22	NO PUMP		0	0	-	-	-
2-Oct-22	NO PUMP		0	0	-	-	-
3-Oct-22	NO PUMP		0	0	-	-	-
4-Oct-22	NO PUMP		0	0	-	-	-
5-Oct-22	NO PUMP		0	0	-	-	-
6-Oct-22	NO PUMP		0	0	-	-	-
7-Oct-22	NO PUMP		0	0	-	-	-
8-Oct-22	NO PUMP		0	0	-	-	-
9-Oct-22	NO PUMP		0	0	-	-	-
10-Oct-22	NO PUMP		0	0	-	-	-
11-Oct-22	NO PUMP		0	0	-	-	-
12-Oct-22	NO PUMP		0	0	-	-	-
13-Oct-22	7AM	10AM	10800	180	216,000	20	1,200
14-Oct-22	NO PUMP		0	0	-	-	-
15-Oct-22	NO PUMP		0	0	-	-	-
16-Oct-22	NO PUMP		0	0	-	-	-
17-Oct-22	NO PUMP		0	0	-	-	-
18-Oct-22	7AM	10AM	10800	180	216,000	20	1,200
19-Oct-22	7AM	11AM	14400	240	288,000	20	1,200
20-Oct-22	NO PUMP		0	0	-	-	-
21-Oct-22	NO PUMP		0	0	-	-	-
22-Oct-22	NO PUMP		0	0	-	-	-
23-Oct-22	NO PUMP		0	0	-	-	-
24-Oct-22	NO PUMP		0	0	-	-	-

Table 6: Measured Water Volume and Rate of Discharge from Quarry Sump

Date	Start	Stop	Total Sec.	Total Min.	Total Litres	Rate of Taking (L/sec)	Rate of Taking (L/min)
ECA Permitted Rate					**6,544,800**	**76**	**4,545**
25-Oct-22	NO PUMP		0	0	-	-	-
26-Oct-22	NO PUMP		0	0	-	-	-
27-Oct-22	7AM	10AM	10800	180	216,000	20	1,200
28-Oct-22	NO PUMP		0	0	-	-	-
29-Oct-22	NO PUMP		0	0	-	-	-
30-Oct-22	NO PUMP		0	0	-	-	-
31-Oct-22	NO PUMP		0	0	-	-	-
1-Nov-22	NO PUMP		0	0	-	-	-
2-Nov-22	NO PUMP		0	0	-	-	-
3-Nov-22	NO PUMP		0	0	-	-	-
4-Nov-22	NO PUMP		0	0	-	-	-
5-Nov-22	NO PUMP		0	0	-	-	-
6-Nov-22	NO PUMP		0	0	-	-	-
7-Nov-22	NO PUMP		0	0	-	-	-
8-Nov-22	7:00 AM	12:00 PM	18000	300	360,000	20	1,200
9-Nov-22	NO PUMP		0	0	-	-	-
10-Nov-22	NO PUMP		0	0	-	-	-
11-Nov-22	NO PUMP		0	0	-	-	-
12-Nov-22	NO PUMP		0	0	-	-	-
13-Nov-22	NO PUMP		0	0	-	-	-
14-Nov-22	NO PUMP		0	0	-	-	-
15-Nov-22	7AM	12PM	18000	300	360,000	20	1,200
16-Nov-22	NO PUMP		0	0	-	-	-
17-Nov-22	NO PUMP		0	0	-	-	-
18-Nov-22	NO PUMP		0	0	-	-	-
19-Nov-22	NO PUMP		0	0	-	-	-
20-Nov-22	NO PUMP		0	0	-	-	-
21-Nov-22	NO PUMP		0	0	-	-	-
22-Nov-22	7AM	12PM	18000	300	360,000	20	1,200
23-Nov-22	NO PUMP		0	0	-	-	-
24-Nov-22	NO PUMP		0	0	-	-	-
25-Nov-22	NO PUMP		0	0	-	-	-
26-Nov-22	NO PUMP		0	0	-	-	-
27-Nov-22	NO PUMP		0	0	-	-	-
28-Nov-22	7:00 AM	12:00 PM	18000	300	360,000	20	1,200
29-Nov-22	NO PUMP		0	0	-	-	-
30-Nov-22	NO PUMP		0	0	-	-	-
1-Dec-22	7:00 AM	12:00 PM	18000	300	360,000	20	1,200
2-Dec-22	NO PUMP		0	0	-	-	-
3-Dec-22	NO PUMP		0	0	-	-	-
4-Dec-22	NO PUMP		0	0	-	-	-
5-Dec-22	NO PUMP		0	0	-	-	-
6-Dec-22	NO PUMP		0	0	-	-	-

Table 6: Measured Water Volume and Rate of Discharge from Quarry Sump

Date	Start	Stop	Total Sec.	Total Min.	Total Litres	Rate of Taking (L/sec)	Rate of Taking (L/min)
ECA Permitted Rate					**6,544,800**	**76**	**4,545**
7-Dec-22	NO PUMP		0	0	-	-	-
8-Dec-22	7:00 AM	12:00 PM	18000	300	360,000	20	1,200
9-Dec-22	NO PUMP		0	0	-	-	-
10-Dec-22	NO PUMP		0	0	-	-	-
11-Dec-22	NO PUMP		0	0	-	-	-
12-Dec-22	NO PUMP		0	0	-	-	-
13-Dec-22	7:00 AM	11:00 AM	14400	240	288,000	20	1,200
14-Dec-22	NO PUMP		0	0	-	-	-
15-Dec-22	NO PUMP		0	0	-	-	-
16-Dec-22	7:00 AM	12:00 PM	18000	300	360,000	20	1,200
17-Dec-22	NO PUMP		0	0	-	-	-
18-Dec-22	NO PUMP		0	0	-	-	-
19-Dec-22	NO PUMP		0	0	-	-	-
20-Dec-22	NO PUMP		0	0	-	-	-
21-Dec-22	NO PUMP		0	0	-	-	-
22-Dec-22	NO PUMP		0	0	-	-	-
23-Dec-22	NO PUMP		0	0	-	-	-
24-Dec-22	NO PUMP		0	0	-	-	-
25-Dec-22	NO PUMP		0	0	-	-	-
26-Dec-22	NO PUMP		0	0	-	-	-
27-Dec-22	NO PUMP		0	0	-	-	-
28-Dec-22	NO PUMP		0	0	-	-	-
29-Dec-22	NO PUMP		0	0	-	-	-
30-Dec-22	NO PUMP		0	0	-	-	-
31-Dec-22	NO PUMP		0	0	-	-	-

APPENDIX A

ECA No. 7737-BH6QEA

Ontario

Ministry of the Environment, Conservation and Parks
Ministère de l'Environnement, de la Protection de la nature et des Parcs

AMENDED ENVIRONMENTAL COMPLIANCE APPROVAL

NUMBER 7737-BH6QEA
Issue Date: October 22, 2019

QBJR Aggregates Inc.
949 Wilson Avenue
Toronto, Ontario
M3K 1G2

Site Location: McCarthy Quarry
Lot 1, Concession 1,
Original Township of Mara
Township of Ramara
County of Simcoe
L0K 1B0

You have applied under section 20.2 of Part II.1 of the Environmental Protection Act, R.S.O. 1990, c. E. 19 (Environmental Protection Act) for approval of:

sewage works for the collection, transmission, treatment and disposal of stormwater and groundwater collecting within the confines of the Quarry, consisting of the following:

- one (1) sump, measuring 20 metres long, 10 metres wide and 3 metres deep, located at the base of the quarry floor, equipped with two (2) submersible pumps each rated at 38 litres per second with a suction intake approximately one (1) metre above the bottom of the sump, discharging to a settling pond via a 203 millimetre diameter pipeline; and

- one (1) horse-shoe shaped settling pond with an approximate volume of 14,000 cubic metres (at elevation 248.2 metres), with a Hickenbottom control structure equipped with a 150 millimetre diameter orifice plate, discharging to the roadside ditch along Concession Road 1 with ultimate discharge to the Talbot River via a private ditch.

all other controls, electrical equipment, instrumentation, piping, pumps, valves and appurtenances essential for the proper operation of the aforementioned sewage works.

all in accordance with supporting documents listed in **Schedule A**.

For the purpose of this environmental compliance approval, the following definitions apply:

"Application" means the application for an environmental compliance approval submitted to the Ministry for approval by or on behalf of the Owner and dated August 8, 2019.

"Approval" means this environmental compliance approval, any schedules attached to it, and the Application;

"Director" means a person appointed by the Minister pursuant to section 5 of the EPA for the purposes of Part II.1 of the EPA;

"District Manager" means the District Manager of the appropriate local District Office of the Ministry, where the Works are geographically located;

"EPA" means the *Environmental Protection Act, R.S.O. 1990, c.E.19* , as amended;

"Ministry" means the ministry of the government of Ontario responsible for the EPA and OWRA and includes all officials, employees or other persons acting on its behalf;

"Owner" means QBJR Aggregates Inc., and includes its successors and assignees;

"OWRA" means the *Ontario Water Resources Act, R.S.O. 1990, c. O.40* , as amended; and

"Works" means the sewage works described in the Approval.

You are hereby notified that this environmental compliance approval is issued to you subject to the terms and conditions outlined below:

TERMS AND CONDITIONS

1. GENERAL CONDITION

(1) The Owner shall ensure that any person authorized to carry out work on or operate any aspect of the Works is notified of this Approval and the terms and conditions herein and shall take all reasonable measures to ensure any such person complies with the same.

(2) Except as otherwise provided by these terms and conditions, the Owner shall design, build, install, operate and maintain the Works in accordance with this Approval.

(3) Where there is a conflict between a provision of this environmental compliance approval and any document submitted by the Owner, the conditions in this environmental compliance approval shall take precedence. Where there is a conflict between one or more of the documents submitted by the Owner, the Application shall take precedence

unless it is clear that the purpose of the document was to amend the Application

(4) Where there is a conflict between the documents listed in the Schedule A, and the application, the application shall take precedence unless it is clear that the purpose of the document was to amend the application.

(5) The terms and conditions of this Approval are severable. If any term and condition of this environmental compliance approval, or the application of any requirement of this environmental compliance approval to any circumstance, is held invalid or unenforceable, the application of such condition to other circumstances and the remainder of this Approval shall not be affected thereby.

(6) The issuance of, and compliance with the conditions of, this Approval does not:

a) relieve any person of any obligation to comply with any provision of any applicable statute, regulation or other legal requirement, including, but not limited to, the obligation to obtain approval from the local conservation authority necessary to construct or operate the sewage Works; or

b) limit in any way the authority of the Ministry to require certain steps be taken to require the Owner to furnish any further information related to compliance with this Approval.

2. CHANGE OF OWNER

(1) The Owner shall notify the District Manager and the Director, in writing, of any of the following changes within **thirty (30) days** of the change occurring:

(a) change of address of Owner or operating authority;

(b) change of Owner or operating authority or both, including address of new Owner or operating authority, or both;

(c) change of partners where the Owner or operating authority is or at any time becomes a partnership, and a copy of the most recent declaration filed under the *Business Names Act, R.S.O. 1990, c. B.17* ; and

(d) change of name of the corporation where the Owner or operator is or at any time becomes a corporation, and a copy of the "Initial Return" or "Notice of Change" filed under the *Corporations Information Act, R.S.O. 1990, c. C.39* , shall be included in the notification to the District Manager.

(2) In the event of any change in ownership of the Works, the Owner shall notify in writing the succeeding owner of the existence of this Approval, and a copy of such notice shall be

forwarded to the District Manager.

(3) The Owner shall ensure that all communications made pursuant to this condition refer to the number at the top of this environmental compliance approval.

3. OPERATION AND MAINTENANCE

(1) The Owner shall prepare an operations manual of the Works that includes, but is not limited to, the following information:

(a) operating procedures for routine operation of the Works;

(b) inspection programs, including frequency of inspection, for the Works and the methods or tests to be employed to detect when maintenance is necessary;

(c) repair and maintenance programs, including the frequency of repair and maintenance for the Works;

(d) contingency plans and procedures for dealing with a potential spill, bypasses or any other abnormal situations, including notifying the District Manager of the situation; and

(e) procedures for receiving and responding to public complaints.

(2) The Owner shall ensure that the Works and related equipment and appurtenances which are installed or used to achieve compliance with this Approval are properly operated and maintained.

(3) The Owner shall inspect the sump, discharge pump and settling pond on a monthly basis and keep a log or record of the inspections at the Quarry.

(4) The Owner shall carry out on an as-needed basis, specific maintenance requirements like removing build-up, associated with the sump, pump and settling pond.

(5) The Owner shall, upon identification of a loss of oil and fuel, take immediate action to prevent the further occurrence of such loss and prevent the spill from entering into the sump and/or the settling pond.

(6) In furtherance of, but without limiting the generality of, the obligation imposed by subsection (2), the Owner shall ensure that equipment and material for the containment, clean-up and disposal of oil and fuel and materials contaminated with oil or fuel are kept on hand and in good repair for immediate use in the event of:

(a) loss of oil or fuel during refuelling or equipment maintenance;

(b) a spill within the meaning of Part X of the Environmental Protection Act; and/or

(c) the identification of an abnormal amount of oil or fuel in the sump and/or settling pond.

4. EFFLUENT LIMITS

(1) The Owner shall construct, operate and maintain the Works such that the concentrations of the materials named below as effluent parameters are not exceeded in the effluent from the Works.

Table 1 - Effluent Limits		
Effluent Parameter	**Daily Concentration** (milligrams per litre unless otherwise indicated)	**Monthly Average Concentration** (milligrams per litre unless otherwise indicated)
Column 1	Column 2	Column 3
Oil and Grease	30	15
Phenolics (4AAP)	0.04	0.02
Total Suspended Solids	30	15
pH of the effluent maintained between 6.0 to 9.5, inclusive, at all times		

(2) For the purposes of determining compliance with and enforcing subsection (1):

(a) non-compliance with respect to a Daily Concentration is deemed to have occurred when any single grab sample analyzed for a parameter named in Column 1 of subsection (1) is greater than the corresponding daily concentration set out in Column 2 of subsection (1);

(b) non-compliance with respect to an Monthly Average Concentration is deemed to have occurred when the arithmetic mean concentration of all samples taken in a month, analyzed for a parameter named in Column 1 of subsection (1) is greater than the corresponding monthly average concentration set out in Column 3 of subsection (1); and

(c) non-compliance with respect to pH is deemed to have occurred when any single measurement is outside of the indicated range.

5. EFFLUENT - VISUAL OBSERVATIONS

(1) Notwithstanding any other condition in this Approval, the Owner shall ensure that the effluent from the Works is essentially free of floating and settleable solids and does not contain oil or any other substance in amounts sufficient to create a visible film, sheen or foam on the receiving waters.

(2) Notwithstanding any other condition in this Approval, the Owner shall ensure that the

effluent from the Works shall not cause flooding or erosion to the downstream receiver and in particular Road flooding.

6. MONITORING AND RECORDING

The Owner shall, upon the Issuance of this Approval, carry out the following monitoring program:

(1) All samples and measurements taken for the purposes of this Approval are to be taken at a time and in a location characteristic of the quality and quantity of the effluent stream over the time period being monitored.

(2) Samples shall be collected and analyzed at the following sampling point, at the sampling frequencies and using the sample type specified for each parameter listed:

Table 2 - Effluent Monitoring	
Sample Point	Outfall of settling pond approximately 150 metres north of Concession 1 (i.e. end of pipe discharge).
Frequency	Weekly
Sample Type	Grab
Parameters	Oil and Grease, Phenolics (4AAP), and Total Suspended Solid (TSS).

Table 3 - Effluent and Surface Water Monitoring	
Sample Point	1. Outfall of settling pond approximately 150 metres north of Concession 1 (i.e. end of pipe discharge). 2. Box culvert on Eldon-Ramara Townline approximately 260 metres north of the intersection of Ramara Concession 1 and Eldon-Ramara Townline (i.e. upgradient of end of pipe discharge). 3. 80 centimetre CSP located at Concession 1 Road on McCarthy property (i.e. downgradient of end of pipe discharge).
Frequency	Semi-Annually during discharge event.
Sample Type	Grab
Parameters	Total Suspended Solids, Copper, Lead, Nickel, Zinc, Arsenic, Oil and Grease, Phenolics (4AAP), Hardness (as $CaCO_3$), Alkalinity(as $CaCO_3$), Conductivity, pH, Fluoride, Chloride, Nitrate (N), Nitrite (N), Sulphate, Calcium, Magnesium, Sodium, Potassium, Ammonia (N), Dissolved Organic Carbon, Iron, Total Kjeldahl Nitrogen, Phosphorus (Total), Cadmium, Chromium, Manganese, Anion (Sum), Cation (Sum) and Total Dissolved Solids.

(3) The methods and protocols for sampling, analysis and recording shall conform, in order of precedence, to the methods and protocols specified in the following:

(a) the Ministry's publication "Protocol for the Sampling and Analysis of Industrial/Municipal Wastewater" (August 1994), ISBN 0-7778-1880-9, as amended from time to time by more recently published editions; and

(b) the publication "Standard Methods for the Examination of Water and Wastewater" (21st edition), as amended from time to time by more recently published editions.

(4) The Owner shall measure, record and calculate the discharge rate and volume from the Works on a daily basis during discharging period.

(5) The Owner shall retain for a minimum of **five (5) years** from the date of their creation, all records and information related to or resulting from the monitoring activities required by this Approval.

7. RECEIVER INSPECTION

(1) The Owner shall, at least once per year, undertake a visual inspection of the downstream ditches for evidence of erosion and/or flooding and shall report the observations in the annual report.

8. REPORTING

(1) The Owner shall report to the District Manager or designate, any exceedance of any parameter specified in condition 4 orally, forthwith, and in writing within **seven (7) days** of the exceedance.

(2) In addition to the obligations under Part X of the EPA, the Owner shall, within **ten (10) working days** of the occurrence of any reportable spill as defined in Ontario Regulation 675/98, bypass or loss of any product, by-product, intermediate product, oil, solvent, waste material or any other polluting substance into the environment, submit a full written report of the occurrence to the District Manager describing the cause and discovery of the spill or loss, clean-up and recovery measures taken, preventative measures to be taken and schedule of implementation.

(3) The Owner shall, upon request, make all manuals, plans, records, data, procedures and supporting documentation available to Ministry staff.

(4) The Owner shall submit quarterly reports of the information obtained under condition 6 within **30 days** of the end of each quarter.

(5) The Owner shall prepare, and submit to the District Manager, a **performance report**, on

an annual basis, on or before March 31st. The reports shall contain, but shall not be limited to, the following information:

(a) a summary and interpretation of all monitoring data and a comparison to the effluent limits outlined in condition 4, including an overview of the success and adequacy of the sewage Works;

(b) a description of any operating problems encountered and corrective actions taken;

(c) a summary of all maintenance carried out on any major structure, equipment, apparatus, mechanism or thing forming part of the sewage works;

(d) a summary of any effluent quality assurance or control measures undertaken in the reporting period;

(e) any other information the District Manager requires from time to time.

The reasons for the imposition of these terms and conditions are as follows:

1. Condition 1 is imposed to ensure that the Works are built and operated in the manner in which they were described for review and upon which approval was granted. This condition is also included to emphasize the precedence of Conditions in the Approval and the practice that the Approval is based on the most current document, if several conflicting documents are submitted for review. Condition 1.(6) is included to emphasize that the issuance of this Approval does not diminish any other statutory and regulatory obligations to which the Owner is subject in the construction, maintenance and operation of the Works. The Condition specifically highlights the need to obtain any necessary conservation authority approvals. The Condition also emphasizes the fact that this Approval doesn't limit the authority of the Ministry to require further information.

2. Condition 2 is included to ensure that the Ministry records are kept accurate and current with respect to approved Works and to ensure that subsequent owners of the Works are made aware of the Approval and continue to operate the works in compliance with it.

3. Condition 3 is included to ensure that a comprehensive operations manual governing all significant areas of operation, maintenance and repair is prepared, implemented and kept up-to-date by the Owner and made available to the Ministry. Such a manual is an integral part of the operation of the Works. Its compilation and use should assist the owner in staff training, in proper plant operation and in identifying and planning for contingencies during possible abnormal conditions. The manual will also act as a benchmark for Ministry staff when reviewing the Owner's operation of the Works. The condition is also included to ensure that the Works will be operated and maintained in a manner enabling compliance with the terms and conditions of this Approval, such that the environment is protected and deterioration, loss, injury or damage to

any person or property is minimised and/or prevented.

4. Conditions 4 and 5 are imposed to ensure that the effluent discharged from the Works to the environment meets the Ministry's effluent quality requirements thus minimizing environmental impact on the receiver.

5. Condition 6 is included to enable the Owner to evaluate and demonstrate the performance of the Works, on a continual basis, so that the Works are properly operated and maintained at a level which is consistent with the design objectives and effluent limits specified in the Approval and that the Works does not cause any impairment to the receiver.

6. Condition 7 is included in order to determine if the ongoing discharge of quarry water is having a negative impact on the downstream ditches so that abatement measures can be taken to prevent such occurrences.

7. Condition 8 is included to provide a performance record for future references, to ensure that the Ministry is made aware of problems as they arise, and to provide a compliance record for all the terms and conditions outlined in this Approval, so that the Ministry can work with the Owner in resolving any problems in a timely manner.

SCHEDULE 'A'

1. Environmental Compliance Approval Application for Industrial Sewage Works submitted by John Easton, P.Geo., Golder Associates Ltd., and signed by Mr. Anthony Rossi, Director Land Development & Government Relations, QBJR Aggregates Inc., dated August 8, 2019; and all supporting documentation and information.

Upon issuance of the environmental compliance approval, I hereby revoke Approval No(s). 4731-987KM8 issued on October 15, 2013.

In accordance with Section 139 of the Environmental Protection Act, you may by written Notice served upon me and the Environmental Review Tribunal within 15 days after receipt of this Notice, require a hearing by the Tribunal. Section 142 of the Environmental Protection Act provides that the Notice requiring the hearing shall state:

a. The portions of the environmental compliance approval or each term or condition in the environmental compliance approval in respect of which the hearing is required, and;
b. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

Pursuant to subsection 139(3) of the Environmental Protection Act, a hearing may not be required with respect to any terms and conditions in this environmental compliance approval, if the terms and conditions are substantially the same as those contained in an approval that is amended or revoked by this environmental compliance approval.

The Notice should also include:

1. The name of the appellant;
2. The address of the appellant;
3. The environmental compliance approval number;
4. The date of the environmental compliance approval;
5. The name of the Director, and;
6. The municipality or municipalities within which the project is to be engaged in.

And the Notice should be signed and dated by the appellant.

This Notice must be served upon:

The Secretary*
Environmental Review Tribunal
655 Bay Street, Suite 1500
Toronto, Ontario
M5G 1E5

AND

The Director appointed for the purposes of Part II.1 of the Environmental Protection Act
Ministry of the Environment, Conservation and Parks
135 St. Clair Avenue West, 1st Floor
Toronto, Ontario
M4V 1P5

*** Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from the Tribunal at: Tel: (416) 212-6349, Fax: (416) 326-5370 or www.ert.gov.on.ca**

The above noted activity is approved under s.20.3 of Part II.1 of the Environmental Protection Act.

DATED AT TORONTO this 22nd day of October, 2019

Fariha Pannu.

Fariha Pannu, P.Eng.
Director
appointed for the purposes of Part II.1 of the
Environmental Protection Act

AA/

c: District Manager, MECP Barrie District Office
John Easton, P.Geo., Golder Associates Ltd.

APPENDIX B

Permit to Take Water No. 1603-BKTPQH

PERMIT TO TAKE WATER
Ground Water
NUMBER 1603-BKTPQH

Pursuant to Section 34.1 of the Ontario Water Resources Act, R.S.O. 1990 this Permit To Take Water is hereby issued to:

QBJR Aggregates Inc.
949 Wilson Ave
Toronto, Ontario, M3K 1G2
Canada

For the water taking from: Quarry Sump, McCarthy Quarry

Located at: Lot 1, Concession 1, Geographic Township of Mara
Ramara, County of Simcoe

For the purposes of this Permit, and the terms and conditions specified below, the following definitions apply:

DEFINITIONS

(a) "Director" means any person appointed in writing as a Director pursuant to section 5 of the OWRA for the purposes of section 34.1, OWRA.

(b) "Provincial Officer" means any person designated in writing by the Minister as a Provincial Officer pursuant to section 5 of the OWRA.

(c) "Ministry" means Ontario Ministry of the Environment, Conservation and Parks.

(d) "District Office" means the Barrie District Office.

(e) "Permit" means this Permit to Take Water No. 1603-BKTPQH including its Schedules, if any, issued in accordance with Section 34.1 of the OWRA.

(f) "Permit Holder" means QBJR Aggregates Inc..

(g) "OWRA " means the *Ontario Water Resources Act,* R.S.O. 1990, c. O. 40, as amended.

You are hereby notified that this Permit is issued subject to the terms and conditions outlined below:

TERMS AND CONDITIONS

1. Compliance with Permit

1.1 Except where modified by this Permit, the water taking shall be in accordance with the application for this Permit To Take Water, dated October 23, 2019 and signed by Jenny Coco, CEO, and all Schedules included in this Permit.

1.2 The Permit Holder shall ensure that any person authorized by the Permit Holder to take water under this Permit is provided with a copy of this Permit and shall take all reasonable measures to ensure that any such person complies with the conditions of this Permit.

1.3 Any person authorized by the Permit Holder to take water under this Permit shall comply with the conditions of this Permit.

1.4 This Permit is not transferable to another person.

1.5 This Permit provides the Permit Holder with permission to take water in accordance with the conditions of this Permit, up to the date of the expiry of this Permit. This Permit does not constitute a legal right, vested or otherwise, to a water allocation, and the issuance of this Permit does not guarantee that, upon its expiry, it will be renewed.

1.6 The Permit Holder shall keep this Permit available at all times at or near the site of the taking, and shall produce this Permit immediately for inspection by a Provincial Officer upon his or her request.

1.7 The Permit Holder shall report any changes of address to the Director within thirty days of any such change. The Permit Holder shall report any change of ownership of the property for which this Permit is issued within thirty days of any such change. A change in ownership in the property shall cause this Permit to be cancelled.

2. General Conditions and Interpretation

2.1 Inspections

The Permit Holder must forthwith, upon presentation of credentials, permit a Provincial Officer to carry out any and all inspections authorized by the OWRA, the *Environmental Protection Act*, R.S.O. 1990, the *Pesticides Act*, R.S.O. 1990, or the *Safe Drinking Water Act,* S. O. 2002.

2.2 Other Approvals

The issuance of, and compliance with this Permit, does not:

(a) relieve the Permit Holder or any other person from any obligation to comply with any other applicable legal requirements, including the provisions of the *Ontario Water Resources Act*, and

the *Environmental Protection Act* , and any regulations made thereunder; or

(b) limit in any way any authority of the Ministry, a Director, or a Provincial Officer, including the authority to require certain steps be taken or to require the Permit Holder to furnish any further information related to this Permit.

2.3 Information

The receipt of any information by the Ministry, the failure of the Ministry to take any action or require any person to take any action in relation to the information, or the failure of a Provincial Officer to prosecute any person in relation to the information, shall not be construed as:

(a) an approval, waiver or justification by the Ministry of any act or omission of any person that contravenes this Permit or other legal requirement; or

(b) acceptance by the Ministry of the information's completeness or accuracy.

2.4 Rights of Action

The issuance of, and compliance with this Permit shall not be construed as precluding or limiting any legal claims or rights of action that any person, including the Crown in right of Ontario or any agency thereof, has or may have against the Permit Holder, its officers, employees, agents, and contractors.

2.5 Severability

The requirements of this Permit are severable. If any requirements of this Permit, or the application of any requirements of this Permit to any circumstance, is held invalid or unenforceable, the application of such requirements to other circumstances and the remainder of this Permit shall not be affected thereby.

2.6 Conflicts

Where there is a conflict between a provision of any submitted document referred to in this Permit, including its Schedules, and the conditions of this Permit, the conditions in this Permit shall take precedence.

3. Water Takings Authorized by This Permit

3.1 **Expiry**

This Permit expires on **January 31, 2025**. No water shall be taken under authority of this Permit after the expiry date.

3.2 Amounts of Taking Permitted

The Permit Holder shall only take water from the source, during the periods and at the rates and amounts of taking specified in Table A. Water takings are authorized only for the purposes specified in Table A.

Table A

	Source Name / Description:	Source: Type:	Taking Specific Purpose:	Taking Major Category:	Max. Taken per Minute (litres):	Max. Num. of Hrs Taken per Day:	Max. Taken per Day (litres):	Max. Num. of Days Taken per Year:	Zone/ Easting/ Northing:
1	Quarry Sump	Pond Connected	Pits and Quarries	Dewatering	4,545	24	6,544,800	250	17 650950 4933500
						Total Taking:	6,544,800		

3.3 There is an additional water taking limitation per year for Source 1 described as Quarry Sump within Table A. The maximum taking per year from the Quarry Sump is 196,500,000 litres.

4. Monitoring

4.1 The Permit Holder shall not lower the water in the quarry below an elevation of 232.0 metres above sea level.

4.2 The Permit Holder shall conduct daily water level monitoring with the use of pressure transducers and data loggers at:

a) The residential well known by the MOE Water Well Record Number 5727662 and identified as well DW3 on Figure 2 in Item 2 of Schedule A of this Permit, if granted permission by the property owner.

b) The monitoring wells named OW4-1, OW4-2, OW5-1, OW6-1, OW6-2, OW8-3, OW9-2, and Bored Well (shown on Figure 2, in Item 2 of Schedule A of this Permit).

c) The City of Kwartha Lakes monitoring well CKL-1, if granted permission by the property owner .

These pressure transducers and data loggers shall be inspected and downloaded at least every 6 months.

4.3 The Permit Holder shall conduct monthly water level monitoring with the use of a manual water level meter at:

a) The residential well known by the MOE Water Well Record Number 5727662 and identified as well DW3 on Figure 2 in Item 2 of Schedule A of this Permit, if granted permission by the property owner.

b) The residential wells named DW1, DW2, and DW4, if granted permission by the property owner (shown on Figure 2, in Item 2 of Schedule A of this Permit).

c) The monitoring wells named AM1b, AMX-R, TW1-1, OW4-1, OW4-2, OW5-1, OW5-2, OW5-3, OW6-1, OW6-2, OW6-3, OW7-1, OW7-2, OW7-3, OW8-1, OW8-2, OW8-3, OW9-1, OW9-2, and Bored Well (shown on Figure 2 in Item 2 of Schedule A of this Permit).

d) The City of Kwartha Lakes monitoring wells CKL-1 and CKL-2, if granted permission by the property owner .

The Permit Holder may suspend monthly water level monitoring under Condition 4.3 for the months of January and/or February if no water is taken from the quarry on those months.

4.4 The Permit Holder shall, if granted permission by the property owner, measure and record static water levels in the residential wells named DW6, DW7, and DW8, as shown on Figure 2 in Item 2 of Schedule A of this Permit, at least once in every two (2) month period during which water is taken from the quarry. The Permit Holder may suspend monthly water level monitoring under Condition 4.4 for the months of January and/or February if no water is taken from the quarry on those months.

4.5 The Permit Holder shall, if granted permission by the property owner, on a semi-annual basis collect raw water samples from the residential wells named DW1, DW2, and the well identified in condition 4.2(a). Each sample shall be tested, at a minimum, for the parameters listed in Table 1 below:

Table 1: Water Quality Parameters for Residential Wells

pH	Sulphate	DOC	Copper
Alkalinity (CaCO3)	Magnesium	Colour	Iron
Bicarbonate	Calcium	Turbidity	Lead
Conductivity	Sodium	Aluminium	Manganese
Fluoride	Potassium	Arsenic	Selenium
Chloride	Ammonia (N)	Barium	Zinc
Nitrate	Phosphate	Boron	Hardness (CaCO3)
Nitrite	Phosphorus	Cadmium	TDS (iron sum calc.)
Chromium	Anion Sum	Ion Ratio	Langelier Index
Tannins	Cation Sum	% Difference	

The Permit Holder shall immediately report to the respective well owner, the Director, and District Office any sampling result that exceeds the Ontario Drinking Water Quality Standards as prescribed by O.Reg. 169/03, as amended.

4.6 The Permit Holder shall on a semi-annual basis conduct the groundwater quality monitoring from the on-site groundwater monitors listed in Table 2. Each sample shall be tested, at a minimum, for the parameters listed in Table 3.

Table 2: On-Site Groundwater Monitors for Water Quality Sampling

AM1b	OW4-I	OW5-III	OW8-I
AMX-R	OW4-II	OW6-II	OW8-II
TW1-1	OW5-I	OW7-I	OW9-I
Bored Well	OW5-II	OW7-II	OW9-II

Table 3: Water Quality Parameters for On-Site Groundwater Monitors

pH	Magnesium	Sulphate	Conductivity
Alkalinity	Calcium	Nitrate	DOC
Bicarbonate	Sodium	Nitrite	Colour
Fluoride	Potassium	Phosphate	TDS
Chloride	Ammonia	Phosphorus	Hardness

4.7 The Permit Holder shall notify the Director, in writing, within 30 days if the groundwater level or groundwater quality monitoring of any well listed under conditions 4.2, 4.3, 4.4, 4.5, and 4.6 is not possible, including being denied access to a private well. In the event of damage or loss of any monitoring well, monitoring devices or related equipment, the Permit Holder shall be allowed 30 calendar days from the date of discovery of the occurrence to repair or replace equipment. If a well is too damaged to be repaired or monitored, or if the well is deemed unsafe to be monitored, then the Director will decide if a replacement well is required and will modify the appropriate monitoring conditions in a written letter to the Permit Holder.

4.8 The Permit Holder shall maintain a record of all water takings. This record shall include the dates and times of water takings, and the total measured or calculated amounts for water pumped per day for each day that water is taken under the authorization of this Permit.

4.9 The Permit Holder shall keep all required records up to date and available at or near the site of the taking and shall produce the records immediately for inspection by a Provincial Officer upon his or her request.

4.10 The Permit Holder shall provide to the Director an annual monitoring report no later than March 1 each year during the life of this Permit. The annual monitoring report shall be prepared by an individual with P.Geo. or equivalent qualifications and shall include, at a minimum:

a) The review and assessment of all monitoring data required by this Permit.
b) An up-date of the quarry operations and predicted quarrying and dewatering for the next twelve (12) months.

c) An assessment of the groundwater trends using the on-site on off-site monitoring data. This analysis should state the actual impact area of quarry dewatering and determine the potential for off-site impacts. If any impacts are predicted then a detailed mitigation plan shall be included within this report.
d) Analysis that includes amount of water pumped, precipitation data, and an estimate of how much groundwater was pumped versus surface water.
e) Figures that include site maps with current quarry depths, groundwater contour maps, impact area of quarry dewatering, groundwater elevation graphs, and geological cross-sections.
f) Any groundwater interference complaints.
g) Description of all communication with the public.
h) Conclusions and recommendations, if any, to improve the monitoring and reporting at the site.

An electronic copy of the data collected must also accompany the report.

4.11 The Permit Holder shall make available on a publicly-accessible site on the internet the water quality and quantity data that it is required to monitor and record under this Permit and O.Reg. 387/04, as amended, and a copy of every report that is required to be prepared under this Permit. For greater clarity, the Permit Holder shall not publish any personal information as defined by the *Freedom of Information and Protection of Privacy Act,* R.S.O. 1990, c. F.31, as amended.

4.12 The Permit Holder shall maintain a Public Liaison Committee ("PLC") comprised of not more than seven (7) members that will meet at least once every four (4) months, unless the majority of the PLC decide that more or less frequent meetings are required. The PLC shall be comprised of: two (2) members appointed by the Permit Holder - one of whom shall act as Chairperson; one (1) member from each of the Township and the County, if they wish to have representatives; and three (3) members appointed by the public, if they wish to have representatives, who must be permanent residents within a 3 kilometre radius of the quarry property. The PLC shall serve in an advisory / community liaison role and shall have no powers to direct the Permit Holder or the Ministry.

4.13 Any request for an amendment or renewal of this Permit must be accompanied by a report prepared by an individual with P.Geo. or equivalent qualifications and shall include, at a minimum:

a) The review and assessment of all monitoring data required by this Permit.
b) An up-date of the quarry operations and predicted quarrying and dewatering for the duration of the requested permit.
c) An assessment of the groundwater trends using the on-site on off-site monitoring data. This analysis should state the actual impact area of quarry dewatering and determine the potential for off-site impacts. If any impacts are predicted then a detailed mitigation plan shall be included within this report.
d) Analysis that includes amount of water pumped, precipitation data, and an estimate of how much groundwater was pumped versus surface water.

e) Figures that include site maps with current quarry depths, groundwater contour maps, impact area of quarry dewatering, groundwater elevation graphs, and geological cross-sections.
f) Any groundwater interference complaints.
g) Description of all communication with the public.
h) Conclusions and recommendations, if any, to improve the monitoring and reporting at the site.

An electronic copy of the data collected must also accompany the report. Any application for renewal of this Permit must be submitted to the Ministry at least ninety (90) days prior to the expiry of this Permit.

4.14 The Permit Holder shall, as directed by the Ministry, participate in a cumulative impact assessment for the Carden Plain Area with other quarry operators who have been issued a permit to take water in this area.

5. Impacts of the Water Taking

5.1 Notification

The Permit Holder shall immediately notify the local District Office of any complaint arising from the taking of water authorized under this Permit and shall report any action which has been taken or is proposed with regard to such complaint. The Permit Holder shall immediately notify the local District Office if the taking of water is observed to have any significant impact on the surrounding waters. After hours, calls shall be directed to the Ministry's Spills Action Centre at 1-800-268-6060.

5.2 For Groundwater Takings

If the taking of water is observed to cause any negative impact to other water supplies obtained from any adequate sources that were in use prior to initial issuance of a Permit for this water taking, the Permit Holder shall take such action necessary to make available to those affected, a supply of water equivalent in quantity and quality to their normal takings, or shall compensate such persons for their reasonable costs of so doing, or shall reduce the rate and amount of taking to prevent or alleviate the observed negative impact. Pending permanent restoration of the affected supplies, the Permit Holder shall provide, to those affected, temporary water supplies adequate to meet their normal requirements, or shall compensate such persons for their reasonable costs of doing so.

If permanent interference is caused by the water taking, the Permit Holder shall restore the water supplies of those permanently affected.

5.2.1 Where the water supply provided by the well known by MOE Water Well Record Number 5727662 is restored in accordance with Condition 5.2, the Permit Holder shall restore the supply in a manner satisfactory to the Director, taking into account the residential needs, requirements and preferences of the persons serviced by the well.

5.3 Upon the receipt of a groundwater interference complaint, the Permit Holder shall:

a) Implement the McCarthy Quarry Complaint Resolution Process as described in Item 3 of Schedule A of this Permit.

b) In addition, appropriate notification and actions must be taken as described in conditions 5.1 and 5.2 of this Permit. The provisions of conditions 5.1 and 5.2 shall take precedence over the provisions of condition 5.3(a) if there is a conflict.

6. Director May Amend Permit

The Director may amend this Permit by letter requiring the Permit Holder to suspend or reduce the taking to an amount or threshold specified by the Director in the letter. The suspension or reduction in taking shall be effective immediately and may be revoked at any time upon notification by the Director. This condition does not affect your right to appeal the suspension or reduction in taking to the Environmental Review Tribunal under the *Ontario Water Resources Act* , Section 100 (4).

The reasons for the imposition of these terms and conditions are as follows:

1. Condition 1 is included to ensure that the conditions in this Permit are complied with and can be enforced.

2. Condition 2 is included to clarify the legal interpretation of aspects of this Permit.

3. Conditions 3 through 6 are included to protect the quality of the natural environment so as to safeguard the ecosystem and human health and foster efficient use and conservation of waters. These conditions allow for the beneficial use of waters while ensuring the fair sharing, conservation and sustainable use of the waters of Ontario. The conditions also specify the water takings that are authorized by this Permit and the scope of this Permit.

In accordance with Section 100 of the Ontario Water Resources Act, R.S.O. 1990, you may by written notice served upon me, the Environmental Review Tribunal and the Minister of the Environment, Conservation and Parks, within 15 days after receipt of this Notice, require a hearing by the Tribunal. The Minister of the Environment, Conservation and Parks will place notice of your appeal on the Environmental Registry. Section 101 of the Ontario Water Resources Act, as amended provides that the Notice requiring a hearing shall state:

1. The portions of the Permit or each term or condition in the Permit in respect of which the hearing is required, and;
2. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

In addition to these legal requirements, the Notice should also include:

a. The name of the appellant;
b. The address of the appellant;
c. The Permit to Take Water number;
d. The date of the Permit to Take Water;
e. The name of the Director;
f. The municipality within which the works are located;

This notice must be served upon:

The Secretary
Environmental Review Tribunal
655 Bay Street, 15th Floor
Toronto ON
M5G 1E5
Fax: (416) 326-5370
Email:
ERTTribunalsecretary@ontario.ca

AND

The Minister of the Environment,
Conservation and Parks
777 Bay Street, 5th Floor
Toronto, Ontario
M7J 2J3

AND

The Director, Section 34.1,
Ministry of the Environment,
Conservation and Parks
8th Floor
5775 Yonge St
Toronto ON M2M 4J1
Fax: (416) 325-6347

Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from the Tribunal:

by Telephone at	by Fax at	by e-mail at
(416) 212-6349	(416) 326-5370	www.ert.gov.on.ca
Toll Free 1(866) 448-2248	Toll Free 1(844) 213-3474	

This instrument is subject to Section 38 of the ***Environmental Bill of Rights*** *that allows residents of Ontario to seek leave to appeal the decision on this instrument. Residents of Ontario may seek to appeal for 15 days from the date this decision is placed on the Environmental Registry. By accessing the Environmental Registry, you can determine when the leave to appeal period ends.*

This Permit cancels and replaces Permit Number 7818-9QJNL4, issued on 2014/12/30.

Dated at Toronto this 31st day of January, 2020.

Ellen Klupfel
Director, Section 34.1
Ontario Water Resources Act , R.S.O. 1990

Schedule A

This Schedule "A" forms part of Permit To Take Water 1603-BKTPQH, dated January 31, 2020.

1. Permit to Take Water Application, dated October 23, 2019 and signed by Jenny Coco.

2. Golder Associates Ltd. (November 1, 2019). Hydrogeological Assessment, Permit to Take Water Renewal, McCarthy Quarry.

Ministry of the Environment, Conservation and Parks
Environmental Assessment and Permissions Division
Brownfields and Permit to Take Water
Permit To Take Water Unit
Floor 1, 135 St Clair Ave W
Toronto, ON
M4V 1P5
Tel: (289) 830-5867

Ministère de l'Environnement, de la Protection de la nature et des Parcs
Division des évaluations et des permissions environnementales
Réaménagement des friches contaminées et réglementation des prélèvements d'eau
Unité de la réglementation des prélèvements d'eau
1er étage, 135 av St. Clair O
Toronto, ON
M4V 1P5
Tél:(289) 830-5867

Ontario

February 28, 2022

QBJR Aggregates Inc.
949 Wilson Ave
Toronto, Ontario, M3K 1G2
Canada

Attn: Jenny Coco

RE: Amendment to Permit To Take Water No. 1603-BKTPQH
Lot 1 Concession 1 Original Township of Mara
Ramara, County of Simcoe
Reference Number 0707-BHMPF8

In a letter, *Change of Sump Location Identified at the McCarthy Quarry Under Permit No. 1603-BKTPQH*) prepared by Golder Associates Ltd. on behalf of QBJR Aggregates Inc., dated February 23, 2022, it has been requested the the location of water taking identified for **Source 1** in **Table A** (Quarry Sump) of Permit To Take Water ("PTTW") number 1603-BKTPQH be revised to reflect a new proposed water taking location, in the southern portion of the quarry site. In consultation with the Ministry's Central Region Technical Support Section Staff (Mihran Aslanyan, P.Geo., Hydrogeologist) there are no technical concerns identified regarding this request.

I am a Director appointed for the purposes of section 34.1 of the *Ontario Water Resources Act* , R.S.O. 1990, c. O.40, as amended ("OWRA"), and pursuant to my authority under subsection 34.1(2) of the OWRA, I am exercising my discretion to amend Permit to Take Water 1603-BKTPQH by amending Condition 3.2, Table A, as follows:

3.2 Amounts of Taking Permitted
The Permit Holder shall only take water from the source, during the periods and at the rates and amounts of taking specified in Table A. Water takings are authorized only for the purposes specified in Table A.

Table A

	Source Name / Description:	Source: Type:	Taking Specific Purpose:	Taking Major Category:	Max. Taken per Minute (litres):	Max. Num. of Hrs Taken per Day:	Max. Taken per Day (litres):	Max. Num. of Days Taken per Year:	Zone/ Easting/ Northing:
1	Quarry Sump	Pond Connected	Pits and Quarries	Dewatering	4,545	24	6,544,800	250	17 **651324** **4933188**
						Total Taking:	6,544,800		

Please note that all other terms and conditions of Permit to Take Water 1603-BKTPQH shall remain in force.

This Notice now forms part of the current permit and must be attached to the original Permit to Take Water, if available. If the original is no longer available, this letter must be kept attached to a certified copy of the Permit to Take Water.

Any change in circumstances related to this permit should be reported promptly to a Director.

In accordance with Section 100 of the *Ontario Water Resources Act, R.S.O. 1990,* you may by written notice served upon me and the Ontario Land Tribunal within 15 days after receipt of this notice, require a hearing by the Tribunal. Section 101 of the *Ontario Water Resources Act, R.S.O. 1990,* as amended, provides that the notice requiring the hearing ("the Notice") shall state:

1. The portions of the Permit or each term or condition in the Permit in respect of which the hearing is required, and;
2. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

In addition to these legal requirements, the Notice should also include:

a. The name of the appellant;
b. The address of the appellant;
c. The Permit to Take Water number;
d. The date of the Permit to Take Water;
e. The name of the Director;
f. The municipality within which the works are located;

This notice must be served upon:

*Registrar**
Ontario Land Tribunal
655 Bay Street, Suite 1500
Toronto, Ontario
M5G 1E5
OLT.Registrar@ontario.ca

AND

The Director, Section 34.1,
Ministry of the Environment, Conservation and Parks

*** Further information on the Ontario Land Tribunal's requirements for an appeal can be obtained directly from the Tribunal at: (416) 212-6349 or 1 (866) 448-2248, or www.olt.gov.on.ca.**

Yours truly,

Gregory Meek
Supervisor (Acting), Permit To Take Water
Director, Section 34.1, Ontario Water Resources Act, R.S.O. 1990
Environmental Permissions Branch

File Storage Number: -

APPENDIX C

Water Quality Results

Your Project #: 20448776
Site#: McCarthy
Your C.O.C. #: 864938-01-01

Attention: Dawn Hoyle/Jamie Bonany

Golder Associates Ltd
121 Commerce Park Drive
Unit L
Barrie, ON
CANADA L4N 8X1

Report Date: 2022/04/08
Report #: R7078409
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C288562
Received: 2022/04/05, 08:54

Sample Matrix: Water
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Animal and Vegetable Oil and Grease	1	N/A	2022/04/08	CAM SOP-00326	EPA1664B m,SM5520B m
Total Oil and Grease	1	2022/04/07	2022/04/07	CAM SOP-00326	EPA1664B m,SM5520B m
pH	1	2022/04/06	2022/04/06	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	1	N/A	2022/04/06	CAM SOP-00444	OMOE E3179 m
Mineral/Synthetic O & G (TPH Heavy Oil) (1)	1	2022/04/08	2022/04/08	CAM SOP-00326	EPA1664B m,SM5520F m
Low Level Total Suspended Solids	1	2022/04/07	2022/04/08	CAM SOP-00428	SM 23 2540D m

Remarks:

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

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

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

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

Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) Note: TPH (Heavy Oil) is equivalent to Mineral / Synthetic Oil & Grease

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Your Project #: 20448776
Site#: McCarthy
Your C.O.C. #: 864938-01-01

Attention: Dawn Hoyle/Jamie Bonany

Golder Associates Ltd
121 Commerce Park Drive
Unit L
Barrie, ON
CANADA L4N 8X1

Report Date: 2022/04/08
Report #: R7078409
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C288562
Received: 2022/04/05, 08:54

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Ankita Bhalla, Project Manager
Email: Ankita.Bhalla@bureauveritas.com
Phone# (905) 817-5700
==========
This report has been generated and distributed using a secure automated process.
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 Job #: C288562
Report Date: 2022/04/08

Golder Associates Ltd
Client Project #: 20448776
Sampler Initials: JM

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		SGU703		
Sampling Date		2022/04/04 09:00		
COC Number		864938-01-01		
	UNITS	**POND**	**RDL**	**QC Batch**
Calculated Parameters				
Total Animal/Vegetable Oil and Grease	mg/L	<0.50	0.50	7922875
Inorganics				
pH	pH	8.10	N/A	7923899
Phenols-4AAP	mg/L	<0.0010	0.0010	7924623
Total Suspended Solids	mg/L	2	1	7927529
Petroleum Hydrocarbons				
Total Oil & Grease	mg/L	<0.50	0.50	7928060
Total Oil & Grease Mineral/Synthetic	mg/L	<0.50	0.50	7929415

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

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GENERAL COMMENTS

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

Package 1	16.0°C

Results relate only to the items tested.

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Bureau Veritas Job #: C288562
Report Date: 2022/04/08

Golder Associates Ltd
Client Project #: 20448776
Sampler Initials: JM

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
7923899	SAU	Spiked Blank	pH	2022/04/06		101	%	98 - 103
7923899	SAU	RPD	pH	2022/04/06	0.39		%	N/A
7924623	LHA	Matrix Spike	Phenols-4AAP	2022/04/06		101	%	80 - 120
7924623	LHA	Spiked Blank	Phenols-4AAP	2022/04/06		102	%	80 - 120
7924623	LHA	Method Blank	Phenols-4AAP	2022/04/06	<0.0010		mg/L	
7924623	LHA	RPD	Phenols-4AAP	2022/04/06	0.67		%	20
7927529	SHD	QC Standard	Total Suspended Solids	2022/04/08		95	%	85 - 115
7927529	SHD	Method Blank	Total Suspended Solids	2022/04/08	<1		mg/L	
7927529	SHD	RPD	Total Suspended Solids	2022/04/08	17		%	25
7928060	HPL	Spiked Blank	Total Oil & Grease	2022/04/07		100	%	85 - 115
7928060	HPL	RPD	Total Oil & Grease	2022/04/07	0.25		%	25
7928060	HPL	Method Blank	Total Oil & Grease	2022/04/07	<0.50		mg/L	
7929415	MPZ	Spiked Blank	Total Oil & Grease Mineral/Synthetic	2022/04/08		98	%	85 - 115
7929415	MPZ	RPD	Total Oil & Grease Mineral/Synthetic	2022/04/08	2.1		%	25
7929415	MPZ	Method Blank	Total Oil & Grease Mineral/Synthetic	2022/04/08	<0.50		mg/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.

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Bureau Veritas Job #: C288562
Report Date: 2022/04/08

Golder Associates Ltd
Client Project #: 20448776
Sampler Initials: JM

VALIDATION SIGNATURE PAGE

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

Cristina Carriere

Cristina Carriere, Senior Scientific Specialist

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Your Project #: 20448776
Site#: McCarthy
Your C.O.C. #: 864938-04-01

Attention: Dawn Hoyle/Jamie Bonany

Golder Associates Ltd
121 Commerce Park Drive
Unit L
Barrie, ON
CANADA L4N 8X1

Report Date: 2022/04/18
Report #: R7090210
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C296331
Received: 2022/04/12, 08:54

Sample Matrix: Water
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Animal and Vegetable Oil and Grease	1	N/A	2022/04/18	CAM SOP-00326	EPA1664B m,SM5520B m
Total Oil and Grease	1	2022/04/17	2022/04/17	CAM SOP-00326	EPA1664B m,SM5520B m
pH	1	2022/04/12	2022/04/13	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	1	N/A	2022/04/13	CAM SOP-00444	OMOE E3179 m
Mineral/Synthetic O & G (TPH Heavy Oil) (1)	1	2022/04/17	2022/04/17	CAM SOP-00326	EPA1664B m,SM5520F m
Low Level Total Suspended Solids	1	2022/04/14	2022/04/18	CAM SOP-00428	SM 23 2540D m

Remarks:

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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) Note: TPH (Heavy Oil) is equivalent to Mineral / Synthetic Oil & Grease

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Your Project #: 20448776
Site#: McCarthy
Your C.O.C. #: 864938-04-01

Attention: Dawn Hoyle/Jamie Bonany

Golder Associates Ltd
121 Commerce Park Drive
Unit L
Barrie, ON
CANADA L4N 8X1

Report Date: 2022/04/18
Report #: R7090210
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C296331
Received: 2022/04/12, 08:54

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Ankita Bhalla, Project Manager
Email: Ankita.Bhalla@bureauveritas.com
Phone# (905) 817-5700
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Bureau Veritas Job #: C296331
Report Date: 2022/04/18

Golder Associates Ltd
Client Project #: 20448776
Sampler Initials: TM

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		SIM503		
Sampling Date		2022/04/11 14:00		
COC Number		864938-04-01		
	UNITS	**POND**	**RDL**	**QC Batch**
Calculated Parameters				
Total Animal/Vegetable Oil and Grease	mg/L	<0.50	0.50	7935271
Inorganics				
pH	pH	8.09	N/A	7937104
Phenols-4AAP	mg/L	<0.0010	0.0010	7938592
Total Suspended Solids	mg/L	2	1	7940914
Petroleum Hydrocarbons				
Total Oil & Grease	mg/L	<0.50	0.50	7943662
Total Oil & Grease Mineral/Synthetic	mg/L	<0.50	0.50	7943663

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

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Bureau Veritas Job #: C296331
Report Date: 2022/04/18

Golder Associates Ltd
Client Project #: 20448776
Sampler Initials: TM

GENERAL COMMENTS

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

Package 1	15.3°C

Results relate only to the items tested.

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Bureau Veritas Job #: C296331
Report Date: 2022/04/18

Golder Associates Ltd
Client Project #: 20448776
Sampler Initials: TM

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
7937104	SAU	Spiked Blank	pH	2022/04/13		102	%	98 - 103
7937104	SAU	RPD	pH	2022/04/13	0.97		%	N/A
7938592	SSV	Matrix Spike	Phenols-4AAP	2022/04/13		102	%	80 - 120
7938592	SSV	Spiked Blank	Phenols-4AAP	2022/04/13		103	%	80 - 120
7938592	SSV	Method Blank	Phenols-4AAP	2022/04/13	<0.0010		mg/L	
7938592	SSV	RPD	Phenols-4AAP	2022/04/13	NC		%	20
7940914	SHD	QC Standard	Total Suspended Solids	2022/04/18		100	%	85 - 115
7940914	SHD	Method Blank	Total Suspended Solids	2022/04/18	<1		mg/L	
7940914	SHD	RPD	Total Suspended Solids	2022/04/18	7.4		%	25
7943662	HPL	Spiked Blank	Total Oil & Grease	2022/04/17		99	%	85 - 115
7943662	HPL	RPD	Total Oil & Grease	2022/04/17	0.25		%	25
7943662	HPL	Method Blank	Total Oil & Grease	2022/04/17	<0.50		mg/L	
7943663	HPL	Spiked Blank	Total Oil & Grease Mineral/Synthetic	2022/04/17		99	%	85 - 115
7943663	HPL	RPD	Total Oil & Grease Mineral/Synthetic	2022/04/17	0.51		%	25
7943663	HPL	Method Blank	Total Oil & Grease Mineral/Synthetic	2022/04/17	<0.50		mg/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.

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

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Bureau Veritas Job #: C296331
Report Date: 2022/04/18

Golder Associates Ltd
Client Project #: 20448776
Sampler Initials: TM

VALIDATION SIGNATURE PAGE

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

Cristina Carriere, Senior Scientific Specialist

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Your Project #: 20448776
Site#: McCarthy
Your C.O.C. #: 864938-03-01

Attention: Dawn Hoyle/Jamie Bonany

Golder Associates Ltd
121 Commerce Park Drive
Unit L
Barrie, ON
CANADA L4N 8X1

Report Date: 2022/04/26
Report #: R7099806
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C2A2064
Received: 2022/04/19, 08:50

Sample Matrix: Water
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Animal and Vegetable Oil and Grease	1	N/A	2022/04/25	CAM SOP-00326	EPA1664B m,SM5520B m
Total Oil and Grease	1	2022/04/25	2022/04/25	CAM SOP-00326	EPA1664B m,SM5520B m
pH	1	2022/04/20	2022/04/21	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	1	N/A	2022/04/21	CAM SOP-00444	OMOE E3179 m
Mineral/Synthetic O & G (TPH Heavy Oil) (1)	1	2022/04/25	2022/04/25	CAM SOP-00326	EPA1664B m,SM5520F m
Low Level Total Suspended Solids	1	2022/04/21	2022/04/22	CAM SOP-00428	SM 23 2540D m

Remarks:

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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) Note: TPH (Heavy Oil) is equivalent to Mineral / Synthetic Oil & Grease

Your Project #: 20448776
Site#: McCarthy
Your C.O.C. #: 864938-03-01

Attention: Dawn Hoyle/Jamie Bonany

Golder Associates Ltd
121 Commerce Park Drive
Unit L
Barrie, ON
CANADA L4N 8X1

Report Date: 2022/04/26
Report #: R7099806
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C2A2064
Received: 2022/04/19, 08:50

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Ankita Bhalla, Project Manager
Email: Ankita.Bhalla@bureauveritas.com
Phone# (905) 817-5700
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Bureau Veritas Job #: C2A2064
Report Date: 2022/04/26

Golder Associates Ltd
Client Project #: 20448776
Sampler Initials: MT

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		SJT409		
Sampling Date		2022/04/18 01:30		
COC Number		864938-03-01		
	UNITS	**POND**	**RDL**	**QC Batch**
Calculated Parameters				
Total Animal/Vegetable Oil and Grease	mg/L	<0.50	0.50	7946292
Inorganics				
pH	pH	8.25	N/A	7949906
Phenols-4AAP	mg/L	<0.0010	0.0010	7951664
Total Suspended Solids	mg/L	2	1	7949269
Petroleum Hydrocarbons				
Total Oil & Grease	mg/L	0.90	0.50	7956925
Total Oil & Grease Mineral/Synthetic	mg/L	0.80	0.50	7956927

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

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GENERAL COMMENTS

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

Package 1	12.7°C

Results relate only to the items tested.

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Bureau Veritas Job #: C2A2064
Report Date: 2022/04/26

Golder Associates Ltd
Client Project #: 20448776
Sampler Initials: MT

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
7949269	SHD	QC Standard	Total Suspended Solids	2022/04/22		97	%	85 - 115
7949269	SHD	Method Blank	Total Suspended Solids	2022/04/22	<1		mg/L	
7949269	SHD	RPD	Total Suspended Solids	2022/04/22	4.4		%	25
7949906	TAK	Spiked Blank	pH	2022/04/21		102	%	98 - 103
7949906	TAK	RPD	pH	2022/04/21	0.031		%	N/A
7951664	LHA	Matrix Spike	Phenols-4AAP	2022/04/21		109	%	80 - 120
7951664	LHA	Spiked Blank	Phenols-4AAP	2022/04/21		106	%	80 - 120
7951664	LHA	Method Blank	Phenols-4AAP	2022/04/21	<0.0010		mg/L	
7951664	LHA	RPD	Phenols-4AAP	2022/04/21	1.6		%	20
7956925	MPZ	Spiked Blank	Total Oil & Grease	2022/04/25		98	%	85 - 115
7956925	MPZ	RPD	Total Oil & Grease	2022/04/25	1.3		%	25
7956925	MPZ	Method Blank	Total Oil & Grease	2022/04/25	<0.50		mg/L	
7956927	MPZ	Spiked Blank	Total Oil & Grease Mineral/Synthetic	2022/04/25		95	%	85 - 115
7956927	MPZ	RPD	Total Oil & Grease Mineral/Synthetic	2022/04/25	2.1		%	25
7956927	MPZ	Method Blank	Total Oil & Grease Mineral/Synthetic	2022/04/25	<0.50		mg/L	

N/A = Not Applicable

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

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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.

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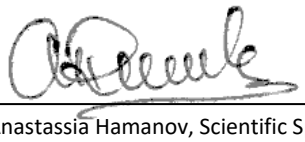
VALIDATION SIGNATURE PAGE

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



Anastassia Hamanov, Scientific Specialist

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Your Project #: 20448776
Site#: McCarthy
Your C.O.C. #: 859351-01-01

Attention: Dawn Hoyle/Jamie Bonany

Golder Associates Ltd
121 Commerce Park Drive
Unit L
Barrie, ON
CANADA L4N 8X1

Report Date: 2022/05/05
Report #: R7112263
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C2B0038
Received: 2022/04/26, 08:49

Sample Matrix: Water
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Animal and Vegetable Oil and Grease	1	N/A	2022/05/05	CAM SOP-00326	EPA1664B m,SM5520B m
Total Oil and Grease	1	2022/05/04	2022/05/05	CAM SOP-00326	EPA1664B m,SM5520B m
pH	1	2022/04/26	2022/04/27	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	1	N/A	2022/04/28	CAM SOP-00444	OMOE E3179 m
Mineral/Synthetic O & G (TPH Heavy Oil) (1)	1	2022/05/04	2022/05/05	CAM SOP-00326	EPA1664B m,SM5520F m
Low Level Total Suspended Solids	1	2022/04/28	2022/04/29	CAM SOP-00428	SM 23 2540D m

Remarks:

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* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) Note: TPH (Heavy Oil) is equivalent to Mineral / Synthetic Oil & Grease

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Your Project #: 20448776
Site#: McCarthy
Your C.O.C. #: 859351-01-01

Attention: Dawn Hoyle/Jamie Bonany

Golder Associates Ltd
121 Commerce Park Drive
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Barrie, ON
CANADA L4N 8X1

Report Date: 2022/05/05
Report #: R7112263
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C2B0038
Received: 2022/04/26, 08:49

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Ankita Bhalla, Project Manager
Email: Ankita.Bhalla@bureauveritas.com
Phone# (905) 817-5700
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Bureau Veritas Job #: C2B0038
Report Date: 2022/05/05

Golder Associates Ltd
Client Project #: 20448776
Sampler Initials: TM

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		SLK143		
Sampling Date		2022/04/25 01:45		
COC Number		859351-01-01		
	UNITS	**POND**	**RDL**	**QC Batch**
Calculated Parameters				
Total Animal/Vegetable Oil and Grease	mg/L	<0.50	0.50	7959376
Inorganics				
pH	pH	8.23	N/A	7960454
Phenols-4AAP	mg/L	<0.0010	0.0010	7964458
Total Suspended Solids	mg/L	2	1	7965077
Petroleum Hydrocarbons				
Total Oil & Grease	mg/L	0.90	0.50	7975346
Total Oil & Grease Mineral/Synthetic	mg/L	0.70	0.50	7975393

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

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GENERAL COMMENTS

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

Package 1	15.7°C

Results relate only to the items tested.

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Bureau Veritas Job #: C2B0038
Report Date: 2022/05/05

Golder Associates Ltd
Client Project #: 20448776
Sampler Initials: TM

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
7960454	TAK	Spiked Blank	pH	2022/04/27		101	%	98 - 103
7960454	TAK	RPD	pH	2022/04/27	0.21		%	N/A
7964458	LHA	Matrix Spike	Phenols-4AAP	2022/04/28		103	%	80 - 120
7964458	LHA	Spiked Blank	Phenols-4AAP	2022/04/28		101	%	80 - 120
7964458	LHA	Method Blank	Phenols-4AAP	2022/04/28	<0.0010		mg/L	
7964458	LHA	RPD	Phenols-4AAP	2022/04/28	NC		%	20
7965077	SHD	QC Standard	Total Suspended Solids	2022/04/29		95	%	85 - 115
7965077	SHD	Method Blank	Total Suspended Solids	2022/04/29	<1		mg/L	
7965077	SHD	RPD	Total Suspended Solids	2022/04/29	6.9		%	25
7975346	NP6	Spiked Blank	Total Oil & Grease	2022/05/05		98	%	85 - 115
7975346	NP6	RPD	Total Oil & Grease	2022/05/05	1.0		%	25
7975346	NP6	Method Blank	Total Oil & Grease	2022/05/05	<0.50		mg/L	
7975393	NP6	Spiked Blank	Total Oil & Grease Mineral/Synthetic	2022/05/05		98	%	85 - 115
7975393	NP6	RPD	Total Oil & Grease Mineral/Synthetic	2022/05/05	2.6		%	25
7975393	NP6	Method Blank	Total Oil & Grease Mineral/Synthetic	2022/05/05	<0.50		mg/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.

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

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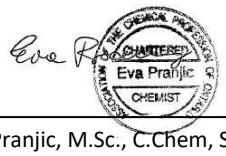
Bureau Veritas Job #: C2B0038
Report Date: 2022/05/05

Golder Associates Ltd
Client Project #: 20448776
Sampler Initials: TM

VALIDATION SIGNATURE PAGE

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



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

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Your Project #: 20448776
Site#: McCarthy
Your C.O.C. #: 859351-02-01

Attention: Dawn Hoyle/Jamie Bonany

Golder Associates Ltd
121 Commerce Park Drive
Unit L
Barrie, ON
CANADA L4N 8X1

Report Date: 2022/05/09
Report #: R7116935
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C2B8014
Received: 2022/05/03, 08:54

Sample Matrix: Water
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Animal and Vegetable Oil and Grease	1	N/A	2022/05/07	CAM SOP-00326	EPA1664B m,SM5520B m
Total Oil and Grease	1	2022/05/07	2022/05/07	CAM SOP-00326	EPA1664B m,SM5520B m
pH	1	2022/05/04	2022/05/04	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	1	N/A	2022/05/06	CAM SOP-00444	OMOE E3179 m
Mineral/Synthetic O & G (TPH Heavy Oil) (1)	1	2022/05/07	2022/05/07	CAM SOP-00326	EPA1664B m,SM5520F m
Low Level Total Suspended Solids	1	2022/05/05	2022/05/06	CAM SOP-00428	SM 23 2540D m

Remarks:

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

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

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

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

Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) Note: TPH (Heavy Oil) is equivalent to Mineral / Synthetic Oil & Grease

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Your Project #: 20448776
Site#: McCarthy
Your C.O.C. #: 859351-02-01

Attention: Dawn Hoyle/Jamie Bonany

Golder Associates Ltd
121 Commerce Park Drive
Unit L
Barrie, ON
CANADA L4N 8X1

Report Date: 2022/05/09
Report #: R7116935
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C2B8014
Received: 2022/05/03, 08:54

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Ankita Bhalla, Project Manager
Email: Ankita.Bhalla@bureauveritas.com
Phone# (905) 817-5700
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Bureau Veritas Job #: C2B8014
Report Date: 2022/05/09

Golder Associates Ltd
Client Project #: 20448776
Sampler Initials: IM

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		SNC777		
Sampling Date		2022/05/02 01:30		
COC Number		859351-02-01		
	UNITS	**POND**	**RDL**	**QC Batch**
Calculated Parameters				
Total Animal/Vegetable Oil and Grease	mg/L	<0.50	0.50	7972535
Inorganics				
pH	pH	8.22	N/A	7975934
Phenols-4AAP	mg/L	<0.0010	0.0010	7977698
Total Suspended Solids	mg/L	3	1	7977320
Petroleum Hydrocarbons				
Total Oil & Grease	mg/L	<0.50	0.50	7982297
Total Oil & Grease Mineral/Synthetic	mg/L	<0.50	0.50	7982306

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

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GENERAL COMMENTS

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

Package 1	15.7°C

Results relate only to the items tested.

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Bureau Veritas Job #: C2B8014
Report Date: 2022/05/09

Golder Associates Ltd
Client Project #: 20448776
Sampler Initials: IM

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
7975934	TAK	Spiked Blank	pH	2022/05/04		101	%	98 - 103
7975934	TAK	RPD	pH	2022/05/04	0.27		%	N/A
7977320	SHD	QC Standard	Total Suspended Solids	2022/05/06		95	%	85 - 115
7977320	SHD	Method Blank	Total Suspended Solids	2022/05/06	<1		mg/L	
7977320	SHD	RPD	Total Suspended Solids	2022/05/06	11		%	25
7977698	LHA	Matrix Spike	Phenols-4AAP	2022/05/06		103	%	80 - 120
7977698	LHA	Spiked Blank	Phenols-4AAP	2022/05/06		102	%	80 - 120
7977698	LHA	Method Blank	Phenols-4AAP	2022/05/06	<0.0010		mg/L	
7977698	LHA	RPD	Phenols-4AAP	2022/05/06	NC		%	20
7982297	RK9	Spiked Blank	Total Oil & Grease	2022/05/07		100	%	85 - 115
7982297	RK9	RPD	Total Oil & Grease	2022/05/07	0.25		%	25
7982297	RK9	Method Blank	Total Oil & Grease	2022/05/07	<0.50		mg/L	
7982306	RK9	Spiked Blank	Total Oil & Grease Mineral/Synthetic	2022/05/07		99	%	85 - 115
7982306	RK9	RPD	Total Oil & Grease Mineral/Synthetic	2022/05/07	0.51		%	25
7982306	RK9	Method Blank	Total Oil & Grease Mineral/Synthetic	2022/05/07	<0.50		mg/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.

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

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Bureau Veritas Job #: C2B8014
Report Date: 2022/05/09

Golder Associates Ltd
Client Project #: 20448776
Sampler Initials: IM

VALIDATION SIGNATURE PAGE

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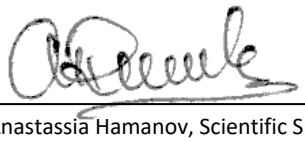

Anastassia Hamanov, Scientific Specialist

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Your Project #: 20448776
Site#: McCarthy
Your C.O.C. #: 859351-04-01

Attention: Jamie Bonany/Colin Imrie

Golder Associates Ltd
121 Commerce Park Drive
Unit L
Barrie, ON
CANADA L4N 8X1

Report Date: 2022/05/16
Report #: R7127695
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C2C4931
Received: 2022/05/10, 09:03

Sample Matrix: Water
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Animal and Vegetable Oil and Grease	1	N/A	2022/05/16	CAM SOP-00326	EPA1664B m,SM5520B m
Total Oil and Grease	1	2022/05/16	2022/05/16	CAM SOP-00326	EPA1664B m,SM5520B m
pH	1	2022/05/11	2022/05/12	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	1	N/A	2022/05/12	CAM SOP-00444	OMOE E3179 m
Mineral/Synthetic O & G (TPH Heavy Oil) (1)	1	2022/05/16	2022/05/16	CAM SOP-00326	EPA1664B m,SM5520F m
Low Level Total Suspended Solids	1	2022/05/12	2022/05/16	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.

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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) Note: TPH (Heavy Oil) is equivalent to Mineral / Synthetic Oil & Grease

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Your Project #: 20448776
Site#: McCarthy
Your C.O.C. #: 859351-04-01

Attention: Jamie Bonany/Colin Imrie

Golder Associates Ltd
121 Commerce Park Drive
Unit L
Barrie, ON
CANADA L4N 8X1

Report Date: 2022/05/16
Report #: R7127695
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C2C4931
Received: 2022/05/10, 09:03

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Ankita Bhalla, Project Manager
Email: Ankita.Bhalla@bureauveritas.com
Phone# (905) 817-5700
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Bureau Veritas Job #: C2C4931
Report Date: 2022/05/16

Golder Associates Ltd
Client Project #: 20448776
Sampler Initials: IM

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		SOQ098		
Sampling Date		2022/05/09 15:30		
COC Number		859351-04-01		
	UNITS	POND	RDL	QC Batch
Calculated Parameters				
Total Animal/Vegetable Oil and Grease	mg/L	<0.50	0.50	7986012
Inorganics				
pH	pH	8.43	N/A	7990276
Phenols-4AAP	mg/L	<0.0010	0.0010	7989617
Total Suspended Solids	mg/L	2	1	7991928
Petroleum Hydrocarbons				
Total Oil & Grease	mg/L	<0.50	0.50	7997414
Total Oil & Grease Mineral/Synthetic	mg/L	<0.50	0.50	7997416

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

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

GENERAL COMMENTS

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

Package 1	17.3°C

Results relate only to the items tested.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Bureau Veritas Job #: C2C4931
Report Date: 2022/05/16

Golder Associates Ltd
Client Project #: 20448776
Sampler Initials: IM

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
7989617	LHA	Matrix Spike	Phenols-4AAP	2022/05/12		109	%	80 - 120
7989617	LHA	Spiked Blank	Phenols-4AAP	2022/05/11		96	%	80 - 120
7989617	LHA	Method Blank	Phenols-4AAP	2022/05/11	<0.0010		mg/L	
7989617	LHA	RPD	Phenols-4AAP	2022/05/12	12		%	20
7990276	TAK	Spiked Blank	pH	2022/05/12		102	%	98 - 103
7990276	TAK	RPD	pH	2022/05/12	0.35		%	N/A
7991928	SHD	QC Standard	Total Suspended Solids	2022/05/16		96	%	85 - 115
7991928	SHD	Method Blank	Total Suspended Solids	2022/05/16	<1		mg/L	
7991928	SHD	RPD	Total Suspended Solids	2022/05/16	0		%	25
7997414	MJ2	Spiked Blank	Total Oil & Grease	2022/05/16		98	%	85 - 115
7997414	MJ2	RPD	Total Oil & Grease	2022/05/16	0.77		%	25
7997414	MJ2	Method Blank	Total Oil & Grease	2022/05/16	<0.50		mg/L	
7997416	MJ2	Spiked Blank	Total Oil & Grease Mineral/Synthetic	2022/05/16		95	%	85 - 115
7997416	MJ2	RPD	Total Oil & Grease Mineral/Synthetic	2022/05/16	0.53		%	25
7997416	MJ2	Method Blank	Total Oil & Grease Mineral/Synthetic	2022/05/16	<0.50		mg/L	

N/A = Not Applicable

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

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

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Bureau Veritas Job #: C2C4931
Report Date: 2022/05/16

Golder Associates Ltd
Client Project #: 20448776
Sampler Initials: IM

VALIDATION SIGNATURE PAGE

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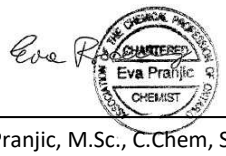

Ewa Pranjic, M.Sc., C.Chem, Scientific Specialist

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Your Project #: 21508089
Site Location: MCCARTHY
Your C.O.C. #: 877895-01-01

Attention: Jamie Bonany

Golder Associates Ltd
121 Commerce Park Drive
Unit L
Barrie, ON
CANADA L4N 8X1

Report Date: 2022/05/24
Report #: R7137282
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C2D3220
Received: 2022/05/17, 12:46

Sample Matrix: Water
Samples Received: 4

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Alkalinity	4	N/A	2022/05/19	CAM SOP-00448	SM 23 2320 B m
Carbonate, Bicarbonate and Hydroxide	4	N/A	2022/05/20	CAM SOP-00102	APHA 4500-CO2 D
Chloride by Automated Colourimetry	4	N/A	2022/05/19	CAM SOP-00463	SM 23 4500-Cl E m
Conductivity	4	N/A	2022/05/19	CAM SOP-00414	SM 23 2510 m
Dissolved Organic Carbon (DOC) (1)	4	N/A	2022/05/19	CAM SOP-00446	SM 23 5310 B m
Fluoride	4	2022/05/18	2022/05/19	CAM SOP-00449	SM 23 4500-F C m
Hardness (calculated as CaCO3)	4	N/A	2022/05/20	CAM SOP 00102/00408/00447	SM 2340 B
Lab Filtered Metals Analysis by ICP	4	2022/05/18	2022/05/20	CAM SOP-00408	EPA 6010D m
Total Metals Analysis by ICPMS	4	N/A	2022/05/20	CAM SOP-00447	EPA 6020B m
Anion and Cation Sum	4	N/A	2022/05/20		
Total Ammonia-N	4	N/A	2022/05/19	CAM SOP-00441	USGS I-2522-90 m
Nitrate & Nitrite as Nitrogen in Water (2)	4	N/A	2022/05/19	CAM SOP-00440	SM 23 4500-NO3I/NO2B
Animal and Vegetable Oil and Grease	3	N/A	2022/05/21	CAM SOP-00326	EPA1664B m,SM5520B m
Total Oil and Grease	3	2022/05/21	2022/05/21	CAM SOP-00326	EPA1664B m,SM5520B m
pH	4	2022/05/18	2022/05/19	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	4	N/A	2022/05/19	CAM SOP-00444	OMOE E3179 m
Orthophosphate	4	N/A	2022/05/19	CAM SOP-00461	EPA 365.1 m
Sat. pH and Langelier Index (@ 20C)	4	N/A	2022/05/20		Auto Calc
Sat. pH and Langelier Index (@ 4C)	4	N/A	2022/05/20		Auto Calc
Sulphate by Automated Colourimetry	4	N/A	2022/05/19	CAM SOP-00464	EPA 375.4 m
Total Dissolved Solids	4	2022/05/19	2022/05/20	CAM SOP-00428	SM 23 2540C m
Total Kjeldahl Nitrogen in Water	4	2022/05/18	2022/05/19	CAM SOP-00938	OMOE E3516 m
Total Phosphorus (Colourimetric)	3	2022/05/18	2022/05/19	CAM SOP-00407	SM 23 4500 P B H m
Total Phosphorus (Colourimetric)	1	2022/05/19	2022/05/19	CAM SOP-00407	SM 23 4500 P B H m
Mineral/Synthetic O & G (TPH Heavy Oil) (3)	3	2022/05/21	2022/05/21	CAM SOP-00326	EPA1664B m,SM5520F m
Total Suspended Solids	4	2022/05/18	2022/05/20	CAM SOP-00428	SM 23 2540D m
Turbidity	4	N/A	2022/05/18	CAM SOP-00417	SM 23 2130 B m

Remarks:

Your Project #: 21508089
Site Location: MCCARTHY
Your C.O.C. #: 877895-01-01

Attention: Jamie Bonany

Golder Associates Ltd
121 Commerce Park Drive
Unit L
Barrie, ON
CANADA L4N 8X1

Report Date: 2022/05/24
Report #: R7137282
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C2D3220

Received: 2022/05/17, 12:46

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

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

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

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

Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) Dissolved Organic Carbon (DOC) present in the sample should be considered as non-purgeable DOC.
(2) Values for calculated parameters may not appear to add up due to rounding of raw data and significant figures.
(3) Note: TPH (Heavy Oil) is equivalent to Mineral / Synthetic Oil & Grease

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Ankita Bhalla, Project Manager
Email: Ankita.Bhalla@bureauveritas.com
Phone# (905) 817-5700

==========

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For Service Group specific validation please refer to the Validation Signature Page.

Bureau Veritas Job #: C2D3220
Report Date: 2022/05/24

Golder Associates Ltd
Client Project #: 21508089
Site Location: MCCARTHY
Sampler Initials: CI

OIL & GREASE - A/V/M/T (WATER)

Bureau Veritas ID			SQK728	SQK729	SQK730		
Sampling Date			2022/05/13 04:00	2022/05/13 11:15	2022/05/13		
COC Number			877895-01-01	877895-01-01	877895-01-01		
	UNITS	Criteria	SW1	SW2	DUP3	RDL	QC Batch
Calculated Parameters							
Total Animal/Vegetable Oil and Grease	mg/L	-	<0.50	<0.50	<0.50	0.50	7999597
Petroleum Hydrocarbons							
Total Oil & Grease	mg/L	-	<0.50	<0.50	<0.50	0.50	8009165
Total Oil & Grease Mineral/Synthetic	mg/L	0.5	<0.50	<0.50	<0.50	0.50	8009166

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: Ontario Provincial Water Quality Objectives
Ref. to MOEE Water Management document dated Feb.1999

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Bureau Veritas Job #: C2D3220
Report Date: 2022/05/24

Golder Associates Ltd
Client Project #: 21508089
Site Location: MCCARTHY
Sampler Initials: CI

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID			SQK727			SQK727		
Sampling Date			2022/05/13 04:15			2022/05/13 04:15		
COC Number			877895-01-01			877895-01-01		
	UNITS	Criteria	POND	RDL	QC Batch	POND Lab-Dup	RDL	QC Batch
Calculated Parameters								
Anion Sum	me/L	-	13.0	N/A	7999556			
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	-	58	1.0	7999549			
Carb. Alkalinity (calc. as CaCO3)	mg/L	-	1.3	1.0	7999549			
Cation Sum	me/L	-	13.6	N/A	7999556			
Hardness (CaCO3)	mg/L	-	360	1.0	7999552			
Langelier Index (@ 20C)	N/A	-	0.520		7999557			
Langelier Index (@ 4C)	N/A	-	0.272		7999558			
Saturation pH (@ 20C)	N/A	-	7.85		7999557			
Saturation pH (@ 4C)	N/A	-	8.10		7999558			
Inorganics								
Total Ammonia-N	mg/L	-	<0.050	0.050	8002264			
Conductivity	umho/cm	-	1400	1.0	8003291			
Total Dissolved Solids	mg/L	-	735	10	8005060			
Fluoride (F-)	mg/L	-	0.55	0.10	8003277			
Total Kjeldahl Nitrogen (TKN)	mg/L	-	0.42	0.10	8002031			
Dissolved Organic Carbon	mg/L	-	4.8	0.40	8002246			
Orthophosphate (P)	mg/L	-	<0.010	0.010	8001857			
pH	pH	6.5:8.5	8.37		8003290			
Phenols-4AAP	mg/L	0.001	<0.0010	0.0010	8002870			
Total Phosphorus	mg/L	0.01	0.008	0.004	8002313			
Total Suspended Solids	mg/L	-	<10	10	8002117			
Dissolved Sulphate (SO4)	mg/L	-	300	1.0	8001855			
Turbidity	NTU	-	2.6	0.1	8001988	2.5	0.1	8001988
Alkalinity (Total as CaCO3)	mg/L	-	59	1.0	8003288			
Dissolved Chloride (Cl-)	mg/L	-	190	2.0	8001851			
Nitrite (N)	mg/L	-	0.063	0.010	8001828			
Nitrate (N)	mg/L	-	0.86	0.10	8001828			

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
Criteria: Ontario Provincial Water Quality Objectives
Ref. to MOEE Water Management document dated Feb.1999
N/A = Not Applicable

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Bureau Veritas Job #: C2D3220
Report Date: 2022/05/24

Golder Associates Ltd
Client Project #: 21508089
Site Location: MCCARTHY
Sampler Initials: CI

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID			SQK728			SQK729		SQK730		
Sampling Date			2022/05/13 04:00			2022/05/13 11:15		2022/05/13		
COC Number			877895-01-01			877895-01-01		877895-01-01		
	UNITS	Criteria	SW1	RDL	QC Batch	SW2	QC Batch	DUP3	RDL	QC Batch
Calculated Parameters										
Anion Sum	me/L	-	13.5	N/A	7999556	8.75	7999556	8.68	N/A	7999556
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	-	140	1.0	7999549	310	7999549	310	1.0	7999549
Carb. Alkalinity (calc. as CaCO3)	mg/L	-	1.7	1.0	7999549	2.2	7999549	2.1	1.0	7999549
Cation Sum	me/L	-	14.1	N/A	7999556	9.15	7999556	9.16	N/A	7999556
Hardness (CaCO3)	mg/L	-	410	1.0	7999552	430	7999552	430	1.0	7999552
Langelier Index (@ 20C)	N/A	-	0.759		7999557	1.07	7999557	1.04		7999557
Langelier Index (@ 4C)	N/A	-	0.513		7999558	0.826	7999558	0.794		7999558
Saturation pH (@ 20C)	N/A	-	7.37		7999557	6.81	7999557	6.82		7999557
Saturation pH (@ 4C)	N/A	-	7.61		7999558	7.06	7999558	7.07		7999558
Inorganics										
Total Ammonia-N	mg/L	-	0.10	0.050	8003284	<0.050	8003284	<0.050	0.050	8003284
Conductivity	umho/cm	-	1400	1.0	8003291	800	8003291	790	1.0	8003291
Total Dissolved Solids	mg/L	-	745	10	8005060	405	8005060	420	10	8005060
Fluoride (F-)	mg/L	-	0.53	0.10	8003277	<0.10	8003277	<0.10	0.10	8003277
Total Kjeldahl Nitrogen (TKN)	mg/L	-	0.56	0.10	8002031	0.66	8002031	0.67	0.10	8002031
Dissolved Organic Carbon	mg/L	-	5.4	0.40	8002246	8.3	8002246	8.6	0.40	8002246
Orthophosphate (P)	mg/L	-	<0.010	0.010	8002357	<0.010	8001857	<0.010	0.010	8002357
pH	pH	6.5:8.5	8.13		8003290	7.88	8003290	7.86		8003290
Phenols-4AAP	mg/L	0.001	<0.0010	0.0010	8002870	<0.0010	8002870	<0.0010	0.0010	8002870
Total Phosphorus	mg/L	0.01	**0.015**	0.004	8004565	**0.017**	8002313	**0.017**	0.004	8002313
Total Suspended Solids	mg/L	-	10	10	8002117	<10	8002117	<10	10	8002117
Dissolved Sulphate (SO4)	mg/L	-	270	1.0	8002354	100	8001855	97	1.0	8002354
Turbidity	NTU	-	4.1	0.1	8001988	2.2	8001988	1.1	0.1	8001988
Alkalinity (Total as CaCO3)	mg/L	-	140	1.0	8003288	310	8003288	310	1.0	8003288
Dissolved Chloride (Cl-)	mg/L	-	180	2.0	8002349	16	8001851	16	1.0	8002349
Nitrite (N)	mg/L	-	0.080	0.010	8001828	<0.010	8001828	<0.010	0.010	8001828
Nitrate (N)	mg/L	-	1.09	0.10	8001828	<0.10	8001828	<0.10	0.10	8001828

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: Ontario Provincial Water Quality Objectives
Ref. to MOEE Water Management document dated Feb.1999
N/A = Not Applicable

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Bureau Veritas Job #: C2D3220
Report Date: 2022/05/24

Golder Associates Ltd
Client Project #: 21508089
Site Location: MCCARTHY
Sampler Initials: CI

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID			SQK730		
Sampling Date			2022/05/13		
COC Number			877895-01-01		
	UNITS	Criteria	DUP3 Lab-Dup	RDL	QC Batch
Inorganics					
Orthophosphate (P)	mg/L	-	<0.010	0.010	8002357
Dissolved Sulphate (SO4)	mg/L	-	95	1.0	8002354
Dissolved Chloride (Cl-)	mg/L	-	16	1.0	8002349

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
Criteria: Ontario Provincial Water Quality Objectives
Ref. to MOEE Water Management document dated Feb.1999

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Bureau Veritas Job #: C2D3220
Report Date: 2022/05/24

Golder Associates Ltd
Client Project #: 21508089
Site Location: MCCARTHY
Sampler Initials: CI

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID			SQK727	SQK728	SQK729	SQK730		
Sampling Date			2022/05/13 04:15	2022/05/13 04:00	2022/05/13 11:15	2022/05/13		
COC Number			877895-01-01	877895-01-01	877895-01-01	877895-01-01		
	UNITS	Criteria	POND	SW1	SW2	DUP3	RDL	QC Batch
Metals								
Dissolved Calcium (Ca)	mg/L	-	76	100	140	140	0.05	8002496
Dissolved Magnesium (Mg)	mg/L	-	42	39	19	20	0.05	8002496
Dissolved Potassium (K)	mg/L	-	13	12	1	1	1	8002496
Dissolved Sodium (Na)	mg/L	-	140	130	13	14	0.5	8002496
Total Arsenic (As)	ug/L	100	<1.0	<1.0	<1.0	<1.0	1.0	8005543
Total Cadmium (Cd)	ug/L	0.2	<0.090	<0.090	<0.090	<0.090	0.090	8005543
Total Calcium (Ca)	ug/L	-	79000	100000	130000	130000	200	8005543
Total Chromium (Cr)	ug/L	-	<5.0	<5.0	<5.0	<5.0	5.0	8005543
Total Copper (Cu)	ug/L	5	<0.90	<0.90	<0.90	<0.90	0.90	8005543
Total Iron (Fe)	ug/L	300	130	230	<100	110	100	8005543
Total Lead (Pb)	ug/L	5	<0.50	<0.50	2.2	<0.50	0.50	8005543
Total Magnesium (Mg)	ug/L	-	44000	42000	21000	22000	50	8005543
Total Manganese (Mn)	ug/L	-	13	37	8.7	9.0	2.0	8005543
Total Nickel (Ni)	ug/L	25	<1.0	1.8	<1.0	<1.0	1.0	8005543
Total Potassium (K)	ug/L	-	12000	11000	880	900	200	8005543
Total Sodium (Na)	ug/L	-	140000	130000	14000	14000	100	8005543
Total Zinc (Zn)	ug/L	30	<5.0	<5.0	<5.0	<5.0	5.0	8005543

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: Ontario Provincial Water Quality Objectives
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Bureau Veritas Job #: C2D3220
Report Date: 2022/05/24

Golder Associates Ltd
Client Project #: 21508089
Site Location: MCCARTHY
Sampler Initials: CI

TEST SUMMARY

Bureau Veritas ID: SQK727
Sample ID: POND
Matrix: Water

Collected: 2022/05/13
Shipped:
Received: 2022/05/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	8003288	N/A	2022/05/19	Yogesh Patel
Carbonate, Bicarbonate and Hydroxide	CALC	7999549	N/A	2022/05/20	Automated Statchk
Chloride by Automated Colourimetry	KONE	8001851	N/A	2022/05/19	Alina Dobreanu
Conductivity	AT	8003291	N/A	2022/05/19	Yogesh Patel
Dissolved Organic Carbon (DOC)	TOCV/NDIR	8002246	N/A	2022/05/19	Anna-Kay Gooden
Fluoride	ISE	8003277	2022/05/18	2022/05/19	Yogesh Patel
Hardness (calculated as CaCO3)		7999552	N/A	2022/05/20	Automated Statchk
Lab Filtered Metals Analysis by ICP	ICP	8002496	2022/05/18	2022/05/20	Indira HarryPaul
Total Metals Analysis by ICPMS	ICP/MS	8005543	N/A	2022/05/20	Prempal Bhatti
Anion and Cation Sum	CALC	7999556	N/A	2022/05/20	Automated Statchk
Total Ammonia-N	LACH/NH4	8002264	N/A	2022/05/19	Raiq Kashif
Nitrate & Nitrite as Nitrogen in Water	LACH	8001828	N/A	2022/05/19	Samuel Law
pH	AT	8003290	2022/05/18	2022/05/19	Yogesh Patel
Phenols (4AAP)	TECH/PHEN	8002870	N/A	2022/05/19	Louise Harding
Orthophosphate	KONE	8001857	N/A	2022/05/19	Chandra Nandlal
Sat. pH and Langelier Index (@ 20C)	CALC	7999557	N/A	2022/05/20	Automated Statchk
Sat. pH and Langelier Index (@ 4C)	CALC	7999558	N/A	2022/05/20	Automated Statchk
Sulphate by Automated Colourimetry	KONE	8001855	N/A	2022/05/19	Chandra Nandlal
Total Dissolved Solids	BAL	8005060	2022/05/19	2022/05/20	Kristen Chan
Total Kjeldahl Nitrogen in Water	SKAL	8002031	2022/05/18	2022/05/19	Massarat Jan
Total Phosphorus (Colourimetric)	LACH/P	8002313	2022/05/18	2022/05/19	Shivani Shivani
Total Suspended Solids	BAL	8002117	2022/05/18	2022/05/20	Shaneil Hall
Turbidity	AT	8001988	N/A	2022/05/18	Roya Fathitil

Bureau Veritas ID: SQK727 Dup
Sample ID: POND
Matrix: Water

Collected: 2022/05/13
Shipped:
Received: 2022/05/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Turbidity	AT	8001988	N/A	2022/05/18	Roya Fathitil

Bureau Veritas ID: SQK728
Sample ID: SW1
Matrix: Water

Collected: 2022/05/13
Shipped:
Received: 2022/05/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	8003288	N/A	2022/05/19	Yogesh Patel
Carbonate, Bicarbonate and Hydroxide	CALC	7999549	N/A	2022/05/20	Automated Statchk
Chloride by Automated Colourimetry	KONE	8002349	N/A	2022/05/19	Alina Dobreanu
Conductivity	AT	8003291	N/A	2022/05/19	Yogesh Patel
Dissolved Organic Carbon (DOC)	TOCV/NDIR	8002246	N/A	2022/05/19	Anna-Kay Gooden
Fluoride	ISE	8003277	2022/05/18	2022/05/19	Yogesh Patel
Hardness (calculated as CaCO3)		7999552	N/A	2022/05/20	Automated Statchk
Lab Filtered Metals Analysis by ICP	ICP	8002496	2022/05/18	2022/05/20	Indira HarryPaul

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Bureau Veritas Job #: C2D3220
Report Date: 2022/05/24

Golder Associates Ltd
Client Project #: 21508089
Site Location: MCCARTHY
Sampler Initials: CI

TEST SUMMARY

Bureau Veritas ID: SQK728
Sample ID: SW1
Matrix: Water

Collected: 2022/05/13
Shipped:
Received: 2022/05/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Total Metals Analysis by ICPMS	ICP/MS	8005543	N/A	2022/05/20	Prempal Bhatti
Anion and Cation Sum	CALC	7999556	N/A	2022/05/20	Automated Statchk
Total Ammonia-N	LACH/NH4	8003284	N/A	2022/05/19	Raiq Kashif
Nitrate & Nitrite as Nitrogen in Water	LACH	8001828	N/A	2022/05/19	Samuel Law
Animal and Vegetable Oil and Grease	BAL	7999597	N/A	2022/05/21	Automated Statchk
Total Oil and Grease	BAL	8009165	2022/05/21	2022/05/21	Mitul Patel
pH	AT	8003290	2022/05/18	2022/05/19	Yogesh Patel
Phenols (4AAP)	TECH/PHEN	8002870	N/A	2022/05/19	Louise Harding
Orthophosphate	KONE	8002357	N/A	2022/05/19	Chandra Nandlal
Sat. pH and Langelier Index (@ 20C)	CALC	7999557	N/A	2022/05/20	Automated Statchk
Sat. pH and Langelier Index (@ 4C)	CALC	7999558	N/A	2022/05/20	Automated Statchk
Sulphate by Automated Colourimetry	KONE	8002354	N/A	2022/05/19	Chandra Nandlal
Total Dissolved Solids	BAL	8005060	2022/05/19	2022/05/20	Kristen Chan
Total Kjeldahl Nitrogen in Water	SKAL	8002031	2022/05/18	2022/05/19	Massarat Jan
Total Phosphorus (Colourimetric)	LACH/P	8004565	2022/05/19	2022/05/19	Shivani Shivani
Mineral/Synthetic O & G (TPH Heavy Oil)	BAL	8009166	2022/05/21	2022/05/21	Mitul Patel
Total Suspended Solids	BAL	8002117	2022/05/18	2022/05/20	Shaneil Hall
Turbidity	AT	8001988	N/A	2022/05/18	Roya Fathitil

Bureau Veritas ID: SQK729
Sample ID: SW2
Matrix: Water

Collected: 2022/05/13
Shipped:
Received: 2022/05/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	8003288	N/A	2022/05/19	Yogesh Patel
Carbonate, Bicarbonate and Hydroxide	CALC	7999549	N/A	2022/05/20	Automated Statchk
Chloride by Automated Colourimetry	KONE	8001851	N/A	2022/05/19	Alina Dobreanu
Conductivity	AT	8003291	N/A	2022/05/19	Yogesh Patel
Dissolved Organic Carbon (DOC)	TOCV/NDIR	8002246	N/A	2022/05/19	Anna-Kay Gooden
Fluoride	ISE	8003277	2022/05/18	2022/05/19	Yogesh Patel
Hardness (calculated as CaCO3)		7999552	N/A	2022/05/20	Automated Statchk
Lab Filtered Metals Analysis by ICP	ICP	8002496	2022/05/18	2022/05/20	Indira HarryPaul
Total Metals Analysis by ICPMS	ICP/MS	8005543	N/A	2022/05/20	Prempal Bhatti
Anion and Cation Sum	CALC	7999556	N/A	2022/05/20	Automated Statchk
Total Ammonia-N	LACH/NH4	8003284	N/A	2022/05/19	Raiq Kashif
Nitrate & Nitrite as Nitrogen in Water	LACH	8001828	N/A	2022/05/19	Samuel Law
Animal and Vegetable Oil and Grease	BAL	7999597	N/A	2022/05/21	Automated Statchk
Total Oil and Grease	BAL	8009165	2022/05/21	2022/05/21	Mitul Patel
pH	AT	8003290	2022/05/18	2022/05/19	Yogesh Patel
Phenols (4AAP)	TECH/PHEN	8002870	N/A	2022/05/19	Louise Harding
Orthophosphate	KONE	8001857	N/A	2022/05/19	Chandra Nandlal
Sat. pH and Langelier Index (@ 20C)	CALC	7999557	N/A	2022/05/20	Automated Statchk
Sat. pH and Langelier Index (@ 4C)	CALC	7999558	N/A	2022/05/20	Automated Statchk
Sulphate by Automated Colourimetry	KONE	8001855	N/A	2022/05/19	Chandra Nandlal

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Bureau Veritas Job #: C2D3220
Report Date: 2022/05/24

Golder Associates Ltd
Client Project #: 21508089
Site Location: MCCARTHY
Sampler Initials: CI

TEST SUMMARY

Bureau Veritas ID: SQK729
Sample ID: SW2
Matrix: Water

Collected: 2022/05/13
Shipped:
Received: 2022/05/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Total Dissolved Solids	BAL	8005060	2022/05/19	2022/05/20	Kristen Chan
Total Kjeldahl Nitrogen in Water	SKAL	8002031	2022/05/18	2022/05/19	Massarat Jan
Total Phosphorus (Colourimetric)	LACH/P	8002313	2022/05/18	2022/05/19	Shivani Shivani
Mineral/Synthetic O & G (TPH Heavy Oil)	BAL	8009166	2022/05/21	2022/05/21	Mitul Patel
Total Suspended Solids	BAL	8002117	2022/05/18	2022/05/20	Shaneil Hall
Turbidity	AT	8001988	N/A	2022/05/18	Roya Fathitil

Bureau Veritas ID: SQK730
Sample ID: DUP3
Matrix: Water

Collected: 2022/05/13
Shipped:
Received: 2022/05/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	8003288	N/A	2022/05/19	Yogesh Patel
Carbonate, Bicarbonate and Hydroxide	CALC	7999549	N/A	2022/05/20	Automated Statchk
Chloride by Automated Colourimetry	KONE	8002349	N/A	2022/05/19	Alina Dobreanu
Conductivity	AT	8003291	N/A	2022/05/19	Yogesh Patel
Dissolved Organic Carbon (DOC)	TOCV/NDIR	8002246	N/A	2022/05/19	Anna-Kay Gooden
Fluoride	ISE	8003277	2022/05/18	2022/05/19	Yogesh Patel
Hardness (calculated as CaCO3)		7999552	N/A	2022/05/20	Automated Statchk
Lab Filtered Metals Analysis by ICP	ICP	8002496	2022/05/18	2022/05/20	Indira HarryPaul
Total Metals Analysis by ICPMS	ICP/MS	8005543	N/A	2022/05/20	Prempal Bhatti
Anion and Cation Sum	CALC	7999556	N/A	2022/05/20	Automated Statchk
Total Ammonia-N	LACH/NH4	8003284	N/A	2022/05/19	Raiq Kashif
Nitrate & Nitrite as Nitrogen in Water	LACH	8001828	N/A	2022/05/19	Samuel Law
Animal and Vegetable Oil and Grease	BAL	7999597	N/A	2022/05/21	Automated Statchk
Total Oil and Grease	BAL	8009165	2022/05/21	2022/05/21	Mitul Patel
pH	AT	8003290	2022/05/18	2022/05/19	Yogesh Patel
Phenols (4AAP)	TECH/PHEN	8002870	N/A	2022/05/19	Louise Harding
Orthophosphate	KONE	8002357	N/A	2022/05/19	Chandra Nandlal
Sat. pH and Langelier Index (@ 20C)	CALC	7999557	N/A	2022/05/20	Automated Statchk
Sat. pH and Langelier Index (@ 4C)	CALC	7999558	N/A	2022/05/20	Automated Statchk
Sulphate by Automated Colourimetry	KONE	8002354	N/A	2022/05/19	Chandra Nandlal
Total Dissolved Solids	BAL	8005060	2022/05/19	2022/05/20	Kristen Chan
Total Kjeldahl Nitrogen in Water	SKAL	8002031	2022/05/18	2022/05/19	Massarat Jan
Total Phosphorus (Colourimetric)	LACH/P	8002313	2022/05/18	2022/05/19	Shivani Shivani
Mineral/Synthetic O & G (TPH Heavy Oil)	BAL	8009166	2022/05/21	2022/05/21	Mitul Patel
Total Suspended Solids	BAL	8002117	2022/05/18	2022/05/20	Shaneil Hall
Turbidity	AT	8001988	N/A	2022/05/18	Roya Fathitil

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Bureau Veritas Job #: C2D3220
Report Date: 2022/05/24

Golder Associates Ltd
Client Project #: 21508089
Site Location: MCCARTHY
Sampler Initials: CI

TEST SUMMARY

Bureau Veritas ID: SQK730 Dup
Sample ID: DUP3
Matrix: Water

Collected: 2022/05/13
Shipped:
Received: 2022/05/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Chloride by Automated Colourimetry	KONE	8002349	N/A	2022/05/19	Alina Dobreanu
Orthophosphate	KONE	8002357	N/A	2022/05/19	Chandra Nandlal
Sulphate by Automated Colourimetry	KONE	8002354	N/A	2022/05/19	Chandra Nandlal

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GENERAL COMMENTS

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

Package 1	3.3°C

Results relate only to the items tested.

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QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
8001828	S1L	Matrix Spike	Nitrite (N)	2022/05/19		98	%	80 - 120
			Nitrate (N)	2022/05/19		97	%	80 - 120
8001828	S1L	Spiked Blank	Nitrite (N)	2022/05/19		99	%	80 - 120
			Nitrate (N)	2022/05/19		99	%	80 - 120
8001828	S1L	Method Blank	Nitrite (N)	2022/05/19	<0.010		mg/L	
			Nitrate (N)	2022/05/19	<0.10		mg/L	
8001828	S1L	RPD	Nitrite (N)	2022/05/19	NC		%	20
			Nitrate (N)	2022/05/19	NC		%	20
8001851	ADB	Matrix Spike	Dissolved Chloride (Cl-)	2022/05/19		NC	%	80 - 120
8001851	ADB	Spiked Blank	Dissolved Chloride (Cl-)	2022/05/19		104	%	80 - 120
8001851	ADB	Method Blank	Dissolved Chloride (Cl-)	2022/05/19	<1.0		mg/L	
8001851	ADB	RPD	Dissolved Chloride (Cl-)	2022/05/19	0.65		%	20
8001855	C_N	Matrix Spike	Dissolved Sulphate (SO4)	2022/05/19		NC	%	75 - 125
8001855	C_N	Spiked Blank	Dissolved Sulphate (SO4)	2022/05/19		107	%	80 - 120
8001855	C_N	Method Blank	Dissolved Sulphate (SO4)	2022/05/19	<1.0		mg/L	
8001855	C_N	RPD	Dissolved Sulphate (SO4)	2022/05/19	1.1		%	20
8001857	C_N	Matrix Spike	Orthophosphate (P)	2022/05/19		107	%	75 - 125
8001857	C_N	Spiked Blank	Orthophosphate (P)	2022/05/19		100	%	80 - 120
8001857	C_N	Method Blank	Orthophosphate (P)	2022/05/19	<0.010		mg/L	
8001857	C_N	RPD	Orthophosphate (P)	2022/05/19	NC		%	25
8001988	RFT	Spiked Blank	Turbidity	2022/05/18		98	%	85 - 115
8001988	RFT	Method Blank	Turbidity	2022/05/18	<0.1		NTU	
8001988	RFT	RPD [SQK727-01]	Turbidity	2022/05/18	4.7		%	20
8002031	MJ1	Matrix Spike	Total Kjeldahl Nitrogen (TKN)	2022/05/19		107	%	80 - 120
8002031	MJ1	QC Standard	Total Kjeldahl Nitrogen (TKN)	2022/05/19		99	%	80 - 120
8002031	MJ1	Spiked Blank	Total Kjeldahl Nitrogen (TKN)	2022/05/19		103	%	80 - 120
8002031	MJ1	Method Blank	Total Kjeldahl Nitrogen (TKN)	2022/05/19	<0.10		mg/L	
8002031	MJ1	RPD	Total Kjeldahl Nitrogen (TKN)	2022/05/19	20		%	20
8002117	SHD	QC Standard	Total Suspended Solids	2022/05/20		95	%	85 - 115
8002117	SHD	Method Blank	Total Suspended Solids	2022/05/20	<10		mg/L	
8002117	SHD	RPD	Total Suspended Solids	2022/05/20	NC		%	25
8002246	AGD	Matrix Spike	Dissolved Organic Carbon	2022/05/19		96	%	80 - 120
8002246	AGD	Spiked Blank	Dissolved Organic Carbon	2022/05/19		95	%	80 - 120
8002246	AGD	Method Blank	Dissolved Organic Carbon	2022/05/19	<0.40		mg/L	
8002246	AGD	RPD	Dissolved Organic Carbon	2022/05/19	0.67		%	20
8002264	RKF	Matrix Spike	Total Ammonia-N	2022/05/19		91	%	75 - 125
8002264	RKF	Spiked Blank	Total Ammonia-N	2022/05/19		97	%	80 - 120
8002264	RKF	Method Blank	Total Ammonia-N	2022/05/19	<0.050		mg/L	
8002264	RKF	RPD	Total Ammonia-N	2022/05/19	NC		%	20
8002313	SSV	Matrix Spike	Total Phosphorus	2022/05/19		NC	%	80 - 120
8002313	SSV	QC Standard	Total Phosphorus	2022/05/19		81	%	80 - 120
8002313	SSV	Spiked Blank	Total Phosphorus	2022/05/19		92	%	80 - 120
8002313	SSV	Method Blank	Total Phosphorus	2022/05/19	<0.004		mg/L	
8002313	SSV	RPD	Total Phosphorus	2022/05/19	1.5		%	20
8002349	ADB	Matrix Spike [SQK730-02]	Dissolved Chloride (Cl-)	2022/05/19		103	%	80 - 120
8002349	ADB	Spiked Blank	Dissolved Chloride (Cl-)	2022/05/19		104	%	80 - 120
8002349	ADB	Method Blank	Dissolved Chloride (Cl-)	2022/05/19	<1.0		mg/L	
8002349	ADB	RPD [SQK730-02]	Dissolved Chloride (Cl-)	2022/05/19	0.0056		%	20
8002354	C_N	Matrix Spike [SQK730-02]	Dissolved Sulphate (SO4)	2022/05/19		NC	%	75 - 125
8002354	C_N	Spiked Blank	Dissolved Sulphate (SO4)	2022/05/19		107	%	80 - 120
8002354	C_N	Method Blank	Dissolved Sulphate (SO4)	2022/05/19	<1.0		mg/L	

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
8002354	C_N	RPD [SQK730-02]	Dissolved Sulphate (SO4)	2022/05/19	2.9		%	20
8002357	C_N	Matrix Spike [SQK730-02]	Orthophosphate (P)	2022/05/19		113	%	75 - 125
8002357	C_N	Spiked Blank	Orthophosphate (P)	2022/05/19		100	%	80 - 120
8002357	C_N	Method Blank	Orthophosphate (P)	2022/05/19	<0.010		mg/L	
8002357	C_N	RPD [SQK730-02]	Orthophosphate (P)	2022/05/19	NC		%	25
8002496	IHP	Matrix Spike	Dissolved Calcium (Ca)	2022/05/20		NC	%	80 - 120
			Dissolved Magnesium (Mg)	2022/05/20		NC	%	80 - 120
			Dissolved Potassium (K)	2022/05/20		NC	%	80 - 120
			Dissolved Sodium (Na)	2022/05/20		NC	%	80 - 120
8002496	IHP	Spiked Blank	Dissolved Calcium (Ca)	2022/05/20		99	%	80 - 120
			Dissolved Magnesium (Mg)	2022/05/20		96	%	80 - 120
			Dissolved Potassium (K)	2022/05/20		99	%	80 - 120
			Dissolved Sodium (Na)	2022/05/20		99	%	80 - 120
8002496	IHP	Method Blank	Dissolved Calcium (Ca)	2022/05/20	<0.05		mg/L	
			Dissolved Magnesium (Mg)	2022/05/20	<0.05		mg/L	
			Dissolved Potassium (K)	2022/05/20	<1		mg/L	
			Dissolved Sodium (Na)	2022/05/20	<0.5		mg/L	
8002496	IHP	RPD	Dissolved Calcium (Ca)	2022/05/20	1.8		%	25
			Dissolved Magnesium (Mg)	2022/05/20	2.1		%	25
			Dissolved Potassium (K)	2022/05/20	0.080		%	25
			Dissolved Sodium (Na)	2022/05/20	0.33		%	25
8002870	LHA	Matrix Spike	Phenols-4AAP	2022/05/19		105	%	80 - 120
8002870	LHA	Spiked Blank	Phenols-4AAP	2022/05/19		102	%	80 - 120
8002870	LHA	Method Blank	Phenols-4AAP	2022/05/19	<0.0010		mg/L	
8002870	LHA	RPD	Phenols-4AAP	2022/05/19	1.8		%	20
8003277	YPA	Matrix Spike	Fluoride (F-)	2022/05/19		102	%	80 - 120
8003277	YPA	Spiked Blank	Fluoride (F-)	2022/05/19		99	%	80 - 120
8003277	YPA	Method Blank	Fluoride (F-)	2022/05/19	<0.10		mg/L	
8003277	YPA	RPD	Fluoride (F-)	2022/05/19	0.47		%	20
8003284	RKF	Matrix Spike	Total Ammonia-N	2022/05/19		90	%	75 - 125
8003284	RKF	Spiked Blank	Total Ammonia-N	2022/05/19		94	%	80 - 120
8003284	RKF	Method Blank	Total Ammonia-N	2022/05/19	<0.050		mg/L	
8003284	RKF	RPD	Total Ammonia-N	2022/05/19	5.5		%	20
8003288	YPA	Spiked Blank	Alkalinity (Total as CaCO3)	2022/05/19		98	%	85 - 115
8003288	YPA	Method Blank	Alkalinity (Total as CaCO3)	2022/05/19	<1.0		mg/L	
8003288	YPA	RPD	Alkalinity (Total as CaCO3)	2022/05/19	1.1		%	20
8003290	YPA	Spiked Blank	pH	2022/05/19		102	%	98 - 103
8003290	YPA	RPD	pH	2022/05/19	0.59		%	N/A
8003291	YPA	Spiked Blank	Conductivity	2022/05/19		101	%	85 - 115
8003291	YPA	Method Blank	Conductivity	2022/05/19	<1.0		umho/cm	
8003291	YPA	RPD	Conductivity	2022/05/19	0.22		%	25
8004565	SSV	Matrix Spike	Total Phosphorus	2022/05/19		NC	%	80 - 120
8004565	SSV	QC Standard	Total Phosphorus	2022/05/19		91	%	80 - 120
8004565	SSV	Spiked Blank	Total Phosphorus	2022/05/19		98	%	80 - 120
8004565	SSV	Method Blank	Total Phosphorus	2022/05/19	<0.004		mg/L	
8004565	SSV	RPD	Total Phosphorus	2022/05/19	9.4		%	20
8005060	KCB	QC Standard	Total Dissolved Solids	2022/05/20		100	%	90 - 110
8005060	KCB	Method Blank	Total Dissolved Solids	2022/05/20	<10		mg/L	
8005543	PBA	Matrix Spike	Total Arsenic (As)	2022/05/20		102	%	80 - 120
			Total Cadmium (Cd)	2022/05/20		102	%	80 - 120
			Total Calcium (Ca)	2022/05/20		NC	%	80 - 120

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Total Chromium (Cr)	2022/05/20		97	%	80 - 120
			Total Copper (Cu)	2022/05/20		97	%	80 - 120
			Total Iron (Fe)	2022/05/20		101	%	80 - 120
			Total Lead (Pb)	2022/05/20		101	%	80 - 120
			Total Magnesium (Mg)	2022/05/20		103	%	80 - 120
			Total Manganese (Mn)	2022/05/20		97	%	80 - 120
			Total Nickel (Ni)	2022/05/20		99	%	80 - 120
			Total Potassium (K)	2022/05/20		101	%	80 - 120
			Total Sodium (Na)	2022/05/20		NC	%	80 - 120
			Total Zinc (Zn)	2022/05/20		100	%	80 - 120
8005543	PBA	Spiked Blank	Total Arsenic (As)	2022/05/20		102	%	80 - 120
			Total Cadmium (Cd)	2022/05/20		101	%	80 - 120
			Total Calcium (Ca)	2022/05/20		99	%	80 - 120
			Total Chromium (Cr)	2022/05/20		98	%	80 - 120
			Total Copper (Cu)	2022/05/20		94	%	80 - 120
			Total Iron (Fe)	2022/05/20		102	%	80 - 120
			Total Lead (Pb)	2022/05/20		103	%	80 - 120
			Total Magnesium (Mg)	2022/05/20		104	%	80 - 120
			Total Manganese (Mn)	2022/05/20		98	%	80 - 120
			Total Nickel (Ni)	2022/05/20		99	%	80 - 120
			Total Potassium (K)	2022/05/20		94	%	80 - 120
			Total Sodium (Na)	2022/05/20		103	%	80 - 120
			Total Zinc (Zn)	2022/05/20		103	%	80 - 120
8005543	PBA	Method Blank	Total Arsenic (As)	2022/05/24	<1.0		ug/L	
			Total Cadmium (Cd)	2022/05/24	<0.090		ug/L	
			Total Calcium (Ca)	2022/05/24	<200		ug/L	
			Total Chromium (Cr)	2022/05/24	<5.0		ug/L	
			Total Copper (Cu)	2022/05/24	<0.90		ug/L	
			Total Iron (Fe)	2022/05/24	<100		ug/L	
			Total Lead (Pb)	2022/05/24	<0.50		ug/L	
			Total Magnesium (Mg)	2022/05/24	<50		ug/L	
			Total Manganese (Mn)	2022/05/24	<2.0		ug/L	
			Total Nickel (Ni)	2022/05/24	<1.0		ug/L	
			Total Potassium (K)	2022/05/24	<200		ug/L	
			Total Sodium (Na)	2022/05/24	<100		ug/L	
			Total Zinc (Zn)	2022/05/24	<5.0		ug/L	
8005543	PBA	RPD	Total Arsenic (As)	2022/05/20	5.2		%	20
			Total Cadmium (Cd)	2022/05/20	NC		%	20
			Total Calcium (Ca)	2022/05/20	3.6		%	20
			Total Chromium (Cr)	2022/05/20	NC		%	20
			Total Copper (Cu)	2022/05/20	6.8		%	20
			Total Lead (Pb)	2022/05/20	NC		%	20
			Total Magnesium (Mg)	2022/05/20	1.7		%	20
			Total Manganese (Mn)	2022/05/20	4.1		%	20
			Total Nickel (Ni)	2022/05/20	4.9		%	20
			Total Potassium (K)	2022/05/20	2.6		%	20
			Total Sodium (Na)	2022/05/20	0.40		%	20
			Total Zinc (Zn)	2022/05/20	NC		%	20
8009165	MPZ	Spiked Blank	Total Oil & Grease	2022/05/21		98	%	85 - 115
8009165	MPZ	RPD	Total Oil & Grease	2022/05/21	2.0		%	25
8009165	MPZ	Method Blank	Total Oil & Grease	2022/05/21	<0.50		mg/L	

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
8009166	MPZ	Spiked Blank	Total Oil & Grease Mineral/Synthetic	2022/05/21		95	%	85 - 115
8009166	MPZ	RPD	Total Oil & Grease Mineral/Synthetic	2022/05/21	3.6		%	25
8009166	MPZ	Method Blank	Total Oil & Grease Mineral/Synthetic	2022/05/21	<0.50		mg/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.

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

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

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Bureau Veritas Job #: C2D3220
Report Date: 2022/05/24

Golder Associates Ltd
Client Project #: 21508089
Site Location: MCCARTHY
Sampler Initials: CI

VALIDATION SIGNATURE PAGE

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

Cristina Carriere

Cristina Carriere, Senior Scientific Specialist

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Exceedance Summary Table – Prov. Water Quality Obj.

Result Exceedances

Sample ID	Bureau Veritas ID	Parameter	Criteria	Result	DL	UNITS
SW1	SQK728-06	Total Phosphorus	0.01	0.015	0.004	mg/L
SW2	SQK729-06	Total Phosphorus	0.01	0.017	0.004	mg/L
DUP3	SQK730-06	Total Phosphorus	0.01	0.017	0.004	mg/L

The exceedance summary table is for information purposes only and should not be considered a comprehensive listing or statement of conformance to applicable regulatory guidelines.

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Your Project #: 20448776
Site#: McCarthy
Your C.O.C. #: 851932-02-01

Attention: Jamie Bonany/Colin Imrie

Golder Associates Ltd
121 Commerce Park Drive
Unit L
Barrie, ON
CANADA L4N 8X1

Report Date: 2022/06/02
Report #: R7148663
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C2E0819
Received: 2022/05/25, 09:31

Sample Matrix: Water
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Animal and Vegetable Oil and Grease	1	N/A	2022/06/01	CAM SOP-00326	EPA1664B m,SM5520B m
Total Oil and Grease	1	2022/06/01	2022/06/01	CAM SOP-00326	EPA1664B m,SM5520B m
pH	1	2022/05/26	2022/05/27	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	1	N/A	2022/05/27	CAM SOP-00444	OMOE E3179 m
Mineral/Synthetic O & G (TPH Heavy Oil) (1)	1	2022/06/01	2022/06/01	CAM SOP-00326	EPA1664B m,SM5520F m
Low Level Total Suspended Solids	1	2022/05/27	2022/05/30	CAM SOP-00428	SM 23 2540D m

Remarks:

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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) Note: TPH (Heavy Oil) is equivalent to Mineral / Synthetic Oil & Grease

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Your Project #: 20448776
Site#: McCarthy
Your C.O.C. #: 851932-02-01

Attention: Jamie Bonany/Colin Imrie

Golder Associates Ltd
121 Commerce Park Drive
Unit L
Barrie, ON
CANADA L4N 8X1

Report Date: 2022/06/02
Report #: R7148663
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C2E0819
Received: 2022/05/25, 09:31

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Ankita Bhalla, Project Manager
Email: Ankita.Bhalla@bureauveritas.com
Phone# (905) 817-5700
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Bureau Veritas Job #: C2E0819
Report Date: 2022/06/02

Golder Associates Ltd
Client Project #: 20448776
Sampler Initials: IM

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		SSA366		
Sampling Date		2022/05/24 01:15		
COC Number		851932-02-01		
	UNITS	**POND**	**RDL**	**QC Batch**
Calculated Parameters				
Total Animal/Vegetable Oil and Grease	mg/L	<0.50	0.50	8012953
Inorganics				
pH	pH	8.94	N/A	8016698
Phenols-4AAP	mg/L	<0.0010	0.0010	8019127
Total Suspended Solids	mg/L	4	1	8019011
Petroleum Hydrocarbons				
Total Oil & Grease	mg/L	1.8	0.50	8027358
Total Oil & Grease Mineral/Synthetic	mg/L	1.5	0.50	8027388

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

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GENERAL COMMENTS

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

Package 1	19.7°C

Results relate only to the items tested.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Bureau Veritas Job #: C2E0819
Report Date: 2022/06/02

Golder Associates Ltd
Client Project #: 20448776
Sampler Initials: IM

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
8016698	TAK	Spiked Blank	pH	2022/05/27		102	%	98 - 103
8016698	TAK	RPD	pH	2022/05/27	0.45		%	N/A
8019011	SHD	QC Standard	Total Suspended Solids	2022/05/30		95	%	85 - 115
8019011	SHD	Method Blank	Total Suspended Solids	2022/05/30	<1		mg/L	
8019011	SHD	RPD	Total Suspended Solids	2022/05/30	11		%	25
8019127	LHA	Matrix Spike	Phenols-4AAP	2022/05/27		103	%	80 - 120
8019127	LHA	Spiked Blank	Phenols-4AAP	2022/05/27		97	%	80 - 120
8019127	LHA	Method Blank	Phenols-4AAP	2022/05/27	<0.0010		mg/L	
8019127	LHA	RPD	Phenols-4AAP	2022/05/27	NC		%	20
8027358	MJ2	Spiked Blank	Total Oil & Grease	2022/06/01		100	%	85 - 115
8027358	MJ2	RPD	Total Oil & Grease	2022/06/01	0.25		%	25
8027358	MJ2	Method Blank	Total Oil & Grease	2022/06/01	<0.50		mg/L	
8027388	MJ2	Spiked Blank	Total Oil & Grease Mineral/Synthetic	2022/06/01		97	%	85 - 115
8027388	MJ2	RPD	Total Oil & Grease Mineral/Synthetic	2022/06/01	0.52		%	25
8027388	MJ2	Method Blank	Total Oil & Grease Mineral/Synthetic	2022/06/01	<0.50		mg/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.

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

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Bureau Veritas Job #: C2E0819
Report Date: 2022/06/02

Golder Associates Ltd
Client Project #: 20448776
Sampler Initials: IM

VALIDATION SIGNATURE PAGE

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Cristina Carriere

Cristina Carriere, Senior Scientific Specialist

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Your Project #: 21508089
Site#: McCarthy
Your C.O.C. #: 877887-01-01

Attention: Jamie Bonany/Colin Imrie

Golder Associates Ltd
121 Commerce Park Drive
Unit L
Barrie, ON
CANADA L4N 8X1

Report Date: 2022/06/07
Report #: R7155686
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C2E8479
Received: 2022/06/01, 08:57

Sample Matrix: Water
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Animal and Vegetable Oil and Grease	1	N/A	2022/06/07	CAM SOP-00326	EPA1664B m,SM5520B m
Total Oil and Grease	1	2022/06/07	2022/06/07	CAM SOP-00326	EPA1664B m,SM5520B m
pH	1	2022/06/02	2022/06/03	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	1	N/A	2022/06/03	CAM SOP-00444	OMOE E3179 m
Mineral/Synthetic O & G (TPH Heavy Oil) (1)	1	2022/06/07	2022/06/07	CAM SOP-00326	EPA1664B m,SM5520F m
Low Level Total Suspended Solids	1	2022/06/02	2022/06/06	CAM SOP-00428	SM 23 2540D m

Remarks:

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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) Note: TPH (Heavy Oil) is equivalent to Mineral / Synthetic Oil & Grease

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Your Project #: 21508089
Site#: McCarthy
Your C.O.C. #: 877887-01-01

Attention: Jamie Bonany/Colin Imrie

Golder Associates Ltd
121 Commerce Park Drive
Unit L
Barrie, ON
CANADA L4N 8X1

Report Date: 2022/06/07
Report #: R7155686
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C2E8479
Received: 2022/06/01, 08:57

Encryption Key

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Ankita Bhalla, Project Manager
Email: Ankita.Bhalla@bureauveritas.com
Phone# (905) 817-5700
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Bureau Veritas Job #: C2E8479
Report Date: 2022/06/07

Golder Associates Ltd
Client Project #: 21508089
Sampler Initials: IM

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		STS413		
Sampling Date		2022/05/30 02:06		
COC Number		877887-01-01		
	UNITS	**POUND**	**RDL**	**QC Batch**
Calculated Parameters				
Total Animal/Vegetable Oil and Grease	mg/L	1.3	0.50	8027256
Inorganics				
pH	pH	8.85	N/A	8030792
Phenols-4AAP	mg/L	0.0018	0.0010	8031715
Total Suspended Solids	mg/L	15	1	8030243
Petroleum Hydrocarbons				
Total Oil & Grease	mg/L	1.3	0.50	8037050
Total Oil & Grease Mineral/Synthetic	mg/L	<0.50	0.50	8037052

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

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GENERAL COMMENTS

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

Package 1	25.7°C

Results relate only to the items tested.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Bureau Veritas Job #: C2E8479
Report Date: 2022/06/07

Golder Associates Ltd
Client Project #: 21508089
Sampler Initials: IM

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
8030243	KCB	QC Standard	Total Suspended Solids	2022/06/06		98	%	85 - 115
8030243	KCB	Method Blank	Total Suspended Solids	2022/06/06	<1		mg/L	
8030243	KCB	RPD	Total Suspended Solids	2022/06/06	NC		%	25
8030792	TAK	Spiked Blank	pH	2022/06/03		102	%	98 - 103
8030792	TAK	RPD	pH	2022/06/03	0.15		%	N/A
8031715	LHA	Matrix Spike	Phenols-4AAP	2022/06/03		103	%	80 - 120
8031715	LHA	Spiked Blank	Phenols-4AAP	2022/06/03		103	%	80 - 120
8031715	LHA	Method Blank	Phenols-4AAP	2022/06/03	<0.0010		mg/L	
8031715	LHA	RPD	Phenols-4AAP	2022/06/03	NC		%	20
8037050	MPZ	Spiked Blank	Total Oil & Grease	2022/06/07		98	%	85 - 115
8037050	MPZ	RPD	Total Oil & Grease	2022/06/07	1.5		%	25
8037050	MPZ	Method Blank	Total Oil & Grease	2022/06/07	<0.50		mg/L	
8037052	MPZ	Spiked Blank	Total Oil & Grease Mineral/Synthetic	2022/06/07		96	%	85 - 115
8037052	MPZ	RPD	Total Oil & Grease Mineral/Synthetic	2022/06/07	1.6		%	25
8037052	MPZ	Method Blank	Total Oil & Grease Mineral/Synthetic	2022/06/07	<0.50		mg/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.

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Bureau Veritas Job #: C2E8479
Report Date: 2022/06/07

Golder Associates Ltd
Client Project #: 21508089
Sampler Initials: IM

VALIDATION SIGNATURE PAGE

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Cristina Carriere

Cristina Carriere, Senior Scientific Specialist

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Your Project #: 21508089
Site#: McCarthy
Your C.O.C. #: 877887-03-01

Attention: Jamie Bonany/Colin Imrie

Golder Associates Ltd
121 Commerce Park Drive
Unit L
Barrie, ON
CANADA L4N 8X1

Report Date: 2022/06/14
Report #: R7166581
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C2F4495
Received: 2022/06/07, 09:23

Sample Matrix: Water
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Animal and Vegetable Oil and Grease	1	N/A	2022/06/13	CAM SOP-00326	EPA1664B m,SM5520B m
Total Oil and Grease	1	2022/06/13	2022/06/13	CAM SOP-00326	EPA1664B m,SM5520B m
pH	1	2022/06/09	2022/06/10	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	1	N/A	2022/06/10	CAM SOP-00444	OMOE E3179 m
Mineral/Synthetic O & G (TPH Heavy Oil) (1)	1	2022/06/13	2022/06/13	CAM SOP-00326	EPA1664B m,SM5520F m
Low Level Total Suspended Solids	1	2022/06/09	2022/06/10	CAM SOP-00428	SM 23 2540D m

Remarks:

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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) Note: TPH (Heavy Oil) is equivalent to Mineral / Synthetic Oil & Grease

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Your Project #: 21508089
Site#: McCarthy
Your C.O.C. #: 877887-03-01

Attention: Jamie Bonany/Colin Imrie

Golder Associates Ltd
121 Commerce Park Drive
Unit L
Barrie, ON
CANADA L4N 8X1

Report Date: 2022/06/14
Report #: R7166581
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C2F4495
Received: 2022/06/07, 09:23

Encryption Key

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Ankita Bhalla, Project Manager
Email: Ankita.Bhalla@bureauveritas.com
Phone# (905) 817-5700
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Bureau Veritas Job #: C2F4495
Report Date: 2022/06/14

Golder Associates Ltd
Client Project #: 21508089
Sampler Initials: IM

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		SVA346		
Sampling Date		2022/06/06 02:00		
COC Number		877887-03-01		
	UNITS	**POND**	**RDL**	**QC Batch**
Calculated Parameters				
Total Animal/Vegetable Oil and Grease	mg/L	<0.50	0.50	8037256
Inorganics				
pH	pH	8.45	N/A	8043740
Phenols-4AAP	mg/L	0.0010	0.0010	8042384
Total Suspended Solids	mg/L	4	1	8042557
Petroleum Hydrocarbons				
Total Oil & Grease	mg/L	<0.50	0.50	8049692
Total Oil & Grease Mineral/Synthetic	mg/L	<0.50	0.50	8049696

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

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

GENERAL COMMENTS

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

Package 1	19.3°C

Results relate only to the items tested.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Bureau Veritas Job #: C2F4495
Report Date: 2022/06/14

Golder Associates Ltd
Client Project #: 21508089
Sampler Initials: IM

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
8042384	MKX	Matrix Spike	Phenols-4AAP	2022/06/10		102	%	80 - 120
8042384	MKX	Spiked Blank	Phenols-4AAP	2022/06/10		107	%	80 - 120
8042384	MKX	Method Blank	Phenols-4AAP	2022/06/10	<0.0010		mg/L	
8042384	MKX	RPD	Phenols-4AAP	2022/06/10	0		%	20
8042557	SHD	QC Standard	Total Suspended Solids	2022/06/10		96	%	85 - 115
8042557	SHD	Method Blank	Total Suspended Solids	2022/06/10	<1		mg/L	
8042557	SHD	RPD	Total Suspended Solids	2022/06/10	NC		%	25
8043740	TAK	Spiked Blank	pH	2022/06/10		102	%	98 - 103
8043740	TAK	RPD	pH	2022/06/10	0.18		%	N/A
8049692	MJ2	Spiked Blank	Total Oil & Grease	2022/06/13		99	%	85 - 115
8049692	MJ2	RPD	Total Oil & Grease	2022/06/13	0.51		%	25
8049692	MJ2	Method Blank	Total Oil & Grease	2022/06/13	<0.50		mg/L	
8049696	MJ2	Spiked Blank	Total Oil & Grease Mineral/Synthetic	2022/06/13		97	%	85 - 115
8049696	MJ2	RPD	Total Oil & Grease Mineral/Synthetic	2022/06/13	0.52		%	25
8049696	MJ2	Method Blank	Total Oil & Grease Mineral/Synthetic	2022/06/13	<0.50		mg/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.

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

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Bureau Veritas Job #: C2F4495
Report Date: 2022/06/14

Golder Associates Ltd
Client Project #: 21508089
Sampler Initials: IM

VALIDATION SIGNATURE PAGE

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

Cristina Carriere

Cristina Carriere, Senior Scientific Specialist

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Your Project #: 21508089
Site#: McCarthy
Your C.O.C. #: 877887-04-01

Attention: Jamie Bonany/Colin Imrie

Golder Associates Ltd
121 Commerce Park Drive
Unit L
Barrie, ON
CANADA L4N 8X1

Report Date: 2022/06/23
Report #: R7182370
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C2G2675
Received: 2022/06/14, 09:05

Sample Matrix: Water
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Animal and Vegetable Oil and Grease	1	N/A	2022/06/20	CAM SOP-00326	EPA1664B m,SM5520B m
Total Oil and Grease	1	2022/06/20	2022/06/20	CAM SOP-00326	EPA1664B m,SM5520B m
pH	1	2022/06/17	2022/06/17	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	1	N/A	2022/06/16	CAM SOP-00444	OMOE E3179 m
Mineral/Synthetic O & G (TPH Heavy Oil) (1)	1	2022/06/20	2022/06/20	CAM SOP-00326	EPA1664B m,SM5520F m
Low Level Total Suspended Solids	1	2022/06/16	2022/06/17	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.

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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) Note: TPH (Heavy Oil) is equivalent to Mineral / Synthetic Oil & Grease

Your Project #: 21508089
Site#: McCarthy
Your C.O.C. #: 877887-04-01

Attention: Jamie Bonany/Colin Imrie

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121 Commerce Park Drive
Unit L
Barrie, ON
CANADA L4N 8X1

Report Date: 2022/06/23
Report #: R7182370
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C2G2675
Received: 2022/06/14, 09:05

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Ankita Bhalla, Project Manager
Email: Ankita.Bhalla@bureauveritas.com
Phone# (905) 817-5700
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Bureau Veritas Job #: C2G2675
Report Date: 2022/06/23

Golder Associates Ltd
Client Project #: 21508089
Sampler Initials: IM

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		SWU966		
Sampling Date		2022/06/13 03:00		
COC Number		877887-04-01		
	UNITS	**POND**	**RDL**	**QC Batch**
Calculated Parameters				
Total Animal/Vegetable Oil and Grease	mg/L	<0.50	0.50	8050762
Inorganics				
pH	pH	8.43	N/A	8058985
Phenols-4AAP	mg/L	<0.0010	0.0010	8057497
Total Suspended Solids	mg/L	5	1	8055214
Petroleum Hydrocarbons				
Total Oil & Grease	mg/L	<0.50	0.50	8063580
Total Oil & Grease Mineral/Synthetic	mg/L	<0.50	0.50	8063589

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

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GENERAL COMMENTS

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

Package 1	23.0°C

Results relate only to the items tested.

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Bureau Veritas Job #: C2G2675
Report Date: 2022/06/23

Golder Associates Ltd
Client Project #: 21508089
Sampler Initials: IM

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
8055214	SHD	QC Standard	Total Suspended Solids	2022/06/17		95	%	85 - 115
8055214	SHD	Method Blank	Total Suspended Solids	2022/06/17	<1		mg/L	
8055214	SHD	RPD	Total Suspended Solids	2022/06/17	0		%	25
8057497	MKX	Matrix Spike	Phenols-4AAP	2022/06/16		104	%	80 - 120
8057497	MKX	Spiked Blank	Phenols-4AAP	2022/06/16		101	%	80 - 120
8057497	MKX	Method Blank	Phenols-4AAP	2022/06/16	<0.0010		mg/L	
8057497	MKX	RPD	Phenols-4AAP	2022/06/16	NC		%	20
8058985	TAK	Spiked Blank	pH	2022/06/17		102	%	98 - 103
8058985	TAK	RPD	pH	2022/06/17	0.0074		%	N/A
8063580	MJ2	Spiked Blank	Total Oil & Grease	2022/06/20		99	%	85 - 115
8063580	MJ2	RPD	Total Oil & Grease	2022/06/20	0.51		%	25
8063580	MJ2	Method Blank	Total Oil & Grease	2022/06/20	<0.50		mg/L	
8063589	MJ2	Spiked Blank	Total Oil & Grease Mineral/Synthetic	2022/06/20		97	%	85 - 115
8063589	MJ2	RPD	Total Oil & Grease Mineral/Synthetic	2022/06/20	0.52		%	25
8063589	MJ2	Method Blank	Total Oil & Grease Mineral/Synthetic	2022/06/20	<0.50		mg/L	

N/A = Not Applicable

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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.

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

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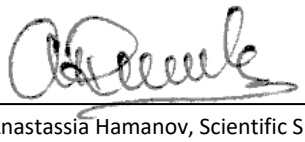
Bureau Veritas Job #: C2G2675
Report Date: 2022/06/23

Golder Associates Ltd
Client Project #: 21508089
Sampler Initials: IM

VALIDATION SIGNATURE PAGE

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



Anastassia Hamanov, Scientific Specialist

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Your Project #: 20448776
Site Location: McCarthy
Your C.O.C. #: 825330-03-01

Attention: Jamie Bonany/Colin Imrie

Golder Associates Ltd
121 Commerce Park Drive
Unit L
Barrie, ON
CANADA L4N 8X1

Report Date: 2022/06/27
Report #: R7188702
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C2H0619
Received: 2022/06/21, 09:14

Sample Matrix: Water
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Animal and Vegetable Oil and Grease	1	N/A	2022/06/27	CAM SOP-00326	EPA1664B m,SM5520B m
Total Oil and Grease	1	2022/06/27	2022/06/27	CAM SOP-00326	EPA1664B m,SM5520B m
pH	1	2022/06/22	2022/06/23	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	1	N/A	2022/06/23	CAM SOP-00444	OMOE E3179 m
Mineral/Synthetic O & G (TPH Heavy Oil) (1)	1	2022/06/27	2022/06/27	CAM SOP-00326	EPA1664B m,SM5520F m
Low Level Total Suspended Solids	1	2022/06/22	2022/06/24	CAM SOP-00428	SM 23 2540D m

Remarks:

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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) Note: TPH (Heavy Oil) is equivalent to Mineral / Synthetic Oil & Grease

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Your Project #: 20448776
Site Location: McCarthy
Your C.O.C. #: 825330-03-01

Attention: Jamie Bonany/Colin Imrie

Golder Associates Ltd
121 Commerce Park Drive
Unit L
Barrie, ON
CANADA L4N 8X1

Report Date: 2022/06/27
Report #: R7188702
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C2H0619
Received: 2022/06/21, 09:14

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Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Ankita Bhalla, Project Manager
Email: Ankita.Bhalla@bureauveritas.com
Phone# (905) 817-5700
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Bureau Veritas Job #: C2H0619
Report Date: 2022/06/27

Golder Associates Ltd
Client Project #: 20448776
Site Location: McCarthy
Sampler Initials: IM

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		SYN051		
Sampling Date		2022/06/20 01:30		
COC Number		825330-03-01		
	UNITS	POND	RDL	QC Batch
Calculated Parameters				
Total Animal/Vegetable Oil and Grease	mg/L	0.60	0.50	8065273
Inorganics				
pH	pH	8.15	N/A	8069309
Phenols-4AAP	mg/L	<0.0010	0.0010	8071505
Total Suspended Solids	mg/L	2	1	8067467
Petroleum Hydrocarbons				
Total Oil & Grease	mg/L	0.60	0.50	8076236
Total Oil & Grease Mineral/Synthetic	mg/L	<0.50	0.50	8076238

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

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Bureau Veritas Job #: C2H0619
Report Date: 2022/06/27

Golder Associates Ltd
Client Project #: 20448776
Site Location: McCarthy
Sampler Initials: IM

GENERAL COMMENTS

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

Package 1	23.3°C

Results relate only to the items tested.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Bureau Veritas Job #: C2H0619
Report Date: 2022/06/27

Golder Associates Ltd
Client Project #: 20448776
Site Location: McCarthy
Sampler Initials: IM

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
8067467	KCB	QC Standard	Total Suspended Solids	2022/06/24		96	%	85 - 115
8067467	KCB	Method Blank	Total Suspended Solids	2022/06/24	<1		mg/L	
8067467	KCB	RPD	Total Suspended Solids	2022/06/24	NC		%	25
8069309	SAU	Spiked Blank	pH	2022/06/23		102	%	98 - 103
8069309	SAU	RPD	pH	2022/06/23	0.41		%	N/A
8071505	MKX	Matrix Spike	Phenols-4AAP	2022/06/23		100	%	80 - 120
8071505	MKX	Spiked Blank	Phenols-4AAP	2022/06/23		100	%	80 - 120
8071505	MKX	Method Blank	Phenols-4AAP	2022/06/23	<0.0010		mg/L	
8071505	MKX	RPD	Phenols-4AAP	2022/06/23	NC		%	20
8076236	MPZ	Spiked Blank	Total Oil & Grease	2022/06/27		98	%	85 - 115
8076236	MPZ	RPD	Total Oil & Grease	2022/06/27	1.5		%	25
8076236	MPZ	Method Blank	Total Oil & Grease	2022/06/27	<0.50		mg/L	
8076238	MPZ	Spiked Blank	Total Oil & Grease Mineral/Synthetic	2022/06/27		95	%	85 - 115
8076238	MPZ	RPD	Total Oil & Grease Mineral/Synthetic	2022/06/27	1.6		%	25
8076238	MPZ	Method Blank	Total Oil & Grease Mineral/Synthetic	2022/06/27	<0.50		mg/L	

N/A = Not Applicable

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

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Bureau Veritas Job #: C2H0619
Report Date: 2022/06/27

Golder Associates Ltd
Client Project #: 20448776
Site Location: McCarthy
Sampler Initials: IM

VALIDATION SIGNATURE PAGE

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

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

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Your Project #: 20448776
Site#: McCarthy
Your C.O.C. #: 851932-01-01

Attention: Jamie Bonany/Colin Imrie

Golder Associates Ltd
121 Commerce Park Drive
Unit L
Barrie, ON
CANADA L4N 8X1

Report Date: 2022/08/12
Report #: R7251465
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C2M3492
Received: 2022/08/09, 09:05

Sample Matrix: Water
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Animal and Vegetable Oil and Grease	1	N/A	2022/08/12	CAM SOP-00326	EPA1664B m,SM5520B m
Total Oil and Grease	1	2022/08/12	2022/08/12	CAM SOP-00326	EPA1664B m,SM5520B m
pH	1	2022/08/10	2022/08/10	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	1	N/A	2022/08/11	CAM SOP-00444	OMOE E3179 m
Mineral/Synthetic O & G (TPH Heavy Oil) (1)	1	2022/08/12	2022/08/12	CAM SOP-00326	EPA1664B m,SM5520F m
Low Level Total Suspended Solids	1	2022/08/11	2022/08/12	CAM SOP-00428	SM 23 2540D m

Remarks:

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(1) Note: TPH (Heavy Oil) is equivalent to Mineral / Synthetic Oil & Grease

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Your Project #: 20448776
Site#: McCarthy
Your C.O.C. #: 851932-01-01

Attention: Jamie Bonany/Colin Imrie

Golder Associates Ltd
121 Commerce Park Drive
Unit L
Barrie, ON
CANADA L4N 8X1

Report Date: 2022/08/12
Report #: R7251465
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C2M3492
Received: 2022/08/09, 09:05

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Ankita Bhalla, Project Manager
Email: Ankita.Bhalla@bureauveritas.com
Phone# (905) 817-5700
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Bureau Veritas Job #: C2M3492
Report Date: 2022/08/12

Golder Associates Ltd
Client Project #: 20448776
Sampler Initials: KM

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		TJV292		TJV292	
Sampling Date		2022/08/08 01:00		2022/08/08 01:00	
COC Number		851932-01-01		851932-01-01	
	UNITS	POND	RDL	POND Lab-Dup	QC Batch
Calculated Parameters					
Total Animal/Vegetable Oil and Grease	mg/L	<0.50	0.50	N/A	8155571
Inorganics					
pH	pH	7.35	N/A	7.37	8158409
Phenols-4AAP	mg/L	0.0014	0.0010	N/A	8161505
Total Suspended Solids	mg/L	3	1	N/A	8157694
Petroleum Hydrocarbons					
Total Oil & Grease	mg/L	<0.50	0.50	N/A	8162569
Total Oil & Grease Mineral/Synthetic	mg/L	<0.50	0.50	N/A	8162572

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

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

GENERAL COMMENTS

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

Package 1	22.0°C

Results relate only to the items tested.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Bureau Veritas Job #: C2M3492
Report Date: 2022/08/12

Golder Associates Ltd
Client Project #: 20448776
Sampler Initials: KM

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
8157694	SHD	QC Standard	Total Suspended Solids	2022/08/12		96	%	85 - 115
8157694	SHD	Method Blank	Total Suspended Solids	2022/08/12	<1		mg/L	
8157694	SHD	RPD	Total Suspended Solids	2022/08/12	15		%	25
8158409	TAK	Spiked Blank	pH	2022/08/10		102	%	98 - 103
8158409	TAK	RPD [TJV292-04]	pH	2022/08/10	0.31		%	N/A
8161505	MKX	Matrix Spike	Phenols-4AAP	2022/08/11		102	%	80 - 120
8161505	MKX	Spiked Blank	Phenols-4AAP	2022/08/11		99	%	80 - 120
8161505	MKX	Method Blank	Phenols-4AAP	2022/08/11	<0.0010		mg/L	
8161505	MKX	RPD	Phenols-4AAP	2022/08/11	NC		%	20
8162569	MPZ	Spiked Blank	Total Oil & Grease	2022/08/12		99	%	85 - 115
8162569	MPZ	RPD	Total Oil & Grease	2022/08/12	1.5		%	25
8162569	MPZ	Method Blank	Total Oil & Grease	2022/08/12	<0.50		mg/L	
8162572	MPZ	Spiked Blank	Total Oil & Grease Mineral/Synthetic	2022/08/12		97	%	85 - 115
8162572	MPZ	RPD	Total Oil & Grease Mineral/Synthetic	2022/08/12	2.1		%	25
8162572	MPZ	Method Blank	Total Oil & Grease Mineral/Synthetic	2022/08/12	<0.50		mg/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.

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

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Bureau Veritas Job #: C2M3492
Report Date: 2022/08/12

Golder Associates Ltd
Client Project #: 20448776
Sampler Initials: KM

VALIDATION SIGNATURE PAGE

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

Cristina Carriere

Cristina Carriere, Senior Scientific Specialist

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.

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Your Project #: 20448776
Site#: McCarthy
Your C.O.C. #: 864938-02-01

Attention: Jamie Bonany/Colin Imrie

Golder Associates Ltd
121 Commerce Park Drive
Unit L
Barrie, ON
CANADA L4N 8X1

Report Date: 2022/11/07
Report #: R7377982
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C2V5102
Received: 2022/10/28, 09:04

Sample Matrix: Surface Water
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Animal and Vegetable Oil and Grease	1	N/A	2022/11/07	CAM SOP-00326	EPA1664B m,SM5520B m
Total Oil and Grease	1	2022/11/05	2022/11/05	CAM SOP-00326	EPA1664B m,SM5520B m
pH	1	2022/11/01	2022/11/01	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	1	N/A	2022/11/04	CAM SOP-00444	OMOE E3179 m
Mineral/Synthetic O & G (TPH Heavy Oil) (1)	1	2022/11/05	2022/11/07	CAM SOP-00326	EPA1664B m,SM5520F m
Low Level Total Suspended Solids	1	2022/11/02	2022/11/03	CAM SOP-00428	SM 23 2540D m

Remarks:

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

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

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

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

Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) Note: TPH (Heavy Oil) is equivalent to Mineral / Synthetic Oil & Grease

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Your Project #: 20448776
Site#: McCarthy
Your C.O.C. #: 864938-02-01

Attention: Jamie Bonany/Colin Imrie

Golder Associates Ltd
121 Commerce Park Drive
Unit L
Barrie, ON
CANADA L4N 8X1

Report Date: 2022/11/07
Report #: R7377982
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C2V5102
Received: 2022/10/28, 09:04

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Ankita Bhalla, Project Manager
Email: Ankita.Bhalla@bureauveritas.com
Phone# (905) 817-5700

==========

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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 Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

Bureau Veritas Job #: C2V5102
Report Date: 2022/11/07

Golder Associates Ltd
Client Project #: 20448776
Sampler Initials: KM

RESULTS OF ANALYSES OF SURFACE WATER

Bureau Veritas ID		UDG809		
Sampling Date		2022/10/27 14:50		
COC Number		864938-02-01		
	UNITS	**POND**	**RDL**	**QC Batch**
Calculated Parameters				
Total Animal/Vegetable Oil and Grease	mg/L	<0.50	0.50	8311791
Inorganics				
pH	pH	8.05	N/A	8319205
Phenols-4AAP	mg/L	<0.0010	0.0010	8326699
Total Suspended Solids	mg/L	5	1	8321613
Petroleum Hydrocarbons				
Total Oil & Grease	mg/L	1.5	0.50	8328568
Total Oil & Grease Mineral/Synthetic	mg/L	1.5	0.50	8328569

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

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GENERAL COMMENTS

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

Package 1	17.0°C

Results relate only to the items tested.

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Bureau Veritas Job #: C2V5102
Report Date: 2022/11/07

Golder Associates Ltd
Client Project #: 20448776
Sampler Initials: KM

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
8319205	TAK	Spiked Blank	pH	2022/11/01		102	%	98 - 103
8319205	TAK	RPD	pH	2022/11/01	0.088		%	N/A
8321613	SHD	QC Standard	Total Suspended Solids	2022/11/03		96	%	85 - 115
8321613	SHD	Method Blank	Total Suspended Solids	2022/11/03	<1		mg/L	
8321613	SHD	RPD	Total Suspended Solids	2022/11/03	22		%	25
8326699	MKX	Matrix Spike	Phenols-4AAP	2022/11/04		102	%	80 - 120
8326699	MKX	Spiked Blank	Phenols-4AAP	2022/11/04		100	%	80 - 120
8326699	MKX	Method Blank	Phenols-4AAP	2022/11/04	<0.0010		mg/L	
8326699	MKX	RPD	Phenols-4AAP	2022/11/04	11		%	20
8328568	NKW	Spiked Blank	Total Oil & Grease	2022/11/05		99	%	85 - 115
8328568	NKW	RPD	Total Oil & Grease	2022/11/07	0.76		%	25
8328568	NKW	Method Blank	Total Oil & Grease	2022/11/05	<0.50		mg/L	
8328569	NKW	Spiked Blank	Total Oil & Grease Mineral/Synthetic	2022/11/07		97	%	85 - 115
8328569	NKW	RPD	Total Oil & Grease Mineral/Synthetic	2022/11/07	1.0		%	25
8328569	NKW	Method Blank	Total Oil & Grease Mineral/Synthetic	2022/11/07	<0.50		mg/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.

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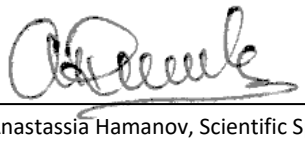
Bureau Veritas Job #: C2V5102
Report Date: 2022/11/07

Golder Associates Ltd
Client Project #: 20448776
Sampler Initials: KM

VALIDATION SIGNATURE PAGE

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



Anastassia Hamanov, Scientific Specialist

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Your Project #: 21508089
Site Location: MCCARTHY
Your C.O.C. #: 901522-01-01

Attention: Jamie Bonany

Golder Associates Ltd
121 Commerce Park Drive
Unit L
Barrie, ON
CANADA L4N 8X1

Report Date: 2022/11/07
Report #: R7378001
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C2V7988
Received: 2022/10/31, 15:40

Sample Matrix: Water
Samples Received: 3

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Alkalinity	3	N/A	2022/11/02	CAM SOP-00448	SM 23 2320 B m
Carbonate, Bicarbonate and Hydroxide	3	N/A	2022/11/03	CAM SOP-00102	APHA 4500-CO2 D
Chloride by Automated Colourimetry	3	N/A	2022/11/04	CAM SOP-00463	SM 23 4500-Cl E m
Conductivity	3	N/A	2022/11/02	CAM SOP-00414	SM 23 2510 m
Dissolved Organic Carbon (DOC) (1)	3	N/A	2022/11/02	CAM SOP-00446	SM 23 5310 B m
Fluoride	3	2022/11/01	2022/11/02	CAM SOP-00449	SM 23 4500-F C m
Hardness (calculated as CaCO3)	3	N/A	2022/11/04	CAM SOP 00102/00408/00447	SM 2340 B
Lab Filtered Metals Analysis by ICP	3	2022/11/02	2022/11/04	CAM SOP-00408	EPA 6010D m
Total Metals Analysis by ICPMS	3	N/A	2022/11/03	CAM SOP-00447	EPA 6020B m
Anion and Cation Sum	3	N/A	2022/11/04		
Total Ammonia-N	3	N/A	2022/11/05	CAM SOP-00441	USGS I-2522-90 m
Nitrate & Nitrite as Nitrogen in Water (2)	3	N/A	2022/11/04	CAM SOP-00440	SM 23 4500-NO3I/NO2B
Animal and Vegetable Oil and Grease	3	N/A	2022/11/06	CAM SOP-00326	EPA1664B m,SM5520B m
Total Oil and Grease	3	2022/11/06	2022/11/06	CAM SOP-00326	EPA1664B m,SM5520B m
pH	3	2022/11/01	2022/11/02	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	3	N/A	2022/11/04	CAM SOP-00444	OMOE E3179 m
Orthophosphate	3	N/A	2022/11/03	CAM SOP-00461	EPA 365.1 m
Sat. pH and Langelier Index (@ 20C)	3	N/A	2022/11/04		Auto Calc
Sat. pH and Langelier Index (@ 4C)	3	N/A	2022/11/04		Auto Calc
Sulphate by Automated Colourimetry	3	N/A	2022/11/07	CAM SOP-00464	EPA 375.4 m
Total Dissolved Solids	3	2022/11/02	2022/11/03	CAM SOP-00428	SM 23 2540C m
Total Kjeldahl Nitrogen in Water	3	2022/11/02	2022/11/02	CAM SOP-00938	OMOE E3516 m
Total Phosphorus (Colourimetric)	3	2022/11/02	2022/11/02	CAM SOP-00407	SM 23 4500-P I
Mineral/Synthetic O & G (TPH Heavy Oil) (3)	3	2022/11/06	2022/11/06	CAM SOP-00326	EPA1664B m,SM5520F m
Total Suspended Solids	3	2022/11/02	2022/11/03	CAM SOP-00428	SM 23 2540D m
Turbidity	3	N/A	2022/11/02	CAM SOP-00417	SM 23 2130 B m

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau

Your Project #: 21508089
Site Location: MCCARTHY
Your C.O.C. #: 901522-01-01

Attention: Jamie Bonany

Golder Associates Ltd
121 Commerce Park Drive
Unit L
Barrie, ON
CANADA L4N 8X1

Report Date: 2022/11/07
Report #: R7378001
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C2V7988
Received: 2022/10/31, 15:40

Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

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

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

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

Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) Dissolved Organic Carbon (DOC) present in the sample should be considered as non-purgeable DOC.
(2) Values for calculated parameters may not appear to add up due to rounding of raw data and significant figures.
(3) Note: TPH (Heavy Oil) is equivalent to Mineral / Synthetic Oil & Grease

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Ankita Bhalla, Project Manager
Email: Ankita.Bhalla@bureauveritas.com
Phone# (905) 817-5700

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Bureau Veritas Job #: C2V7988
Report Date: 2022/11/07

Golder Associates Ltd
Client Project #: 21508089
Site Location: MCCARTHY
Sampler Initials: CI

OIL & GREASE - A/V/M/T (WATER)

Bureau Veritas ID			UDX806	UDX807	UDX808		
Sampling Date			2022/10/28 11:30	2022/10/28 11:30	2022/10/28		
COC Number			901522-01-01	901522-01-01	901522-01-01		
	UNITS	Criteria	POND	SW1	DUP 3	RDL	QC Batch
Calculated Parameters							
Total Animal/Vegetable Oil and Grease	mg/L	-	0.60	1.3	0.80	0.50	8316617
Petroleum Hydrocarbons							
Total Oil & Grease	mg/L	-	0.60	1.3	1.3	0.50	8329463
Total Oil & Grease Mineral/Synthetic	mg/L	0.5	<0.50	<0.50	0.50	0.50	8329467

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: Ontario Provincial Water Quality Objectives
Ref. to MOEE Water Management document dated Feb.1999

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Bureau Veritas Job #: C2V7988
Report Date: 2022/11/07

Golder Associates Ltd
Client Project #: 21508089
Site Location: MCCARTHY
Sampler Initials: CI

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID			UDX806			UDX806		
Sampling Date			2022/10/28 11:30			2022/10/28 11:30		
COC Number			901522-01-01			901522-01-01		
	UNITS	Criteria	POND	RDL	QC Batch	POND Lab-Dup	RDL	QC Batch
Calculated Parameters								
Anion Sum	me/L	-	16.5	N/A	8317577			
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	-	110	1.0	8316069			
Carb. Alkalinity (calc. as CaCO3)	mg/L	-	1.0	1.0	8316069			
Cation Sum	me/L	-	17.2	N/A	8317577			
Hardness (CaCO3)	mg/L	-	470	1.0	8316897			
Langelier Index (@ 20C)	N/A	-	0.485		8317580			
Langelier Index (@ 4C)	N/A	-	0.239		8317584			
Saturation pH (@ 20C)	N/A	-	7.53		8317580			
Saturation pH (@ 4C)	N/A	-	7.77		8317584			
Inorganics								
Total Ammonia-N	mg/L	-	0.17	0.050	8324582			
Conductivity	umho/cm	-	1600	1.0	8318841			
Total Dissolved Solids	mg/L	-	1080	10	8321805	1090	10	8321805
Fluoride (F-)	mg/L	-	0.59	0.10	8318852			
Total Kjeldahl Nitrogen (TKN)	mg/L	-	0.65	0.10	8321959			
Dissolved Organic Carbon	mg/L	-	7.4	0.40	8321392			
Orthophosphate (P)	mg/L	-	<0.010	0.010	8320273			
pH	pH	6.5:8.5	8.01		8318865			
Phenols-4AAP	mg/L	0.001	<0.0010	0.0010	8326458			
Total Phosphorus	mg/L	0.01	**0.019**	0.004	8319206			
Total Suspended Solids	mg/L	-	<10	10	8321801			
Dissolved Sulphate (SO4)	mg/L	-	330	1.0	8320279			
Turbidity	NTU	-	3.5	0.1	8319286			
Alkalinity (Total as CaCO3)	mg/L	-	110	1.0	8318859			
Dissolved Chloride (Cl-)	mg/L	-	270	3.0	8320281			
Nitrite (N)	mg/L	-	<0.010	0.010	8319325			
Nitrate (N)	mg/L	-	<0.10	0.10	8319325			

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
Criteria: Ontario Provincial Water Quality Objectives
Ref. to MOEE Water Management document dated Feb.1999
N/A = Not Applicable

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Bureau Veritas Job #: C2V7988
Report Date: 2022/11/07

Golder Associates Ltd
Client Project #: 21508089
Site Location: MCCARTHY
Sampler Initials: CI

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID			UDX807		UDX808		
Sampling Date			2022/10/28 11:30		2022/10/28		
COC Number			901522-01-01		901522-01-01		
	UNITS	Criteria	SW1	QC Batch	DUP 3	RDL	QC Batch
Calculated Parameters							
Anion Sum	me/L	-	18.8	8317577	18.5	N/A	8317577
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	-	150	8316069	150	1.0	8316069
Carb. Alkalinity (calc. as CaCO3)	mg/L	-	1.1	8316069	1.2	1.0	8316069
Cation Sum	me/L	-	20.0	8317577	19.5	N/A	8317577
Hardness (CaCO3)	mg/L	-	600	8316897	590	1.0	8316897
Langelier Index (@ 20C)	N/A	-	0.713	8317580	0.719		8317580
Langelier Index (@ 4C)	N/A	-	0.468	8317584	0.474		8317584
Saturation pH (@ 20C)	N/A	-	7.20	8317580	7.21		8317580
Saturation pH (@ 4C)	N/A	-	7.44	8317584	7.46		8317584
Inorganics							
Total Ammonia-N	mg/L	-	0.15	8324582	0.13	0.050	8324582
Conductivity	umho/cm	-	1800	8318841	1800	1.0	8318841
Total Dissolved Solids	mg/L	-	1060	8321805	1070	10	8321805
Fluoride (F-)	mg/L	-	0.50	8318852	0.50	0.10	8318852
Total Kjeldahl Nitrogen (TKN)	mg/L	-	0.56	8321959	0.55	0.10	8321959
Dissolved Organic Carbon	mg/L	-	6.2	8321392	6.3	0.40	8321392
Orthophosphate (P)	mg/L	-	<0.010	8320273	<0.010	0.010	8320273
pH	pH	6.5:8.5	7.91	8318865	7.93		8318865
Phenols-4AAP	mg/L	0.001	<0.0010	8326458	<0.0010	0.0010	8326699
Total Phosphorus	mg/L	0.01	**0.021**	8319206	**0.020**	0.004	8319206
Total Suspended Solids	mg/L	-	12	8321416	<10	10	8321416
Dissolved Sulphate (SO4)	mg/L	-	370	8320279	370	1.0	8320279
Turbidity	NTU	-	3.2	8319286	3.6	0.1	8319286
Alkalinity (Total as CaCO3)	mg/L	-	150	8318859	150	1.0	8318859
Dissolved Chloride (Cl-)	mg/L	-	290	8320281	280	3.0	8320281
Nitrite (N)	mg/L	-	0.020	8319346	0.016	0.010	8319325
Nitrate (N)	mg/L	-	0.52	8319346	0.51	0.10	8319325

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: Ontario Provincial Water Quality Objectives
Ref. to MOEE Water Management document dated Feb.1999
N/A = Not Applicable

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Bureau Veritas Job #: C2V7988
Report Date: 2022/11/07

Golder Associates Ltd
Client Project #: 21508089
Site Location: MCCARTHY
Sampler Initials: CI

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID			UDX806		UDX807			UDX807		
Sampling Date			2022/10/28 11:30		2022/10/28 11:30			2022/10/28 11:30		
COC Number			901522-01-01		901522-01-01			901522-01-01		
	UNITS	Criteria	POND	QC Batch	SW1	RDL	QC Batch	SW1 Lab-Dup	RDL	QC Batch
Metals										
Dissolved Calcium (Ca)	mg/L	-	99	8321931	150	0.05	8321931	150	0.05	8321931
Dissolved Magnesium (Mg)	mg/L	-	54	8321931	53	0.05	8321931	51	0.05	8321931
Dissolved Potassium (K)	mg/L	-	20	8321931	17	1	8321931	17	1	8321931
Dissolved Sodium (Na)	mg/L	-	170	8321931	170	0.5	8321931	170	0.5	8321931
Total Arsenic (As)	ug/L	100	<1.0	8323476	<1.0	1.0	8324011			
Total Cadmium (Cd)	ug/L	0.2	<0.090	8323476	<0.090	0.090	8324011			
Total Calcium (Ca)	ug/L	-	100000	8323476	160000	200	8324011			
Total Chromium (Cr)	ug/L	-	<5.0	8323476	<5.0	5.0	8324011			
Total Copper (Cu)	ug/L	5	<0.90	8323476	1.3	0.90	8324011			
Total Iron (Fe)	ug/L	300	**320**	8323476	300	100	8324011			
Total Lead (Pb)	ug/L	5	<0.50	8323476	<0.50	0.50	8324011			
Total Magnesium (Mg)	ug/L	-	54000	8323476	52000	50	8324011			
Total Manganese (Mn)	ug/L	-	130	8323476	65	2.0	8324011			
Total Nickel (Ni)	ug/L	25	1.7	8323476	1.6	1.0	8324011			
Total Potassium (K)	ug/L	-	19000	8323476	17000	200	8324011			
Total Sodium (Na)	ug/L	-	170000	8323476	170000	100	8324011			
Total Zinc (Zn)	ug/L	30	<5.0	8323476	5.2	5.0	8324011			

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
Criteria: Ontario Provincial Water Quality Objectives
Ref. to MOEE Water Management document dated Feb.1999

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Bureau Veritas Job #: C2V7988
Report Date: 2022/11/07

Golder Associates Ltd
Client Project #: 21508089
Site Location: MCCARTHY
Sampler Initials: CI

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID			UDX808		
Sampling Date			2022/10/28		
COC Number			901522-01-01		
	UNITS	Criteria	DUP 3	RDL	QC Batch
Metals					
Dissolved Calcium (Ca)	mg/L	-	150	0.05	8321931
Dissolved Magnesium (Mg)	mg/L	-	52	0.05	8321931
Dissolved Potassium (K)	mg/L	-	17	1	8321931
Dissolved Sodium (Na)	mg/L	-	170	0.5	8321931
Total Arsenic (As)	ug/L	100	<1.0	1.0	8324011
Total Cadmium (Cd)	ug/L	0.2	<0.090	0.090	8324011
Total Calcium (Ca)	ug/L	-	150000	200	8324011
Total Chromium (Cr)	ug/L	-	<5.0	5.0	8324011
Total Copper (Cu)	ug/L	5	1.0	0.90	8324011
Total Iron (Fe)	ug/L	300	290	100	8324011
Total Lead (Pb)	ug/L	5	<0.50	0.50	8324011
Total Magnesium (Mg)	ug/L	-	50000	50	8324011
Total Manganese (Mn)	ug/L	-	63	2.0	8324011
Total Nickel (Ni)	ug/L	25	1.4	1.0	8324011
Total Potassium (K)	ug/L	-	16000	200	8324011
Total Sodium (Na)	ug/L	-	170000	100	8324011
Total Zinc (Zn)	ug/L	30	<5.0	5.0	8324011

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: Ontario Provincial Water Quality Objectives
Ref. to MOEE Water Management document dated Feb.1999

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Bureau Veritas Job #: C2V7988
Report Date: 2022/11/07

Golder Associates Ltd
Client Project #: 21508089
Site Location: MCCARTHY
Sampler Initials: CI

TEST SUMMARY

Bureau Veritas ID: UDX806
Sample ID: POND
Matrix: Water

Collected: 2022/10/28
Shipped:
Received: 2022/10/31

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	8318859	N/A	2022/11/02	Kien Tran
Carbonate, Bicarbonate and Hydroxide	CALC	8316069	N/A	2022/11/03	Automated Statchk
Chloride by Automated Colourimetry	KONE	8320281	N/A	2022/11/04	Alina Dobreanu
Conductivity	AT	8318841	N/A	2022/11/02	Kien Tran
Dissolved Organic Carbon (DOC)	TOCV/NDIR	8321392	N/A	2022/11/02	Gyulshen Idriz
Fluoride	ISE	8318852	2022/11/01	2022/11/02	Kien Tran
Hardness (calculated as CaCO3)		8316897	N/A	2022/11/04	Automated Statchk
Lab Filtered Metals Analysis by ICP	ICP	8321931	2022/11/02	2022/11/04	Indira HarryPaul
Total Metals Analysis by ICPMS	ICP/MS	8323476	N/A	2022/11/03	Arefa Dabhad
Anion and Cation Sum	CALC	8317577	N/A	2022/11/04	Automated Statchk
Total Ammonia-N	LACH/NH4	8324582	N/A	2022/11/05	Amanpreet Sappal
Nitrate & Nitrite as Nitrogen in Water	LACH	8319325	N/A	2022/11/04	Chandra Nandlal
Animal and Vegetable Oil and Grease	BAL	8316617	N/A	2022/11/06	Automated Statchk
Total Oil and Grease	BAL	8329463	2022/11/06	2022/11/06	Navneet Singh
pH	AT	8318865	2022/11/01	2022/11/02	Kien Tran
Phenols (4AAP)	TECH/PHEN	8326458	N/A	2022/11/04	Mandeep Kaur
Orthophosphate	KONE	8320273	N/A	2022/11/03	Samuel Law
Sat. pH and Langelier Index (@ 20C)	CALC	8317580	N/A	2022/11/04	Automated Statchk
Sat. pH and Langelier Index (@ 4C)	CALC	8317584	N/A	2022/11/04	Automated Statchk
Sulphate by Automated Colourimetry	KONE	8320279	N/A	2022/11/07	Samuel Law
Total Dissolved Solids	BAL	8321805	2022/11/02	2022/11/03	Shaneil Hall
Total Kjeldahl Nitrogen in Water	SKAL	8321959	2022/11/02	2022/11/02	Jency Sara Johnson
Total Phosphorus (Colourimetric)	SKAL/P	8319206	2022/11/02	2022/11/02	Sachi Patel
Mineral/Synthetic O & G (TPH Heavy Oil)	BAL	8329467	2022/11/06	2022/11/06	Navneet Singh
Total Suspended Solids	BAL	8321801	2022/11/02	2022/11/03	Shaneil Hall
Turbidity	AT	8319286	N/A	2022/11/02	Surinder Rai

Bureau Veritas ID: UDX806 Dup
Sample ID: POND
Matrix: Water

Collected: 2022/10/28
Shipped:
Received: 2022/10/31

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Total Dissolved Solids	BAL	8321805	2022/11/02	2022/11/03	Shaneil Hall

Bureau Veritas ID: UDX807
Sample ID: SW1
Matrix: Water

Collected: 2022/10/28
Shipped:
Received: 2022/10/31

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	8318859	N/A	2022/11/02	Kien Tran
Carbonate, Bicarbonate and Hydroxide	CALC	8316069	N/A	2022/11/03	Automated Statchk
Chloride by Automated Colourimetry	KONE	8320281	N/A	2022/11/04	Alina Dobreanu
Conductivity	AT	8318841	N/A	2022/11/02	Kien Tran
Dissolved Organic Carbon (DOC)	TOCV/NDIR	8321392	N/A	2022/11/02	Gyulshen Idriz

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Bureau Veritas Job #: C2V7988
Report Date: 2022/11/07

Golder Associates Ltd
Client Project #: 21508089
Site Location: MCCARTHY
Sampler Initials: CI

TEST SUMMARY

Bureau Veritas ID: UDX807
Sample ID: SW1
Matrix: Water

Collected: 2022/10/28
Shipped:
Received: 2022/10/31

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Fluoride	ISE	8318852	2022/11/01	2022/11/02	Kien Tran
Hardness (calculated as CaCO3)		8316897	N/A	2022/11/04	Automated Statchk
Lab Filtered Metals Analysis by ICP	ICP	8321931	2022/11/02	2022/11/04	Indira HarryPaul
Total Metals Analysis by ICPMS	ICP/MS	8324011	N/A	2022/11/03	Arefa Dabhad
Anion and Cation Sum	CALC	8317577	N/A	2022/11/04	Automated Statchk
Total Ammonia-N	LACH/NH4	8324582	N/A	2022/11/05	Amanpreet Sappal
Nitrate & Nitrite as Nitrogen in Water	LACH	8319346	N/A	2022/11/04	Chandra Nandlal
Animal and Vegetable Oil and Grease	BAL	8316617	N/A	2022/11/06	Automated Statchk
Total Oil and Grease	BAL	8329463	2022/11/06	2022/11/06	Navneet Singh
pH	AT	8318865	2022/11/01	2022/11/02	Kien Tran
Phenols (4AAP)	TECH/PHEN	8326458	N/A	2022/11/04	Mandeep Kaur
Orthophosphate	KONE	8320273	N/A	2022/11/03	Samuel Law
Sat. pH and Langelier Index (@ 20C)	CALC	8317580	N/A	2022/11/04	Automated Statchk
Sat. pH and Langelier Index (@ 4C)	CALC	8317584	N/A	2022/11/04	Automated Statchk
Sulphate by Automated Colourimetry	KONE	8320279	N/A	2022/11/07	Samuel Law
Total Dissolved Solids	BAL	8321805	2022/11/02	2022/11/03	Shaneil Hall
Total Kjeldahl Nitrogen in Water	SKAL	8321959	2022/11/02	2022/11/02	Jency Sara Johnson
Total Phosphorus (Colourimetric)	SKAL/P	8319206	2022/11/02	2022/11/02	Sachi Patel
Mineral/Synthetic O & G (TPH Heavy Oil)	BAL	8329467	2022/11/06	2022/11/06	Navneet Singh
Total Suspended Solids	BAL	8321416	2022/11/02	2022/11/03	Shaneil Hall
Turbidity	AT	8319286	N/A	2022/11/02	Surinder Rai

Bureau Veritas ID: UDX807 Dup
Sample ID: SW1
Matrix: Water

Collected: 2022/10/28
Shipped:
Received: 2022/10/31

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Lab Filtered Metals Analysis by ICP	ICP	8321931	2022/11/02	2022/11/04	Indira HarryPaul

Bureau Veritas ID: UDX808
Sample ID: DUP 3
Matrix: Water

Collected: 2022/10/28
Shipped:
Received: 2022/10/31

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	8318859	N/A	2022/11/02	Kien Tran
Carbonate, Bicarbonate and Hydroxide	CALC	8316069	N/A	2022/11/03	Automated Statchk
Chloride by Automated Colourimetry	KONE	8320281	N/A	2022/11/04	Alina Dobreanu
Conductivity	AT	8318841	N/A	2022/11/02	Kien Tran
Dissolved Organic Carbon (DOC)	TOCV/NDIR	8321392	N/A	2022/11/02	Gyulshen Idriz
Fluoride	ISE	8318852	2022/11/01	2022/11/02	Kien Tran
Hardness (calculated as CaCO3)		8316897	N/A	2022/11/04	Automated Statchk
Lab Filtered Metals Analysis by ICP	ICP	8321931	2022/11/02	2022/11/04	Indira HarryPaul
Total Metals Analysis by ICPMS	ICP/MS	8324011	N/A	2022/11/03	Arefa Dabhad
Anion and Cation Sum	CALC	8317577	N/A	2022/11/04	Automated Statchk

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Bureau Veritas Job #: C2V7988
Report Date: 2022/11/07

Golder Associates Ltd
Client Project #: 21508089
Site Location: MCCARTHY
Sampler Initials: CI

TEST SUMMARY

Bureau Veritas ID: UDX808
Sample ID: DUP 3
Matrix: Water

Collected: 2022/10/28
Shipped:
Received: 2022/10/31

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Total Ammonia-N	LACH/NH4	8324582	N/A	2022/11/05	Amanpreet Sappal
Nitrate & Nitrite as Nitrogen in Water	LACH	8319325	N/A	2022/11/04	Chandra Nandlal
Animal and Vegetable Oil and Grease	BAL	8316617	N/A	2022/11/06	Automated Statchk
Total Oil and Grease	BAL	8329463	2022/11/06	2022/11/06	Navneet Singh
pH	AT	8318865	2022/11/01	2022/11/02	Kien Tran
Phenols (4AAP)	TECH/PHEN	8326699	N/A	2022/11/04	Mandeep Kaur
Orthophosphate	KONE	8320273	N/A	2022/11/03	Samuel Law
Sat. pH and Langelier Index (@ 20C)	CALC	8317580	N/A	2022/11/04	Automated Statchk
Sat. pH and Langelier Index (@ 4C)	CALC	8317584	N/A	2022/11/04	Automated Statchk
Sulphate by Automated Colourimetry	KONE	8320279	N/A	2022/11/07	Samuel Law
Total Dissolved Solids	BAL	8321805	2022/11/02	2022/11/03	Shaneil Hall
Total Kjeldahl Nitrogen in Water	SKAL	8321959	2022/11/02	2022/11/02	Jency Sara Johnson
Total Phosphorus (Colourimetric)	SKAL/P	8319206	2022/11/02	2022/11/02	Sachi Patel
Mineral/Synthetic O & G (TPH Heavy Oil)	BAL	8329467	2022/11/06	2022/11/06	Navneet Singh
Total Suspended Solids	BAL	8321416	2022/11/02	2022/11/03	Shaneil Hall
Turbidity	AT	8319286	N/A	2022/11/02	Surinder Rai

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Bureau Veritas Job #: C2V7988
Report Date: 2022/11/07

Golder Associates Ltd
Client Project #: 21508089
Site Location: MCCARTHY
Sampler Initials: CI

GENERAL COMMENTS

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

Package 1	7.3°C

Results relate only to the items tested.

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QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
8318841	KIT	Spiked Blank	Conductivity	2022/11/02		103	%	85 - 115
8318841	KIT	Method Blank	Conductivity	2022/11/02	<1.0		umho/cm	
8318841	KIT	RPD	Conductivity	2022/11/02	2.2		%	25
8318852	KIT	Matrix Spike	Fluoride (F-)	2022/11/02		100	%	80 - 120
8318852	KIT	Spiked Blank	Fluoride (F-)	2022/11/02		101	%	80 - 120
8318852	KIT	Method Blank	Fluoride (F-)	2022/11/02	<0.10		mg/L	
8318852	KIT	RPD	Fluoride (F-)	2022/11/02	1.9		%	20
8318859	KIT	Spiked Blank	Alkalinity (Total as CaCO3)	2022/11/02		97	%	85 - 115
8318859	KIT	Method Blank	Alkalinity (Total as CaCO3)	2022/11/02	<1.0		mg/L	
8318859	KIT	RPD	Alkalinity (Total as CaCO3)	2022/11/02	0.34		%	20
8318865	KIT	Spiked Blank	pH	2022/11/02		102	%	98 - 103
8318865	KIT	RPD	pH	2022/11/02	0.39		%	N/A
8319206	SPC	Matrix Spike	Total Phosphorus	2022/11/02		113	%	80 - 120
8319206	SPC	QC Standard	Total Phosphorus	2022/11/02		106	%	80 - 120
8319206	SPC	Spiked Blank	Total Phosphorus	2022/11/02		98	%	80 - 120
8319206	SPC	Method Blank	Total Phosphorus	2022/11/02	<0.004		mg/L	
8319206	SPC	RPD	Total Phosphorus	2022/11/02	2.2		%	20
8319286	SAU	Spiked Blank	Turbidity	2022/11/02		114	%	85 - 115
8319286	SAU	Method Blank	Turbidity	2022/11/02	0.4, RDL=0.1		NTU	
8319286	SAU	RPD	Turbidity	2022/11/02	1.5		%	20
8319325	C_N	Matrix Spike	Nitrite (N)	2022/11/04		102	%	80 - 120
			Nitrate (N)	2022/11/04		95	%	80 - 120
8319325	C_N	Spiked Blank	Nitrite (N)	2022/11/04		106	%	80 - 120
			Nitrate (N)	2022/11/04		97	%	80 - 120
8319325	C_N	Method Blank	Nitrite (N)	2022/11/04	<0.010		mg/L	
			Nitrate (N)	2022/11/04	<0.10		mg/L	
8319325	C_N	RPD	Nitrate (N)	2022/11/04	NC		%	20
8319346	C_N	Matrix Spike	Nitrite (N)	2022/11/04		103	%	80 - 120
			Nitrate (N)	2022/11/04		97	%	80 - 120
8319346	C_N	Spiked Blank	Nitrite (N)	2022/11/04		106	%	80 - 120
			Nitrate (N)	2022/11/04		99	%	80 - 120
8319346	C_N	Method Blank	Nitrite (N)	2022/11/04	<0.010		mg/L	
			Nitrate (N)	2022/11/04	<0.10		mg/L	
8319346	C_N	RPD	Nitrite (N)	2022/11/04	16		%	20
			Nitrate (N)	2022/11/04	0.078		%	20
8320273	S1L	Matrix Spike	Orthophosphate (P)	2022/11/03		105	%	75 - 125
8320273	S1L	Spiked Blank	Orthophosphate (P)	2022/11/03		102	%	80 - 120
8320273	S1L	Method Blank	Orthophosphate (P)	2022/11/03	<0.010		mg/L	
8320273	S1L	RPD	Orthophosphate (P)	2022/11/03	NC		%	25
8320279	S1L	Matrix Spike	Dissolved Sulphate (SO4)	2022/11/07		NC	%	75 - 125
8320279	S1L	Spiked Blank	Dissolved Sulphate (SO4)	2022/11/07		108	%	80 - 120
8320279	S1L	Method Blank	Dissolved Sulphate (SO4)	2022/11/07	<1.0		mg/L	
8320279	S1L	RPD	Dissolved Sulphate (SO4)	2022/11/07	NC		%	20
8320281	ADB	Matrix Spike	Dissolved Chloride (Cl-)	2022/11/04		119	%	80 - 120
8320281	ADB	Spiked Blank	Dissolved Chloride (Cl-)	2022/11/04		103	%	80 - 120
8320281	ADB	Method Blank	Dissolved Chloride (Cl-)	2022/11/04	<1.0		mg/L	
8320281	ADB	RPD	Dissolved Chloride (Cl-)	2022/11/04	0.14		%	20
8321392	GID	Matrix Spike	Dissolved Organic Carbon	2022/11/02		97	%	80 - 120
8321392	GID	Spiked Blank	Dissolved Organic Carbon	2022/11/02		98	%	80 - 120
8321392	GID	Method Blank	Dissolved Organic Carbon	2022/11/02	<0.40		mg/L	

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
8321392	GID	RPD	Dissolved Organic Carbon	2022/11/02	2.0		%	20
8321416	SHD	QC Standard	Total Suspended Solids	2022/11/03		95	%	85 - 115
8321416	SHD	Method Blank	Total Suspended Solids	2022/11/03	<10		mg/L	
8321416	SHD	RPD	Total Suspended Solids	2022/11/03	NC		%	25
8321801	SHD	QC Standard	Total Suspended Solids	2022/11/03		95	%	85 - 115
8321801	SHD	Method Blank	Total Suspended Solids	2022/11/03	<10		mg/L	
8321801	SHD	RPD	Total Suspended Solids	2022/11/03	0.16		%	25
8321805	SHD	QC Standard	Total Dissolved Solids	2022/11/03		100	%	90 - 110
8321805	SHD	Method Blank	Total Dissolved Solids	2022/11/03	<10		mg/L	
8321805	SHD	RPD [UDX806-03]	Total Dissolved Solids	2022/11/03	0.46		%	25
8321931	IHP	Matrix Spike [UDX807-01]	Dissolved Calcium (Ca)	2022/11/04		NC	%	80 - 120
			Dissolved Magnesium (Mg)	2022/11/04		NC	%	80 - 120
			Dissolved Potassium (K)	2022/11/04		NC	%	80 - 120
			Dissolved Sodium (Na)	2022/11/04		NC	%	80 - 120
8321931	IHP	Spiked Blank	Dissolved Calcium (Ca)	2022/11/04		100	%	80 - 120
			Dissolved Magnesium (Mg)	2022/11/04		107	%	80 - 120
			Dissolved Potassium (K)	2022/11/04		106	%	80 - 120
			Dissolved Sodium (Na)	2022/11/04		101	%	80 - 120
8321931	IHP	Method Blank	Dissolved Calcium (Ca)	2022/11/04	<0.05		mg/L	
			Dissolved Magnesium (Mg)	2022/11/04	<0.05		mg/L	
			Dissolved Potassium (K)	2022/11/04	<1		mg/L	
			Dissolved Sodium (Na)	2022/11/04	<0.5		mg/L	
8321931	IHP	RPD [UDX807-01]	Dissolved Calcium (Ca)	2022/11/04	3.6		%	25
			Dissolved Magnesium (Mg)	2022/11/04	2.8		%	25
			Dissolved Potassium (K)	2022/11/04	3.9		%	25
			Dissolved Sodium (Na)	2022/11/04	3.1		%	25
8321959	JJH	Matrix Spike	Total Kjeldahl Nitrogen (TKN)	2022/11/03		96	%	80 - 120
8321959	JJH	QC Standard	Total Kjeldahl Nitrogen (TKN)	2022/11/02		103	%	80 - 120
8321959	JJH	Spiked Blank	Total Kjeldahl Nitrogen (TKN)	2022/11/02		104	%	80 - 120
8321959	JJH	Method Blank	Total Kjeldahl Nitrogen (TKN)	2022/11/02	<0.10		mg/L	
8321959	JJH	RPD	Total Kjeldahl Nitrogen (TKN)	2022/11/03	10		%	20
8323476	ADA	Matrix Spike	Total Arsenic (As)	2022/11/03		102	%	80 - 120
			Total Cadmium (Cd)	2022/11/03		102	%	80 - 120
			Total Calcium (Ca)	2022/11/03		NC	%	80 - 120
			Total Chromium (Cr)	2022/11/03		96	%	80 - 120
			Total Copper (Cu)	2022/11/03		107	%	80 - 120
			Total Iron (Fe)	2022/11/03		100	%	80 - 120
			Total Lead (Pb)	2022/11/03		101	%	80 - 120
			Total Magnesium (Mg)	2022/11/03		98	%	80 - 120
			Total Manganese (Mn)	2022/11/03		98	%	80 - 120
			Total Nickel (Ni)	2022/11/03		99	%	80 - 120
			Total Potassium (K)	2022/11/03		99	%	80 - 120
			Total Sodium (Na)	2022/11/03		NC	%	80 - 120
			Total Zinc (Zn)	2022/11/03		100	%	80 - 120
8323476	ADA	Spiked Blank	Total Arsenic (As)	2022/11/03		101	%	80 - 120
			Total Cadmium (Cd)	2022/11/03		101	%	80 - 120
			Total Calcium (Ca)	2022/11/03		101	%	80 - 120
			Total Chromium (Cr)	2022/11/03		96	%	80 - 120
			Total Copper (Cu)	2022/11/03		105	%	80 - 120
			Total Iron (Fe)	2022/11/03		101	%	80 - 120
			Total Lead (Pb)	2022/11/03		98	%	80 - 120

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Total Magnesium (Mg)	2022/11/03		101	%	80 - 120
			Total Manganese (Mn)	2022/11/03		98	%	80 - 120
			Total Nickel (Ni)	2022/11/03		99	%	80 - 120
			Total Potassium (K)	2022/11/03		100	%	80 - 120
			Total Sodium (Na)	2022/11/03		102	%	80 - 120
			Total Zinc (Zn)	2022/11/03		101	%	80 - 120
8323476	ADA	Method Blank	Total Arsenic (As)	2022/11/03	<1.0		ug/L	
			Total Cadmium (Cd)	2022/11/03	<0.090		ug/L	
			Total Calcium (Ca)	2022/11/03	<200		ug/L	
			Total Chromium (Cr)	2022/11/03	<5.0		ug/L	
			Total Copper (Cu)	2022/11/03	<0.90		ug/L	
			Total Iron (Fe)	2022/11/03	<100		ug/L	
			Total Lead (Pb)	2022/11/03	<0.50		ug/L	
			Total Magnesium (Mg)	2022/11/03	<50		ug/L	
			Total Manganese (Mn)	2022/11/03	<2.0		ug/L	
			Total Nickel (Ni)	2022/11/03	<1.0		ug/L	
			Total Potassium (K)	2022/11/03	<200		ug/L	
			Total Sodium (Na)	2022/11/03	<100		ug/L	
			Total Zinc (Zn)	2022/11/03	<5.0		ug/L	
8323476	ADA	RPD	Total Cadmium (Cd)	2022/11/03	8.4		%	20
			Total Chromium (Cr)	2022/11/03	NC		%	20
			Total Copper (Cu)	2022/11/03	0.43		%	20
			Total Iron (Fe)	2022/11/03	3.4		%	20
			Total Lead (Pb)	2022/11/03	2.4		%	20
			Total Nickel (Ni)	2022/11/03	2.6		%	20
			Total Zinc (Zn)	2022/11/03	1.4		%	20
8324011	ADA	Matrix Spike	Total Arsenic (As)	2022/11/03		102	%	80 - 120
			Total Cadmium (Cd)	2022/11/03		101	%	80 - 120
			Total Calcium (Ca)	2022/11/03		103	%	80 - 120
			Total Chromium (Cr)	2022/11/03		98	%	80 - 120
			Total Copper (Cu)	2022/11/03		104	%	80 - 120
			Total Iron (Fe)	2022/11/03		103	%	80 - 120
			Total Lead (Pb)	2022/11/03		102	%	80 - 120
			Total Magnesium (Mg)	2022/11/03		NC	%	80 - 120
			Total Manganese (Mn)	2022/11/03		100	%	80 - 120
			Total Nickel (Ni)	2022/11/03		100	%	80 - 120
			Total Potassium (K)	2022/11/03		103	%	80 - 120
			Total Sodium (Na)	2022/11/03		103	%	80 - 120
			Total Zinc (Zn)	2022/11/03		101	%	80 - 120
8324011	ADA	Spiked Blank	Total Arsenic (As)	2022/11/03		103	%	80 - 120
			Total Cadmium (Cd)	2022/11/03		101	%	80 - 120
			Total Calcium (Ca)	2022/11/03		104	%	80 - 120
			Total Chromium (Cr)	2022/11/03		98	%	80 - 120
			Total Copper (Cu)	2022/11/03		103	%	80 - 120
			Total Iron (Fe)	2022/11/03		103	%	80 - 120
			Total Lead (Pb)	2022/11/03		100	%	80 - 120
			Total Magnesium (Mg)	2022/11/03		102	%	80 - 120
			Total Manganese (Mn)	2022/11/03		99	%	80 - 120
			Total Nickel (Ni)	2022/11/03		101	%	80 - 120
			Total Potassium (K)	2022/11/03		102	%	80 - 120
			Total Sodium (Na)	2022/11/03		102	%	80 - 120

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Total Zinc (Zn)	2022/11/03		102	%	80 - 120
8324011	ADA	Method Blank	Total Arsenic (As)	2022/11/03	<1.0		ug/L	
			Total Cadmium (Cd)	2022/11/03	<0.090		ug/L	
			Total Calcium (Ca)	2022/11/03	<200		ug/L	
			Total Chromium (Cr)	2022/11/03	<5.0		ug/L	
			Total Copper (Cu)	2022/11/03	<0.90		ug/L	
			Total Iron (Fe)	2022/11/03	<100		ug/L	
			Total Lead (Pb)	2022/11/03	<0.50		ug/L	
			Total Magnesium (Mg)	2022/11/03	<50		ug/L	
			Total Manganese (Mn)	2022/11/03	<2.0		ug/L	
			Total Nickel (Ni)	2022/11/03	<1.0		ug/L	
			Total Potassium (K)	2022/11/03	<200		ug/L	
			Total Sodium (Na)	2022/11/03	<100		ug/L	
			Total Zinc (Zn)	2022/11/03	<5.0		ug/L	
8324011	ADA	RPD	Total Arsenic (As)	2022/11/03	NC		%	20
			Total Cadmium (Cd)	2022/11/03	NC		%	20
			Total Calcium (Ca)	2022/11/03	4.0		%	20
			Total Chromium (Cr)	2022/11/03	3.9		%	20
			Total Copper (Cu)	2022/11/03	NC		%	20
			Total Iron (Fe)	2022/11/03	NC		%	20
			Total Lead (Pb)	2022/11/03	NC		%	20
			Total Magnesium (Mg)	2022/11/03	5.2		%	20
			Total Manganese (Mn)	2022/11/03	7.3		%	20
			Total Nickel (Ni)	2022/11/03	4.3		%	20
			Total Potassium (K)	2022/11/03	NC		%	20
			Total Sodium (Na)	2022/11/03	4.0		%	20
			Total Zinc (Zn)	2022/11/03	12		%	20
8324582	ASP	Matrix Spike	Total Ammonia-N	2022/11/05		100	%	75 - 125
8324582	ASP	Spiked Blank	Total Ammonia-N	2022/11/05		103	%	80 - 120
8324582	ASP	Method Blank	Total Ammonia-N	2022/11/05	<0.050		mg/L	
8324582	ASP	RPD	Total Ammonia-N	2022/11/05	NC		%	20
8326458	MKX	Matrix Spike	Phenols-4AAP	2022/11/04		104	%	80 - 120
8326458	MKX	Spiked Blank	Phenols-4AAP	2022/11/04		102	%	80 - 120
8326458	MKX	Method Blank	Phenols-4AAP	2022/11/04	<0.0010		mg/L	
8326458	MKX	RPD	Phenols-4AAP	2022/11/04	NC		%	20
8326699	MKX	Matrix Spike	Phenols-4AAP	2022/11/04		102	%	80 - 120
8326699	MKX	Spiked Blank	Phenols-4AAP	2022/11/04		100	%	80 - 120
8326699	MKX	Method Blank	Phenols-4AAP	2022/11/04	<0.0010		mg/L	
8326699	MKX	RPD	Phenols-4AAP	2022/11/04	11		%	20
8329463	NSG	Spiked Blank	Total Oil & Grease	2022/11/06		99	%	85 - 115
8329463	NSG	RPD	Total Oil & Grease	2022/11/06	0.25		%	25
8329463	NSG	Method Blank	Total Oil & Grease	2022/11/06	<0.50		mg/L	
8329467	NSG	Spiked Blank	Total Oil & Grease Mineral/Synthetic	2022/11/06		97	%	85 - 115
8329467	NSG	RPD	Total Oil & Grease Mineral/Synthetic	2022/11/06	0.52		%	25

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
8329467	NSG	Method Blank	Total Oil & Grease Mineral/Synthetic	2022/11/06	<0.50		mg/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.

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

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

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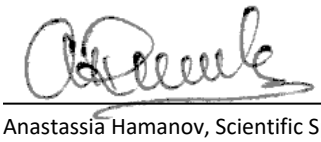
Bureau Veritas Job #: C2V7988
Report Date: 2022/11/07

Golder Associates Ltd
Client Project #: 21508089
Site Location: MCCARTHY
Sampler Initials: CI

VALIDATION SIGNATURE PAGE

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



Anastassia Hamanov, Scientific Specialist

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 Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by {0}, {1} responsible for {2} {3} laboratory operations.

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Exceedance Summary Table – Prov. Water Quality Obj.

Result Exceedances

Sample ID	Bureau Veritas ID	Parameter	Criteria	Result	DL	UNITS
POND	UDX806-06	Total Iron (Fe)	300	320	100	ug/L
POND	UDX806-05	Total Phosphorus	0.01	0.019	0.004	mg/L
SW1	UDX807-05	Total Phosphorus	0.01	0.021	0.004	mg/L
DUP 3	UDX808-05	Total Phosphorus	0.01	0.020	0.004	mg/L

The exceedance summary table is for information purposes only and should not be considered a comprehensive listing or statement of conformance to applicable regulatory guidelines.

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Your Project #: 21508089
Site#: McCarthy
Site Location: MCCARTHY
Your C.O.C. #: 901523-01-01

Attention: Jamie Bonany/Colin Imrie

Golder Associates Ltd
121 Commerce Park Drive
Unit L
Barrie, ON
CANADA L4N 8X1

Report Date: 2023/01/25
Report #: R7483508
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C314146
Received: 2023/01/17, 09:05

Sample Matrix: Water
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Animal and Vegetable Oil and Grease	1	N/A	2023/01/24	CAM SOP-00326	EPA1664B m,SM5520B m
Total Oil and Grease	1	2023/01/24	2023/01/24	CAM SOP-00326	EPA1664B m,SM5520B m
pH	1	2023/01/18	2023/01/19	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	1	N/A	2023/01/19	CAM SOP-00444	OMOE E3179 m
Mineral/Synthetic O & G (TPH Heavy Oil) (1)	1	2023/01/24	2023/01/24	CAM SOP-00326	EPA1664B m,SM5520F m
Low Level Total Suspended Solids	1	2023/01/21	2023/01/23	CAM SOP-00428	SM 23 2540D m

Remarks:

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

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

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

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

Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) Note: TPH (Heavy Oil) is equivalent to Mineral / Synthetic Oil & Grease

Your Project #: 21508089
Site#: McCarthy
Site Location: MCCARTHY
Your C.O.C. #: 901523-01-01

Attention: Jamie Bonany/Colin Imrie

Golder Associates Ltd
121 Commerce Park Drive
Unit L
Barrie, ON
CANADA L4N 8X1

Report Date: 2023/01/25
Report #: R7483508
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C314146
Received: 2023/01/17, 09:05

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Ankita Bhalla, Project Manager
Email: Ankita.Bhalla@bureauveritas.com
Phone# (905) 817-5700

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Bureau Veritas Job #: C314146
Report Date: 2023/01/25

Golder Associates Ltd
Client Project #: 21508089
Site Location: MCCARTHY
Sampler Initials: IM

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		UUY025		
Sampling Date		2023/01/16 14:00		
COC Number		901523-01-01		
	UNITS	**POND**	**RDL**	**QC Batch**
Calculated Parameters				
Total Animal/Vegetable Oil and Grease	mg/L	0.70	0.50	8455307
Inorganics				
pH	pH	7.42	N/A	8456032
Phenols-4AAP	mg/L	0.0011	0.0010	8458557
Total Suspended Solids	mg/L	1	1	8460812
Petroleum Hydrocarbons				
Total Oil & Grease	mg/L	0.70	0.50	8465416
Total Oil & Grease Mineral/Synthetic	mg/L	<0.50	0.50	8465417

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

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Bureau Veritas Job #: C314146
Report Date: 2023/01/25

Golder Associates Ltd
Client Project #: 21508089
Site Location: MCCARTHY
Sampler Initials: IM

GENERAL COMMENTS

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

Package 1	13.3°C

Results relate only to the items tested.

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Bureau Veritas Job #: C314146
Report Date: 2023/01/25

Golder Associates Ltd
Client Project #: 21508089
Site Location: MCCARTHY
Sampler Initials: IM

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
8456032	TAK	Spiked Blank	pH	2023/01/19		102	%	98 - 103
8456032	TAK	RPD	pH	2023/01/19	0.064		%	N/A
8458557	MKX	Matrix Spike	Phenols-4AAP	2023/01/19		107	%	80 - 120
8458557	MKX	Spiked Blank	Phenols-4AAP	2023/01/19		105	%	80 - 120
8458557	MKX	Method Blank	Phenols-4AAP	2023/01/19	<0.0010		mg/L	
8458557	MKX	RPD	Phenols-4AAP	2023/01/19	NC		%	20
8460812	SHD	QC Standard	Total Suspended Solids	2023/01/23		95	%	85 - 115
8460812	SHD	Method Blank	Total Suspended Solids	2023/01/23	<1		mg/L	
8460812	SHD	RPD	Total Suspended Solids	2023/01/23	6.5		%	20
8465416	NSG	Spiked Blank	Total Oil & Grease	2023/01/24		99	%	85 - 115
8465416	NSG	RPD	Total Oil & Grease	2023/01/24	0		%	25
8465416	NSG	Method Blank	Total Oil & Grease	2023/01/24	<0.50		mg/L	
8465417	NSG	Spiked Blank	Total Oil & Grease Mineral/Synthetic	2023/01/24		96	%	85 - 115
8465417	NSG	RPD	Total Oil & Grease Mineral/Synthetic	2023/01/24	0.52		%	25
8465417	NSG	Method Blank	Total Oil & Grease Mineral/Synthetic	2023/01/24	<0.50		mg/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.

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).

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Bureau Veritas Job #: C314146
Report Date: 2023/01/25

Golder Associates Ltd
Client Project #: 21508089
Site Location: MCCARTHY
Sampler Initials: IM

VALIDATION SIGNATURE PAGE

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

Cristina Carriere

Cristina Carriere, Senior Scientific Specialist

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