GOLDER
MEMBER OF WSP

REPORT

MCCARTHY QUARRY

2021 Environmental Compliance Approval Annual Report

Submitted to:

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Submitted by:

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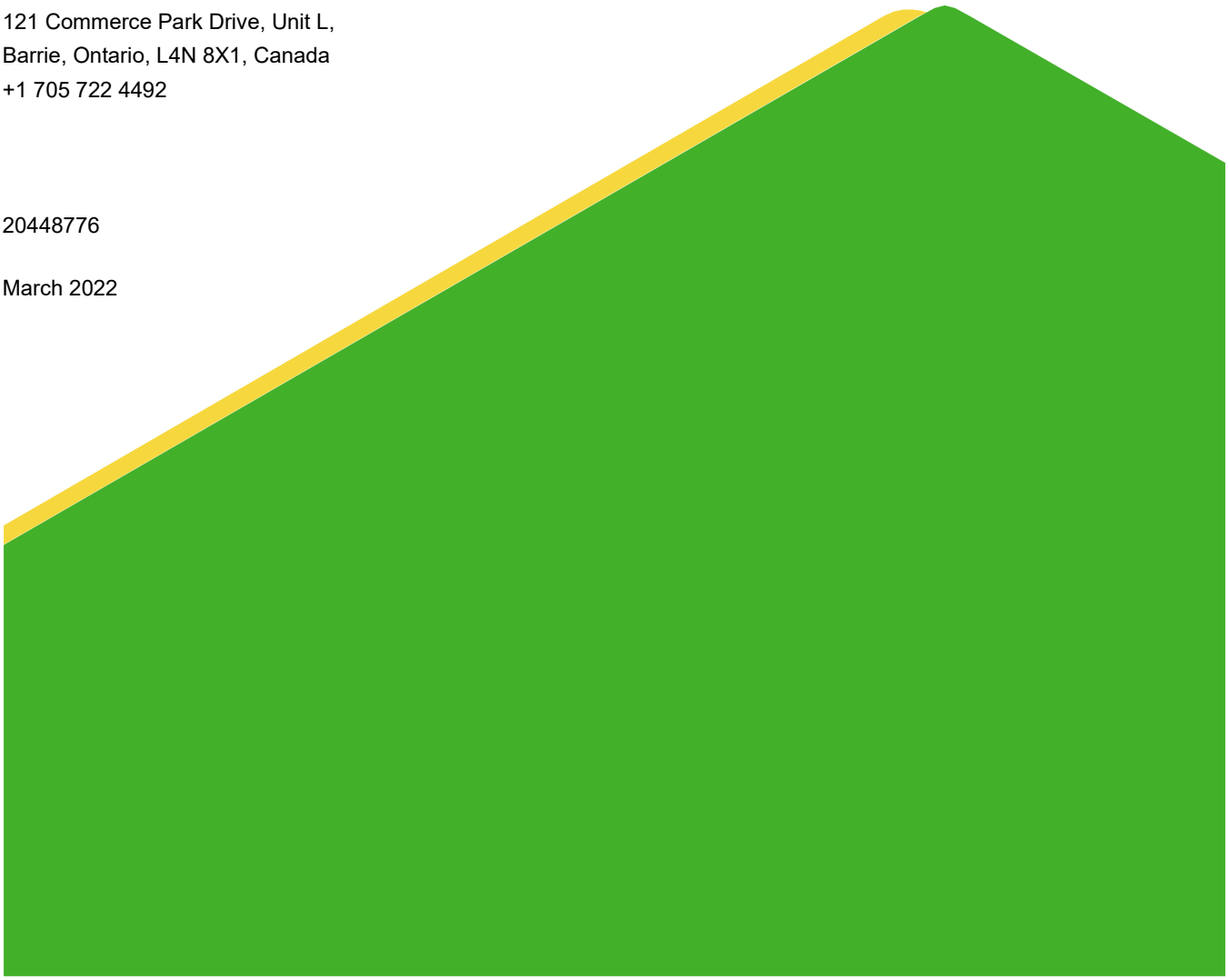

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March 2022

Distribution List

1 Copy - Ministry of the Environment, Conservation and Parks

E Copy - Coco Aggregates Inc.

E Copy - Golder Associates Ltd.

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APPENDICES

1.0 INTRODUCTION

Golder Associates Ltd. (Golder) was retained by QBJR/Coco Aggregates Inc. (Coco) 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, 2021 to December 31, 2021. 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 Coco 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 Golder. 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 Golder 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), with the exception of the average TSS in June (19 mg/L), which exceeded the 15 mg/L limit. Only a single sample was collected in June 2021 with during very low flow conditions, which contributed to the elevated TSS concentration. TSS concentrations decreased to an average of 4.0 mg/L in July 2021.

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); results are provided in Table 3.

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 phosphorus at SW2 on October 21, 2021. 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, 2021 to December 31, 2021 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

Coco identified on November 17, 2021 that the sump pump required replacement and a rental pump was installed on November 21, 2021. In addition, Coco reported that on December 17, 2021 it was identified that the discharge line that runs from the sump to the settling pond was damaged. Coco stopped pumping for the remainder of the year and replacement of the discharge line is planned for 2022. Coco has indicated that no other operational problems were encountered with the dewatering system during the monitoring period of January to December 2021. Coco also indicted that no spills occurred during the January to December 2021 monitoring period.

7.0 MAINTENANCE OF SEWAGE WORKS

Coco indicated that no upgrades or maintenance works were carried out on any part of the sewage works during the January to December 2021 monitoring period. Coco started set up of a new sump in the southeastern corner of the sump in December 2021; set up of the new sump, including installation of a new discharge that runs from the sump to the settling pond will be finalized in 2022.

8.0 QUARRY DISCHARGE QUALITY ASSURANCE OR CONTROL MEASURES

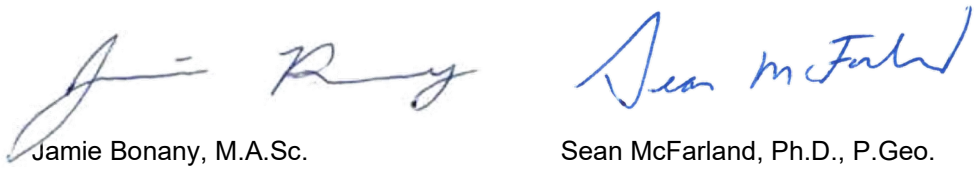
Coco indicated that no major quarry discharge quality assurance or control measures were put in place during this monitoring period.

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, with the exception of the average TSS in June (19 mg/L), which exceeded the 15 mg/L limit. Only a single sample was collected in June 2021 with during very low flow conditions, which contributed to the elevated TSS concentration. TSS concentrations decreased to an average of 4.0 mg/L in July 2021.
- Condition 6(2) Table 3:
  - At the McCarthy Pond, all parameters were below the PWQO;
  - At SW1, all parameters were below the PWQO; and,
  - At SW2, all parameters were below the PWQO with the exception of phosphorus on October 21, 2021. SW2 represents an upstream sampling location and the water quality at this location is not impacted by quarry operations.
- 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

Golder Associates Ltd.



Jamie Bonany, M.A.Sc.
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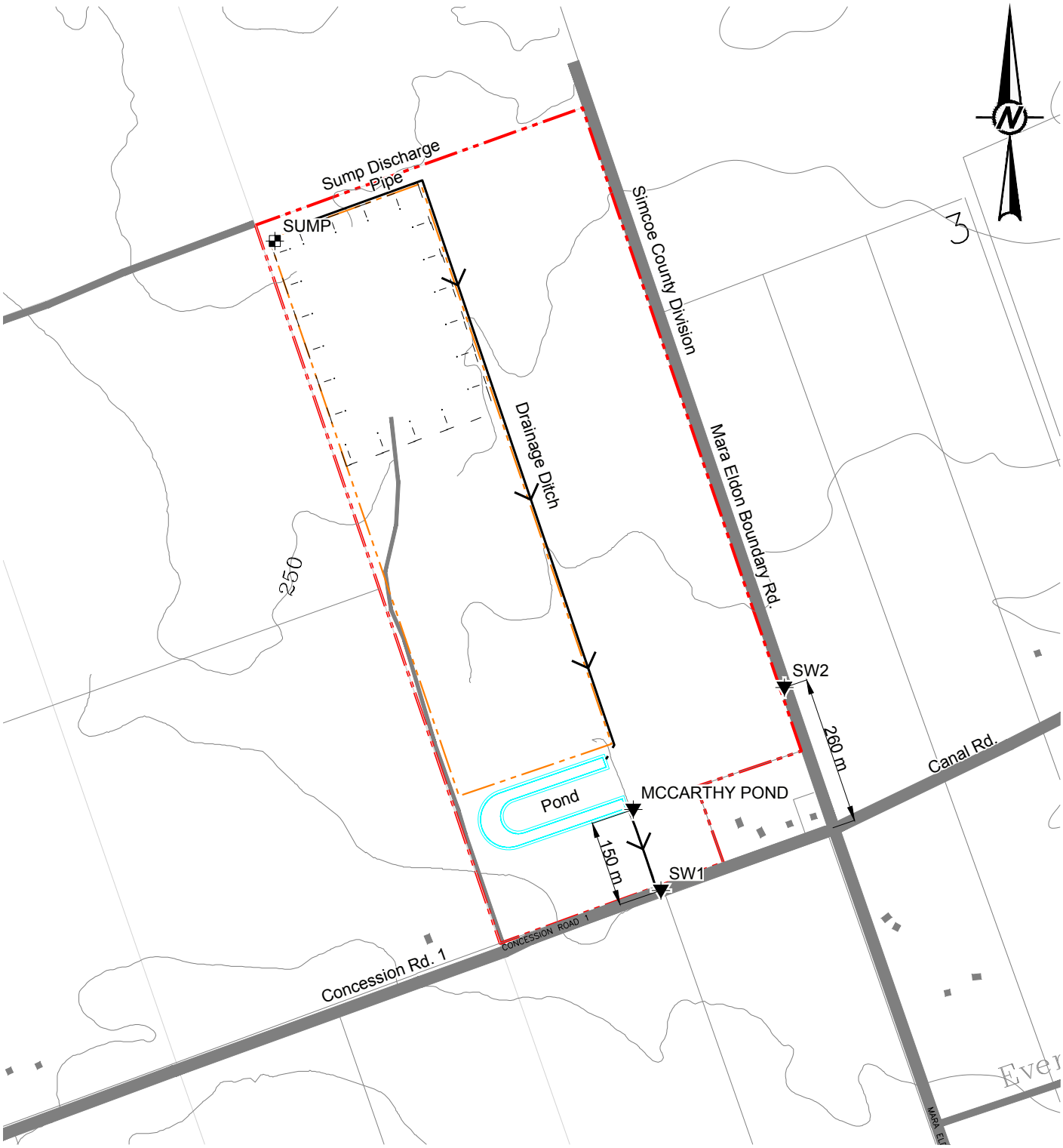
FIGURE



LEGEND

- Approximate Property Boundary
- Approximate Licenced Boundary
- 5 m Contour Line
- 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

0 200 400 600 m

1:10000

CLIENT
COCO / QBJR AGGREGATES INC.

PROJECT
STAN McCARTHY QUARRY

TITLE
LOCATION MAP

CONSULTANT
GOLDER
MEMBER OF WSP

YYYY-MM-DD	2021-12-08
PREPARED	STB
DESIGN	
REVIEW	
APPROVED	

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

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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											
Sample ID					Pond											
Date					22-Apr-21	17-Jun-21	15-Jul-21	29-Jul-21	19-Aug-21	02-Sep-21	04-Oct-21	12-Oct-21	21-Oct-21	15-Nov-21	02-Dec-21	09-Dec-21
pH	pH	n/a		6.0-9.5	7.98	7.97	8.05	7.55	7.98	7.86	8.27	8.41	8.42	8.26	8.16	7.82
Total Suspended Solids	mg/L	1		30	12	19	5	3	2	1	1	2	6	2	2	14
Total Oil and Grease	mg/L	0.5	Note 3	30	1.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.5	<0.5	<0.5
Phenols (4AAP)	mg/L	<0.0010		0.04	<0.001	<0.001	<0.001	<0.001	0.0014	<0.001	<0.001	<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. 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 2021	February 2021	March 2021	April 2021	May 2021	June 2021	July 2021	August 2021	September 2021	October 2021	November 2021	December 2021
Total Suspended Solids	mg/L	1		15	-	-	-	12.0	-	**19.0**	4.0	2.0	1.0	3.0	2.0	8.0
Total Oil and Grease	mg/L	0.5	Note 3	15	-	-	-	1.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	0.5	<0.5
Phenols (4AAP)	mg/L	<0.0010		0.02	-	-	-	<0.001	-	<0.001	<0.001	0.0014	<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						**29-Jun-21**	**17-Dec-21**
Field Measured Parameters							
Conductivity	mS/cm					988	886
pH	pH	n/a	6.5-8.5		6.0-9.5	8.23	7.87
Temperature	°C	n/a				15.8	3.9
Calculated Parameters							
Hardness (CaCO3)	mg/L	1.0				370	370
Inorganics							
Total Ammonia-N	mg/L	0.050				<0.050	<0.050
Conductivity	umho/cm	1.0				1.20	1.10
Total Dissolved Solids	mg/L	10				770	645
Fluoride (F-)	mg/L	0.10				0.60	0.35
Total Kjeldahl Nitrogen (TKN)	mg/L	0.10				0.34	<0.10
Dissolved Organic Carbon	mg/L	0.20				6.1	4.1
pH	pH	N/A	6.5-8.5		6.0-9.5	8.45	8.06
Phenols-4AAP	mg/L	0.0010	0.001		0.04	<0.0010	<0.0010
Total Phosphorus	mg/L	0.002		0.03[5b]		0.022	0.005
Total Suspended Solids	mg/L	10			30	<10	6
Dissolved Sulphate (SO4)	mg/L	1				320	230
Alkalinity (Total as CaCO3)	mg/L	1.0				45	150
Dissolved Chloride (Cl)	mg/L	1				160	130
Nitrite (N)	mg/L	0.010				<0.010	<0.010
Nitrate (N)	mg/L	0.10				<0.10	<0.10
Petroleum Hydrocarbons							
Total Oil & Grease	mg/L	0.50	Note 3		30	<0.50	<0.50
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				-	99
Total Calcium (Ca)	ug/L	200				69000	98000
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			150	190
Total Lead (Pb)	ug/L	0.5	5-25[5g]	1-5[5h]		<0.50	<0.50
Dissolved Magnesium (Mg)	mg/L	0.05				-	30
Total Magnesium (Mg)	ug/L	50				42000	31000
Total Manganese (Mn)	ug/L	2				48	38
Total Nickel (Ni)	ug/L	1	25			1.7	<1.0
Dissolved Potassium (K)	mg/L	1				-	8.0
Total Potassium (K)	ug/L	200				13000	8300
Dissolved Sodium (Na)	mg/L	0.5				-	84
Total Sodium (Na)	ug/L	100				110000	82000
Total Zinc (Zn)	ug/L	5	30	20		<5.0	84

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						**6-May-21**	**21-Oct-21**
Field Measured Parameters							
Conductivity	mS/cm					732	1456
pH	pH	n/a	6.5-8.5		6.0-9.5	8.09	7.21
Temperature	°C	n/a				16.9	15.3
Calculated Parameters							
Anion Sum	me/L	N/A				9.82	18.9
Cation Sum	me/L	N/A				10.3	20.1
Hardness (CaCO3)	mg/L	1.0				330	630
Inorganics							
Total Ammonia-N	mg/L	0.050				<0.050	<0.050
Conductivity	umho/cm	1.0				0.748	1.720
Total Dissolved Solids	mg/L	10				445	1290
Fluoride (F-)	mg/L	0.10				0.25	0.52
Total Kjeldahl Nitrogen (TKN)	mg/L	0.10				0.34	0.48
Dissolved Organic Carbon	mg/L	0.20				7.9	4.7
pH	pH	N/A	6.5-8.5		6.0-9.5	8.11	7.99
Phenols-4AAP	mg/L	0.0010			0.04	<0.0010	<0.0010
Total Phosphorus	mg/L	0.002		0.03[5b]		0.008	0.009
Total Suspended Solids	mg/L	10			30	3	5
Dissolved Sulphate (SO4)	mg/L	1				120	340
Alkalinity (Total as CaCO3)	mg/L	1.0				210	180
Dissolved Chloride (Cl)	mg/L	1				42	190
Nitrite (N)	mg/L	0.010				<0.010	1.120
Nitrate (N)	mg/L	0.10				0.43	1.14
Petroleum Hydrocarbons							
Total Oil & Grease	mg/L	0.50	Note 3		30	<0.50	<0.50
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	170
Total Calcium (Ca)	ug/L	200				99000	190000
Total Chromium (Cr)	ug/L	5	1-89[5e]			<5.0	<5.0
Total Copper (Cu)	ug/L	1	5	1-5[5f]		2.7	1.3
Total Iron (Fe)	ug/L	100	300			<100	180
Total Lead (Pb)	ug/L	0.5	5-25[5g]	1-5[5h]		<0.50	<0.50
Dissolved Magnesium (Mg)	mg/L	0.05				19	48
Total Magnesium (Mg)	ug/L	50				18000	45000
Total Manganese (Mn)	ug/L	2				13	35
Total Nickel (Ni)	ug/L	1	25			1.1	2.2
Dissolved Potassium (K)	mg/L	1				5.0	14.0
Total Potassium (K)	ug/L	200				4800	13000
Dissolved Sodium (Na)	mg/L	0.5				40	160
Total Sodium (Na)	ug/L	100				39000	150000
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 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						**6-May-21**	**21-Oct-21**
Field Measured Parameters							
Conductivity	mS/cm					510	746
pH	pH	n/a	6.5-8.5		6.0-9.5	8.05	8.12
Temperature	°C	n/a				15.1	14.1
Calculated Parameters							
Anion Sum	me/L	N/A				6.31	9.93
Cation Sum	me/L	N/A				6.52	9.99
Hardness (CaCO3)	mg/L	1.0				270	460
Inorganics							
Total Ammonia-N	mg/L	0.050				<0.050	<0.050
Conductivity	umho/cm	1.0				0.516	0.824
Total Dissolved Solids	mg/L	10				295	515
Fluoride (F-)	mg/L	0.10				<0.10	<0.10
Total Kjeldahl Nitrogen (TKN)	mg/L	0.10				0.33	0.46
Dissolved Organic Carbon	mg/L	0.20				6.8	8.5
pH	pH	N/A	6.5-8.5		6.0-9.5	8.09	7.82
Phenols-4AAP	mg/L	0.0010	0.001		0.04	<0.0010	<0.0010
Total Phosphorus	mg/L	0.002		0.03[5b]		0.011	**0.034**
Total Suspended Solids	mg/L	10			30	4	18
Dissolved Sulphate (SO4)	mg/L	1				11	130
Alkalinity (Total as CaCO3)	mg/L	1.0				270	340
Dissolved Chloride (Cl)	mg/L	1				5	15
Nitrite (N)	mg/L	0.010				<0.010	<0.010
Nitrate (N)	mg/L	0.10				<0.10	<0.10
Petroleum Hydrocarbons							
Total Oil & Grease	mg/L	0.50	Note 3		30	<0.50	<0.50
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				97	160
Total Calcium (Ca)	ug/L	200				99000	170000
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	1.3
Total Iron (Fe)	ug/L	100	300			<100	130
Total Lead (Pb)	ug/L	0.5	5-25[5g]	1-5[5h]		<0.50	<0.50
Dissolved Magnesium (Mg)	mg/L	0.05				7.1	16.0
Total Magnesium (Mg)	ug/L	50				7000	18000
Total Manganese (Mn)	ug/L	2				9	53
Total Nickel (Ni)	ug/L	1	25			<1.0	<1.0
Dissolved Potassium (K)	mg/L	1				1.3	5.0
Total Potassium (K)	ug/L	200				1300	3600
Dissolved Sodium (Na)	mg/L	0.5				4.6	14.0
Total Sodium (Na)	ug/L	100				4500	14000
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 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-21	NO PUMP		0	0	-	-	-
2-Jan-21	NO PUMP		0	0	-	-	-
3-Jan-21	NO PUMP		0	0	-	-	-
4-Jan-21	NO PUMP		0	0	-	-	-
5-Jan-21	NO PUMP		0	0	-	-	-
6-Jan-21	NO PUMP		0	0	-	-	-
7-Jan-21	NO PUMP		0	0	-	-	-
8-Jan-21	NO PUMP		0	0	-	-	-
9-Jan-21	NO PUMP		0	0	-	-	-
10-Jan-21	NO PUMP		0	0	-	-	-
11-Jan-21	NO PUMP		0	0	-	-	-
12-Jan-21	NO PUMP		0	0	-	-	-
13-Jan-21	NO PUMP		0	0	-	-	-
14-Jan-21	NO PUMP		0	0	-	-	-
15-Jan-21	NO PUMP		0	0	-	-	-
16-Jan-21	NO PUMP		0	0	-	-	-
17-Jan-21	NO PUMP		0	0	-	-	-
18-Jan-21	7AM	4PM	32400	540	648,000	20	1,200
19-Jan-21	7AM	4PM	32400	540	648,000	20	1,200
20-Jan-21	7AM	4PM	32400	540	648,000	20	1,200
21-Jan-21	7AM	4PM	32400	540	648,000	20	1,200
22-Jan-21	7AM	4PM	32400	540	648,000	20	1,200
23-Jan-21	NO PUMP		0	0	-	-	-
24-Jan-21	NO PUMP		0	0	-	-	-
25-Jan-21	7AM	4PM	32400	540	648,000	20	1,200
26-Jan-21	7AM	4PM	32400	540	648,000	20	1,200
27-Jan-21	7AM	4PM	32400	540	648,000	20	1,200
28-Jan-21	7AM	4PM	32400	540	648,000	20	1,200
29-Jan-21	7AM	4PM	32400	540	648,000	20	1,200
30-Jan-21	NO PUMP		0	0	-	-	-
31-Jan-21	NO PUMP		0	0	-	-	-
1-Feb-21	7AM	4PM	32400	540	648,000	20	1,200
2-Feb-21	7AM	4PM	32400	540	648,000	20	1,200
3-Feb-21	7AM	4PM	32400	540	648,000	20	1,200
4-Feb-21	7AM	4PM	32400	540	648,000	20	1,200
5-Feb-21	7AM	4PM	32400	540	648,000	20	1,200
6-Feb-21	NO PUMP		0	0	-	-	-
7-Feb-21	NO PUMP		0	0	-	-	-
8-Feb-21	7AM	4PM	32400	540	648,000	20	1,200
9-Feb-21	7AM	4PM	32400	540	648,000	20	1,200
10-Feb-21	7AM	4PM	32400	540	648,000	20	1,200
11-Feb-21	7AM	4PM	32400	540	648,000	20	1,200
12-Feb-21	7AM	4PM	32400	540	648,000	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**
13-Feb-21	NO PUMP		0	0	-	-	-
14-Feb-21	NO PUMP		0	0	-	-	-
15-Feb-21	7AM	4PM	32400	540	648,000	20	1,200
16-Feb-21	7AM	4PM	32400	540	648,000	20	1,200
17-Feb-21	7AM	4PM	32400	540	648,000	20	1,200
18-Feb-21	7AM	4PM	32400	540	648,000	20	1,200
19-Feb-21	7AM	4PM	32400	540	648,000	20	1,200
20-Feb-21	NO PUMP		0	0	-	-	-
21-Feb-21	NO PUMP		0	0	-	-	-
22-Feb-21	7AM	4PM	32400	540	648,000	20	1,200
23-Feb-21	7AM	4PM	32400	540	648,000	20	1,200
24-Feb-21	7AM	4PM	32400	540	648,000	20	1,200
25-Feb-21	7AM	4PM	32400	540	648,000	20	1,200
26-Feb-21	7AM	4PM	32400	540	648,000	20	1,200
27-Feb-21	NO PUMP		0	0	-	-	-
28-Feb-21	NO PUMP		0	0	-	-	-
1-Mar-21	7AM	4PM	32400	540	648,000	20	1,200
2-Mar-21	7AM	4PM	32400	540	648,000	20	1,200
3-Mar-21	7AM	4PM	32400	540	648,000	20	1,200
4-Mar-21	7AM	4PM	32400	540	648,000	20	1,200
5-Mar-21	7AM	4PM	32400	540	648,000	20	1,200
6-Mar-21	NO PUMP		0	0	-	-	-
7-Mar-21	NO PUMP		0	0	-	-	-
8-Mar-21	7AM	4PM	32400	540	648,000	20	1,200
9-Mar-21	7AM	4PM	32400	540	648,000	20	1,200
10-Mar-21	7AM	4PM	32400	540	648,000	20	1,200
11-Mar-21	7AM	4PM	32400	540	648,000	20	1,200
12-Mar-21	7AM	4PM	32400	540	648,000	20	1,200
13-Mar-21	NO PUMP		0	0	-	-	-
14-Mar-21	NO PUMP		0	0	-	-	-
15-Mar-21	7AM	4PM	32400	540	648,000	20	1,200
16-Mar-21	7AM	4PM	32400	540	648,000	20	1,200
17-Mar-21	7AM	4PM	32400	540	648,000	20	1,200
18-Mar-21	7AM	4PM	32400	540	648,000	20	1,200
19-Mar-21	7AM	4PM	32400	540	648,000	20	1,200
20-Mar-21	NO PUMP		0	0	-	-	-
21-Mar-21	NO PUMP		0	0	-	-	-
22-Mar-21	7AM	4PM	32400	540	648,000	20	1,200
23-Mar-21	7AM	4PM	32400	540	648,000	20	1,200
24-Mar-21	7AM	4PM	32400	540	648,000	20	1,200
25-Mar-21	7AM	4PM	32400	540	648,000	20	1,200
26-Mar-21	7AM	4PM	32400	540	648,000	20	1,200
27-Mar-21	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-21	NO PUMP		0	0	-	-	-
29-Mar-21	NO PUMP		0	0	-	-	-
30-Mar-21	NO PUMP		0	0	-	-	-
31-Mar-21	NO PUMP		0	0	-	-	-
1-Apr-21	NO PUMP		0	0	-	-	-
2-Apr-21	NO PUMP		0	0	-	-	-
3-Apr-21	NO PUMP		0	0	-	-	-
4-Apr-21	NO PUMP		0	0	-	-	-
5-Apr-21	NO PUMP		0	0	-	-	-
6-Apr-21	NO PUMP		0	0	-	-	-
7-Apr-21	NO PUMP		0	0	-	-	-
8-Apr-21	NO PUMP		0	0	-	-	-
9-Apr-21	NO PUMP		0	0	-	-	-
10-Apr-21	NO PUMP		0	0	-	-	-
11-Apr-21	7AM	4PM	32400	540	648,000	20	1,200
12-Apr-21	7AM	4PM	32400	540	648,000	20	1,200
13-Apr-21	7AM	4PM	32400	540	648,000	20	1,200
14-Apr-21	7AM	4PM	32400	540	648,000	20	1,200
15-Apr-21	7AM	4PM	32400	540	648,000	20	1,200
16-Apr-21	NO PUMP		0	0	-	-	-
17-Apr-21	NO PUMP		0	0	-	-	-
18-Apr-21	7AM	4PM	32400	540	648,000	20	1,200
19-Apr-21	7AM	4PM	32400	540	648,000	20	1,200
20-Apr-21	7AM	4PM	32400	540	648,000	20	1,200
21-Apr-21	7AM	4PM	32400	540	648,000	20	1,200
22-Apr-21	7AM	4PM	32400	540	648,000	20	1,200
23-Apr-21	NO PUMP		0	0	-	-	-
24-Apr-21	NO PUMP		0	0	-	-	-
25-Apr-21	NO PUMP		0	0	-	-	-
26-Apr-21	NO PUMP		0	0	-	-	-
27-Apr-21	NO PUMP		0	0	-	-	-
28-Apr-21	NO PUMP		0	0	-	-	-
29-Apr-21	NO PUMP		0	0	-	-	-
30-Apr-21	NO PUMP		0	0	-	-	-
1-May-21	NO PUMP		0	0	-	-	-
2-May-21	NO PUMP		0	0	-	-	-
3-May-21	NO PUMP		0	0	-	-	-
4-May-21	NO PUMP		0	0	-	-	-
5-May-21	NO PUMP		0	0	-	-	-
6-May-21	NO PUMP		0	0	-	-	-
7-May-21	NO PUMP		0	0	-	-	-
8-May-21	NO PUMP		0	0	-	-	-
9-May-21	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**
10-May-21	NO PUMP		0	0	-	-	-
11-May-21	NO PUMP		0	0	-	-	-
12-May-21	7AM	4PM	32400	540	648,000	20	1,200
13-May-21	7AM	4PM	32400	540	648,000	20	1,200
14-May-21	7AM	4PM	32400	540	648,000	20	1,200
15-May-21	7AM	4PM	32400	540	648,000	20	1,200
16-May-21	7AM	4PM	32400	540	648,000	20	1,200
17-May-21	NO PUMP		0	0	-	-	-
18-May-21	NO PUMP		0	0	-	-	-
19-May-21	7AM	4PM	32400	540	648,000	20	1,200
20-May-21	7AM	4PM	32400	540	648,000	20	1,200
21-May-21	7AM	4PM	32400	540	648,000	20	1,200
22-May-21	7AM	4PM	32400	540	648,000	20	1,200
23-May-21	7AM	4PM	32400	540	648,000	20	1,200
24-May-21	NO PUMP		0	0	-	-	-
25-May-21	NO PUMP		0	0	-	-	-
26-May-21	NO PUMP		0	0	-	-	-
27-May-21	NO PUMP		0	0	-	-	-
28-May-21	NO PUMP		0	0	-	-	-
29-May-21	NO PUMP		0	0	-	-	-
30-May-21	NO PUMP		0	0	-	-	-
31-May-21	NO PUMP		0	0	-	-	-
1-Jun-21	NO PUMP		0	0	-	-	-
2-Jun-21	NO PUMP		0	0	-	-	-
3-Jun-21	NO PUMP		0	0	-	-	-
4-Jun-21	NO PUMP		0	0	-	-	-
5-Jun-21	NO PUMP		0	0	-	-	-
6-Jun-21	NO PUMP		0	0	-	-	-
7-Jun-21	NO PUMP		0	0	-	-	-
8-Jun-21	NO PUMP		0	0	-	-	-
9-Jun-21	NO PUMP		0	0	-	-	-
10-Jun-21	NO PUMP		0	0	-	-	-
11-Jun-21	NO PUMP		0	0	-	-	-
12-Jun-21	NO PUMP		0	0	-	-	-
13-Jun-21	NO PUMP		0	0	-	-	-
14-Jun-21	NO PUMP		0	0	-	-	-
15-Jun-21	NO PUMP		0	0	-	-	-
16-Jun-21	NO PUMP		0	0	-	-	-
17-Jun-21	7AM	4PM	32400	540	648,000	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**
18-Jun-21	7AM	4PM	32400	540	648,000	20	1,200
19-Jun-21	NO PUMP		0	0	-	-	-
20-Jun-21	NO PUMP		0	0	-	-	-
21-Jun-21	7AM	4PM	32400	540	648,000	20	1,200
22-Jun-21	7AM	4PM	32400	540	648,000	20	1,200
23-Jun-21	7AM	4PM	32400	540	648,000	20	1,200
24-Jun-21	7AM	4PM	32400	540	648,000	20	1,200
25-Jun-21	7AM	4PM	32400	540	648,000	20	1,200
26-Jun-21	NO PUMP		0	0	-	-	-
27-Jun-21	NO PUMP		0	0	-	-	-
28-Jun-21	7AM	4PM	32400	540	648,000	20	1,200
29-Jun-21	7AM	4PM	32400	540	648,000	20	1,200
30-Jun-21	7AM	4PM	32400	540	648,000	20	1,200
1-Jul-21	7AM	4PM	32400	540	648,000	20	1,200
2-Jul-21	7AM	4PM	32400	540	648,000	20	1,200
3-Jul-21	NO PUMP		0	0	-	-	-
4-Jul-21	NO PUMP		0	0	-	-	-
5-Jul-21	NO PUMP		0	0	-	-	-
6-Jul-21	NO PUMP		0	0	-	-	-
7-Jul-21	NO PUMP		0	0	-	-	-
8-Jul-21	NO PUMP		0	0	-	-	-
9-Jul-21	NO PUMP		0	0	-	-	-
10-Jul-21	NO PUMP		0	0	-	-	-
11-Jul-21	NO PUMP		0	0	-	-	-
12-Jul-21	NO PUMP		0	0	-	-	-
13-Jul-21	NO PUMP		0	0	-	-	-
14-Jul-21	NO PUMP		0	0	-	-	-
15-Jul-21	7AM	4PM	32400	540	648,000	20	1,200
16-Jul-21	7AM	4PM	32400	540	648,000	20	1,200
17-Jul-21	NO PUMP		0	0	-	-	-
18-Jul-21	NO PUMP		0	0	-	-	-
19-Jul-21	7AM	4PM	32400	540	648,000	20	1,200
20-Jul-21	7AM	4PM	32400	540	648,000	20	1,200
21-Jul-21	7AM	4PM	32400	540	648,000	20	1,200
22-Jul-21	7AM	4PM	32400	540	648,000	20	1,200
23-Jul-21	7AM	4PM	32400	540	648,000	20	1,200
24-Jul-21	NO PUMP		0	0	-	-	-
25-Jul-21	NO PUMP		0	0	-	-	-
26-Jul-21	7AM	4PM	32400	540	648,000	20	1,200
27-Jul-21	7AM	4PM	32400	540	648,000	20	1,200
28-Jul-21	7AM	4PM	32400	540	648,000	20	1,200
29-Jul-21	7AM	4PM	32400	540	648,000	20	1,200
30-Jul-21	7AM	4PM	32400	540	648,000	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**
31-Jul-21	NO PUMP		0	0	-	-	-
1-Aug-21	NO PUMP		0	0	-	-	-
2-Aug-21	NO PUMP		0	0	-	-	-
3-Aug-21	7AM	4PM	32400	540	648,000	20	1,200
4-Aug-21	7AM	4PM	32400	540	648,000	20	1,200
5-Aug-21	7AM	4PM	32400	540	648,000	20	1,200
6-Aug-21	7AM	4PM	32400	540	648,000	20	1,200
7-Aug-21	NO PUMP		0	0	-	-	-
8-Aug-21	NO PUMP		0	0	-	-	-
9-Aug-21	7AM	4PM	32400	540	648,000	20	1,200
10-Aug-21	7AM	4PM	32400	540	648,000	20	1,200
11-Aug-21	7AM	4PM	32400	540	648,000	20	1,200
12-Aug-21	7AM	4PM	32400	540	648,000	20	1,200
13-Aug-21	7AM	4PM	32400	540	648,000	20	1,200
14-Aug-21	NO PUMP		0	0	-	-	-
15-Aug-21	NO PUMP		0	0	-	-	-
16-Aug-21	7AM	4PM	32400	540	648,000	20	1,200
17-Aug-21	7AM	4PM	32400	540	648,000	20	1,200
18-Aug-21	7AM	4PM	32400	540	648,000	20	1,200
19-Aug-21	NO PUMP		0	0	-	-	-
20-Aug-21	NO PUMP		0	0	-	-	-
21-Aug-21	NO PUMP		0	0	-	-	-
22-Aug-21	NO PUMP		0	0	-	-	-
23-Aug-21	NO PUMP		0	0	-	-	-
24-Aug-21	NO PUMP		0	0	-	-	-
25-Aug-21	NO PUMP		0	0	-	-	-
26-Aug-21	NO PUMP		0	0	-	-	-
27-Aug-21	NO PUMP		0	0	-	-	-
28-Aug-21	NO PUMP		0	0	-	-	-
29-Aug-21	NO PUMP		0	0	-	-	-
30-Aug-21	7AM	4PM	32400	540	648,000	20	1,200
31-Aug-21	7AM	4PM	32400	540	648,000	20	1,200
1-Sep-21	7AM	4PM	32400	540	648,000	20	1,200
2-Sep-21	7AM	4PM	32400	540	648,000	20	1,200
3-Sep-21	7AM	4PM	32400	540	648,000	20	1,200
4-Sep-21	NO PUMP		0	0	-	-	-
5-Sep-21	NO PUMP		0	0	-	-	-
6-Sep-21	NO PUMP		0	0	-	-	-
7-Sep-21	NO PUMP		0	0	-	-	-
8-Sep-21	7AM	4PM	32400	540	648,000	20	1,200
9-Sep-21	7AM	4PM	32400	540	648,000	20	1,200
10-Sep-21	7AM	4PM	32400	540	648,000	20	1,200
11-Sep-21	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-21	NO PUMP		0	0	-	-	-
13-Sep-21	7AM	4PM	32400	540	648,000	20	1,200
14-Sep-21	7AM	4PM	32400	540	648,000	20	1,200
15-Sep-21	7AM	4PM	32400	540	648,000	20	1,200
16-Sep-21	7AM	4PM	32400	540	648,000	20	1,200
17-Sep-21	7AM	4PM	32400	540	648,000	20	1,200
18-Sep-21	NO PUMP		0	0	-	-	-
19-Sep-21	NO PUMP		0	0	-	-	-
20-Sep-21	7AM	4PM	32400	540	648,000	20	1,200
21-Sep-21	7AM	4PM	32400	540	648,000	20	1,200
22-Sep-21	7AM	4PM	32400	540	648,000	20	1,200
23-Sep-21	7AM	4PM	32400	540	648,000	20	1,200
24-Sep-21	7AM	4PM	32400	540	648,000	20	1,200
25-Sep-21	NO PUMP		0	0	-	-	-
26-Sep-21	NO PUMP		0	0	-	-	-
27-Sep-21	7AM	4PM	32400	540	648,000	20	1,200
28-Sep-21	7AM	4PM	32400	540	648,000	20	1,200
29-Sep-21	NO PUMP		0	0	-	-	-
30-Sep-21	NO PUMP		0	0	-	-	-
1-Oct-21	7AM	4PM	32400	540	648,000	20	1,200
2-Oct-21	NO PUMP		0	0	-	-	-
3-Oct-21	NO PUMP		0	0	-	-	-
4-Oct-21	7AM	4PM	32400	540	648,000	20	1,200
5-Oct-21	7AM	4PM	32400	540	648,000	20	1,200
6-Oct-21	7AM	4PM	32400	540	648,000	20	1,200
7-Oct-21	7AM	4PM	32400	540	648,000	20	1,200
8-Oct-21	7AM	4PM	32400	540	648,000	20	1,200
9-Oct-21	NO PUMP		0	0	-	-	-
10-Oct-21	NO PUMP		0	0	-	-	-
11-Oct-21	NO PUMP		0	0	-	-	-
12-Oct-21	7AM	4PM	32400	540	648,000	20	1,200
13-Oct-21	7AM	4PM	32400	540	648,000	20	1,200
14-Oct-21	7AM	4PM	32400	540	648,000	20	1,200
15-Oct-21	7AM	4PM	32400	540	648,000	20	1,200
16-Oct-21	NO PUMP		0	0	-	-	-
17-Oct-21	NO PUMP		0	0	-	-	-
18-Oct-21	7AM	4PM	32400	540	648,000	20	1,200
19-Oct-21	7AM	4PM	32400	540	648,000	20	1,200
20-Oct-21	7AM	4PM	32400	540	648,000	20	1,200
21-Oct-21	7AM	4PM	32400	540	648,000	20	1,200
22-Oct-21	7AM	4PM	32400	540	648,000	20	1,200
23-Oct-21	NO PUMP		0	0	-	-	-
24-Oct-21	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-21	7AM	4PM	32400	540	648,000	20	1,200
26-Oct-21	7AM	4PM	32400	540	648,000	20	1,200
27-Oct-21	7AM	4PM	32400	540	648,000	20	1,200
28-Oct-21	7AM	4PM	32400	540	648,000	20	1,200
29-Oct-21	7AM	4PM	32400	540	648,000	20	1,200
30-Oct-21	NO PUMP		0	0	-	-	-
31-Oct-21	NO PUMP		0	0	-	-	-
1-Nov-21	7AM	4PM	32400	540	648,000	20	1,200
2-Nov-21	7AM	4PM	32400	540	648,000	20	1,200
3-Nov-21	7AM	4PM	32400	540	648,000	20	1,200
4-Nov-21	7AM	4PM	32400	540	648,000	20	1,200
5-Nov-21	7AM	4PM	32400	540	648,000	20	1,200
6-Nov-21	NO PUMP		0	0	-	-	-
7-Nov-21	NO PUMP		0	0	-	-	-
8-Nov-21	7AM	4PM	32400	540	648,000	20	1,200
9-Nov-21	NO PUMP		0	0	-	-	-
10-Nov-21	7AM	4PM	32400	540	648,000	20	1,200
11-Nov-21	NO PUMP		0	0	-	-	-
12-Nov-21	NO PUMP		0	0	-	-	-
13-Nov-21	NO PUMP		0	0	-	-	-
14-Nov-21	NO PUMP		0	0	-	-	-
15-Nov-21	7AM	4PM	32400	540	648,000	20	1,200
16-Nov-21	7AM	4PM	32400	540	648,000	20	1,200
17-Nov-21	7AM	4PM	32400	540	648,000	20	1,200
18-Nov-21	NO PUMP		0	0	-	-	-
19-Nov-21	NO PUMP		0	0	-	-	-
20-Nov-21	NO PUMP		0	0	-	-	-
21-Nov-21	NO PUMP		0	0	-	-	-
22-Nov-21	7AM	4PM	32400	540	432,000	13	800
23-Nov-21	7AM	4PM	32400	540	432,000	13	800
24-Nov-21	7AM	4PM	32400	540	432,000	13	800
25-Nov-21	7AM	4PM	32400	540	432,000	13	800
26-Nov-21	7AM	4PM	32400	540	432,000	13	800
27-Nov-21	NO PUMP		0	0	-	-	-
28-Nov-21	NO PUMP		0	0	-	-	-
29-Nov-21	7AM	4PM	32400	540	432,000	13	800
30-Nov-21	7AM	4PM	32400	540	432,000	13	800
1-Dec-21	7AM	4PM	32400	540	432,000	13	800
2-Dec-21	7AM	4PM	32400	540	432,000	13	800
3-Dec-21	7AM	4PM	32400	540	432,000	13	800
4-Dec-21	NO PUMP		0	0	-	-	-
5-Dec-21	NO PUMP		0	0	-	-	-
6-Dec-21	7AM	4PM	32400	540	432,000	13	800

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-21	7AM	4PM	32400	540	432,000	13	800
8-Dec-21	7AM	4PM	32400	540	432,000	13	800
9-Dec-21	7AM	4PM	32400	540	432,000	13	800
10-Dec-21	7AM	4PM	32400	540	432,000	13	800
11-Dec-21	NO PUMP		0	0	-	-	-
12-Dec-21	NO PUMP		0	0	-	-	-
13-Dec-21	7AM	4PM	32400	540	432,000	13	800
14-Dec-21	7AM	4PM	32400	540	432,000	13	800
15-Dec-21	7AM	4PM	32400	540	432,000	13	800
16-Dec-21	7AM	4PM	32400	540	432,000	13	800
17-Dec-21	NO PUMP		0	0	-	-	-
18-Dec-21	NO PUMP		0	0	-	-	-
19-Dec-21	NO PUMP		0	0	-	-	-
20-Dec-21	NO PUMP		0	0	-	-	-
21-Dec-21	NO PUMP		0	0	-	-	-
22-Dec-21	NO PUMP		0	0	-	-	-
23-Dec-21	NO PUMP		0	0	-	-	-
24-Dec-21	NO PUMP		0	0	-	-	-
25-Dec-21	NO PUMP		0	0	-	-	-
26-Dec-21	NO PUMP		0	0	-	-	-
27-Dec-21	NO PUMP		0	0	-	-	-
28-Dec-21	NO PUMP		0	0	-	-	-
29-Dec-21	NO PUMP		0	0	-	-	-
30-Dec-21	NO PUMP		0	0	-	-	-
31-Dec-21	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.

APPENDIX C (ON CD)

Water Quality Results

Your Project #: 1407634
Site#: 1407634
Site Location: McCarthy
Your C.O.C. #: 796497-03-01

Attention: Dawn Hoyle/Jamie Bonany

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

Report Date: 2021/05/03
Report #: R6619540
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: C1B1149
Received: 2021/04/27, 09:29

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	2021/05/02	CAM SOP-00326	EPA1664B m,SM5520B m
Total Oil and Grease	1	2021/05/02	2021/05/02	CAM SOP-00326	EPA1664B m,SM5520B m
pH	1	2021/04/30	2021/04/30	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	1	N/A	2021/04/30	CAM SOP-00444	OMOE E3179 m
Mineral/Synthetic O & G (TPH Heavy Oil) (1)	1	2021/05/02	2021/05/02	CAM SOP-00326	EPA1664B m,SM5520F m
Low Level Total Suspended Solids	1	2021/04/30	2021/05/03	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

Your Project #: 1407634
Site#: 1407634
Site Location: McCarthy
Your C.O.C. #: 796497-03-01

Attention: Dawn Hoyle/Jamie Bonany

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

Report Date: 2021/05/03
Report #: R6619540
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: C1B1149
Received: 2021/04/27, 09:29

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Ema Gitej, Senior Project Manager
Email: emese.gitej@bureauveritas.com
Phone# (905)817-5829
==========
This report has been generated and distributed using a secure automated process.
BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

BV Labs Job #: C1B1149
Report Date: 2021/05/03

Golder Associates Ltd
Client Project #: 1407634
Site Location: McCarthy
Sampler Initials: JF

RESULTS OF ANALYSES OF WATER

BV Labs ID		PKM989		
Sampling Date		2021/04/22 13:00		
COC Number		796497-03-01		
	UNITS	590331 POND	RDL	QC Batch
Calculated Parameters				
Total Animal/Vegetable Oil and Grease	mg/L	1.5	0.50	7323127
Inorganics				
pH	pH	7.98	N/A	7328433
Phenols-4AAP	mg/L	<0.0010	0.0010	7327238
Total Suspended Solids	mg/L	12	1	7328077
Petroleum Hydrocarbons				
Total Oil & Grease	mg/L	1.5	0.50	7330072
Total Oil & Grease Mineral/Synthetic	mg/L	<0.50	0.50	7330074

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

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

BV Labs Job #: C1B1149
Report Date: 2021/05/03

Golder Associates Ltd
Client Project #: 1407634
Site Location: McCarthy
Sampler Initials: JF

GENERAL COMMENTS

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

Package 1	14.0°C

Results relate only to the items tested.

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

BV Labs Job #: C1B1149
Report Date: 2021/05/03

Golder Associates Ltd
Client Project #: 1407634
Site Location: McCarthy
Sampler Initials: JF

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
7327238	BMO	Matrix Spike	Phenols-4AAP	2021/04/30		100	%	80 - 120
7327238	BMO	Spiked Blank	Phenols-4AAP	2021/04/30		101	%	80 - 120
7327238	BMO	Method Blank	Phenols-4AAP	2021/04/30	<0.0010		mg/L	
7327238	BMO	RPD	Phenols-4AAP	2021/04/30	NC		%	20
7328077	SHD	QC Standard	Total Suspended Solids	2021/05/03		95	%	85 - 115
7328077	SHD	Method Blank	Total Suspended Solids	2021/05/03	<1		mg/L	
7328077	SHD	RPD	Total Suspended Solids	2021/05/03	6.5		%	25
7328433	NYS	Spiked Blank	pH	2021/04/30		101	%	98 - 103
7328433	NYS	RPD	pH	2021/04/30	0.22		%	N/A
7330072	HAR	Spiked Blank	Total Oil & Grease	2021/05/02		100	%	85 - 115
7330072	HAR	RPD	Total Oil & Grease	2021/05/02	2.8		%	25
7330072	HAR	Method Blank	Total Oil & Grease	2021/05/02	<0.50		mg/L	
7330074	HAR	Spiked Blank	Total Oil & Grease Mineral/Synthetic	2021/05/02		94	%	85 - 115
7330074	HAR	RPD	Total Oil & Grease Mineral/Synthetic	2021/05/02	2.2		%	25
7330074	HAR	Method Blank	Total Oil & Grease Mineral/Synthetic	2021/05/02	<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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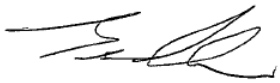
BV Labs Job #: C1B1149
Report Date: 2021/05/03

Golder Associates Ltd
Client Project #: 1407634
Site Location: McCarthy
Sampler Initials: JF

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



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

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Your Project #: 20448776
Site Location: McCarthy
Your C.O.C. #: 825325-01-01

Attention: Dawn Hoyle

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

Report Date: 2021/05/17
Report #: R6637607
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: C1C4086
Received: 2021/05/08, 09:51

Sample Matrix: Water
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Alkalinity	2	N/A	2021/05/12	CAM SOP-00448	SM 23 2320 B m
Chloride by Automated Colourimetry	2	N/A	2021/05/12	CAM SOP-00463	SM 23 4500-Cl E m
Conductivity	2	N/A	2021/05/12	CAM SOP-00414	SM 23 2510 m
Dissolved Organic Carbon (DOC) (1)	2	N/A	2021/05/13	CAM SOP-00446	SM 23 5310 B m
Fluoride	2	2021/05/11	2021/05/12	CAM SOP-00449	SM 23 4500-F C m
Hardness (calculated as CaCO3)	2	N/A	2021/05/13	CAM SOP 00102/00408/00447	SM 2340 B
Lab Filtered Metals by ICPMS	2	2021/05/14	2021/05/17	CAM SOP-00447	EPA 6020B m
Total Metals Analysis by ICPMS	2	N/A	2021/05/13	CAM SOP-00447	EPA 6020B m
Ion Balance (% Difference)	2	N/A	2021/05/17		
Anion and Cation Sum	2	N/A	2021/05/17		
Total Ammonia-N	2	N/A	2021/05/13	CAM SOP-00441	USGS I-2522-90 m
Nitrate (NO3) and Nitrite (NO2) in Water (2)	2	N/A	2021/05/11	CAM SOP-00440	SM 23 4500-NO3I/NO2B
Animal and Vegetable Oil and Grease	2	N/A	2021/05/12	CAM SOP-00326	EPA1664B m,SM5520B m
Total Oil and Grease	2	2021/05/11	2021/05/12	CAM SOP-00326	EPA1664B m,SM5520B m
pH	2	2021/05/11	2021/05/12	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	2	N/A	2021/05/11	CAM SOP-00444	OMOE E3179 m
Sulphate by Automated Colourimetry	2	N/A	2021/05/12	CAM SOP-00464	EPA 375.4 m
Total Dissolved Solids	2	2021/05/12	2021/05/13	CAM SOP-00428	SM 23 2540C m
Total Kjeldahl Nitrogen in Water	2	2021/05/11	2021/05/11	CAM SOP-00938	OMOE E3516 m
Total Phosphorus (Colourimetric)	2	2021/05/11	2021/05/12	CAM SOP-00407	SM 23 4500 P B H m
Mineral/Synthetic O & G (TPH Heavy Oil) (3)	2	2021/05/11	2021/05/12	CAM SOP-00326	EPA1664B m,SM5520F m
Low Level Total Suspended Solids	2	2021/05/13	2021/05/13	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

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Your Project #: 20448776
Site Location: McCarthy
Your C.O.C. #: 825325-01-01

Attention: Dawn Hoyle

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

Report Date: 2021/05/17
Report #: R6637607
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: C1C4086
Received: 2021/05/08, 09:51

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.
Ema Gitej, Senior Project Manager
Email: emese.gitej@bureauveritas.com
Phone# (905)817-5829
==========
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BV Labs Job #: C1C4086
Report Date: 2021/05/17

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

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

BV Labs ID		PND759	PND760		
Sampling Date		2021/05/06 05:00	2021/05/06 02:00		
COC Number		825325-01-01	825325-01-01		
	UNITS	SW1	SW2	RDL	QC Batch
Calculated Parameters					
Total Animal/Vegetable Oil and Grease	mg/L	<0.50	<0.50	0.50	7341836
Petroleum Hydrocarbons					
Total Oil & Grease	mg/L	<0.50	<0.50	0.50	7345900
Total Oil & Grease Mineral/Synthetic	mg/L	<0.50	<0.50	0.50	7345904

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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BV Labs Job #: C1C4086
Report Date: 2021/05/17

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

RESULTS OF ANALYSES OF WATER

BV Labs ID		PND759			PND759			PND760		
Sampling Date		2021/05/06 05:00			2021/05/06 05:00			2021/05/06 02:00		
COC Number		825325-01-01			825325-01-01			825325-01-01		
	UNITS	SW1	RDL	QC Batch	SW1 Lab-Dup	RDL	QC Batch	SW2	RDL	QC Batch
Calculated Parameters										
Anion Sum	me/L	8.00	N/A	7341797				5.76	N/A	7341797
Cation Sum	me/L	8.39	N/A	7341797				5.66	N/A	7341797
Hardness (CaCO3)	mg/L	330	1.0	7341977				270	1.0	7341977
Ion Balance (% Difference)	%	2.41	N/A	7341795				0.850	N/A	7341795
Inorganics										
Total Ammonia-N	mg/L	<0.050	0.050	7345283				<0.050	0.050	7345283
Conductivity	mS/cm	0.748	0.001	7346329	0.748	0.001	7346329	0.516	0.001	7346329
Total Dissolved Solids	mg/L	445	10	7343520				295	10	7343520
Fluoride (F-)	mg/L	0.25	0.10	7346328	0.23	0.10	7346328	<0.10	0.10	7346328
Total Kjeldahl Nitrogen (TKN)	mg/L	0.34	0.10	7345249				0.33	0.10	7345249
Dissolved Organic Carbon	mg/L	7.9	0.40	7347531				6.8	0.40	7347531
pH	pH	8.11		7346332	8.13		7346332	8.09		7346332
Phenols-4AAP	mg/L	<0.0010	0.0010	7343276				<0.0010	0.0010	7343276
Total Phosphorus	mg/L	0.008	0.004	7345457				0.011	0.004	7345457
Total Suspended Solids	mg/L	3	1	7344347				4	1	7344347
Dissolved Sulphate (SO4)	mg/L	120	1.0	7345266				11	1.0	7345266
Alkalinity (Total as CaCO3)	mg/L	210	1.0	7346334	210	1.0	7346334	270	1.0	7346334
Dissolved Chloride (Cl-)	mg/L	42	1.0	7345277				5.4	1.0	7345277
Nitrite (N)	mg/L	<0.010	0.010	7345371				<0.010	0.010	7345371
Nitrate (N)	mg/L	0.43	0.10	7345371				<0.10	0.10	7345371
Nitrate + Nitrite (N)	mg/L	0.43	0.10	7345371				<0.10	0.10	7345371

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

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BV Labs Job #: C1C4086
Report Date: 2021/05/17

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

RESULTS OF ANALYSES OF WATER

BV Labs ID		PND760		
Sampling Date		2021/05/06 02:00		
COC Number		825325-01-01		
	UNITS	SW2 Lab-Dup	RDL	QC Batch
Inorganics				
Total Dissolved Solids	mg/L	290	10	7343520

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

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BV Labs Job #: C1C4086
Report Date: 2021/05/17

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

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

BV Labs ID		PND759	PND760			PND760		
Sampling Date		2021/05/06 05:00	2021/05/06 02:00			2021/05/06 02:00		
COC Number		825325-01-01	825325-01-01			825325-01-01		
	UNITS	SW1	SW2	RDL	QC Batch	SW2 Lab-Dup	RDL	QC Batch
Metals								
Total Arsenic (As)	ug/L	<1.0	<1.0	1.0	7349666			
Total Cadmium (Cd)	ug/L	<0.090	<0.090	0.090	7349666			
Dissolved Calcium (Ca)	ug/L	100000	97000	200	7353595	97000	200	7353595
Total Calcium (Ca)	ug/L	99000	99000	200	7349666			
Total Chromium (Cr)	ug/L	<5.0	<5.0	5.0	7349666			
Total Copper (Cu)	ug/L	2.7	<0.90	0.90	7349666			
Total Iron (Fe)	ug/L	<100	<100	100	7349666			
Total Lead (Pb)	ug/L	<0.50	<0.50	0.50	7349666			
Dissolved Magnesium (Mg)	ug/L	19000	7100	50	7353595	7100	50	7353595
Total Magnesium (Mg)	ug/L	18000	7000	50	7349666			
Total Manganese (Mn)	ug/L	13	9.1	2.0	7349666			
Total Nickel (Ni)	ug/L	1.1	<1.0	1.0	7349666			
Dissolved Potassium (K)	ug/L	5000	1300	200	7353595	1300	200	7353595
Total Potassium (K)	ug/L	4800	1300	200	7349666			
Dissolved Sodium (Na)	ug/L	40000	4600	100	7353595	4700	100	7353595
Total Sodium (Na)	ug/L	39000	4500	100	7349666			
Total Zinc (Zn)	ug/L	<5.0	<5.0	5.0	7349666			

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

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BV Labs Job #: C1C4086
Report Date: 2021/05/17

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

TEST SUMMARY

BV Labs ID: PND759
Sample ID: SW1
Matrix: Water

Collected: 2021/05/06
Shipped:
Received: 2021/05/08

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	7346334	N/A	2021/05/12	Surinder Rai
Chloride by Automated Colourimetry	KONE	7345277	N/A	2021/05/12	Alina Dobreanu
Conductivity	AT	7346329	N/A	2021/05/12	Surinder Rai
Dissolved Organic Carbon (DOC)	TOCV/NDIR	7347531	N/A	2021/05/13	Nimarta Singh
Fluoride	ISE	7346328	2021/05/11	2021/05/12	Surinder Rai
Hardness (calculated as CaCO3)		7341977	N/A	2021/05/13	Automated Statchk
Lab Filtered Metals by ICPMS	ICP/MS	7353595	2021/05/14	2021/05/17	Nan Raykha
Total Metals Analysis by ICPMS	ICP/MS	7349666	N/A	2021/05/13	Azita Fazaeli
Ion Balance (% Difference)	CALC	7341795	N/A	2021/05/17	Automated Statchk
Anion and Cation Sum	CALC	7341797	N/A	2021/05/17	Automated Statchk
Total Ammonia-N	LACH/NH4	7345283	N/A	2021/05/13	Amanpreet Sappal
Nitrate (NO3) and Nitrite (NO2) in Water	LACH	7345371	N/A	2021/05/11	Chandra Nandlal
Animal and Vegetable Oil and Grease	BAL	7341836	N/A	2021/05/12	Automated Statchk
Total Oil and Grease	BAL	7345900	2021/05/11	2021/05/12	Saumya Modh
pH	AT	7346332	2021/05/11	2021/05/12	Surinder Rai
Phenols (4AAP)	TECH/PHEN	7343276	N/A	2021/05/11	Louise Harding
Sulphate by Automated Colourimetry	KONE	7345266	N/A	2021/05/12	Alina Dobreanu
Total Dissolved Solids	BAL	7343520	2021/05/12	2021/05/13	Shaneil Hall
Total Kjeldahl Nitrogen in Water	SKAL	7345249	2021/05/11	2021/05/11	Massarat Jan
Total Phosphorus (Colourimetric)	LACH/P	7345457	2021/05/11	2021/05/12	Shivani Shivani
Mineral/Synthetic O & G (TPH Heavy Oil)	BAL	7345904	2021/05/11	2021/05/12	Saumya Modh
Low Level Total Suspended Solids	BAL	7344347	2021/05/13	2021/05/13	Shivani Desai

BV Labs ID: PND759 Dup
Sample ID: SW1
Matrix: Water

Collected: 2021/05/06
Shipped:
Received: 2021/05/08

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	7346334	N/A	2021/05/12	Surinder Rai
Conductivity	AT	7346329	N/A	2021/05/12	Surinder Rai
Fluoride	ISE	7346328	2021/05/11	2021/05/12	Surinder Rai
pH	AT	7346332	2021/05/11	2021/05/12	Surinder Rai

BV Labs ID: PND760
Sample ID: SW2
Matrix: Water

Collected: 2021/05/06
Shipped:
Received: 2021/05/08

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	7346334	N/A	2021/05/12	Surinder Rai
Chloride by Automated Colourimetry	KONE	7345277	N/A	2021/05/12	Alina Dobreanu
Conductivity	AT	7346329	N/A	2021/05/12	Surinder Rai
Dissolved Organic Carbon (DOC)	TOCV/NDIR	7347531	N/A	2021/05/13	Nimarta Singh
Fluoride	ISE	7346328	2021/05/11	2021/05/12	Surinder Rai
Hardness (calculated as CaCO3)		7341977	N/A	2021/05/13	Automated Statchk

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BV Labs Job #: C1C4086
Report Date: 2021/05/17

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

TEST SUMMARY

BV Labs ID: PND760
Sample ID: SW2
Matrix: Water

Collected: 2021/05/06
Shipped:
Received: 2021/05/08

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Lab Filtered Metals by ICPMS	ICP/MS	7353595	2021/05/14	2021/05/17	Nan Raykha
Total Metals Analysis by ICPMS	ICP/MS	7349666	N/A	2021/05/13	Azita Fazaeli
Ion Balance (% Difference)	CALC	7341795	N/A	2021/05/17	Automated Statchk
Anion and Cation Sum	CALC	7341797	N/A	2021/05/17	Automated Statchk
Total Ammonia-N	LACH/NH4	7345283	N/A	2021/05/13	Amanpreet Sappal
Nitrate (NO3) and Nitrite (NO2) in Water	LACH	7345371	N/A	2021/05/11	Chandra Nandlal
Animal and Vegetable Oil and Grease	BAL	7341836	N/A	2021/05/12	Automated Statchk
Total Oil and Grease	BAL	7345900	2021/05/11	2021/05/12	Saumya Modh
pH	AT	7346332	2021/05/11	2021/05/12	Surinder Rai
Phenols (4AAP)	TECH/PHEN	7343276	N/A	2021/05/11	Louise Harding
Sulphate by Automated Colourimetry	KONE	7345266	N/A	2021/05/12	Alina Dobreanu
Total Dissolved Solids	BAL	7343520	2021/05/12	2021/05/13	Shaneil Hall
Total Kjeldahl Nitrogen in Water	SKAL	7345249	2021/05/11	2021/05/11	Massarat Jan
Total Phosphorus (Colourimetric)	LACH/P	7345457	2021/05/11	2021/05/12	Shivani Shivani
Mineral/Synthetic O & G (TPH Heavy Oil)	BAL	7345904	2021/05/11	2021/05/12	Saumya Modh
Low Level Total Suspended Solids	BAL	7344347	2021/05/13	2021/05/13	Shivani Desai

BV Labs ID: PND760 Dup
Sample ID: SW2
Matrix: Water

Collected: 2021/05/06
Shipped:
Received: 2021/05/08

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Lab Filtered Metals by ICPMS	ICP/MS	7353595	2021/05/14	2021/05/17	Nan Raykha
Total Dissolved Solids	BAL	7343520	2021/05/12	2021/05/13	Shaneil Hall

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BV Labs Job #: C1C4086
Report Date: 2021/05/17

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

GENERAL COMMENTS

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

Package 1	6.0°C
Package 2	3.3°C

Results relate only to the items tested.

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

BV Labs Job #: C1C4086
Report Date: 2021/05/17

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

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
7343276	LHA	Matrix Spike	Phenols-4AAP	2021/05/11		105	%	80 - 120
7343276	LHA	Spiked Blank	Phenols-4AAP	2021/05/11		96	%	80 - 120
7343276	LHA	Method Blank	Phenols-4AAP	2021/05/11	<0.0010		mg/L	
7343276	LHA	RPD	Phenols-4AAP	2021/05/11	NC		%	20
7343520	SHD	QC Standard	Total Dissolved Solids	2021/05/13		98	%	90 - 110
7343520	SHD	Method Blank	Total Dissolved Solids	2021/05/13	<10		mg/L	
7343520	SHD	RPD [PND760-04]	Total Dissolved Solids	2021/05/13	1.7		%	25
7344347	SDE	QC Standard	Total Suspended Solids	2021/05/13		95	%	85 - 115
7344347	SDE	Method Blank	Total Suspended Solids	2021/05/13	<1		mg/L	
7344347	SDE	RPD	Total Suspended Solids	2021/05/13	6.1		%	25
7345249	MJ1	Matrix Spike	Total Kjeldahl Nitrogen (TKN)	2021/05/11		109	%	80 - 120
7345249	MJ1	QC Standard	Total Kjeldahl Nitrogen (TKN)	2021/05/11		96	%	80 - 120
7345249	MJ1	Spiked Blank	Total Kjeldahl Nitrogen (TKN)	2021/05/11		99	%	80 - 120
7345249	MJ1	Method Blank	Total Kjeldahl Nitrogen (TKN)	2021/05/11	<0.10		mg/L	
7345249	MJ1	RPD	Total Kjeldahl Nitrogen (TKN)	2021/05/11	NC		%	20
7345266	ADB	Matrix Spike	Dissolved Sulphate (SO4)	2021/05/12		107	%	75 - 125
7345266	ADB	Spiked Blank	Dissolved Sulphate (SO4)	2021/05/12		101	%	80 - 120
7345266	ADB	Method Blank	Dissolved Sulphate (SO4)	2021/05/12	<1.0		mg/L	
7345266	ADB	RPD	Dissolved Sulphate (SO4)	2021/05/12	3.4		%	20
7345277	ADB	Matrix Spike	Dissolved Chloride (Cl-)	2021/05/12		NC	%	80 - 120
7345277	ADB	Spiked Blank	Dissolved Chloride (Cl-)	2021/05/12		101	%	80 - 120
7345277	ADB	Method Blank	Dissolved Chloride (Cl-)	2021/05/12	<1.0		mg/L	
7345277	ADB	RPD	Dissolved Chloride (Cl-)	2021/05/12	2.0		%	20
7345283	ASP	Matrix Spike	Total Ammonia-N	2021/05/13		100	%	75 - 125
7345283	ASP	Spiked Blank	Total Ammonia-N	2021/05/13		99	%	80 - 120
7345283	ASP	Method Blank	Total Ammonia-N	2021/05/13	<0.050		mg/L	
7345283	ASP	RPD	Total Ammonia-N	2021/05/13	1.6		%	20
7345371	C_N	Matrix Spike	Nitrite (N)	2021/05/11		107	%	80 - 120
			Nitrate (N)	2021/05/11		98	%	80 - 120
7345371	C_N	Spiked Blank	Nitrite (N)	2021/05/11		105	%	80 - 120
			Nitrate (N)	2021/05/11		97	%	80 - 120
7345371	C_N	Method Blank	Nitrite (N)	2021/05/11	<0.010		mg/L	
			Nitrate (N)	2021/05/11	<0.10		mg/L	
7345371	C_N	RPD	Nitrite (N)	2021/05/11	NC		%	20
			Nitrate (N)	2021/05/11	NC		%	20
7345457	SSV	Matrix Spike	Total Phosphorus	2021/05/12		NC	%	80 - 120
7345457	SSV	QC Standard	Total Phosphorus	2021/05/12		92	%	80 - 120
7345457	SSV	Spiked Blank	Total Phosphorus	2021/05/12		98	%	80 - 120
7345457	SSV	Method Blank	Total Phosphorus	2021/05/12	<0.004		mg/L	
7345457	SSV	RPD	Total Phosphorus	2021/05/12	1.0		%	20
7345900	SA5	Spiked Blank	Total Oil & Grease	2021/05/12		100	%	85 - 115
7345900	SA5	RPD	Total Oil & Grease	2021/05/12	2.0		%	25
7345900	SA5	Method Blank	Total Oil & Grease	2021/05/12	<0.50		mg/L	
7345904	SA5	Spiked Blank	Total Oil & Grease Mineral/Synthetic	2021/05/12		95	%	85 - 115
7345904	SA5	RPD	Total Oil & Grease Mineral/Synthetic	2021/05/12	2.7		%	25
7345904	SA5	Method Blank	Total Oil & Grease Mineral/Synthetic	2021/05/12	<0.50		mg/L	
7346328	SAU	Matrix Spike [PND759-03]	Fluoride (F-)	2021/05/12		99	%	80 - 120
7346328	SAU	Spiked Blank	Fluoride (F-)	2021/05/12		99	%	80 - 120
7346328	SAU	Method Blank	Fluoride (F-)	2021/05/12	<0.10		mg/L	
7346328	SAU	RPD [PND759-03]	Fluoride (F-)	2021/05/12	7.5		%	20
7346329	SAU	Spiked Blank	Conductivity	2021/05/12		101	%	85 - 115

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
7346329	SAU	Method Blank	Conductivity	2021/05/12	<0.001		mS/cm	
7346329	SAU	RPD [PND759-03]	Conductivity	2021/05/12	0		%	25
7346332	SAU	Spiked Blank	pH	2021/05/12		102	%	98 - 103
7346332	SAU	RPD [PND759-03]	pH	2021/05/12	0.32		%	N/A
7346334	SAU	Spiked Blank	Alkalinity (Total as CaCO3)	2021/05/12		94	%	85 - 115
7346334	SAU	Method Blank	Alkalinity (Total as CaCO3)	2021/05/12	<1.0		mg/L	
7346334	SAU	RPD [PND759-03]	Alkalinity (Total as CaCO3)	2021/05/12	0.57		%	20
7347531	NS3	Matrix Spike	Dissolved Organic Carbon	2021/05/13		96	%	80 - 120
7347531	NS3	Spiked Blank	Dissolved Organic Carbon	2021/05/13		96	%	80 - 120
7347531	NS3	Method Blank	Dissolved Organic Carbon	2021/05/13	<0.40		mg/L	
7347531	NS3	RPD	Dissolved Organic Carbon	2021/05/13	0.65		%	20
7349666	AFZ	Matrix Spike	Total Arsenic (As)	2021/05/13		101	%	80 - 120
			Total Cadmium (Cd)	2021/05/13		101	%	80 - 120
			Total Calcium (Ca)	2021/05/13		NC	%	80 - 120
			Total Chromium (Cr)	2021/05/13		98	%	80 - 120
			Total Copper (Cu)	2021/05/13		100	%	80 - 120
			Total Iron (Fe)	2021/05/13		96	%	80 - 120
			Total Lead (Pb)	2021/05/13		94	%	80 - 120
			Total Magnesium (Mg)	2021/05/13		NC	%	80 - 120
			Total Manganese (Mn)	2021/05/13		99	%	80 - 120
			Total Nickel (Ni)	2021/05/13		97	%	80 - 120
			Total Potassium (K)	2021/05/13		97	%	80 - 120
			Total Sodium (Na)	2021/05/13		NC	%	80 - 120
			Total Zinc (Zn)	2021/05/13		99	%	80 - 120
7349666	AFZ	Spiked Blank	Total Arsenic (As)	2021/05/13		102	%	80 - 120
			Total Cadmium (Cd)	2021/05/13		103	%	80 - 120
			Total Calcium (Ca)	2021/05/13		101	%	80 - 120
			Total Chromium (Cr)	2021/05/13		100	%	80 - 120
			Total Copper (Cu)	2021/05/13		102	%	80 - 120
			Total Iron (Fe)	2021/05/13		98	%	80 - 120
			Total Lead (Pb)	2021/05/13		99	%	80 - 120
			Total Magnesium (Mg)	2021/05/13		99	%	80 - 120
			Total Manganese (Mn)	2021/05/13		101	%	80 - 120
			Total Nickel (Ni)	2021/05/13		100	%	80 - 120
			Total Potassium (K)	2021/05/13		99	%	80 - 120
			Total Sodium (Na)	2021/05/13		101	%	80 - 120
			Total Zinc (Zn)	2021/05/13		105	%	80 - 120
7349666	AFZ	Method Blank	Total Arsenic (As)	2021/05/13	<1.0		ug/L	
			Total Cadmium (Cd)	2021/05/13	<0.090		ug/L	
			Total Calcium (Ca)	2021/05/13	<200		ug/L	
			Total Chromium (Cr)	2021/05/13	<5.0		ug/L	
			Total Copper (Cu)	2021/05/13	<0.90		ug/L	
			Total Iron (Fe)	2021/05/13	<100		ug/L	
			Total Lead (Pb)	2021/05/13	<0.50		ug/L	
			Total Magnesium (Mg)	2021/05/13	<50		ug/L	
			Total Manganese (Mn)	2021/05/13	<2.0		ug/L	
			Total Nickel (Ni)	2021/05/13	<1.0		ug/L	
			Total Potassium (K)	2021/05/13	<200		ug/L	
			Total Sodium (Na)	2021/05/13	<100		ug/L	
			Total Zinc (Zn)	2021/05/13	<5.0		ug/L	
7349666	AFZ	RPD	Total Arsenic (As)	2021/05/13	NC		%	20

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Total Cadmium (Cd)	2021/05/13	NC		%	20
			Total Chromium (Cr)	2021/05/13	NC		%	20
			Total Copper (Cu)	2021/05/13	0.21		%	20
			Total Iron (Fe)	2021/05/13	2.8		%	20
			Total Lead (Pb)	2021/05/13	NC		%	20
			Total Manganese (Mn)	2021/05/13	2.2		%	20
			Total Nickel (Ni)	2021/05/13	9.5		%	20
			Total Zinc (Zn)	2021/05/13	0.73		%	20
7353595	N_R	Matrix Spike [PND760-03]	Dissolved Calcium (Ca)	2021/05/17		NC	%	80 - 120
			Dissolved Magnesium (Mg)	2021/05/17		103	%	80 - 120
			Dissolved Potassium (K)	2021/05/17		103	%	80 - 120
			Dissolved Sodium (Na)	2021/05/17		101	%	80 - 120
7353595	N_R	Spiked Blank	Dissolved Calcium (Ca)	2021/05/17		99	%	80 - 120
			Dissolved Magnesium (Mg)	2021/05/17		101	%	80 - 120
			Dissolved Potassium (K)	2021/05/17		101	%	80 - 120
			Dissolved Sodium (Na)	2021/05/17		101	%	80 - 120
7353595	N_R	Method Blank	Dissolved Calcium (Ca)	2021/05/17	<200		ug/L	
			Dissolved Magnesium (Mg)	2021/05/17	<50		ug/L	
			Dissolved Potassium (K)	2021/05/17	<200		ug/L	
			Dissolved Sodium (Na)	2021/05/17	<100		ug/L	
7353595	N_R	RPD [PND760-03]	Dissolved Calcium (Ca)	2021/05/17	0.075		%	20
			Dissolved Magnesium (Mg)	2021/05/17	0.58		%	20
			Dissolved Potassium (K)	2021/05/17	1.9		%	20
			Dissolved Sodium (Na)	2021/05/17	1.3		%	20

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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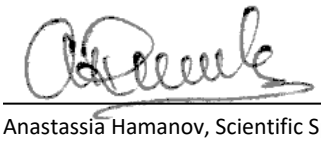
BV Labs Job #: C1C4086
Report Date: 2021/05/17

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

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#: 20448776
Your C.O.C. #: 825330-04-01

Attention: Dawn Hoyle/Jamie Bonany

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

Report Date: 2021/06/24
Report #: R6691056
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: C1G8086
Received: 2021/06/18, 09:17

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	2021/06/24	CAM SOP-00326	EPA1664B m,SM5520B m
Total Oil and Grease	1	2021/06/23	2021/06/24	CAM SOP-00326	EPA1664B m,SM5520B m
pH	1	2021/06/22	2021/06/23	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	1	N/A	2021/06/22	CAM SOP-00444	OMOE E3179 m
Mineral/Synthetic O & G (TPH Heavy Oil) (1)	1	2021/06/23	2021/06/24	CAM SOP-00326	EPA1664B m,SM5520F m
Low Level Total Suspended Solids	1	2021/06/23	2021/06/24	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#: 20448776
Your C.O.C. #: 825330-04-01

Attention: Dawn Hoyle/Jamie Bonany

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

Report Date: 2021/06/24
Report #: R6691056
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: C1G8086
Received: 2021/06/18, 09:17

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Ema Gitej, Senior Project Manager
Email: emese.gitej@bureauveritas.com
Phone# (905)817-5829
==========
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BV Labs Job #: C1G8086
Report Date: 2021/06/24

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

RESULTS OF ANALYSES OF WATER

BV Labs ID		PWI189		
Sampling Date		2021/06/17 15:00		
COC Number		825330-04-01		
	UNITS	590331 POND	RDL	QC Batch
Calculated Parameters				
Total Animal/Vegetable Oil and Grease	mg/L	<0.50	0.50	7419505
Inorganics				
pH	pH	7.97	N/A	7423329
Phenols-4AAP	mg/L	<0.0010	0.0010	7421509
Total Suspended Solids	mg/L	19	1	7423669
Petroleum Hydrocarbons				
Total Oil & Grease	mg/L	<0.50	0.50	7425616
Total Oil & Grease Mineral/Synthetic	mg/L	<0.50	0.50	7425626

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	20.3°C

Results relate only to the items tested.

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BV Labs Job #: C1G8086
Report Date: 2021/06/24

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

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
7421509	DRM	Matrix Spike	Phenols-4AAP	2021/06/22		103	%	80 - 120
7421509	DRM	Spiked Blank	Phenols-4AAP	2021/06/22		101	%	80 - 120
7421509	DRM	Method Blank	Phenols-4AAP	2021/06/22	<0.0010		mg/L	
7421509	DRM	RPD	Phenols-4AAP	2021/06/22	NC		%	20
7423329	SAU	Spiked Blank	pH	2021/06/23		102	%	98 - 103
7423329	SAU	RPD	pH	2021/06/23	0.87		%	N/A
7423669	SHD	QC Standard	Total Suspended Solids	2021/06/24		98	%	85 - 115
7423669	SHD	Method Blank	Total Suspended Solids	2021/06/24	<1		mg/L	
7423669	SHD	RPD	Total Suspended Solids	2021/06/24	0		%	25
7425616	SA5	Spiked Blank	Total Oil & Grease	2021/06/24		97	%	85 - 115
7425616	SA5	RPD	Total Oil & Grease	2021/06/24	1.5		%	25
7425616	SA5	Method Blank	Total Oil & Grease	2021/06/24	<0.50		mg/L	
7425626	SA5	Spiked Blank	Total Oil & Grease Mineral/Synthetic	2021/06/24		95	%	85 - 115
7425626	SA5	RPD	Total Oil & Grease Mineral/Synthetic	2021/06/24	1.1		%	25
7425626	SA5	Method Blank	Total Oil & Grease Mineral/Synthetic	2021/06/24	<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).

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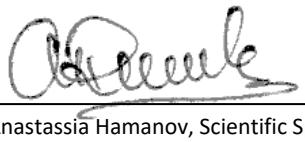
BV Labs Job #: C1G8086
Report Date: 2021/06/24

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

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
Your C.O.C. #: 829401-04-01

Attention: Dawn Hoyle

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

Report Date: 2021/07/22
Report #: R6731448
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: C1I4834
Received: 2021/07/05, 16:30

Sample Matrix: Water
Samples Received: 3

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Alkalinity	3	N/A	2021/07/08	CAM SOP-00448	SM 23 2320 B m
Carbonate, Bicarbonate and Hydroxide	2	N/A	2021/07/09	CAM SOP-00102	APHA 4500-CO2 D
Chloride by Automated Colourimetry	3	N/A	2021/07/08	CAM SOP-00463	SM 23 4500-Cl E m
Colour	2	N/A	2021/07/07	CAM SOP-00412	SM 23 2120C m
Conductivity	3	N/A	2021/07/08	CAM SOP-00414	SM 23 2510 m
Dissolved Organic Carbon (DOC) (1)	3	N/A	2021/07/07	CAM SOP-00446	SM 23 5310 B m
Fluoride	3	2021/07/07	2021/07/08	CAM SOP-00449	SM 23 4500-F C m
Hardness (calculated as CaCO3)	2	N/A	2021/07/07	CAM SOP 00102/00408/00447	SM 2340 B
Hardness (calculated as CaCO3)	1	N/A	2021/07/09	CAM SOP 00102/00408/00447	SM 2340 B
Dissolved Metals by ICPMS	1	N/A	2021/07/07	CAM SOP-00447	EPA 6020B m
Metals Analysis by ICPMS (as received) (2)	1	N/A	2021/07/07	CAM SOP-00447	EPA 6020B m
Total Metals Analysis by ICPMS	1	N/A	2021/07/08	CAM SOP-00447	EPA 6020B m
Ion Balance (% Difference)	2	N/A	2021/07/09		
Anion and Cation Sum	1	N/A	2021/07/21		
Anion and Cation Sum	2	N/A	2021/07/09		
Total Ammonia-N	1	N/A	2021/07/08	CAM SOP-00441	USGS I-2522-90 m
Total Ammonia-N	2	N/A	2021/07/09	CAM SOP-00441	USGS I-2522-90 m
Nitrate (NO3) and Nitrite (NO2) in Water (3)	3	N/A	2021/07/08	CAM SOP-00440	SM 23 4500-NO3I/NO2B
Animal and Vegetable Oil and Grease	1	N/A	2021/07/09	CAM SOP-00326	EPA1664B m,SM5520B m
Total Oil and Grease	1	2021/07/09	2021/07/09	CAM SOP-00326	EPA1664B m,SM5520B m
pH	3	2021/07/07	2021/07/08	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	1	N/A	2021/07/07	CAM SOP-00444	OMOE E3179 m
Orthophosphate	2	N/A	2021/07/08	CAM SOP-00461	EPA 365.1 m
Sat. pH and Langelier Index (@ 20C)	2	N/A	2021/07/09		Auto Calc
Sat. pH and Langelier Index (@ 4C)	2	N/A	2021/07/09		Auto Calc
Sulphate by Automated Colourimetry	3	N/A	2021/07/08	CAM SOP-00464	EPA 375.4 m
Tannins & Lignins	1	N/A	2021/07/07	CAM SOP-00410	SM 23 5550 B m
Total Dissolved Solids (TDS calc)	2	N/A	2021/07/09		Auto Calc

Your Project #: 20448776
Your C.O.C. #: 829401-04-01

Attention: Dawn Hoyle

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

Report Date: 2021/07/22
Report #: R6731448
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: C1I4834
Received: 2021/07/05, 16:30

Sample Matrix: Water
Samples Received: 3

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Total Dissolved Solids	1	2021/07/07	2021/07/08	CAM SOP-00428	SM 23 2540C m
Total Kjeldahl Nitrogen in Water	1	2021/07/07	2021/07/07	CAM SOP-00938	OMOE E3516 m
Total Phosphorus (Colourimetric)	1	2021/07/08	2021/07/09	CAM SOP-00407	SM 23 4500 P B H m
Mineral/Synthetic O & G (TPH Heavy Oil) (4)	1	2021/07/09	2021/07/09	CAM SOP-00326	EPA1664B m,SM5520F m
Total Suspended Solids	1	2021/07/07	2021/07/08	CAM SOP-00428	SM 23 2540D m
Turbidity	1	N/A	2021/07/07	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 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) Metals analysis was performed on the sample 'as received'.
(3) Values for calculated parameters may not appear to add up due to rounding of raw data and significant figures.
(4) Note: TPH (Heavy Oil) is equivalent to Mineral / Synthetic Oil & Grease

Your Project #: 20448776
Your C.O.C. #: 829401-04-01

Attention: Dawn Hoyle

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121 Commerce Park Drive
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Report Date: 2021/07/22
Report #: R6731448
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CERTIFICATE OF ANALYSIS

BV LABS JOB #: C1I4834
Received: 2021/07/05, 16:30

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Ema Gitej, Senior Project Manager
Email: emese.gitej@bureauveritas.com
Phone# (905)817-5829
==========
BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

BV Labs Job #: C1I4834
Report Date: 2021/07/22

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

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

BV Labs ID		PZX224		
Sampling Date		2021/06/29 01:40		
COC Number		829401-04-01		
	UNITS	POND	RDL	QC Batch
Calculated Parameters				
Total Animal/Vegetable Oil and Grease	mg/L	<0.50	0.50	7445790
Petroleum Hydrocarbons				
Total Oil & Grease	mg/L	<0.50	0.50	7453173
Total Oil & Grease Mineral/Synthetic	mg/L	<0.50	0.50	7453174

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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RCAP - COMPREHENSIVE (WATER)

BV Labs ID		PZX223			PZX223		
Sampling Date		2021/06/29 12:30			2021/06/29 12:30		
COC Number		829401-04-01			829401-04-01		
	UNITS	6-2	RDL	QC Batch	6-2 Lab-Dup	RDL	QC Batch
Calculated Parameters							
Anion Sum	me/L	66.0	N/A	7445811			
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	150	1.0	7445807			
Calculated TDS	mg/L	3900	1.0	7445817			
Carb. Alkalinity (calc. as CaCO3)	mg/L	<1.0	1.0	7445807			
Cation Sum	me/L	65.2	N/A	7445811			
Hardness (CaCO3)	mg/L	1600	1.0	7445809			
Ion Balance (% Difference)	%	0.600	N/A	7445810			
Langelier Index (@ 20C)	N/A	0.418		7445815			
Langelier Index (@ 4C)	N/A	0.177		7445816			
Saturation pH (@ 20C)	N/A	7.07		7445815			
Saturation pH (@ 4C)	N/A	7.31		7445816			
Inorganics							
Total Ammonia-N	mg/L	0.88	0.050	7452084			
Conductivity	umho/cm	6500	1.0	7450312	6500	1.0	7450312
Dissolved Organic Carbon	mg/L	1.8	0.40	7448584			
Orthophosphate (P)	mg/L	<0.010	0.010	7450345			
pH	pH	7.48		7450314	7.57		7450314
Dissolved Sulphate (SO4)	mg/L	980	5.0	7450322			
Alkalinity (Total as CaCO3)	mg/L	150	1.0	7450310	160	1.0	7450310
Dissolved Chloride (Cl-)	mg/L	1500	20	7450319			
Nitrite (N)	mg/L	0.425	0.010	7449352			
Nitrate (N)	mg/L	0.44	0.10	7449352			
Nitrate + Nitrite (N)	mg/L	0.86	0.10	7449352			
Metals							
Dissolved Aluminum (Al)	ug/L	5.2	4.9	7446635			
Dissolved Antimony (Sb)	ug/L	<0.50	0.50	7446635			
Dissolved Arsenic (As)	ug/L	<1.0	1.0	7446635			
Dissolved Barium (Ba)	ug/L	93	2.0	7446635			
Dissolved Beryllium (Be)	ug/L	<0.40	0.40	7446635			
Dissolved Boron (B)	ug/L	3300	10	7446635			

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

RCAP - COMPREHENSIVE (WATER)

BV Labs ID		PZX223			PZX223		
Sampling Date		2021/06/29 12:30			2021/06/29 12:30		
COC Number		829401-04-01			829401-04-01		
	UNITS	6-2	RDL	QC Batch	6-2 Lab-Dup	RDL	QC Batch
Dissolved Cadmium (Cd)	ug/L	<0.090	0.090	7446635			
Dissolved Calcium (Ca)	ug/L	310000	1000	7446635			
Dissolved Chromium (Cr)	ug/L	<5.0	5.0	7446635			
Dissolved Cobalt (Co)	ug/L	<0.50	0.50	7446635			
Dissolved Copper (Cu)	ug/L	26	0.90	7446635			
Dissolved Iron (Fe)	ug/L	<100	100	7446635			
Dissolved Lead (Pb)	ug/L	<0.50	0.50	7446635			
Dissolved Magnesium (Mg)	ug/L	190000	50	7446635			
Dissolved Manganese (Mn)	ug/L	1700	2.0	7446635			
Dissolved Molybdenum (Mo)	ug/L	1.2	0.50	7446635			
Dissolved Nickel (Ni)	ug/L	3.4	1.0	7446635			
Dissolved Phosphorus (P)	ug/L	<100	100	7446635			
Dissolved Potassium (K)	ug/L	79000	200	7446635			
Dissolved Selenium (Se)	ug/L	<2.0	2.0	7446635			
Dissolved Silicon (Si)	ug/L	3800	50	7446635			
Dissolved Silver (Ag)	ug/L	<0.090	0.090	7446635			
Dissolved Sodium (Na)	ug/L	740000	500	7446635			
Dissolved Strontium (Sr)	ug/L	16000	1.0	7446635			
Dissolved Thallium (Tl)	ug/L	<0.050	0.050	7446635			
Dissolved Titanium (Ti)	ug/L	<5.0	5.0	7446635			
Dissolved Uranium (U)	ug/L	0.31	0.10	7446635			
Dissolved Vanadium (V)	ug/L	<0.50	0.50	7446635			
Dissolved Zinc (Zn)	ug/L	13	5.0	7446635			

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

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RCAP - COMPREHENSIVE (DRINKING WATER)

BV Labs ID		PZX225			PZX225		
Sampling Date		2021/06/29 02:30			2021/06/29 02:30		
COC Number		829401-04-01			829401-04-01		
	UNITS	DW3	RDL	QC Batch	DW3 Lab-Dup	RDL	QC Batch
Calculated Parameters							
Anion Sum	me/L	11.1	N/A	7445811			
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	320	1.0	7445807			
Calculated TDS	mg/L	620	1.0	7445817			
Carb. Alkalinity (calc. as CaCO3)	mg/L	1.6	1.0	7445807			
Cation Sum	me/L	12.5	N/A	7445811			
Hardness (CaCO3)	mg/L	530	1.0	7445809			
Ion Balance (% Difference)	%	5.85	N/A	7445810			
Langelier Index (@ 20C)	N/A	0.955		7445815			
Langelier Index (@ 4C)	N/A	0.708		7445816			
Saturation pH (@ 20C)	N/A	6.77		7445815			
Saturation pH (@ 4C)	N/A	7.02		7445816			
Inorganics							
Total Ammonia-N	mg/L	<0.050	0.050	7452084	<0.050	0.050	7452084
Conductivity	umho/cm	1100	1.0	7450312			
Dissolved Organic Carbon	mg/L	1.5	0.40	7448584			
Orthophosphate (P)	mg/L	<0.010	0.010	7450345			
pH	pH	7.72		7450314			
Dissolved Sulphate (SO4)	mg/L	20	1.0	7450322			
Alkalinity (Total as CaCO3)	mg/L	320	1.0	7450310			
Dissolved Chloride (Cl-)	mg/L	150	2.0	7450319			
Nitrite (N)	mg/L	<0.010	0.010	7449352			
Nitrate (N)	mg/L	0.21	0.10	7449352			
Metals							
Aluminum (Al)	ug/L	9.0	4.9	7446641			
Antimony (Sb)	ug/L	<0.50	0.50	7446641			
Arsenic (As)	ug/L	<1.0	1.0	7446641			
Barium (Ba)	ug/L	160	2.0	7446641			
Beryllium (Be)	ug/L	<0.40	0.40	7446641			
Boron (B)	ug/L	24	10	7446641			
Cadmium (Cd)	ug/L	<0.090	0.090	7446641			

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

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RCAP - COMPREHENSIVE (DRINKING WATER)

BV Labs ID		PZX225			PZX225		
Sampling Date		2021/06/29 02:30			2021/06/29 02:30		
COC Number		829401-04-01			829401-04-01		
	UNITS	DW3	RDL	QC Batch	DW3 Lab-Dup	RDL	QC Batch
Calcium (Ca)	ug/L	160000	200	7446641			
Chromium (Cr)	ug/L	<5.0	5.0	7446641			
Cobalt (Co)	ug/L	<0.50	0.50	7446641			
Copper (Cu)	ug/L	1.3	0.90	7446641			
Iron (Fe)	ug/L	<100	100	7446641			
Lead (Pb)	ug/L	<0.50	0.50	7446641			
Lithium (Li)	ug/L	9.5	5.0	7446641			
Magnesium (Mg)	ug/L	29000	50	7446641			
Manganese (Mn)	ug/L	19	2.0	7446641			
Molybdenum (Mo)	ug/L	<0.50	0.50	7446641			
Nickel (Ni)	ug/L	<1.0	1.0	7446641			
Phosphorus (P)	ug/L	<100	100	7446641			
Potassium (K)	ug/L	1900	200	7446641			
Selenium (Se)	ug/L	<2.0	2.0	7446641			
Silicon (Si)	ug/L	7300	50	7446641			
Silver (Ag)	ug/L	<0.090	0.090	7446641			
Sodium (Na)	ug/L	44000	100	7446641			
Strontium (Sr)	ug/L	610	1.0	7446641			
Thallium (Tl)	ug/L	<0.050	0.050	7446641			
Titanium (Ti)	ug/L	<5.0	5.0	7446641			
Uranium (U)	ug/L	1.2	0.10	7446641			
Vanadium (V)	ug/L	<0.50	0.50	7446641			
Zinc (Zn)	ug/L	<5.0	5.0	7446641			

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

BV Labs Job #: C1I4834
Report Date: 2021/07/22

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

RESULTS OF ANALYSES OF WATER

BV Labs ID		PZX223			PZX223			PZX224		
Sampling Date		2021/06/29 12:30			2021/06/29 12:30			2021/06/29 01:40		
COC Number		829401-04-01			829401-04-01			829401-04-01		
	UNITS	6-2	RDL	QC Batch	6-2 Lab-Dup	RDL	QC Batch	POND	RDL	QC Batch
Calculated Parameters										
Anion Sum	me/L							12.1	N/A	7445811
Cation Sum	me/L							12.5	N/A	7445811
Hardness (CaCO3)	mg/L							370	1.0	7445809
Inorganics										
Total Ammonia-N	mg/L							<0.050	0.050	7448495
Colour	TCU	<2	2	7448619						
Conductivity	umho/cm							1200	1.0	7449863
Total Dissolved Solids	mg/L							770	10	7449279
Fluoride (F-)	mg/L	0.97	0.10	7450307	0.96	0.10	7450307	0.60	0.10	7449852
Total Kjeldahl Nitrogen (TKN)	mg/L							0.34	0.10	7448459
Dissolved Organic Carbon	mg/L							6.1	0.40	7448584
pH	pH							8.45		7449876
Phenols-4AAP	mg/L							<0.0010	0.0010	7448237
Total Phosphorus	mg/L							0.022	0.020	7451429
Total Suspended Solids	mg/L							<10	10	7448616
Dissolved Sulphate (SO4)	mg/L							320	1.0	7449327
Alkalinity (Total as CaCO3)	mg/L							45	1.0	7449862
Dissolved Chloride (Cl-)	mg/L							160	2.0	7449294
Nitrite (N)	mg/L							<0.010	0.010	7449352
Nitrate (N)	mg/L							<0.10	0.10	7449352
Nitrate + Nitrite (N)	mg/L							<0.10	0.10	7449352

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

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BV Labs Job #: C1I4834
Report Date: 2021/07/22

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

RESULTS OF ANALYSES OF WATER

BV Labs ID		PZX224			PZX225			PZX225		
Sampling Date		2021/06/29 01:40			2021/06/29 02:30			2021/06/29 02:30		
COC Number		829401-04-01			829401-04-01			829401-04-01		
	UNITS	POND Lab-Dup	RDL	QC Batch	DW3	RDL	QC Batch	DW3 Lab-Dup	RDL	QC Batch
Inorganics										
Colour	TCU				2	2	7448619			
Conductivity	umho/cm	1200	1.0	7449863						
Fluoride (F-)	mg/L	0.57	0.10	7449852	0.16	0.10	7450307			
pH	pH	8.56		7449876						
Tannins & Lignins	mg/L				<0.2	0.2	7448005	<0.2	0.2	7448005
Turbidity	NTU				<0.1	0.1	7448506			
Alkalinity (Total as CaCO3)	mg/L	45	1.0	7449862						

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

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ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

BV Labs ID		PZX224		
Sampling Date		2021/06/29 01:40		
COC Number		829401-04-01		
	UNITS	POND	RDL	QC Batch
Metals				
Total Arsenic (As)	ug/L	<1.0	1.0	7450558
Total Cadmium (Cd)	ug/L	<0.090	0.090	7450558
Total Calcium (Ca)	ug/L	69000	200	7450558
Total Chromium (Cr)	ug/L	<5.0	5.0	7450558
Total Copper (Cu)	ug/L	<0.90	0.90	7450558
Total Iron (Fe)	ug/L	150	100	7450558
Total Lead (Pb)	ug/L	<0.50	0.50	7450558
Total Magnesium (Mg)	ug/L	42000	50	7450558
Total Manganese (Mn)	ug/L	48	2.0	7450558
Total Nickel (Ni)	ug/L	1.7	1.0	7450558
Total Potassium (K)	ug/L	13000	200	7450558
Total Sodium (Na)	ug/L	110000	100	7450558
Total Zinc (Zn)	ug/L	<5.0	5.0	7450558

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

TEST SUMMARY

BV Labs ID: PZX223
Sample ID: 6-2
Matrix: Water

Collected: 2021/06/29
Shipped:
Received: 2021/07/05

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	7450310	N/A	2021/07/08	Surinder Rai
Carbonate, Bicarbonate and Hydroxide	CALC	7445807	N/A	2021/07/09	Automated Statchk
Chloride by Automated Colourimetry	KONE	7450319	N/A	2021/07/08	Alina Dobreanu
Colour	SPEC	7448619	N/A	2021/07/07	Viorica Rotaru
Conductivity	AT	7450312	N/A	2021/07/08	Surinder Rai
Dissolved Organic Carbon (DOC)	TOCV/NDIR	7448584	N/A	2021/07/07	Nimarta Singh
Fluoride	ISE	7450307	2021/07/07	2021/07/08	Surinder Rai
Hardness (calculated as CaCO3)		7445809	N/A	2021/07/07	Automated Statchk
Dissolved Metals by ICPMS	ICP/MS	7446635	N/A	2021/07/07	Arefa Dabhad
Ion Balance (% Difference)	CALC	7445810	N/A	2021/07/09	Automated Statchk
Anion and Cation Sum	CALC	7445811	N/A	2021/07/09	Automated Statchk
Total Ammonia-N	LACH/NH4	7452084	N/A	2021/07/09	Amanpreet Sappal
Nitrate (NO3) and Nitrite (NO2) in Water	LACH	7449352	N/A	2021/07/08	Chandra Nandlal
pH	AT	7450314	2021/07/07	2021/07/08	Surinder Rai
Orthophosphate	KONE	7450345	N/A	2021/07/08	Avneet Kour Sudan
Sat. pH and Langelier Index (@ 20C)	CALC	7445815	N/A	2021/07/09	Automated Statchk
Sat. pH and Langelier Index (@ 4C)	CALC	7445816	N/A	2021/07/09	Automated Statchk
Sulphate by Automated Colourimetry	KONE	7450322	N/A	2021/07/08	Alina Dobreanu
Total Dissolved Solids (TDS calc)	CALC	7445817	N/A	2021/07/09	Automated Statchk

BV Labs ID: PZX223 Dup
Sample ID: 6-2
Matrix: Water

Collected: 2021/06/29
Shipped:
Received: 2021/07/05

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	7450310	N/A	2021/07/08	Surinder Rai
Conductivity	AT	7450312	N/A	2021/07/08	Surinder Rai
Fluoride	ISE	7450307	2021/07/07	2021/07/08	Surinder Rai
pH	AT	7450314	2021/07/07	2021/07/08	Surinder Rai

BV Labs ID: PZX224
Sample ID: POND
Matrix: Water

Collected: 2021/06/29
Shipped:
Received: 2021/07/05

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	7449862	N/A	2021/07/08	Surinder Rai
Chloride by Automated Colourimetry	KONE	7449294	N/A	2021/07/08	Alina Dobreanu
Conductivity	AT	7449863	N/A	2021/07/08	Surinder Rai
Dissolved Organic Carbon (DOC)	TOCV/NDIR	7448584	N/A	2021/07/07	Nimarta Singh
Fluoride	ISE	7449852	2021/07/07	2021/07/08	Surinder Rai
Hardness (calculated as CaCO3)		7445809	N/A	2021/07/09	Ewa Pranjic
Total Metals Analysis by ICPMS	ICP/MS	7450558	N/A	2021/07/08	Prempal Bhatti
Anion and Cation Sum	CALC	7445811	N/A	2021/07/21	Automated Statchk
Total Ammonia-N	LACH/NH4	7448495	N/A	2021/07/08	Amanpreet Sappal
Nitrate (NO3) and Nitrite (NO2) in Water	LACH	7449352	N/A	2021/07/08	Chandra Nandlal

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TEST SUMMARY

BV Labs ID: PZX224
Sample ID: POND
Matrix: Water

Collected: 2021/06/29
Shipped:
Received: 2021/07/05

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Animal and Vegetable Oil and Grease	BAL	7445790	N/A	2021/07/09	Automated Statchk
Total Oil and Grease	BAL	7453173	2021/07/09	2021/07/09	Mitul Patel
pH	AT	7449876	2021/07/07	2021/07/08	Surinder Rai
Phenols (4AAP)	TECH/PHEN	7448237	N/A	2021/07/07	Deonarine Ramnarine
Sulphate by Automated Colourimetry	KONE	7449327	N/A	2021/07/08	Alina Dobreanu
Total Dissolved Solids	BAL	7449279	2021/07/07	2021/07/08	Shivani Desai
Total Kjeldahl Nitrogen in Water	SKAL	7448459	2021/07/07	2021/07/07	Massarat Jan
Total Phosphorus (Colourimetric)	LACH/P	7451429	2021/07/08	2021/07/09	Shivani Shivani
Mineral/Synthetic O & G (TPH Heavy Oil)	BAL	7453174	2021/07/09	2021/07/09	Mitul Patel
Total Suspended Solids	BAL	7448616	2021/07/07	2021/07/08	Shivani Desai

BV Labs ID: PZX224 Dup
Sample ID: POND
Matrix: Water

Collected: 2021/06/29
Shipped:
Received: 2021/07/05

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	7449862	N/A	2021/07/08	Surinder Rai
Conductivity	AT	7449863	N/A	2021/07/08	Surinder Rai
Fluoride	ISE	7449852	2021/07/07	2021/07/08	Surinder Rai
pH	AT	7449876	2021/07/07	2021/07/08	Surinder Rai

BV Labs ID: PZX225
Sample ID: DW3
Matrix: Water

Collected: 2021/06/29
Shipped:
Received: 2021/07/05

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	7450310	N/A	2021/07/08	Surinder Rai
Carbonate, Bicarbonate and Hydroxide	CALC	7445807	N/A	2021/07/09	Automated Statchk
Chloride by Automated Colourimetry	KONE	7450319	N/A	2021/07/08	Alina Dobreanu
Colour	SPEC	7448619	N/A	2021/07/07	Viorica Rotaru
Conductivity	AT	7450312	N/A	2021/07/08	Surinder Rai
Dissolved Organic Carbon (DOC)	TOCV/NDIR	7448584	N/A	2021/07/07	Nimarta Singh
Fluoride	ISE	7450307	2021/07/07	2021/07/08	Surinder Rai
Hardness (calculated as CaCO3)		7445809	N/A	2021/07/07	Automated Statchk
Metals Analysis by ICPMS (as received)	ICP/MS	7446641	N/A	2021/07/07	Arefa Dabhad
Ion Balance (% Difference)	CALC	7445810	N/A	2021/07/09	Automated Statchk
Anion and Cation Sum	CALC	7445811	N/A	2021/07/09	Automated Statchk
Total Ammonia-N	LACH/NH4	7452084	N/A	2021/07/09	Amanpreet Sappal
Nitrate (NO3) and Nitrite (NO2) in Water	LACH	7449352	N/A	2021/07/08	Chandra Nandlal
pH	AT	7450314	2021/07/07	2021/07/08	Surinder Rai
Orthophosphate	KONE	7450345	N/A	2021/07/08	Avneet Kour Sudan
Sat. pH and Langelier Index (@ 20C)	CALC	7445815	N/A	2021/07/09	Automated Statchk
Sat. pH and Langelier Index (@ 4C)	CALC	7445816	N/A	2021/07/09	Automated Statchk
Sulphate by Automated Colourimetry	KONE	7450322	N/A	2021/07/08	Alina Dobreanu
Tannins & Lignins	SPEC	7448005	N/A	2021/07/07	Viorica Rotaru

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TEST SUMMARY

BV Labs ID: PZX225
Sample ID: DW3
Matrix: Water

Collected: 2021/06/29
Shipped:
Received: 2021/07/05

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Total Dissolved Solids (TDS calc)	CALC	7445817	N/A	2021/07/09	Automated Statchk
Turbidity	AT	7448506	N/A	2021/07/07	Surinder Rai

BV Labs ID: PZX225 Dup
Sample ID: DW3
Matrix: Water

Collected: 2021/06/29
Shipped:
Received: 2021/07/05

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Total Ammonia-N	LACH/NH4	7452084	N/A	2021/07/09	Amanpreet Sappal
Tannins & Lignins	SPEC	7448005	N/A	2021/07/07	Viorica Rotaru

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GENERAL COMMENTS

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

Package 1	8.3°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
7446635	ADA	Matrix Spike	Dissolved Aluminum (Al)	2021/07/07		100	%	80 - 120
			Dissolved Antimony (Sb)	2021/07/07		107	%	80 - 120
			Dissolved Arsenic (As)	2021/07/07		102	%	80 - 120
			Dissolved Barium (Ba)	2021/07/07		102	%	80 - 120
			Dissolved Beryllium (Be)	2021/07/07		95	%	80 - 120
			Dissolved Boron (B)	2021/07/07		93	%	80 - 120
			Dissolved Cadmium (Cd)	2021/07/07		106	%	80 - 120
			Dissolved Calcium (Ca)	2021/07/07		NC	%	80 - 120
			Dissolved Chromium (Cr)	2021/07/07		98	%	80 - 120
			Dissolved Cobalt (Co)	2021/07/07		100	%	80 - 120
			Dissolved Copper (Cu)	2021/07/07		97	%	80 - 120
			Dissolved Iron (Fe)	2021/07/07		99	%	80 - 120
			Dissolved Lead (Pb)	2021/07/07		100	%	80 - 120
			Dissolved Magnesium (Mg)	2021/07/07		NC	%	80 - 120
			Dissolved Manganese (Mn)	2021/07/07		101	%	80 - 120
			Dissolved Molybdenum (Mo)	2021/07/07		101	%	80 - 120
			Dissolved Nickel (Ni)	2021/07/07		96	%	80 - 120
			Dissolved Phosphorus (P)	2021/07/07		105	%	80 - 120
			Dissolved Potassium (K)	2021/07/07		103	%	80 - 120
			Dissolved Selenium (Se)	2021/07/07		102	%	80 - 120
			Dissolved Silicon (Si)	2021/07/07		101	%	80 - 120
			Dissolved Silver (Ag)	2021/07/07		99	%	80 - 120
			Dissolved Sodium (Na)	2021/07/07		100	%	80 - 120
			Dissolved Strontium (Sr)	2021/07/07		101	%	80 - 120
			Dissolved Thallium (Tl)	2021/07/07		105	%	80 - 120
			Dissolved Titanium (Ti)	2021/07/07		101	%	80 - 120
			Dissolved Uranium (U)	2021/07/07		103	%	80 - 120
			Dissolved Vanadium (V)	2021/07/07		101	%	80 - 120
			Dissolved Zinc (Zn)	2021/07/07		102	%	80 - 120
7446635	ADA	Spiked Blank	Dissolved Aluminum (Al)	2021/07/07		99	%	80 - 120
			Dissolved Antimony (Sb)	2021/07/07		100	%	80 - 120
			Dissolved Arsenic (As)	2021/07/07		97	%	80 - 120
			Dissolved Barium (Ba)	2021/07/07		98	%	80 - 120
			Dissolved Beryllium (Be)	2021/07/07		90	%	80 - 120
			Dissolved Boron (B)	2021/07/07		89	%	80 - 120
			Dissolved Cadmium (Cd)	2021/07/07		100	%	80 - 120
			Dissolved Calcium (Ca)	2021/07/07		98	%	80 - 120
			Dissolved Chromium (Cr)	2021/07/07		93	%	80 - 120
			Dissolved Cobalt (Co)	2021/07/07		97	%	80 - 120
			Dissolved Copper (Cu)	2021/07/07		94	%	80 - 120
			Dissolved Iron (Fe)	2021/07/07		95	%	80 - 120
			Dissolved Lead (Pb)	2021/07/07		96	%	80 - 120
			Dissolved Magnesium (Mg)	2021/07/07		98	%	80 - 120
			Dissolved Manganese (Mn)	2021/07/07		98	%	80 - 120
			Dissolved Molybdenum (Mo)	2021/07/07		94	%	80 - 120
			Dissolved Nickel (Ni)	2021/07/07		95	%	80 - 120
			Dissolved Phosphorus (P)	2021/07/07		105	%	80 - 120
			Dissolved Potassium (K)	2021/07/07		98	%	80 - 120
			Dissolved Selenium (Se)	2021/07/07		100	%	80 - 120
			Dissolved Silicon (Si)	2021/07/07		101	%	80 - 120
			Dissolved Silver (Ag)	2021/07/07		95	%	80 - 120
			Dissolved Sodium (Na)	2021/07/07		96	%	80 - 120

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Dissolved Strontium (Sr)	2021/07/07		98	%	80 - 120
			Dissolved Thallium (Tl)	2021/07/07		97	%	80 - 120
			Dissolved Titanium (Ti)	2021/07/07		96	%	80 - 120
			Dissolved Uranium (U)	2021/07/07		97	%	80 - 120
			Dissolved Vanadium (V)	2021/07/07		96	%	80 - 120
			Dissolved Zinc (Zn)	2021/07/07		98	%	80 - 120
7446635	ADA	Method Blank	Dissolved Aluminum (Al)	2021/07/07	<4.9		ug/L	
			Dissolved Antimony (Sb)	2021/07/07	<0.50		ug/L	
			Dissolved Arsenic (As)	2021/07/07	<1.0		ug/L	
			Dissolved Barium (Ba)	2021/07/07	<2.0		ug/L	
			Dissolved Beryllium (Be)	2021/07/07	<0.40		ug/L	
			Dissolved Boron (B)	2021/07/07	<10		ug/L	
			Dissolved Cadmium (Cd)	2021/07/07	<0.090		ug/L	
			Dissolved Calcium (Ca)	2021/07/07	<200		ug/L	
			Dissolved Chromium (Cr)	2021/07/07	<5.0		ug/L	
			Dissolved Cobalt (Co)	2021/07/07	<0.50		ug/L	
			Dissolved Copper (Cu)	2021/07/07	<0.90		ug/L	
			Dissolved Iron (Fe)	2021/07/07	<100		ug/L	
			Dissolved Lead (Pb)	2021/07/07	<0.50		ug/L	
			Dissolved Magnesium (Mg)	2021/07/07	<50		ug/L	
			Dissolved Manganese (Mn)	2021/07/07	<2.0		ug/L	
			Dissolved Molybdenum (Mo)	2021/07/07	<0.50		ug/L	
			Dissolved Nickel (Ni)	2021/07/07	<1.0		ug/L	
			Dissolved Phosphorus (P)	2021/07/07	<100		ug/L	
			Dissolved Potassium (K)	2021/07/07	<200		ug/L	
			Dissolved Selenium (Se)	2021/07/07	<2.0		ug/L	
			Dissolved Silicon (Si)	2021/07/07	<50		ug/L	
			Dissolved Silver (Ag)	2021/07/07	<0.090		ug/L	
			Dissolved Sodium (Na)	2021/07/07	<100		ug/L	
			Dissolved Strontium (Sr)	2021/07/07	<1.0		ug/L	
			Dissolved Thallium (Tl)	2021/07/07	<0.050		ug/L	
			Dissolved Titanium (Ti)	2021/07/07	<5.0		ug/L	
			Dissolved Uranium (U)	2021/07/07	<0.10		ug/L	
			Dissolved Vanadium (V)	2021/07/07	<0.50		ug/L	
			Dissolved Zinc (Zn)	2021/07/07	<5.0		ug/L	
7446635	ADA	RPD	Dissolved Antimony (Sb)	2021/07/07	NC		%	20
			Dissolved Arsenic (As)	2021/07/07	NC		%	20
			Dissolved Barium (Ba)	2021/07/07	4.8		%	20
			Dissolved Beryllium (Be)	2021/07/07	NC		%	20
			Dissolved Boron (B)	2021/07/07	2.6		%	20
			Dissolved Cadmium (Cd)	2021/07/07	NC		%	20
			Dissolved Chromium (Cr)	2021/07/07	NC		%	20
			Dissolved Cobalt (Co)	2021/07/07	NC		%	20
			Dissolved Copper (Cu)	2021/07/07	NC		%	20
			Dissolved Lead (Pb)	2021/07/07	NC		%	20
			Dissolved Molybdenum (Mo)	2021/07/07	3.5		%	20
			Dissolved Nickel (Ni)	2021/07/07	NC		%	20
			Dissolved Selenium (Se)	2021/07/07	NC		%	20
			Dissolved Silver (Ag)	2021/07/07	NC		%	20
			Dissolved Sodium (Na)	2021/07/07	0.13		%	20
			Dissolved Thallium (Tl)	2021/07/07	NC		%	20
			Dissolved Uranium (U)	2021/07/07	0.84		%	20

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Dissolved Vanadium (V)	2021/07/07	NC		%	20
			Dissolved Zinc (Zn)	2021/07/07	NC		%	20
7446641	ADA	Matrix Spike	Aluminum (Al)	2021/07/07		101	%	80 - 120
			Antimony (Sb)	2021/07/07		105	%	80 - 120
			Arsenic (As)	2021/07/07		100	%	80 - 120
			Barium (Ba)	2021/07/07		103	%	80 - 120
			Beryllium (Be)	2021/07/07		94	%	80 - 120
			Boron (B)	2021/07/07		91	%	80 - 120
			Cadmium (Cd)	2021/07/07		103	%	80 - 120
			Calcium (Ca)	2021/07/07		NC	%	80 - 120
			Chromium (Cr)	2021/07/07		95	%	80 - 120
			Cobalt (Co)	2021/07/07		101	%	80 - 120
			Copper (Cu)	2021/07/07		95	%	80 - 120
			Iron (Fe)	2021/07/07		98	%	80 - 120
			Lead (Pb)	2021/07/07		98	%	80 - 120
			Lithium (Li)	2021/07/07		101	%	80 - 120
			Magnesium (Mg)	2021/07/07		NC	%	80 - 120
			Manganese (Mn)	2021/07/07		100	%	80 - 120
			Molybdenum (Mo)	2021/07/07		98	%	80 - 120
			Nickel (Ni)	2021/07/07		96	%	80 - 120
			Phosphorus (P)	2021/07/07		103	%	80 - 120
			Potassium (K)	2021/07/07		99	%	80 - 120
			Selenium (Se)	2021/07/07		104	%	80 - 120
			Silicon (Si)	2021/07/07		104	%	80 - 120
			Silver (Ag)	2021/07/07		97	%	80 - 120
			Sodium (Na)	2021/07/07		96	%	80 - 120
			Strontium (Sr)	2021/07/07		102	%	80 - 120
			Thallium (Tl)	2021/07/07		99	%	80 - 120
			Titanium (Ti)	2021/07/07		101	%	80 - 120
			Uranium (U)	2021/07/07		98	%	80 - 120
			Vanadium (V)	2021/07/07		98	%	80 - 120
			Zinc (Zn)	2021/07/07		99	%	80 - 120
7446641	ADA	Spiked Blank	Aluminum (Al)	2021/07/07		98	%	80 - 120
			Antimony (Sb)	2021/07/07		100	%	80 - 120
			Arsenic (As)	2021/07/07		97	%	80 - 120
			Barium (Ba)	2021/07/07		97	%	80 - 120
			Beryllium (Be)	2021/07/07		90	%	80 - 120
			Boron (B)	2021/07/07		89	%	80 - 120
			Cadmium (Cd)	2021/07/07		100	%	80 - 120
			Calcium (Ca)	2021/07/07		98	%	80 - 120
			Chromium (Cr)	2021/07/07		93	%	80 - 120
			Cobalt (Co)	2021/07/07		98	%	80 - 120
			Copper (Cu)	2021/07/07		92	%	80 - 120
			Iron (Fe)	2021/07/07		95	%	80 - 120
			Lead (Pb)	2021/07/07		95	%	80 - 120
			Lithium (Li)	2021/07/07		102	%	80 - 120
			Magnesium (Mg)	2021/07/07		98	%	80 - 120
			Manganese (Mn)	2021/07/07		96	%	80 - 120
			Molybdenum (Mo)	2021/07/07		94	%	80 - 120
			Nickel (Ni)	2021/07/07		94	%	80 - 120
			Phosphorus (P)	2021/07/07		106	%	80 - 120
			Potassium (K)	2021/07/07		96	%	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
			Selenium (Se)	2021/07/07		99	%	80 - 120
			Silicon (Si)	2021/07/07		100	%	80 - 120
			Silver (Ag)	2021/07/07		93	%	80 - 120
			Sodium (Na)	2021/07/07		95	%	80 - 120
			Strontium (Sr)	2021/07/07		98	%	80 - 120
			Thallium (Tl)	2021/07/07		99	%	80 - 120
			Titanium (Ti)	2021/07/07		97	%	80 - 120
			Uranium (U)	2021/07/07		95	%	80 - 120
			Vanadium (V)	2021/07/07		95	%	80 - 120
			Zinc (Zn)	2021/07/07		96	%	80 - 120
7446641	ADA	Method Blank	Aluminum (Al)	2021/07/07	<4.9		ug/L	
			Antimony (Sb)	2021/07/07	<0.50		ug/L	
			Arsenic (As)	2021/07/07	<1.0		ug/L	
			Barium (Ba)	2021/07/07	<2.0		ug/L	
			Beryllium (Be)	2021/07/07	<0.40		ug/L	
			Boron (B)	2021/07/07	<10		ug/L	
			Cadmium (Cd)	2021/07/07	<0.090		ug/L	
			Calcium (Ca)	2021/07/07	<200		ug/L	
			Chromium (Cr)	2021/07/07	<5.0		ug/L	
			Cobalt (Co)	2021/07/07	<0.50		ug/L	
			Copper (Cu)	2021/07/07	<0.90		ug/L	
			Iron (Fe)	2021/07/07	<100		ug/L	
			Lead (Pb)	2021/07/07	<0.50		ug/L	
			Lithium (Li)	2021/07/07	<5.0		ug/L	
			Magnesium (Mg)	2021/07/07	<50		ug/L	
			Manganese (Mn)	2021/07/07	<2.0		ug/L	
			Molybdenum (Mo)	2021/07/07	<0.50		ug/L	
			Nickel (Ni)	2021/07/07	<1.0		ug/L	
			Phosphorus (P)	2021/07/07	<100		ug/L	
			Potassium (K)	2021/07/07	<200		ug/L	
			Selenium (Se)	2021/07/07	<2.0		ug/L	
			Silicon (Si)	2021/07/07	<50		ug/L	
			Silver (Ag)	2021/07/07	<0.090		ug/L	
			Sodium (Na)	2021/07/07	<100		ug/L	
			Strontium (Sr)	2021/07/07	<1.0		ug/L	
			Thallium (Tl)	2021/07/07	<0.050		ug/L	
			Titanium (Ti)	2021/07/07	<5.0		ug/L	
			Uranium (U)	2021/07/07	<0.10		ug/L	
			Vanadium (V)	2021/07/07	<0.50		ug/L	
			Zinc (Zn)	2021/07/07	<5.0		ug/L	
7446641	ADA	RPD	Aluminum (Al)	2021/07/07	NC		%	20
			Antimony (Sb)	2021/07/07	NC		%	20
			Arsenic (As)	2021/07/07	0.73		%	20
			Barium (Ba)	2021/07/07	1.4		%	20
			Beryllium (Be)	2021/07/07	NC		%	20
			Boron (B)	2021/07/07	4.4		%	20
			Cadmium (Cd)	2021/07/07	NC		%	20
			Calcium (Ca)	2021/07/07	1.1		%	20
			Chromium (Cr)	2021/07/07	NC		%	20
			Cobalt (Co)	2021/07/07	NC		%	20
			Copper (Cu)	2021/07/07	5.8		%	20
			Iron (Fe)	2021/07/07	0.073		%	20

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Lead (Pb)	2021/07/07	0.10		%	20
			Lithium (Li)	2021/07/07	NC		%	20
			Magnesium (Mg)	2021/07/07	2.7		%	20
			Manganese (Mn)	2021/07/07	0.80		%	20
			Molybdenum (Mo)	2021/07/07	1.3		%	20
			Nickel (Ni)	2021/07/07	NC		%	20
			Phosphorus (P)	2021/07/07	NC		%	20
			Potassium (K)	2021/07/07	0.15		%	20
			Selenium (Se)	2021/07/07	NC		%	20
			Silicon (Si)	2021/07/07	0.53		%	20
			Silver (Ag)	2021/07/07	NC		%	20
			Sodium (Na)	2021/07/07	1.8		%	20
			Strontium (Sr)	2021/07/07	0.59		%	20
			Thallium (Tl)	2021/07/07	NC		%	20
			Titanium (Ti)	2021/07/07	NC		%	20
			Uranium (U)	2021/07/07	NC		%	20
			Vanadium (V)	2021/07/07	NC		%	20
			Zinc (Zn)	2021/07/07	1.3		%	20
7448005	VRO	Matrix Spike [PZX225-02]	Tannins & Lignins	2021/07/07		99	%	80 - 120
7448005	VRO	Spiked Blank	Tannins & Lignins	2021/07/07		102	%	80 - 120
7448005	VRO	Method Blank	Tannins & Lignins	2021/07/07	<0.2		mg/L	
7448005	VRO	RPD [PZX225-02]	Tannins & Lignins	2021/07/07	NC		%	20
7448237	DRM	Matrix Spike	Phenols-4AAP	2021/07/07		90	%	80 - 120
7448237	DRM	Spiked Blank	Phenols-4AAP	2021/07/07		101	%	80 - 120
7448237	DRM	Method Blank	Phenols-4AAP	2021/07/07	<0.0010		mg/L	
7448237	DRM	RPD	Phenols-4AAP	2021/07/07	NC		%	20
7448459	MJ1	Matrix Spike	Total Kjeldahl Nitrogen (TKN)	2021/07/07		NC	%	80 - 120
7448459	MJ1	QC Standard	Total Kjeldahl Nitrogen (TKN)	2021/07/07		89	%	80 - 120
7448459	MJ1	Spiked Blank	Total Kjeldahl Nitrogen (TKN)	2021/07/07		92	%	80 - 120
7448459	MJ1	Method Blank	Total Kjeldahl Nitrogen (TKN)	2021/07/07	<0.10		mg/L	
7448459	MJ1	RPD	Total Kjeldahl Nitrogen (TKN)	2021/07/07	NC		%	20
7448495	ASP	Matrix Spike	Total Ammonia-N	2021/07/08		103	%	75 - 125
7448495	ASP	Spiked Blank	Total Ammonia-N	2021/07/08		101	%	80 - 120
7448495	ASP	Method Blank	Total Ammonia-N	2021/07/08	<0.050		mg/L	
7448495	ASP	RPD	Total Ammonia-N	2021/07/08	2.3		%	20
7448506	SAU	Spiked Blank	Turbidity	2021/07/07		94	%	85 - 115
7448506	SAU	Method Blank	Turbidity	2021/07/07	<0.1		NTU	
7448506	SAU	RPD	Turbidity	2021/07/07	3.8		%	20
7448584	NS3	Matrix Spike	Dissolved Organic Carbon	2021/07/07		NC	%	80 - 120
7448584	NS3	Spiked Blank	Dissolved Organic Carbon	2021/07/07		97	%	80 - 120
7448584	NS3	Method Blank	Dissolved Organic Carbon	2021/07/07	<0.40		mg/L	
7448584	NS3	RPD	Dissolved Organic Carbon	2021/07/07	0.88		%	20
7448616	SDE	QC Standard	Total Suspended Solids	2021/07/08		95	%	85 - 115
7448616	SDE	Method Blank	Total Suspended Solids	2021/07/08	<10		mg/L	
7448616	SDE	RPD	Total Suspended Solids	2021/07/08	6.1		%	25
7448619	VRO	Spiked Blank	Colour	2021/07/07		100	%	80 - 120
7448619	VRO	Method Blank	Colour	2021/07/07	<2		TCU	
7448619	VRO	RPD	Colour	2021/07/07	NC		%	25
7449279	SDE	QC Standard	Total Dissolved Solids	2021/07/08		100	%	90 - 110
7449279	SDE	Method Blank	Total Dissolved Solids	2021/07/08	<10		mg/L	
7449279	SDE	RPD	Total Dissolved Solids	2021/07/08	4.7		%	25
7449294	ADB	Matrix Spike	Dissolved Chloride (Cl-)	2021/07/08		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
7449294	ADB	Spiked Blank	Dissolved Chloride (Cl-)	2021/07/08		99	%	80 - 120
7449294	ADB	Method Blank	Dissolved Chloride (Cl-)	2021/07/08	<1.0		mg/L	
7449294	ADB	RPD	Dissolved Chloride (Cl-)	2021/07/08	7.3		%	20
7449327	ADB	Matrix Spike	Dissolved Sulphate (SO4)	2021/07/08		NC	%	75 - 125
7449327	ADB	Spiked Blank	Dissolved Sulphate (SO4)	2021/07/08		100	%	80 - 120
7449327	ADB	Method Blank	Dissolved Sulphate (SO4)	2021/07/08	<1.0		mg/L	
7449327	ADB	RPD	Dissolved Sulphate (SO4)	2021/07/08	3.0		%	20
7449352	C_N	Matrix Spike	Nitrite (N)	2021/07/08		102	%	80 - 120
			Nitrate (N)	2021/07/08		97	%	80 - 120
7449352	C_N	Spiked Blank	Nitrite (N)	2021/07/08		103	%	80 - 120
			Nitrate (N)	2021/07/08		98	%	80 - 120
7449352	C_N	Method Blank	Nitrite (N)	2021/07/08	<0.010		mg/L	
			Nitrate (N)	2021/07/08	<0.10		mg/L	
7449352	C_N	RPD	Nitrite (N)	2021/07/08	2.0		%	20
			Nitrate (N)	2021/07/08	8.1		%	20
7449852	SAU	Matrix Spike [PZX224-04]	Fluoride (F-)	2021/07/08		105	%	80 - 120
7449852	SAU	Spiked Blank	Fluoride (F-)	2021/07/08		101	%	80 - 120
7449852	SAU	Method Blank	Fluoride (F-)	2021/07/08	<0.10		mg/L	
7449852	SAU	RPD [PZX224-04]	Fluoride (F-)	2021/07/08	4.7		%	20
7449862	SAU	Spiked Blank	Alkalinity (Total as CaCO3)	2021/07/08		96	%	85 - 115
7449862	SAU	Method Blank	Alkalinity (Total as CaCO3)	2021/07/08	<1.0		mg/L	
7449862	SAU	RPD [PZX224-04]	Alkalinity (Total as CaCO3)	2021/07/08	0.12		%	20
7449863	SAU	Spiked Blank	Conductivity	2021/07/08		100	%	85 - 115
7449863	SAU	Method Blank	Conductivity	2021/07/08	<1.0		umho/cm	
7449863	SAU	RPD [PZX224-04]	Conductivity	2021/07/08	0.25		%	25
7449876	SAU	Spiked Blank	pH	2021/07/08		102	%	98 - 103
7449876	SAU	RPD [PZX224-04]	pH	2021/07/08	1.3		%	N/A
7450307	SAU	Matrix Spike [PZX223-01]	Fluoride (F-)	2021/07/08		97	%	80 - 120
7450307	SAU	Spiked Blank	Fluoride (F-)	2021/07/08		93	%	80 - 120
7450307	SAU	Method Blank	Fluoride (F-)	2021/07/08	<0.10		mg/L	
7450307	SAU	RPD [PZX223-01]	Fluoride (F-)	2021/07/08	1.4		%	20
7450310	SAU	Spiked Blank	Alkalinity (Total as CaCO3)	2021/07/08		96	%	85 - 115
7450310	SAU	Method Blank	Alkalinity (Total as CaCO3)	2021/07/08	<1.0		mg/L	
7450310	SAU	RPD [PZX223-01]	Alkalinity (Total as CaCO3)	2021/07/08	1.6		%	20
7450312	SAU	Spiked Blank	Conductivity	2021/07/08		102	%	85 - 115
7450312	SAU	Method Blank	Conductivity	2021/07/08	<1.0		umho/cm	
7450312	SAU	RPD [PZX223-01]	Conductivity	2021/07/08	0.16		%	25
7450314	SAU	Spiked Blank	pH	2021/07/08		102	%	98 - 103
7450314	SAU	RPD [PZX223-01]	pH	2021/07/08	1.2		%	N/A
7450319	ADB	Matrix Spike	Dissolved Chloride (Cl-)	2021/07/08		NC	%	80 - 120
7450319	ADB	Spiked Blank	Dissolved Chloride (Cl-)	2021/07/08		104	%	80 - 120
7450319	ADB	Method Blank	Dissolved Chloride (Cl-)	2021/07/08	<1.0		mg/L	
7450319	ADB	RPD	Dissolved Chloride (Cl-)	2021/07/08	0.77		%	20
7450322	ADB	Matrix Spike	Dissolved Sulphate (SO4)	2021/07/08		NC	%	75 - 125
7450322	ADB	Spiked Blank	Dissolved Sulphate (SO4)	2021/07/08		100	%	80 - 120
7450322	ADB	Method Blank	Dissolved Sulphate (SO4)	2021/07/08	<1.0		mg/L	
7450322	ADB	RPD	Dissolved Sulphate (SO4)	2021/07/08	1.5		%	20
7450345	AKD	Matrix Spike	Orthophosphate (P)	2021/07/08		110	%	75 - 125
7450345	AKD	Spiked Blank	Orthophosphate (P)	2021/07/08		99	%	80 - 120
7450345	AKD	Method Blank	Orthophosphate (P)	2021/07/08	<0.010		mg/L	
7450345	AKD	RPD	Orthophosphate (P)	2021/07/08	8.1		%	25
7450558	PBA	Matrix Spike	Total Arsenic (As)	2021/07/08		96	%	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 Cadmium (Cd)	2021/07/08		97	%	80 - 120
			Total Calcium (Ca)	2021/07/08		NC	%	80 - 120
			Total Chromium (Cr)	2021/07/08		91	%	80 - 120
			Total Copper (Cu)	2021/07/08		95	%	80 - 120
			Total Iron (Fe)	2021/07/08		93	%	80 - 120
			Total Lead (Pb)	2021/07/08		95	%	80 - 120
			Total Magnesium (Mg)	2021/07/08		91	%	80 - 120
			Total Manganese (Mn)	2021/07/08		93	%	80 - 120
			Total Nickel (Ni)	2021/07/08		92	%	80 - 120
			Total Potassium (K)	2021/07/08		96	%	80 - 120
			Total Sodium (Na)	2021/07/08		94	%	80 - 120
			Total Zinc (Zn)	2021/07/08		98	%	80 - 120
7450558	PBA	Spiked Blank	Total Arsenic (As)	2021/07/08		96	%	80 - 120
			Total Cadmium (Cd)	2021/07/08		98	%	80 - 120
			Total Calcium (Ca)	2021/07/08		96	%	80 - 120
			Total Chromium (Cr)	2021/07/08		92	%	80 - 120
			Total Copper (Cu)	2021/07/08		96	%	80 - 120
			Total Iron (Fe)	2021/07/08		94	%	80 - 120
			Total Lead (Pb)	2021/07/08		94	%	80 - 120
			Total Magnesium (Mg)	2021/07/08		97	%	80 - 120
			Total Manganese (Mn)	2021/07/08		94	%	80 - 120
			Total Nickel (Ni)	2021/07/08		94	%	80 - 120
			Total Potassium (K)	2021/07/08		97	%	80 - 120
			Total Sodium (Na)	2021/07/08		96	%	80 - 120
			Total Zinc (Zn)	2021/07/08		99	%	80 - 120
7450558	PBA	Method Blank	Total Arsenic (As)	2021/07/08	<1.0		ug/L	
			Total Cadmium (Cd)	2021/07/08	<0.090		ug/L	
			Total Calcium (Ca)	2021/07/08	<200		ug/L	
			Total Chromium (Cr)	2021/07/08	<5.0		ug/L	
			Total Copper (Cu)	2021/07/08	<0.90		ug/L	
			Total Iron (Fe)	2021/07/08	<100		ug/L	
			Total Lead (Pb)	2021/07/08	<0.50		ug/L	
			Total Magnesium (Mg)	2021/07/08	<50		ug/L	
			Total Manganese (Mn)	2021/07/08	<2.0		ug/L	
			Total Nickel (Ni)	2021/07/08	<1.0		ug/L	
			Total Potassium (K)	2021/07/08	<200		ug/L	
			Total Sodium (Na)	2021/07/08	<100		ug/L	
			Total Zinc (Zn)	2021/07/08	<5.0		ug/L	
7450558	PBA	RPD	Total Arsenic (As)	2021/07/08	NC		%	20
			Total Cadmium (Cd)	2021/07/08	NC		%	20
			Total Calcium (Ca)	2021/07/08	1.9		%	20
			Total Chromium (Cr)	2021/07/08	NC		%	20
			Total Copper (Cu)	2021/07/08	8.2		%	20
			Total Iron (Fe)	2021/07/08	NC		%	20
			Total Lead (Pb)	2021/07/08	NC		%	20
			Total Magnesium (Mg)	2021/07/08	0.053		%	20
			Total Manganese (Mn)	2021/07/08	19		%	20
			Total Nickel (Ni)	2021/07/08	0.57		%	20
			Total Potassium (K)	2021/07/08	1.1		%	20
			Total Sodium (Na)	2021/07/08	0.37		%	20
			Total Zinc (Zn)	2021/07/08	NC		%	20
7451429	SSV	Matrix Spike	Total Phosphorus	2021/07/09		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
7451429	SSV	QC Standard	Total Phosphorus	2021/07/09		99	%	80 - 120
7451429	SSV	Spiked Blank	Total Phosphorus	2021/07/09		95	%	80 - 120
7451429	SSV	Method Blank	Total Phosphorus	2021/07/09	<0.020		mg/L	
7451429	SSV	RPD	Total Phosphorus	2021/07/09	2.3		%	20
7452084	ASP	Matrix Spike [PZX225-05]	Total Ammonia-N	2021/07/09		103	%	75 - 125
7452084	ASP	Spiked Blank	Total Ammonia-N	2021/07/09		100	%	80 - 120
7452084	ASP	Method Blank	Total Ammonia-N	2021/07/09	<0.050		mg/L	
7452084	ASP	RPD [PZX225-05]	Total Ammonia-N	2021/07/09	NC		%	20
7453173	MPZ	Spiked Blank	Total Oil & Grease	2021/07/09		98	%	85 - 115
7453173	MPZ	RPD	Total Oil & Grease	2021/07/09	0.25		%	25
7453173	MPZ	Method Blank	Total Oil & Grease	2021/07/09	<0.50		mg/L	
7453174	MPZ	Spiked Blank	Total Oil & Grease Mineral/Synthetic	2021/07/09		95	%	85 - 115
7453174	MPZ	RPD	Total Oil & Grease Mineral/Synthetic	2021/07/09	0.52		%	25
7453174	MPZ	Method Blank	Total Oil & Grease Mineral/Synthetic	2021/07/09	<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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VALIDATION SIGNATURE PAGE

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

Anastassia Hamanov, Scientific Specialist

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

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

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

Attention: Dawn Hoyle/Jamie Bonany

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

Report Date: 2021/07/23
Report #: R6733010
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: C1J8665
Received: 2021/07/16, 10:05

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	2021/07/23	CAM SOP-00326	EPA1664B m,SM5520B m
Total Oil and Grease	1	2021/07/22	2021/07/23	CAM SOP-00326	EPA1664B m,SM5520B m
pH	1	2021/07/19	2021/07/20	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	1	N/A	2021/07/20	CAM SOP-00444	OMOE E3179 m
Mineral/Synthetic O & G (TPH Heavy Oil) (1)	1	2021/07/22	2021/07/23	CAM SOP-00326	EPA1664B m,SM5520F m
Low Level Total Suspended Solids	1	2021/07/19	2021/07/20	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 #: 20448776
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Attention: Dawn Hoyle/Jamie Bonany

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

Report Date: 2021/07/23
Report #: R6733010
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: C1J8665
Received: 2021/07/16, 10:05

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Ema Gitej, Senior Project Manager
Email: emese.gitej@bureauveritas.com
Phone# (905)817-5829
==========
This report has been generated and distributed using a secure automated process.
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BV Labs Job #: C1J8665
Report Date: 2021/07/23

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

RESULTS OF ANALYSES OF WATER

BV Labs ID		QCT244		
Sampling Date		2021/07/15 13:00		
COC Number		825330-01-01		
	UNITS	POND	RDL	QC Batch
Calculated Parameters				
Total Animal/Vegetable Oil and Grease	mg/L	<0.50	0.50	7468896
Inorganics				
pH	pH	8.05	N/A	7471285
Phenols-4AAP	mg/L	<0.0010	0.0010	7471924
Total Suspended Solids	mg/L	5	1	7470073
Petroleum Hydrocarbons				
Total Oil & Grease	mg/L	<0.50	0.50	7478905
Total Oil & Grease Mineral/Synthetic	mg/L	<0.50	0.50	7478907

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

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BV Labs Job #: C1J8665
Report Date: 2021/07/23

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

GENERAL COMMENTS

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

Package 1	22.3°C

Results relate only to the items tested.

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BV Labs Job #: C1J8665
Report Date: 2021/07/23

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

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
7470073	SEK	QC Standard	Total Suspended Solids	2021/07/20		101	%	85 - 115
7470073	SEK	Method Blank	Total Suspended Solids	2021/07/20	<1		mg/L	
7470073	SEK	RPD	Total Suspended Solids	2021/07/20	0		%	25
7471285	SAU	Spiked Blank	pH	2021/07/20		101	%	98 - 103
7471285	SAU	RPD	pH	2021/07/20	0.055		%	N/A
7471924	DRM	Matrix Spike	Phenols-4AAP	2021/07/20		97	%	80 - 120
7471924	DRM	Spiked Blank	Phenols-4AAP	2021/07/20		102	%	80 - 120
7471924	DRM	Method Blank	Phenols-4AAP	2021/07/20	<0.0010		mg/L	
7471924	DRM	RPD	Phenols-4AAP	2021/07/20	NC		%	20
7478905	SA5	Spiked Blank	Total Oil & Grease	2021/07/23		98	%	85 - 115
7478905	SA5	RPD	Total Oil & Grease	2021/07/23	1.0		%	25
7478905	SA5	Method Blank	Total Oil & Grease	2021/07/23	<0.50		mg/L	
7478907	SA5	Spiked Blank	Total Oil & Grease Mineral/Synthetic	2021/07/23		96	%	85 - 115
7478907	SA5	RPD	Total Oil & Grease Mineral/Synthetic	2021/07/23	2.7		%	25
7478907	SA5	Method Blank	Total Oil & Grease Mineral/Synthetic	2021/07/23	<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).

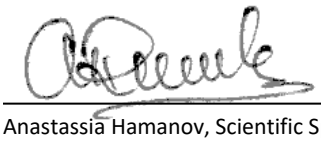
Bureau Veritas Laboratories 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

BV Labs Job #: C1J8665
Report Date: 2021/07/23

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

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. #: 837180-03-01

Attention: Dawn Hoyle/Jamie Bonany

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

Report Date: 2021/08/05
Report #: R6751878
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: C1L4469
Received: 2021/07/30, 09:26

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	2021/08/05	CAM SOP-00326	EPA1664B m,SM5520B m
Total Oil and Grease	1	2021/08/05	2021/08/05	CAM SOP-00326	EPA1664B m,SM5520B m
pH	1	2021/07/31	2021/08/03	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	1	N/A	2021/08/03	CAM SOP-00444	OMOE E3179 m
Mineral/Synthetic O & G (TPH Heavy Oil) (1)	1	2021/08/05	2021/08/05	CAM SOP-00326	EPA1664B m,SM5520F m
Low Level Total Suspended Solids	1	2021/08/04	2021/08/05	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 Location: MCCARTHY
Your C.O.C. #: 837180-03-01

Attention: Dawn Hoyle/Jamie Bonany

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

Report Date: 2021/08/05
Report #: R6751878
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: C1L4469
Received: 2021/07/30, 09:26

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Ema Gitej, Senior Project Manager
Email: emese.gitej@bureauveritas.com
Phone# (905)817-5829
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BV Labs Job #: C1L4469
Report Date: 2021/08/05

Golder Associates Ltd
Client Project #: 20448776
Site Location: MCCARTHY
Sampler Initials: MJ

RESULTS OF ANALYSES OF WATER

BV Labs ID		QGB885		
Sampling Date		2021/07/29 11:00		
COC Number		837180-03-01		
	UNITS	POND	RDL	QC Batch
Calculated Parameters				
Total Animal/Vegetable Oil and Grease	mg/L	<0.50	0.50	7493616
Inorganics				
pH	pH	7.55	N/A	7495690
Phenols-4AAP	mg/L	<0.0010	0.0010	7496914
Total Suspended Solids	mg/L	3	1	7495857
Petroleum Hydrocarbons				
Total Oil & Grease	mg/L	<0.50	0.50	7501578
Total Oil & Grease Mineral/Synthetic	mg/L	<0.50	0.50	7501583

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

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BV Labs Job #: C1L4469
Report Date: 2021/08/05

Golder Associates Ltd
Client Project #: 20448776
Site Location: MCCARTHY
Sampler Initials: MJ

GENERAL COMMENTS

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

Package 1	21.0°C

Results relate only to the items tested.

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

BV Labs Job #: C1L4469
Report Date: 2021/08/05

Golder Associates Ltd
Client Project #: 20448776
Site Location: MCCARTHY
Sampler Initials: MJ

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
7495690	SAU	Spiked Blank	pH	2021/08/03		102	%	98 - 103
7495690	SAU	RPD	pH	2021/08/03	0.66		%	N/A
7495857	SHD	QC Standard	Total Suspended Solids	2021/08/05		96	%	85 - 115
7495857	SHD	Method Blank	Total Suspended Solids	2021/08/05	<1		mg/L	
7495857	SHD	RPD	Total Suspended Solids	2021/08/05	15		%	25
7496914	DRM	Matrix Spike	Phenols-4AAP	2021/08/03		95	%	80 - 120
7496914	DRM	Spiked Blank	Phenols-4AAP	2021/08/03		102	%	80 - 120
7496914	DRM	Method Blank	Phenols-4AAP	2021/08/03	<0.0010		mg/L	
7496914	DRM	RPD	Phenols-4AAP	2021/08/03	0		%	20
7501578	MPZ	Spiked Blank	Total Oil & Grease	2021/08/05		98	%	85 - 115
7501578	MPZ	RPD	Total Oil & Grease	2021/08/05	1.0		%	25
7501578	MPZ	Method Blank	Total Oil & Grease	2021/08/05	<0.50		mg/L	
7501583	MPZ	Spiked Blank	Total Oil & Grease Mineral/Synthetic	2021/08/05		96	%	85 - 115
7501583	MPZ	RPD	Total Oil & Grease Mineral/Synthetic	2021/08/05	1.6		%	25
7501583	MPZ	Method Blank	Total Oil & Grease Mineral/Synthetic	2021/08/05	<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.

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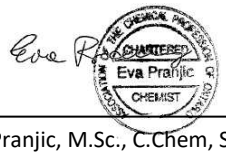
BV Labs Job #: C1L4469
Report Date: 2021/08/05

Golder Associates Ltd
Client Project #: 20448776
Site Location: MCCARTHY
Sampler Initials: MJ

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 #: 1407634
Site#: McCarthy
Your C.O.C. #: 804626-01-01

Attention: Dawn Hoyle/Jamie Bonany

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

Report Date: 2021/08/26
Report #: R6783310
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: C1N7460
Received: 2021/08/20, 12:44

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	2021/08/25	CAM SOP-00326	EPA1664B m,SM5520B m
Total Oil and Grease	1	2021/08/25	2021/08/25	CAM SOP-00326	EPA1664B m,SM5520B m
pH	1	2021/08/25	2021/08/25	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	1	N/A	2021/08/26	CAM SOP-00444	OMOE E3179 m
Mineral/Synthetic O & G (TPH Heavy Oil) (1)	1	2021/08/25	2021/08/25	CAM SOP-00326	EPA1664B m,SM5520F m
Low Level Total Suspended Solids	1	2021/08/25	2021/08/25	CAM SOP-00428	SM 23 2540D m

Remarks:

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

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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 #: 1407634
Site#: McCarthy
Your C.O.C. #: 804626-01-01

Attention: Dawn Hoyle/Jamie Bonany

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

Report Date: 2021/08/26
Report #: R6783310
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: C1N7460
Received: 2021/08/20, 12:44

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Ema Gitej, Senior Project Manager
Email: emese.gitej@bureauveritas.com
Phone# (905)817-5829
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BV Labs Job #: C1N7460
Report Date: 2021/08/26

Golder Associates Ltd
Client Project #: 1407634
Sampler Initials: J

RESULTS OF ANALYSES OF WATER

BV Labs ID		QKX979	QKX979		
Sampling Date		2021/08/19	2021/08/19		
COC Number		804626-01-01	804626-01-01		
	UNITS	POND	POND Lab-Dup	RDL	QC Batch
Calculated Parameters					
Total Animal/Vegetable Oil and Grease	mg/L	<0.50	N/A	0.50	7538423
Inorganics					
pH	pH	7.98	N/A	N/A	7540506
Phenols-4AAP	mg/L	0.0014	N/A	0.0010	7540097
Total Suspended Solids	mg/L	2	3	1	7540061
Petroleum Hydrocarbons					
Total Oil & Grease	mg/L	<0.50	N/A	0.50	7539897
Total Oil & Grease Mineral/Synthetic	mg/L	<0.50	N/A	0.50	7539899

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

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

BV Labs Job #: C1N7460
Report Date: 2021/08/26

Golder Associates Ltd
Client Project #: 1407634
Sampler Initials: J

GENERAL COMMENTS

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

Package 1	26.3°C

Results relate only to the items tested.

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

BV Labs Job #: C1N7460
Report Date: 2021/08/26

Golder Associates Ltd
Client Project #: 1407634
Sampler Initials: J

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
7539897	MPZ	Spiked Blank	Total Oil & Grease	2021/08/25		99	%	85 - 115
7539897	MPZ	RPD	Total Oil & Grease	2021/08/25	1.0		%	25
7539897	MPZ	Method Blank	Total Oil & Grease	2021/08/25	<0.50		mg/L	
7539899	MPZ	Spiked Blank	Total Oil & Grease Mineral/Synthetic	2021/08/25		96	%	85 - 115
7539899	MPZ	RPD	Total Oil & Grease Mineral/Synthetic	2021/08/25	2.1		%	25
7539899	MPZ	Method Blank	Total Oil & Grease Mineral/Synthetic	2021/08/25	<0.50		mg/L	
7540061	SHD	QC Standard	Total Suspended Solids	2021/08/25		96	%	85 - 115
7540061	SHD	Method Blank	Total Suspended Solids	2021/08/25	<1		mg/L	
7540061	SHD	RPD [QKX979-02]	Total Suspended Solids	2021/08/25	15		%	25
7540097	DRM	Matrix Spike	Phenols-4AAP	2021/08/26		98	%	80 - 120
7540097	DRM	Spiked Blank	Phenols-4AAP	2021/08/26		100	%	80 - 120
7540097	DRM	Method Blank	Phenols-4AAP	2021/08/26	<0.0010		mg/L	
7540097	DRM	RPD	Phenols-4AAP	2021/08/26	4.0		%	20
7540506	SAU	Spiked Blank	pH	2021/08/25		102	%	98 - 103
7540506	SAU	RPD	pH	2021/08/25	0.44		%	N/A

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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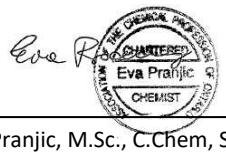
BV Labs Job #: C1N7460
Report Date: 2021/08/26

Golder Associates Ltd
Client Project #: 1407634
Sampler Initials: J

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#: 20448776
Site Location: MCCARTHY
Your C.O.C. #: 804626-02-01

Attention: Dawn Hoyle/Jamie Bonany

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

Report Date: 2021/09/13
Report #: R6808677
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: C1P3462
Received: 2021/09/03, 14:23

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	2021/09/12	CAM SOP-00326	EPA1664B m,SM5520B m
Total Oil and Grease	1	2021/09/12	2021/09/12	CAM SOP-00326	EPA1664B m,SM5520B m
pH	1	2021/09/10	2021/09/13	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	1	N/A	2021/09/10	CAM SOP-00444	OMOE E3179 m
Mineral/Synthetic O & G (TPH Heavy Oil) (1)	1	2021/09/12	2021/09/12	CAM SOP-00326	EPA1664B m,SM5520F m
Low Level Total Suspended Solids	1	2021/09/10	2021/09/13	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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(1) Note: TPH (Heavy Oil) is equivalent to Mineral / Synthetic Oil & Grease

Your Project #: 20448776
Site#: 20448776
Site Location: MCCARTHY
Your C.O.C. #: 804626-02-01

Attention: Dawn Hoyle/Jamie Bonany

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

Report Date: 2021/09/13
Report #: R6808677
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: C1P3462
Received: 2021/09/03, 14:23

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Ema Gitej, Senior Project Manager
Email: emese.gitej@bureauveritas.com
Phone# (905)817-5829
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BV Labs Job #: C1P3462
Report Date: 2021/09/13

Golder Associates Ltd
Client Project #: 20448776
Site Location: MCCARTHY
Sampler Initials: JO

RESULTS OF ANALYSES OF WATER

BV Labs ID		QOF162		
Sampling Date		2021/09/02 14:00		
COC Number		804626-02-01		
	UNITS	590331 POND	RDL	QC Batch
Calculated Parameters				
Total Animal/Vegetable Oil and Grease	mg/L	<0.50	0.50	7566508
Inorganics				
pH	pH	7.86	N/A	7572469
Phenols-4AAP	mg/L	<0.0010	0.0010	7569821
Total Suspended Solids	mg/L	1	1	7570227
Petroleum Hydrocarbons				
Total Oil & Grease	mg/L	<0.50	0.50	7572771
Total Oil & Grease Mineral/Synthetic	mg/L	<0.50	0.50	7572772

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

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BV Labs Job #: C1P3462
Report Date: 2021/09/13

Golder Associates Ltd
Client Project #: 20448776
Site Location: MCCARTHY
Sampler Initials: JO

GENERAL COMMENTS

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

Package 1	19.3°C

Project number updated.

Results relate only to the items tested.

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BV Labs Job #: C1P3462
Report Date: 2021/09/13

Golder Associates Ltd
Client Project #: 20448776
Site Location: MCCARTHY
Sampler Initials: JO

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
7569821	DRM	Matrix Spike	Phenols-4AAP	2021/09/10		98	%	80 - 120
7569821	DRM	Spiked Blank	Phenols-4AAP	2021/09/10		100	%	80 - 120
7569821	DRM	Method Blank	Phenols-4AAP	2021/09/10	<0.0010		mg/L	
7569821	DRM	RPD	Phenols-4AAP	2021/09/10	NC		%	20
7570227	SHD	QC Standard	Total Suspended Solids	2021/09/13		99	%	85 - 115
7570227	SHD	Method Blank	Total Suspended Solids	2021/09/13	<1		mg/L	
7570227	SHD	RPD	Total Suspended Solids	2021/09/13	0		%	25
7572469	SAU	Spiked Blank	pH	2021/09/13		102	%	98 - 103
7572469	SAU	RPD	pH	2021/09/13	0.55		%	N/A
7572771	MPZ	Spiked Blank	Total Oil & Grease	2021/09/12		99	%	85 - 115
7572771	MPZ	RPD	Total Oil & Grease	2021/09/12	0.25		%	25
7572771	MPZ	Method Blank	Total Oil & Grease	2021/09/12	<0.50		mg/L	
7572772	MPZ	Spiked Blank	Total Oil & Grease Mineral/Synthetic	2021/09/12		97	%	85 - 115
7572772	MPZ	RPD	Total Oil & Grease Mineral/Synthetic	2021/09/12	1.0		%	25
7572772	MPZ	Method Blank	Total Oil & Grease Mineral/Synthetic	2021/09/12	<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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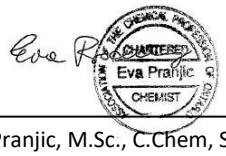
BV Labs Job #: C1P3462
Report Date: 2021/09/13

Golder Associates Ltd
Client Project #: 20448776
Site Location: MCCARTHY
Sampler Initials: JO

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#: 20448776
Site Location: MCCARTHY
Your C.O.C. #: 837180-05-01

Attention: Dawn Hoyle/Jamie Bonany

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

Report Date: 2021/10/12
Report #: R6850443
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: C1S7909
Received: 2021/10/05, 10:36

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	2021/10/12	CAM SOP-00326	EPA1664B m,SM5520B m
Total Oil and Grease	1	2021/10/12	2021/10/12	CAM SOP-00326	EPA1664B m,SM5520B m
pH	1	2021/10/07	2021/10/08	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	1	N/A	2021/10/07	CAM SOP-00444	OMOE E3179 m
Mineral/Synthetic O & G (TPH Heavy Oil) (1)	1	2021/10/12	2021/10/12	CAM SOP-00326	EPA1664B m,SM5520F m
Low Level Total Suspended Solids	1	2021/10/07	2021/10/08	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

Your Project #: 20448776
Site#: 20448776
Site Location: MCCARTHY
Your C.O.C. #: 837180-05-01

Attention: Dawn Hoyle/Jamie Bonany

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

Report Date: 2021/10/12
Report #: R6850443
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: C1S7909
Received: 2021/10/05, 10:36

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Ema Gitej, Senior Project Manager
Email: emese.gitej@bureauveritas.com
Phone# (905)817-5829
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BV Labs Job #: C1S7909
Report Date: 2021/10/12

Golder Associates Ltd
Client Project #: 20448776
Site Location: MCCARTHY
Sampler Initials: JO

RESULTS OF ANALYSES OF WATER

BV Labs ID		QVP320		
Sampling Date		2021/10/04 03:00		
COC Number		837180-05-01		
	UNITS	590331 POND	RDL	QC Batch
Calculated Parameters				
Total Animal/Vegetable Oil and Grease	mg/L	<0.50	0.50	7621282
Inorganics				
pH	pH	8.27	N/A	7625646
Phenols-4AAP	mg/L	<0.0010	0.0010	7624698
Total Suspended Solids	mg/L	1	1	7625002
Petroleum Hydrocarbons				
Total Oil & Grease	mg/L	<0.50	0.50	7630628
Total Oil & Grease Mineral/Synthetic	mg/L	<0.50	0.50	7630633

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

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BV Labs Job #: C1S7909
Report Date: 2021/10/12

Golder Associates Ltd
Client Project #: 20448776
Site Location: MCCARTHY
Sampler Initials: JO

GENERAL COMMENTS

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

Package 1	18.3°C

Results relate only to the items tested.

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BV Labs Job #: C1S7909
Report Date: 2021/10/12

Golder Associates Ltd
Client Project #: 20448776
Site Location: MCCARTHY
Sampler Initials: JO

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
7624698	DRM	Matrix Spike	Phenols-4AAP	2021/10/07		89	%	80 - 120
7624698	DRM	Spiked Blank	Phenols-4AAP	2021/10/07		93	%	80 - 120
7624698	DRM	Method Blank	Phenols-4AAP	2021/10/07	<0.0010		mg/L	
7624698	DRM	RPD	Phenols-4AAP	2021/10/07	NC		%	20
7625002	SHD	QC Standard	Total Suspended Solids	2021/10/08		95	%	85 - 115
7625002	SHD	Method Blank	Total Suspended Solids	2021/10/08	<1		mg/L	
7625002	SHD	RPD	Total Suspended Solids	2021/10/08	18		%	25
7625646	TAK	Spiked Blank	pH	2021/10/08		102	%	98 - 103
7625646	TAK	RPD	pH	2021/10/08	0.23		%	N/A
7630628	MPZ	Spiked Blank	Total Oil & Grease	2021/10/12		98	%	85 - 115
7630628	MPZ	RPD	Total Oil & Grease	2021/10/12	0.51		%	25
7630628	MPZ	Method Blank	Total Oil & Grease	2021/10/12	<0.50		mg/L	
7630633	MPZ	Spiked Blank	Total Oil & Grease Mineral/Synthetic	2021/10/12		96	%	85 - 115
7630633	MPZ	RPD	Total Oil & Grease Mineral/Synthetic	2021/10/12	0.52		%	25
7630633	MPZ	Method Blank	Total Oil & Grease Mineral/Synthetic	2021/10/12	<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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BV Labs Job #: C1S7909
Report Date: 2021/10/12

Golder Associates Ltd
Client Project #: 20448776
Site Location: MCCARTHY
Sampler Initials: JO

VALIDATION SIGNATURE PAGE

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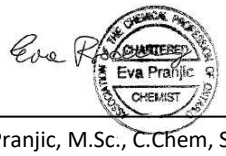

Ewa Pranjic, M.Sc., C.Chem, Scientific Specialist

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Your Project #: 20448776
Site#: 20448776
Site Location: MCCARTHY
Your C.O.C. #: 842513-03-01

Attention: Dawn Hoyle/Jamie Bonany

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

Report Date: 2021/10/21
Report #: R6862612
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: C1T6414
Received: 2021/10/13, 08:59

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	2021/10/21	CAM SOP-00326	EPA1664B m,SM5520B m
Total Oil and Grease	1	2021/10/20	2021/10/21	CAM SOP-00326	EPA1664B m,SM5520B m
pH	1	2021/10/18	2021/10/19	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	1	N/A	2021/10/19	CAM SOP-00444	OMOE E3179 m
Mineral/Synthetic O & G (TPH Heavy Oil) (1)	1	2021/10/20	2021/10/21	CAM SOP-00326	EPA1664B m,SM5520F m
Low Level Total Suspended Solids	1	2021/10/19	2021/10/20	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 #: 20448776
Site#: 20448776
Site Location: MCCARTHY
Your C.O.C. #: 842513-03-01

Attention: Dawn Hoyle/Jamie Bonany

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

Report Date: 2021/10/21
Report #: R6862612
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: C1T6414
Received: 2021/10/13, 08:59

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Ema Gitej, Senior Project Manager
Email: emese.gitej@bureauveritas.com
Phone# (905)817-5829
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Bureau Veritas Job #: C1T6414
Report Date: 2021/10/21

Golder Associates Ltd
Client Project #: 20448776
Site Location: MCCARTHY
Sampler Initials: J

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		QXK384		
Sampling Date		2021/10/12 01:00		
COC Number		842513-03-01		
	UNITS	590331 POND	RDL	QC Batch
Calculated Parameters				
Total Animal/Vegetable Oil and Grease	mg/L	<0.50	0.50	7642854
Inorganics				
pH	pH	8.41	N/A	7644518
Phenols-4AAP	mg/L	<0.0010	0.0010	7643139
Total Suspended Solids	mg/L	2	1	7646239
Petroleum Hydrocarbons				
Total Oil & Grease	mg/L	<0.50	0.50	7649903
Total Oil & Grease Mineral/Synthetic	mg/L	<0.50	0.50	7649907

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

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Bureau Veritas Job #: C1T6414
Report Date: 2021/10/21

Golder Associates Ltd
Client Project #: 20448776
Site Location: MCCARTHY
Sampler Initials: J

GENERAL COMMENTS

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

Package 1	20.3°C

Results relate only to the items tested.

Bureau Veritas Laboratories 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 #: C1T6414
Report Date: 2021/10/21

Golder Associates Ltd
Client Project #: 20448776
Site Location: MCCARTHY
Sampler Initials: J

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
7643139	DRM	Matrix Spike	Phenols-4AAP	2021/10/19		97	%	80 - 120
7643139	DRM	Spiked Blank	Phenols-4AAP	2021/10/19		100	%	80 - 120
7643139	DRM	Method Blank	Phenols-4AAP	2021/10/19	<0.0010		mg/L	
7643139	DRM	RPD	Phenols-4AAP	2021/10/19	NC		%	20
7644518	TAK	Spiked Blank	pH	2021/10/19		102	%	98 - 103
7644518	TAK	RPD	pH	2021/10/19	0.054		%	N/A
7646239	SEK	QC Standard	Total Suspended Solids	2021/10/20		95	%	85 - 115
7646239	SEK	Method Blank	Total Suspended Solids	2021/10/20	<1		mg/L	
7646239	SEK	RPD	Total Suspended Solids	2021/10/20	15		%	25
7649903	SA5	Spiked Blank	Total Oil & Grease	2021/10/21		99	%	85 - 115
7649903	SA5	RPD	Total Oil & Grease	2021/10/21	2.6		%	25
7649903	SA5	Method Blank	Total Oil & Grease	2021/10/21	<0.50		mg/L	
7649907	SA5	Spiked Blank	Total Oil & Grease Mineral/Synthetic	2021/10/21		94	%	85 - 115
7649907	SA5	RPD	Total Oil & Grease Mineral/Synthetic	2021/10/21	3.8		%	25
7649907	SA5	Method Blank	Total Oil & Grease Mineral/Synthetic	2021/10/21	<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.

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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.

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 #: C1T6414
Report Date: 2021/10/21

Golder Associates Ltd
Client Project #: 20448776
Site Location: MCCARTHY
Sampler Initials: J

VALIDATION SIGNATURE PAGE

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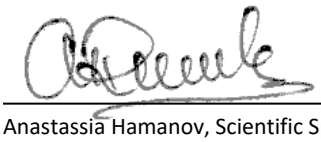

Anastassia Hamanov, Scientific Specialist

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Your Project #: 20448776
Site#: 20448776
Site Location: MCCARTHY
Your C.O.C. #: 842513-01-01

Attention: Dawn Hoyle/Jamie Bonany

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

Report Date: 2021/11/01
Report #: R6882252
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: C1U8704
Received: 2021/10/22, 09:00

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	2021/11/01	CAM SOP-00326	EPA1664B m,SM5520B m
Total Oil and Grease	1	2021/11/01	2021/11/01	CAM SOP-00326	EPA1664B m,SM5520B m
pH	1	2021/10/26	2021/10/27	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	1	N/A	2021/10/26	CAM SOP-00444	OMOE E3179 m
Mineral/Synthetic O & G (TPH Heavy Oil) (1)	1	2021/11/01	2021/11/01	CAM SOP-00326	EPA1664B m,SM5520F m
Low Level Total Suspended Solids	1	2021/10/26	2021/10/26	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 #: 20448776
Site#: 20448776
Site Location: MCCARTHY
Your C.O.C. #: 842513-01-01

Attention: Dawn Hoyle/Jamie Bonany

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

Report Date: 2021/11/01
Report #: R6882252
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: C1U8704
Received: 2021/10/22, 09:00

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Ema Gitej, Senior Project Manager
Email: emese.gitej@bureauveritas.com
Phone# (905)817-5829
==========
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Bureau Veritas Job #: C1U8704
Report Date: 2021/11/01

Golder Associates Ltd
Client Project #: 20448776
Site Location: MCCARTHY
Sampler Initials: J

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		QZZ321	QZZ321		
Sampling Date		2021/10/21 01:00	2021/10/21 01:00		
	UNITS	590331 POND	590331 POND Lab-Dup	RDL	QC Batch
Calculated Parameters					
Total Animal/Vegetable Oil and Grease	mg/L	<0.50	N/A	0.50	7657412
Inorganics					
pH	pH	8.42	N/A	N/A	7662316
Phenols-4AAP	mg/L	<0.0010	<0.0010	0.0010	7660233
Total Suspended Solids	mg/L	6	5	1	7660397
Petroleum Hydrocarbons					
Total Oil & Grease	mg/L	<0.50	N/A	0.50	7672291
Total Oil & Grease Mineral/Synthetic	mg/L	<0.50	N/A	0.50	7672300

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

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Report Date: 2021/11/01

Golder Associates Ltd
Client Project #: 20448776
Site Location: MCCARTHY
Sampler Initials: J

GENERAL COMMENTS

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

Package 1	18.7°C

Results relate only to the items tested.

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Bureau Veritas Job #: C1U8704
Report Date: 2021/11/01

Golder Associates Ltd
Client Project #: 20448776
Site Location: MCCARTHY
Sampler Initials: J

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
7660233	DRM	Matrix Spike [QZZ321-03]	Phenols-4AAP	2021/10/26		101	%	80 - 120
7660233	DRM	Spiked Blank	Phenols-4AAP	2021/10/26		102	%	80 - 120
7660233	DRM	Method Blank	Phenols-4AAP	2021/10/26	<0.0010		mg/L	
7660233	DRM	RPD [QZZ321-03]	Phenols-4AAP	2021/10/26	NC		%	20
7660397	SHD	QC Standard	Total Suspended Solids	2021/10/26		98	%	85 - 115
7660397	SHD	Method Blank	Total Suspended Solids	2021/10/26	<1		mg/L	
7660397	SHD	RPD [QZZ321-01]	Total Suspended Solids	2021/10/26	7.4		%	25
7662316	TAK	Spiked Blank	pH	2021/10/27		102	%	98 - 103
7662316	TAK	RPD	pH	2021/10/27	0.32		%	N/A
7672291	MPZ	Spiked Blank	Total Oil & Grease	2021/11/01		98	%	85 - 115
7672291	MPZ	RPD	Total Oil & Grease	2021/11/01	1.0		%	25
7672291	MPZ	Method Blank	Total Oil & Grease	2021/11/01	<0.50		mg/L	
7672300	MPZ	Spiked Blank	Total Oil & Grease Mineral/Synthetic	2021/11/01		95	%	85 - 115
7672300	MPZ	RPD	Total Oil & Grease Mineral/Synthetic	2021/11/01	2.6		%	25
7672300	MPZ	Method Blank	Total Oil & Grease Mineral/Synthetic	2021/11/01	<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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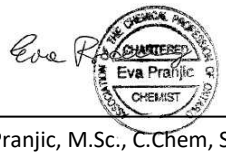
Bureau Veritas Job #: C1U8704
Report Date: 2021/11/01

Golder Associates Ltd
Client Project #: 20448776
Site Location: MCCARTHY
Sampler Initials: J

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 Location: McCarthy
Your C.O.C. #: 851931-01-01

Attention: Dawn Hoyle

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

Report Date: 2021/12/31
Report #: R6946551
Version: 2 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: C1V1742
Received: 2021/10/25, 15:24

Sample Matrix: Water
Samples Received: 3

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Alkalinity	3	N/A	2021/10/29	CAM SOP-00448	SM 23 2320 B m
Chloride by Automated Colourimetry	3	N/A	2021/10/29	CAM SOP-00463	SM 23 4500-Cl E m
Conductivity	3	N/A	2021/10/29	CAM SOP-00414	SM 23 2510 m
Dissolved Organic Carbon (DOC) (1)	3	N/A	2021/10/29	CAM SOP-00446	SM 23 5310 B m
Fluoride	3	2021/10/28	2021/10/29	CAM SOP-00449	SM 23 4500-F C m
Hardness (calculated as CaCO3)	3	N/A	2021/10/29	CAM SOP 00102/00408/00447	SM 2340 B
Lab Filtered Metals Analysis by ICP	3	2021/12/09	2021/12/22	CAM SOP-00408	EPA 6010D m
Total Metals Analysis by ICPMS	3	N/A	2021/11/02	CAM SOP-00447	EPA 6020B m
Ion Balance (% Difference)	3	N/A	2021/12/31		
Anion and Cation Sum	3	N/A	2021/12/31		
Total Ammonia-N	3	N/A	2021/10/30	CAM SOP-00441	USGS I-2522-90 m
Nitrate & Nitrite as Nitrogen in Water (2)	3	N/A	2021/10/29	CAM SOP-00440	SM 23 4500-NO3I/NO2B
Animal and Vegetable Oil and Grease	3	N/A	2021/10/31	CAM SOP-00326	EPA1664B m,SM5520B m
Total Oil and Grease	3	2021/10/31	2021/10/31	CAM SOP-00326	EPA1664B m,SM5520B m
pH	3	2021/10/28	2021/10/29	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	2	N/A	2021/10/28	CAM SOP-00444	OMOE E3179 m
Phenols (4AAP)	1	N/A	2021/10/29	CAM SOP-00444	OMOE E3179 m
Sulphate by Automated Colourimetry	3	N/A	2021/10/29	CAM SOP-00464	EPA 375.4 m
Total Dissolved Solids	3	2021/10/28	2021/10/29	CAM SOP-00428	SM 23 2540C m
Total Kjeldahl Nitrogen in Water	3	2021/10/28	2021/10/29	CAM SOP-00938	OMOE E3516 m
Total Phosphorus (Colourimetric)	3	2021/10/29	2021/10/29	CAM SOP-00407	SM 23 4500 P B H m
Mineral/Synthetic O & G (TPH Heavy Oil) (3)	3	2021/10/31	2021/10/31	CAM SOP-00326	EPA1664B m,SM5520F m
Low Level Total Suspended Solids	3	2021/10/28	2021/10/29	CAM SOP-00428	SM 23 2540D m

Remarks:

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Your Project #: 20448776
Site Location: McCarthy
Your C.O.C. #: 851931-01-01

Attention: Dawn Hoyle

Golder Associates Ltd
121 Commerce Park Drive
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Report Date: 2021/12/31
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BV LABS JOB #: C1V1742
Received: 2021/10/25, 15:24

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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) 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.
Ema Gitej, Senior Project Manager
Email: emese.gitej@bureauveritas.com
Phone# (905)817-5829
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Bureau Veritas Job #: C1V1742
Report Date: 2021/12/31

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

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

Bureau Veritas ID			RAQ934	RAQ935	RAQ936		
Sampling Date			2021/10/21 01:30	2021/10/21 06:30	2021/10/21 01:30		
COC Number			851931-01-01	851931-01-01	851931-01-01		
	UNITS	Criteria	SW1	SW2	DUP 1	RDL	QC Batch
Calculated Parameters							
Total Animal/Vegetable Oil and Grease	mg/L	-	<0.50	<0.50	<0.50	0.50	7663185
Petroleum Hydrocarbons							
Total Oil & Grease	mg/L	-	<0.50	<0.50	<0.50	0.50	7671872
Total Oil & Grease Mineral/Synthetic	mg/L	0.5	<0.50	<0.50	<0.50	0.50	7671873

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 #: C1V1742
Report Date: 2021/12/31

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

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID			RAQ934			RAQ934			RAQ935		
Sampling Date			2021/10/21 01:30			2021/10/21 01:30			2021/10/21 06:30		
COC Number			851931-01-01			851931-01-01			851931-01-01		
	UNITS	Criteria	SW1	RDL	QC Batch	SW1 Lab-Dup	RDL	QC Batch	SW2	RDL	QC Batch
Calculated Parameters											
Anion Sum	me/L	-	18.9	N/A	7663394				9.93	N/A	7663394
Cation Sum	me/L	-	20.1	N/A	7663394				9.99	N/A	7663394
Hardness (CaCO3)	mg/L	-	630	1.0	7663344				460	1.0	7663344
Ion Balance (% Difference)	%	-	2.99	N/A	7663393				0.340	N/A	7663393
Inorganics											
Total Ammonia-N	mg/L	-	<0.050	0.050	7667244	<0.050	0.050	7667244	<0.050	0.050	7667244
Conductivity	mS/cm	-	1.72	0.001	7668015				0.824	0.001	7668015
Total Dissolved Solids	mg/L	-	1290	10	7666536				515	10	7667354
Fluoride (F-)	mg/L	-	0.52	0.10	7668012				<0.10	0.10	7668012
Total Kjeldahl Nitrogen (TKN)	mg/L	-	0.48	0.10	7666883				0.46	0.10	7666883
Dissolved Organic Carbon	mg/L	-	4.7	0.40	7668791				8.5	0.40	7668791
pH	pH	6.5:8.5	7.99		7668019				7.82		7668019
Phenols-4AAP	mg/L	0.001	<0.0010	0.0010	7666700	<0.0010	0.0010	7666700	<0.0010	0.0010	7668530
Total Phosphorus	mg/L	0.01	0.009	0.004	7668510				**0.034**	0.004	7668510
Total Suspended Solids	mg/L	-	5	1	7663182				18	1	7663182
Dissolved Sulphate (SO4)	mg/L	-	340	2.0	7667896				130	1.0	7667896
Alkalinity (Total as CaCO3)	mg/L	-	180	1.0	7668014				340	1.0	7668014
Dissolved Chloride (Cl-)	mg/L	-	290	4.0	7667874				15	1.0	7667874
Nitrite (N)	mg/L	-	0.018	0.010	7667192				<0.010	0.010	7667192
Nitrate (N)	mg/L	-	1.12	0.10	7667192				<0.10	0.10	7667192
Nitrate + Nitrite (N)	mg/L	-	1.14	0.10	7667192				<0.10	0.10	7667192

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 #: C1V1742
Report Date: 2021/12/31

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

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID			RAQ935			RAQ936			RAQ936		
Sampling Date			2021/10/21 06:30			2021/10/21 01:30			2021/10/21 01:30		
COC Number			851931-01-01			851931-01-01			851931-01-01		
	UNITS	Criteria	SW2 Lab-Dup	RDL	QC Batch	DUP 1	RDL	QC Batch	DUP 1 Lab-Dup	RDL	QC Batch
Calculated Parameters											
Anion Sum	me/L	-				18.9	N/A	7663394			
Cation Sum	me/L	-				20.1	N/A	7663394			
Hardness (CaCO3)	mg/L	-				630	1.0	7663344			
Ion Balance (% Difference)	%	-				3.21	N/A	7663393			
Inorganics											
Total Ammonia-N	mg/L	-				<0.050	0.050	7667244			
Conductivity	mS/cm	-	0.809	0.001	7668015	1.71	0.001	7668015			
Total Dissolved Solids	mg/L	-				1260	10	7666536			
Fluoride (F-)	mg/L	-	<0.10	0.10	7668012	0.51	0.10	7668012			
Total Kjeldahl Nitrogen (TKN)	mg/L	-				0.43	0.10	7666883			
Dissolved Organic Carbon	mg/L	-				4.5	0.40	7667202			
pH	pH	6.5:8.5	7.70		7668019	7.98		7668019			
Phenols-4AAP	mg/L	0.001				<0.0010	0.0010	7666700			
Total Phosphorus	mg/L	0.01				**0.011**	0.004	7668510			
Total Suspended Solids	mg/L	-				5	1	7663182			
Dissolved Sulphate (SO4)	mg/L	-				350	2.0	7667896	350	2.0	7667896
Alkalinity (Total as CaCO3)	mg/L	-	340	1.0	7668014	180	1.0	7668014			
Dissolved Chloride (Cl-)	mg/L	-				280	4.0	7667874	280	4.0	7667874
Nitrite (N)	mg/L	-				0.018	0.010	7667192			
Nitrate (N)	mg/L	-				1.13	0.10	7667192			
Nitrate + Nitrite (N)	mg/L	-				1.15	0.10	7667192			

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 #: C1V1742
Report Date: 2021/12/31

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

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID			RAQ934	RAQ935	RAQ936			RAQ936		
Sampling Date			2021/10/21 01:30	2021/10/21 06:30	2021/10/21 01:30			2021/10/21 01:30		
COC Number			851931-01-01	851931-01-01	851931-01-01			851931-01-01		
	UNITS	Criteria	SW1	SW2	DUP 1	RDL	QC Batch	DUP 1 Lab-Dup	RDL	QC Batch
Metals										
Dissolved Calcium (Ca)	mg/L	-	170	160	170	0.05	7716912	170	0.05	7716912
Dissolved Magnesium (Mg)	mg/L	-	48	16	48	0.05	7716912	48	0.05	7716912
Dissolved Potassium (K)	mg/L	-	14	5	14	1	7716912	14	1	7716912
Dissolved Sodium (Na)	mg/L	-	160	14	160	0.5	7716912	160	0.5	7716912
Total Arsenic (As)	ug/L	100	<1.0	<1.0	<1.0	1.0	7668536			
Total Cadmium (Cd)	ug/L	0.2	<0.090	<0.090	<0.090	0.090	7668536			
Total Calcium (Ca)	ug/L	-	190000	170000	190000	200	7668536			
Total Chromium (Cr)	ug/L	-	<5.0	<5.0	<5.0	5.0	7668536			
Total Copper (Cu)	ug/L	5	1.3	1.3	0.94	0.90	7668536			
Total Iron (Fe)	ug/L	300	180	130	180	100	7668536			
Total Lead (Pb)	ug/L	5	<0.50	<0.50	<0.50	0.50	7668536			
Total Magnesium (Mg)	ug/L	-	45000	18000	47000	50	7668536			
Total Manganese (Mn)	ug/L	-	35	53	36	2.0	7668536			
Total Nickel (Ni)	ug/L	25	2.2	<1.0	2.0	1.0	7668536			
Total Potassium (K)	ug/L	-	13000	3600	14000	200	7668536			
Total Sodium (Na)	ug/L	-	150000	14000	150000	100	7668536			
Total Zinc (Zn)	ug/L	30	<5.0	<5.0	<5.0	5.0	7668536			

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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TEST SUMMARY

Bureau Veritas ID: RAQ934
Sample ID: SW1
Matrix: Water

Collected: 2021/10/21
Shipped:
Received: 2021/10/25

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	7668014	N/A	2021/10/29	Surinder Rai
Chloride by Automated Colourimetry	KONE	7667874	N/A	2021/10/29	Alina Dobreanu
Conductivity	AT	7668015	N/A	2021/10/29	Surinder Rai
Dissolved Organic Carbon (DOC)	TOCV/NDIR	7668791	N/A	2021/10/29	Julianna Castiglione
Fluoride	ISE	7668012	2021/10/28	2021/10/29	Surinder Rai
Hardness (calculated as CaCO3)		7663344	N/A	2021/10/29	Automated Statchk
Lab Filtered Metals Analysis by ICP	ICP	7716912	2021/12/09	2021/12/22	Suban Kanapathippllai
Total Metals Analysis by ICPMS	ICP/MS	7668536	N/A	2021/11/02	Nan Raykha
Ion Balance (% Difference)	CALC	7663393	N/A	2021/12/31	Automated Statchk
Anion and Cation Sum	CALC	7663394	N/A	2021/12/31	Automated Statchk
Total Ammonia-N	LACH/NH4	7667244	N/A	2021/10/30	Amanpreet Sappal
Nitrate & Nitrite as Nitrogen in Water	LACH	7667192	N/A	2021/10/29	Chandra Nandlal
Animal and Vegetable Oil and Grease	BAL	7663185	N/A	2021/10/31	Automated Statchk
Total Oil and Grease	BAL	7671872	2021/10/31	2021/10/31	Mitul Patel
pH	AT	7668019	2021/10/28	2021/10/29	Surinder Rai
Phenols (4AAP)	TECH/PHEN	7666700	N/A	2021/10/28	Deonarine Ramnarine
Sulphate by Automated Colourimetry	KONE	7667896	N/A	2021/10/29	Alina Dobreanu
Total Dissolved Solids	BAL	7666536	2021/10/28	2021/10/29	Sandeep Kaur
Total Kjeldahl Nitrogen in Water	SKAL	7666883	2021/10/28	2021/10/29	Massarat Jan
Total Phosphorus (Colourimetric)	LACH/P	7668510	2021/10/29	2021/10/29	Shivani Shivani
Mineral/Synthetic O & G (TPH Heavy Oil)	BAL	7671873	2021/10/31	2021/10/31	Mitul Patel
Low Level Total Suspended Solids	BAL	7663182	2021/10/28	2021/10/29	Sandeep Kaur

Bureau Veritas ID: RAQ934 Dup
Sample ID: SW1
Matrix: Water

Collected: 2021/10/21
Shipped:
Received: 2021/10/25

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Total Ammonia-N	LACH/NH4	7667244	N/A	2021/10/30	Amanpreet Sappal
Phenols (4AAP)	TECH/PHEN	7666700	N/A	2021/10/28	Deonarine Ramnarine

Bureau Veritas ID: RAQ935
Sample ID: SW2
Matrix: Water

Collected: 2021/10/21
Shipped:
Received: 2021/10/25

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	7668014	N/A	2021/10/29	Surinder Rai
Chloride by Automated Colourimetry	KONE	7667874	N/A	2021/10/29	Alina Dobreanu
Conductivity	AT	7668015	N/A	2021/10/29	Surinder Rai
Dissolved Organic Carbon (DOC)	TOCV/NDIR	7668791	N/A	2021/10/29	Julianna Castiglione
Fluoride	ISE	7668012	2021/10/28	2021/10/29	Surinder Rai
Hardness (calculated as CaCO3)		7663344	N/A	2021/10/29	Automated Statchk
Lab Filtered Metals Analysis by ICP	ICP	7716912	2021/12/09	2021/12/22	Suban Kanapathippllai
Total Metals Analysis by ICPMS	ICP/MS	7668536	N/A	2021/11/02	Nan Raykha

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Bureau Veritas Job #: C1V1742
Report Date: 2021/12/31

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

TEST SUMMARY

Bureau Veritas ID: RAQ935
Sample ID: SW2
Matrix: Water

Collected: 2021/10/21
Shipped:
Received: 2021/10/25

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Ion Balance (% Difference)	CALC	7663393	N/A	2021/12/31	Automated Statchk
Anion and Cation Sum	CALC	7663394	N/A	2021/12/31	Automated Statchk
Total Ammonia-N	LACH/NH4	7667244	N/A	2021/10/30	Amanpreet Sappal
Nitrate & Nitrite as Nitrogen in Water	LACH	7667192	N/A	2021/10/29	Chandra Nandlal
Animal and Vegetable Oil and Grease	BAL	7663185	N/A	2021/10/31	Automated Statchk
Total Oil and Grease	BAL	7671872	2021/10/31	2021/10/31	Mitul Patel
pH	AT	7668019	2021/10/28	2021/10/29	Surinder Rai
Phenols (4AAP)	TECH/PHEN	7668530	N/A	2021/10/29	Deonarine Ramnarine
Sulphate by Automated Colourimetry	KONE	7667896	N/A	2021/10/29	Alina Dobreanu
Total Dissolved Solids	BAL	7667354	2021/10/28	2021/10/29	Kristen Chan
Total Kjeldahl Nitrogen in Water	SKAL	7666883	2021/10/28	2021/10/29	Massarat Jan
Total Phosphorus (Colourimetric)	LACH/P	7668510	2021/10/29	2021/10/29	Shivani Shivani
Mineral/Synthetic O & G (TPH Heavy Oil)	BAL	7671873	2021/10/31	2021/10/31	Mitul Patel
Low Level Total Suspended Solids	BAL	7663182	2021/10/28	2021/10/29	Sandeep Kaur

Bureau Veritas ID: RAQ935 Dup
Sample ID: SW2
Matrix: Water

Collected: 2021/10/21
Shipped:
Received: 2021/10/25

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	7668014	N/A	2021/10/29	Surinder Rai
Conductivity	AT	7668015	N/A	2021/10/29	Surinder Rai
Fluoride	ISE	7668012	2021/10/28	2021/10/29	Surinder Rai
pH	AT	7668019	2021/10/28	2021/10/29	Surinder Rai

Bureau Veritas ID: RAQ936
Sample ID: DUP 1
Matrix: Water

Collected: 2021/10/21
Shipped:
Received: 2021/10/25

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	7668014	N/A	2021/10/29	Surinder Rai
Chloride by Automated Colourimetry	KONE	7667874	N/A	2021/10/29	Alina Dobreanu
Conductivity	AT	7668015	N/A	2021/10/29	Surinder Rai
Dissolved Organic Carbon (DOC)	TOCV/NDIR	7667202	N/A	2021/10/29	Julianna Castiglione
Fluoride	ISE	7668012	2021/10/28	2021/10/29	Surinder Rai
Hardness (calculated as CaCO3)		7663344	N/A	2021/10/29	Automated Statchk
Lab Filtered Metals Analysis by ICP	ICP	7716912	2021/12/09	2021/12/22	Suban Kanapathippllai
Total Metals Analysis by ICPMS	ICP/MS	7668536	N/A	2021/11/02	Nan Raykha
Ion Balance (% Difference)	CALC	7663393	N/A	2021/12/31	Automated Statchk
Anion and Cation Sum	CALC	7663394	N/A	2021/12/31	Automated Statchk
Total Ammonia-N	LACH/NH4	7667244	N/A	2021/10/30	Amanpreet Sappal
Nitrate & Nitrite as Nitrogen in Water	LACH	7667192	N/A	2021/10/29	Chandra Nandlal
Animal and Vegetable Oil and Grease	BAL	7663185	N/A	2021/10/31	Automated Statchk
Total Oil and Grease	BAL	7671872	2021/10/31	2021/10/31	Mitul Patel

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Bureau Veritas Job #: C1V1742
Report Date: 2021/12/31

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

TEST SUMMARY

Bureau Veritas ID: RAQ936
Sample ID: DUP 1
Matrix: Water

Collected: 2021/10/21
Shipped:
Received: 2021/10/25

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
pH	AT	7668019	2021/10/28	2021/10/29	Surinder Rai
Phenols (4AAP)	TECH/PHEN	7666700	N/A	2021/10/28	Deonarine Ramnarine
Sulphate by Automated Colourimetry	KONE	7667896	N/A	2021/10/29	Alina Dobreanu
Total Dissolved Solids	BAL	7666536	2021/10/28	2021/10/29	Sandeep Kaur
Total Kjeldahl Nitrogen in Water	SKAL	7666883	2021/10/28	2021/10/29	Massarat Jan
Total Phosphorus (Colourimetric)	LACH/P	7668510	2021/10/29	2021/10/29	Shivani Shivani
Mineral/Synthetic O & G (TPH Heavy Oil)	BAL	7671873	2021/10/31	2021/10/31	Mitul Patel
Low Level Total Suspended Solids	BAL	7663182	2021/10/28	2021/10/29	Sandeep Kaur

Bureau Veritas ID: RAQ936 Dup
Sample ID: DUP 1
Matrix: Water

Collected: 2021/10/21
Shipped:
Received: 2021/10/25

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Chloride by Automated Colourimetry	KONE	7667874	N/A	2021/10/29	Alina Dobreanu
Lab Filtered Metals Analysis by ICP	ICP	7716912	2021/12/09	2021/12/22	Suban Kanapathippllai
Sulphate by Automated Colourimetry	KONE	7667896	N/A	2021/10/29	Alina Dobreanu

GENERAL COMMENTS

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

Package 1	3.0°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
7663182	SEK	QC Standard	Total Suspended Solids	2021/10/29		95	%	85 - 115
7663182	SEK	Method Blank	Total Suspended Solids	2021/10/29	<1		mg/L	
7663182	SEK	RPD	Total Suspended Solids	2021/10/29	1.7		%	25
7666536	SEK	QC Standard	Total Dissolved Solids	2021/10/29		100	%	90 - 110
7666536	SEK	Method Blank	Total Dissolved Solids	2021/10/29	<10		mg/L	
7666536	SEK	RPD	Total Dissolved Solids	2021/10/29	0.37		%	25
7666700	DRM	Matrix Spike [RAQ934-08]	Phenols-4AAP	2021/10/28		96	%	80 - 120
7666700	DRM	Spiked Blank	Phenols-4AAP	2021/10/28		98	%	80 - 120
7666700	DRM	Method Blank	Phenols-4AAP	2021/10/28	<0.0010		mg/L	
7666700	DRM	RPD [RAQ934-08]	Phenols-4AAP	2021/10/28	NC		%	20
7666883	MJ1	Matrix Spike	Total Kjeldahl Nitrogen (TKN)	2021/10/29		NC	%	80 - 120
7666883	MJ1	QC Standard	Total Kjeldahl Nitrogen (TKN)	2021/10/29		103	%	80 - 120
7666883	MJ1	Spiked Blank	Total Kjeldahl Nitrogen (TKN)	2021/10/29		102	%	80 - 120
7666883	MJ1	Method Blank	Total Kjeldahl Nitrogen (TKN)	2021/10/29	<0.10		mg/L	
7666883	MJ1	RPD	Total Kjeldahl Nitrogen (TKN)	2021/10/29	3.5		%	20
7667192	C_N	Matrix Spike	Nitrite (N)	2021/10/29		102	%	80 - 120
			Nitrate (N)	2021/10/29		98	%	80 - 120
7667192	C_N	Spiked Blank	Nitrite (N)	2021/10/29		105	%	80 - 120
			Nitrate (N)	2021/10/29		100	%	80 - 120
7667192	C_N	Method Blank	Nitrite (N)	2021/10/29	<0.010		mg/L	
			Nitrate (N)	2021/10/29	<0.10		mg/L	
7667192	C_N	RPD	Nitrite (N)	2021/10/29	NC		%	20
			Nitrate (N)	2021/10/29	12		%	20
7667202	JUC	Matrix Spike	Dissolved Organic Carbon	2021/10/29		94	%	80 - 120
7667202	JUC	Spiked Blank	Dissolved Organic Carbon	2021/10/29		98	%	80 - 120
7667202	JUC	Method Blank	Dissolved Organic Carbon	2021/10/29	<0.40		mg/L	
7667202	JUC	RPD	Dissolved Organic Carbon	2021/10/29	0.11		%	20
7667244	ASP	Matrix Spike [RAQ934-09]	Total Ammonia-N	2021/10/30		103	%	75 - 125
7667244	ASP	Spiked Blank	Total Ammonia-N	2021/10/30		100	%	80 - 120
7667244	ASP	Method Blank	Total Ammonia-N	2021/10/30	<0.050		mg/L	
7667244	ASP	RPD [RAQ934-09]	Total Ammonia-N	2021/10/30	NC		%	20
7667354	KCB	QC Standard	Total Dissolved Solids	2021/10/29		98	%	90 - 110
7667354	KCB	Method Blank	Total Dissolved Solids	2021/10/29	<10		mg/L	
7667354	KCB	RPD	Total Dissolved Solids	2021/10/29	1.5		%	25
7667874	ADB	Matrix Spike [RAQ936-03]	Dissolved Chloride (Cl-)	2021/10/29		NC	%	80 - 120
7667874	ADB	Spiked Blank	Dissolved Chloride (Cl-)	2021/10/29		106	%	80 - 120
7667874	ADB	Method Blank	Dissolved Chloride (Cl-)	2021/10/29	<1.0		mg/L	
7667874	ADB	RPD [RAQ936-03]	Dissolved Chloride (Cl-)	2021/10/29	0.95		%	20
7667896	ADB	Matrix Spike [RAQ936-03]	Dissolved Sulphate (SO4)	2021/10/29		NC	%	75 - 125
7667896	ADB	Spiked Blank	Dissolved Sulphate (SO4)	2021/10/29		105	%	80 - 120
7667896	ADB	Method Blank	Dissolved Sulphate (SO4)	2021/10/29	<1.0		mg/L	
7667896	ADB	RPD [RAQ936-03]	Dissolved Sulphate (SO4)	2021/10/29	1.0		%	20
7668012	SAU	Matrix Spike [RAQ935-03]	Fluoride (F-)	2021/10/29		102	%	80 - 120
7668012	SAU	Spiked Blank	Fluoride (F-)	2021/10/29		102	%	80 - 120
7668012	SAU	Method Blank	Fluoride (F-)	2021/10/29	<0.10		mg/L	
7668012	SAU	RPD [RAQ935-03]	Fluoride (F-)	2021/10/29	NC		%	20
7668014	SAU	Spiked Blank	Alkalinity (Total as CaCO3)	2021/10/29		96	%	85 - 115
7668014	SAU	Method Blank	Alkalinity (Total as CaCO3)	2021/10/29	<1.0		mg/L	
7668014	SAU	RPD [RAQ935-03]	Alkalinity (Total as CaCO3)	2021/10/29	0.27		%	20
7668015	SAU	Spiked Blank	Conductivity	2021/10/29		101	%	85 - 115
7668015	SAU	Method Blank	Conductivity	2021/10/29	<0.001		mS/cm	

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
7668015	SAU	RPD [RAQ935-03]	Conductivity	2021/10/29	1.8		%	25
7668019	SAU	Spiked Blank	pH	2021/10/29		102	%	98 - 103
7668019	SAU	RPD [RAQ935-03]	pH	2021/10/29	1.5		%	N/A
7668510	SSV	Matrix Spike	Total Phosphorus	2021/10/29		106	%	80 - 120
7668510	SSV	QC Standard	Total Phosphorus	2021/10/29		94	%	80 - 120
7668510	SSV	Spiked Blank	Total Phosphorus	2021/10/29		100	%	80 - 120
7668510	SSV	Method Blank	Total Phosphorus	2021/10/29	<0.004		mg/L	
7668510	SSV	RPD	Total Phosphorus	2021/10/29	2.3		%	20
7668530	DRM	Matrix Spike	Phenols-4AAP	2021/10/29		101	%	80 - 120
7668530	DRM	Spiked Blank	Phenols-4AAP	2021/10/29		102	%	80 - 120
7668530	DRM	Method Blank	Phenols-4AAP	2021/10/29	<0.0010		mg/L	
7668530	DRM	RPD	Phenols-4AAP	2021/10/29	0		%	20
7668536	N_R	Matrix Spike	Total Arsenic (As)	2021/11/02		107	%	80 - 120
			Total Cadmium (Cd)	2021/11/02		106	%	80 - 120
			Total Calcium (Ca)	2021/11/02		NC	%	80 - 120
			Total Chromium (Cr)	2021/11/02		101	%	80 - 120
			Total Copper (Cu)	2021/11/02		109	%	80 - 120
			Total Iron (Fe)	2021/11/02		101	%	80 - 120
			Total Lead (Pb)	2021/11/02		98	%	80 - 120
			Total Magnesium (Mg)	2021/11/02		99	%	80 - 120
			Total Manganese (Mn)	2021/11/02		102	%	80 - 120
			Total Nickel (Ni)	2021/11/02		96	%	80 - 120
			Total Potassium (K)	2021/11/02		NC	%	80 - 120
			Total Sodium (Na)	2021/11/02		NC	%	80 - 120
			Total Zinc (Zn)	2021/11/02		104	%	80 - 120
7668536	N_R	Spiked Blank	Total Arsenic (As)	2021/11/02		104	%	80 - 120
			Total Cadmium (Cd)	2021/11/02		106	%	80 - 120
			Total Calcium (Ca)	2021/11/02		105	%	80 - 120
			Total Chromium (Cr)	2021/11/02		98	%	80 - 120
			Total Copper (Cu)	2021/11/02		105	%	80 - 120
			Total Iron (Fe)	2021/11/02		99	%	80 - 120
			Total Lead (Pb)	2021/11/02		96	%	80 - 120
			Total Magnesium (Mg)	2021/11/02		98	%	80 - 120
			Total Manganese (Mn)	2021/11/02		98	%	80 - 120
			Total Nickel (Ni)	2021/11/02		95	%	80 - 120
			Total Potassium (K)	2021/11/02		103	%	80 - 120
			Total Sodium (Na)	2021/11/02		96	%	80 - 120
			Total Zinc (Zn)	2021/11/02		103	%	80 - 120
7668536	N_R	Method Blank	Total Arsenic (As)	2021/11/03	<1.0		ug/L	
			Total Cadmium (Cd)	2021/11/03	<0.090		ug/L	
			Total Calcium (Ca)	2021/11/03	<200		ug/L	
			Total Chromium (Cr)	2021/11/03	<5.0		ug/L	
			Total Copper (Cu)	2021/11/03	<0.90		ug/L	
			Total Iron (Fe)	2021/11/03	<100		ug/L	
			Total Lead (Pb)	2021/11/03	<0.50		ug/L	
			Total Magnesium (Mg)	2021/11/03	<50		ug/L	
			Total Manganese (Mn)	2021/11/03	<2.0		ug/L	
			Total Nickel (Ni)	2021/11/03	<1.0		ug/L	
			Total Potassium (K)	2021/11/03	<200		ug/L	
			Total Sodium (Na)	2021/11/03	<100		ug/L	
			Total Zinc (Zn)	2021/11/03	<5.0		ug/L	

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
7668536	N_R	RPD	Total Arsenic (As)	2021/11/02	3.6		%	20
			Total Cadmium (Cd)	2021/11/02	NC		%	20
			Total Chromium (Cr)	2021/11/02	NC		%	20
			Total Copper (Cu)	2021/11/02	2.5		%	20
			Total Lead (Pb)	2021/11/02	NC		%	20
			Total Manganese (Mn)	2021/11/02	3.0		%	20
			Total Nickel (Ni)	2021/11/02	7.8		%	20
			Total Zinc (Zn)	2021/11/02	0.097		%	20
7668791	JUC	Matrix Spike	Dissolved Organic Carbon	2021/10/29		99	%	80 - 120
7668791	JUC	Spiked Blank	Dissolved Organic Carbon	2021/10/29		99	%	80 - 120
7668791	JUC	Method Blank	Dissolved Organic Carbon	2021/10/29	<0.40		mg/L	
7668791	JUC	RPD	Dissolved Organic Carbon	2021/10/29	6.9		%	20
7671872	MPZ	Spiked Blank	Total Oil & Grease	2021/10/31		99	%	85 - 115
7671872	MPZ	RPD	Total Oil & Grease	2021/10/31	0.25		%	25
7671872	MPZ	Method Blank	Total Oil & Grease	2021/10/31	<0.50		mg/L	
7671873	MPZ	Spiked Blank	Total Oil & Grease Mineral/Synthetic	2021/10/31		95	%	85 - 115
7671873	MPZ	RPD	Total Oil & Grease Mineral/Synthetic	2021/10/31	1.0		%	25
7671873	MPZ	Method Blank	Total Oil & Grease Mineral/Synthetic	2021/10/31	<0.50		mg/L	
7716912	SUK	Matrix Spike [RAQ936-03]	Dissolved Calcium (Ca)	2021/12/22		NC	%	80 - 120
			Dissolved Magnesium (Mg)	2021/12/22		NC	%	80 - 120
			Dissolved Potassium (K)	2021/12/22		NC	%	80 - 120
			Dissolved Sodium (Na)	2021/12/22		NC	%	80 - 120
7716912	SUK	Spiked Blank	Dissolved Calcium (Ca)	2021/12/22		102	%	80 - 120
			Dissolved Magnesium (Mg)	2021/12/22		101	%	80 - 120
			Dissolved Potassium (K)	2021/12/22		101	%	80 - 120
			Dissolved Sodium (Na)	2021/12/22		102	%	80 - 120
7716912	SUK	Method Blank	Dissolved Calcium (Ca)	2021/12/22	<0.05		mg/L	
			Dissolved Magnesium (Mg)	2021/12/22	<0.05		mg/L	
			Dissolved Potassium (K)	2021/12/22	<1		mg/L	
			Dissolved Sodium (Na)	2021/12/22	<0.5		mg/L	
7716912	SUK	RPD [RAQ936-03]	Dissolved Calcium (Ca)	2021/12/22	0.058		%	25
			Dissolved Magnesium (Mg)	2021/12/22	0.064		%	25
			Dissolved Potassium (K)	2021/12/22	0.45		%	25
			Dissolved Sodium (Na)	2021/12/22	0.25		%	25

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.

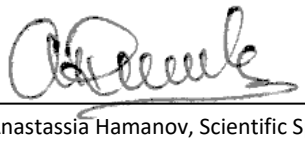
NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

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).

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

VALIDATION SIGNATURE PAGE

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



Anastassia Hamanov, Scientific Specialist

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

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Bureau Veritas Job #: C1V1742
Report Date: 2021/12/31

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

Exceedance Summary Table – Prov. Water Quality Obj.

Result Exceedances

Sample ID	Bureau Veritas ID	Parameter	Criteria	Result	DL	UNITS
SW2	RAQ935-06	Total Phosphorus	0.01	0.034	0.004	mg/L
DUP 1	RAQ936-07	Total Phosphorus	0.01	0.011	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 Location: MCCARTHY
Your C.O.C. #: 804626-09-01

Attention: Dawn Hoyle/Jamie Bonany

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

Report Date: 2021/12/13
Report #: R6917850
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: C1X6426
Received: 2021/11/16, 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	2021/12/11	CAM SOP-00326	EPA1664B m,SM5520B m
Total Oil and Grease	1	2021/11/30	2021/12/10	CAM SOP-00326	EPA1664B m,SM5520B m
pH	1	2021/11/18	2021/11/19	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	1	N/A	2021/11/18	CAM SOP-00444	OMOE E3179 m
Mineral/Synthetic O & G (TPH Heavy Oil) (1)	1	2021/11/30	2021/12/10	CAM SOP-00326	EPA1664B m,SM5520F m
Low Level Total Suspended Solids	1	2021/11/18	2021/11/19	CAM SOP-00428	SM 23 2540D m

Remarks:

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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 Location: MCCARTHY
Your C.O.C. #: 804626-09-01

Attention: Dawn Hoyle/Jamie Bonany

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

Report Date: 2021/12/13
Report #: R6917850
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: C1X6426
Received: 2021/11/16, 08:50

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Ema Gitej, Senior Project Manager
Email: emese.gitej@bureauveritas.com
Phone# (905)817-5829
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Bureau Veritas Job #: C1X6426
Report Date: 2021/12/13

Golder Associates Ltd
Client Project #: 20448776
Site Location: MCCARTHY
Sampler Initials: J

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		RFX043		
Sampling Date		2021/11/15 02:00		
COC Number		804626-09-01		
	UNITS	590331 POND	RDL	QC Batch
Calculated Parameters				
Total Animal/Vegetable Oil and Grease	mg/L	0.50	0.50	7705484
Inorganics				
pH	pH	8.26	N/A	7709684
Phenols-4AAP	mg/L	<0.0010	0.0010	7708373
Total Suspended Solids	mg/L	2	1	7708594
Petroleum Hydrocarbons				
Total Oil & Grease	mg/L	0.50	0.50	7714449
Total Oil & Grease Mineral/Synthetic	mg/L	<0.50	0.50	7714453

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

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Bureau Veritas Job #: C1X6426
Report Date: 2021/12/13

Golder Associates Ltd
Client Project #: 20448776
Site Location: MCCARTHY
Sampler Initials: J

GENERAL COMMENTS

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

Package 1	14.7°C

Project number updated as requested.

Results relate only to the items tested.

Bureau Veritas Laboratories 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 #: C1X6426
Report Date: 2021/12/13

Golder Associates Ltd
Client Project #: 20448776
Site Location: MCCARTHY
Sampler Initials: J

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
7708373	DRM	Matrix Spike	Phenols-4AAP	2021/11/18		96	%	80 - 120
7708373	DRM	Spiked Blank	Phenols-4AAP	2021/11/18		100	%	80 - 120
7708373	DRM	Method Blank	Phenols-4AAP	2021/11/18	<0.0010		mg/L	
7708373	DRM	RPD	Phenols-4AAP	2021/11/18	NC		%	20
7708594	KCB	QC Standard	Total Suspended Solids	2021/11/19		95	%	85 - 115
7708594	KCB	Method Blank	Total Suspended Solids	2021/11/19	<1		mg/L	
7708594	KCB	RPD	Total Suspended Solids	2021/11/19	0		%	25
7709684	SAU	Spiked Blank	pH	2021/11/19		102	%	98 - 103
7709684	SAU	RPD	pH	2021/11/19	0.50		%	N/A
7714449	MPZ	Spiked Blank	Total Oil & Grease	2021/12/10		100	%	85 - 115
7714449	MPZ	RPD	Total Oil & Grease	2021/11/30	1.3		%	25
7714449	MPZ	Method Blank	Total Oil & Grease	2021/12/10	<0.50		mg/L	
7714453	MPZ	Spiked Blank	Total Oil & Grease Mineral/Synthetic	2021/12/10		97	%	85 - 115
7714453	MPZ	RPD	Total Oil & Grease Mineral/Synthetic	2021/11/30	1.0		%	25
7714453	MPZ	Method Blank	Total Oil & Grease Mineral/Synthetic	2021/12/10	<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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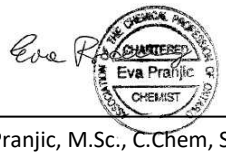
Bureau Veritas Job #: C1X6426
Report Date: 2021/12/13

Golder Associates Ltd
Client Project #: 20448776
Site Location: MCCARTHY
Sampler Initials: J

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 Location: MCCARTHY
Your C.O.C. #: 851932-03-01

Attention: Dawn Hoyle/Jamie Bonany

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

Report Date: 2021/12/16
Report #: R6923483
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: C1Y4787
Received: 2021/12/10, 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	2021/12/16	CAM SOP-00326	EPA1664B m,SM5520B m
Total Oil and Grease	1	2021/12/15	2021/12/16	CAM SOP-00326	EPA1664B m,SM5520B m
pH	1	2021/12/11	2021/12/13	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	1	N/A	2021/12/13	CAM SOP-00444	OMOE E3179 m
Mineral/Synthetic O & G (TPH Heavy Oil) (1)	1	2021/12/15	2021/12/16	CAM SOP-00326	EPA1664B m,SM5520F m
Low Level Total Suspended Solids	1	2021/12/14	2021/12/15	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 Location: MCCARTHY
Your C.O.C. #: 851932-03-01

Attention: Dawn Hoyle/Jamie Bonany

Golder Associates Ltd
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CANADA L4N 8X1

Report Date: 2021/12/16
Report #: R6923483
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: C1Y4787
Received: 2021/12/10, 08:50

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Ema Gitej, Senior Project Manager
Email: emese.gitej@bureauveritas.com
Phone# (905)817-5829

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Bureau Veritas Job #: C1Y4787
Report Date: 2021/12/16

Golder Associates Ltd
Client Project #: 20448776
Site Location: MCCARTHY
Sampler Initials: JOH

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		RHQ822	RHQ822		
Sampling Date		2021/12/09 02:00	2021/12/09 02:00		
COC Number		851932-03-01	851932-03-01		
	UNITS	POND	POND Lab-Dup	RDL	QC Batch
Calculated Parameters					
Total Animal/Vegetable Oil and Grease	mg/L	<0.50	N/A	0.50	7719672
Inorganics					
pH	pH	7.82	N/A	N/A	7719974
Phenols-4AAP	mg/L	<0.0010	<0.0010	0.0010	7721189
Total Suspended Solids	mg/L	14	N/A	1	7721856
Petroleum Hydrocarbons					
Total Oil & Grease	mg/L	<0.50	N/A	0.50	7729242
Total Oil & Grease Mineral/Synthetic	mg/L	<0.50	N/A	0.50	7729251

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

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Bureau Veritas Job #: C1Y4787
Report Date: 2021/12/16

Golder Associates Ltd
Client Project #: 20448776
Site Location: MCCARTHY
Sampler Initials: JOH

GENERAL COMMENTS

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

Package 1	12.3°C

Results relate only to the items tested.

Bureau Veritas Laboratories 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 #: C1Y4787
Report Date: 2021/12/16

Golder Associates Ltd
Client Project #: 20448776
Site Location: MCCARTHY
Sampler Initials: JOH

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
7719974	TAK	Spiked Blank	pH	2021/12/13		102	%	98 - 103
7719974	TAK	RPD	pH	2021/12/13	0.068		%	N/A
7721189	LHA	Matrix Spike [RHQ822-03]	Phenols-4AAP	2021/12/13		102	%	80 - 120
7721189	LHA	Spiked Blank	Phenols-4AAP	2021/12/13		98	%	80 - 120
7721189	LHA	Method Blank	Phenols-4AAP	2021/12/13	<0.0010		mg/L	
7721189	LHA	RPD [RHQ822-03]	Phenols-4AAP	2021/12/13	NC		%	20
7721856	KCB	QC Standard	Total Suspended Solids	2021/12/15		95	%	85 - 115
7721856	KCB	Method Blank	Total Suspended Solids	2021/12/15	<1		mg/L	
7721856	KCB	RPD	Total Suspended Solids	2021/12/15	NC		%	25
7729242	SA5	Spiked Blank	Total Oil & Grease	2021/12/16		100	%	85 - 115
7729242	SA5	RPD	Total Oil & Grease	2021/12/16	1.3		%	25
7729242	SA5	Method Blank	Total Oil & Grease	2021/12/16	<0.50		mg/L	
7729251	SA5	Spiked Blank	Total Oil & Grease Mineral/Synthetic	2021/12/16		95	%	85 - 115
7729251	SA5	RPD	Total Oil & Grease Mineral/Synthetic	2021/12/16	2.7		%	25
7729251	SA5	Method Blank	Total Oil & Grease Mineral/Synthetic	2021/12/16	<0.50		mg/L	

N/A = Not Applicable

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Bureau Veritas Job #: C1Y4787
Report Date: 2021/12/16

Golder Associates Ltd
Client Project #: 20448776
Site Location: MCCARTHY
Sampler Initials: JOH

VALIDATION SIGNATURE PAGE

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

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

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Your Project #: 20448776
Site Location: MCCARTHY
Your C.O.C. #: 842513-04-01

Attention: Dawn Hoyle/Jamie Bonany

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

Report Date: 2022/01/11
Report #: R6957982
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: C1Y6834
Received: 2021/12/03, 08:55

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	2022/01/04	CAM SOP-00326	EPA1664B m,SM5520B m
Total Oil and Grease	1	2021/12/23	2021/12/23	CAM SOP-00326	EPA1664B m,SM5520B m
pH	1	2021/12/10	2021/12/06	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	1	N/A	2021/12/03	CAM SOP-00444	OMOE E3179 m
Mineral/Synthetic O & G (TPH Heavy Oil) (1)	1	2021/12/23	2021/12/23	CAM SOP-00326	EPA1664B m,SM5520F m
Low Level Total Suspended Solids	1	2021/12/03	2021/12/06	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

Your Project #: 20448776
Site Location: MCCARTHY
Your C.O.C. #: 842513-04-01

Attention: Dawn Hoyle/Jamie Bonany

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

Report Date: 2022/01/11
Report #: R6957982
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: C1Y6834
Received: 2021/12/03, 08:55

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Ema Gitej, Senior Project Manager
Email: emese.gitej@bureauveritas.com
Phone# (905)817-5829
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Bureau Veritas Job #: C1Y6834
Report Date: 2022/01/11

Golder Associates Ltd
Client Project #: 20448776
Site Location: MCCARTHY

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		RIC151		
Sampling Date		2021/12/02 13:30		
COC Number		842513-04-01		
	UNITS	**590331 POND**	**RDL**	**QC Batch**
Calculated Parameters				
Total Animal/Vegetable Oil and Grease	mg/L	<0.50	0.50	7751075
Inorganics				
pH	pH	8.16	N/A	7717878
Phenols-4AAP	mg/L	<0.0010	0.0010	7754056
Total Suspended Solids	mg/L	2	1	7753099
Petroleum Hydrocarbons				
Total Oil & Grease	mg/L	<0.50	0.50	7743757
Total Oil & Grease Mineral/Synthetic	mg/L	<0.50	0.50	7746713

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	13.7°C

Results relate only to the items tested.

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Bureau Veritas Job #: C1Y6834
Report Date: 2022/01/11

Golder Associates Ltd
Client Project #: 20448776
Site Location: MCCARTHY

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
7717878	SAU	Spiked Blank	pH	2021/12/06		101	%	98 - 103
7717878	SAU	RPD	pH	2021/12/06	0.70		%	N/A
7743757	MPZ	Spiked Blank	Total Oil & Grease	2021/12/20		98	%	85 - 115
7743757	MPZ	RPD	Total Oil & Grease	2021/12/23	0.51		%	25
7743757	MPZ	Method Blank	Total Oil & Grease	2021/12/20	<0.50		mg/L	
7746713	MPZ	Spiked Blank	Total Oil & Grease Mineral/Synthetic	2021/12/21		95	%	85 - 115
7746713	MPZ	RPD	Total Oil & Grease Mineral/Synthetic	2021/12/23	1.0		%	25
7746713	MPZ	Method Blank	Total Oil & Grease Mineral/Synthetic	2021/12/21	<0.50		mg/L	
7753099	SHD	QC Standard	Total Suspended Solids	2021/12/06		99	%	85 - 115
7753099	SHD	Method Blank	Total Suspended Solids	2021/12/06	<1		mg/L	
7753099	SHD	RPD	Total Suspended Solids	2021/12/06	NC		%	25
7754056	DRM	Matrix Spike	Phenols-4AAP	2021/12/03		99	%	80 - 120
7754056	DRM	Spiked Blank	Phenols-4AAP	2021/12/03		101	%	80 - 120
7754056	DRM	Method Blank	Phenols-4AAP	2021/12/03	<0.0010		mg/L	
7754056	DRM	RPD	Phenols-4AAP	2021/12/03	0		%	20

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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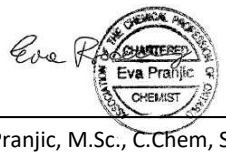
Bureau Veritas Job #: C1Y6834
Report Date: 2022/01/11

Golder Associates Ltd
Client Project #: 20448776
Site Location: MCCARTHY

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

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Your Project #: 20448776
Site Location: MCCARTHY
Your C.O.C. #: 859350-01-01

Attention: Dawn Hoyle

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

Report Date: 2022/01/19
Report #: R6968027
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: C1AA376
Received: 2021/12/21, 08:10

Sample Matrix: Water
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Alkalinity	1	N/A	2021/12/23	CAM SOP-00448	SM 23 2320 B m
Chloride by Automated Colourimetry	1	N/A	2021/12/23	CAM SOP-00463	SM 23 4500-Cl E m
Conductivity	1	N/A	2021/12/23	CAM SOP-00414	SM 23 2510 m
Dissolved Organic Carbon (DOC) (1)	1	N/A	2021/12/23	CAM SOP-00446	SM 23 5310 B m
Fluoride	1	2021/12/23	2021/12/23	CAM SOP-00449	SM 23 4500-F C m
Hardness (calculated as CaCO3)	1	N/A	2022/01/19	CAM SOP 00102/00408/00447	SM 2340 B
Lab Filtered Metals Analysis by ICP	1	2021/12/23	2021/12/24	CAM SOP-00408	EPA 6010D m
Total Metals Analysis by ICPMS	1	N/A	2021/12/29	CAM SOP-00447	EPA 6020B m
Ion Balance (% Difference)	1	N/A	2022/01/19		
Anion and Cation Sum	1	N/A	2022/01/19		
Total Ammonia-N	1	N/A	2021/12/29	CAM SOP-00441	USGS I-2522-90 m
Nitrate & Nitrite as Nitrogen in Water (2)	1	N/A	2022/01/06	CAM SOP-00440	SM 23 4500-NO3I/NO2B
Animal and Vegetable Oil and Grease	1	N/A	2021/12/24	CAM SOP-00326	EPA1664B m,SM5520B m
Total Oil and Grease	1	2021/12/23	2021/12/24	CAM SOP-00326	EPA1664B m,SM5520B m
pH	1	2021/12/23	2021/12/23	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	1	N/A	2021/12/24	CAM SOP-00444	OMOE E3179 m
Sulphate by Automated Colourimetry	1	N/A	2021/12/29	CAM SOP-00464	EPA 375.4 m
Total Dissolved Solids	1	2021/12/23	2021/12/24	CAM SOP-00428	SM 23 2540C m
Total Kjeldahl Nitrogen in Water	1	2021/12/24	2022/01/04	CAM SOP-00938	OMOE E3516 m
Total Phosphorus (Colourimetric)	1	2021/12/29	2022/01/06	CAM SOP-00407	SM 23 4500 P B H m
Mineral/Synthetic O & G (TPH Heavy Oil) (3)	1	2021/12/23	2021/12/24	CAM SOP-00326	EPA1664B m,SM5520F m
Low Level Total Suspended Solids	1	2021/12/23	2021/12/24	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

Your Project #: 20448776
Site Location: MCCARTHY
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Report Date: 2022/01/19
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CERTIFICATE OF ANALYSIS

BV LABS JOB #: C1AA376
Received: 2021/12/21, 08:10

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.
Ema Gitej, Senior Project Manager
Email: emese.gitej@bureauveritas.com
Phone# (905)817-5829
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Bureau Veritas Job #: C1AA376
Report Date: 2022/01/19

Golder Associates Ltd
Client Project #: 20448776
Site Location: MCCARTHY
Sampler Initials: CI

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

Bureau Veritas ID			RLF513		
Sampling Date			2021/12/17 13:10		
COC Number			859350-01-01		
	UNITS	Criteria	POND	RDL	QC Batch
Calculated Parameters					
Total Animal/Vegetable Oil and Grease	mg/L	-	<0.50	0.50	7747211
Petroleum Hydrocarbons					
Total Oil & Grease	mg/L	-	<0.50	0.50	7753023
Total Oil & Grease Mineral/Synthetic	mg/L	0.5	<0.50	0.50	7753037

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 #: C1AA376
Report Date: 2022/01/19

Golder Associates Ltd
Client Project #: 20448776
Site Location: MCCARTHY
Sampler Initials: CI

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID			RLF513			RLF513		
Sampling Date			2021/12/17 13:10			2021/12/17 13:10		
COC Number			859350-01-01			859350-01-01		
	UNITS	Criteria	POND	RDL	QC Batch	POND Lab-Dup	RDL	QC Batch
Calculated Parameters								
Anion Sum	me/L	-	11.4	N/A	7746308			
Cation Sum	me/L	-	11.3	N/A	7746308			
Hardness (CaCO3)	mg/L	-	370	1.0	7747192			
Ion Balance (% Difference)	%	-	0.380	N/A	7745577			
Inorganics								
Total Ammonia-N	mg/L	-	<0.050	0.050	7754737			
Conductivity	umho/cm	-	1100	1.0	7751038	1100	1.0	7751038
Total Dissolved Solids	mg/L	-	645	10	7752666			
Fluoride (F-)	mg/L	-	0.35	0.10	7751029	0.33	0.10	7751029
Total Kjeldahl Nitrogen (TKN)	mg/L	-	<0.10	0.10	7754304			
Dissolved Organic Carbon	mg/L	-	4.1	0.40	7752594			
pH	pH	6.5:8.5	8.06		7751021	8.14		7751021
Phenols-4AAP	mg/L	0.001	<0.0010	0.0010	7753857			
Total Phosphorus	mg/L	0.01	0.005	0.004	7757223			
Total Suspended Solids	mg/L	-	6	1	7751919			
Dissolved Sulphate (SO4)	mg/L	-	230	1.0	7751056			
Alkalinity (Total as CaCO3)	mg/L	-	150	1.0	7751017	150	1.0	7751017
Dissolved Chloride (Cl-)	mg/L	-	130	1.0	7751063			
Nitrite (N)	mg/L	-	<0.010	0.010	7750986			
Nitrate (N)	mg/L	-	<0.10	0.10	7750986			

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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ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID			RLF513			RLF513		
Sampling Date			2021/12/17 13:10			2021/12/17 13:10		
COC Number			859350-01-01			859350-01-01		
	UNITS	Criteria	POND	RDL	QC Batch	POND Lab-Dup	RDL	QC Batch
Metals								
Dissolved Calcium (Ca)	mg/L	-	99	0.05	7752455	99	0.05	7752455
Dissolved Magnesium (Mg)	mg/L	-	30	0.05	7752455	30	0.05	7752455
Dissolved Potassium (K)	mg/L	-	8	1	7752455	8	1	7752455
Dissolved Sodium (Na)	mg/L	-	84	0.5	7752455	84	0.5	7752455
Total Arsenic (As)	ug/L	100	<1.0	1.0	7753852			
Total Cadmium (Cd)	ug/L	0.2	<0.090	0.090	7753852			
Total Calcium (Ca)	ug/L	-	98000	200	7753852			
Total Chromium (Cr)	ug/L	-	<5.0	5.0	7753852			
Total Copper (Cu)	ug/L	5	<0.90	0.90	7753852			
Total Iron (Fe)	ug/L	300	190	100	7753852			
Total Lead (Pb)	ug/L	5	<0.50	0.50	7753852			
Total Magnesium (Mg)	ug/L	-	31000	50	7753852			
Total Manganese (Mn)	ug/L	-	38	2.0	7753852			
Total Nickel (Ni)	ug/L	25	<1.0	1.0	7753852			
Total Potassium (K)	ug/L	-	8300	200	7753852			
Total Sodium (Na)	ug/L	-	82000	100	7753852			
Total Zinc (Zn)	ug/L	30	<5.0	5.0	7753852			

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 #: C1AA376
Report Date: 2022/01/19

Golder Associates Ltd
Client Project #: 20448776
Site Location: MCCARTHY
Sampler Initials: CI

TEST SUMMARY

Bureau Veritas ID: RLF513
Sample ID: POND
Matrix: Water

Collected: 2021/12/17
Shipped:
Received: 2021/12/21

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	7751017	N/A	2021/12/23	Surinder Rai
Chloride by Automated Colourimetry	KONE	7751063	N/A	2021/12/23	Avneet Kour Sudan
Conductivity	AT	7751038	N/A	2021/12/23	Surinder Rai
Dissolved Organic Carbon (DOC)	TOCV/NDIR	7752594	N/A	2021/12/23	Anna-Kay Gooden
Fluoride	ISE	7751029	2021/12/23	2021/12/23	Surinder Rai
Hardness (calculated as CaCO3)		7747192	N/A	2022/01/19	Automated Statchk
Lab Filtered Metals Analysis by ICP	ICP	7752455	2021/12/23	2021/12/24	Suban Kanapathippllai
Total Metals Analysis by ICPMS	ICP/MS	7753852	N/A	2021/12/29	Azita Fazaeli
Ion Balance (% Difference)	CALC	7745577	N/A	2022/01/19	Automated Statchk
Anion and Cation Sum	CALC	7746308	N/A	2022/01/19	Automated Statchk
Total Ammonia-N	LACH/NH4	7754737	N/A	2021/12/29	Amanpreet Sappal
Nitrate & Nitrite as Nitrogen in Water	LACH	7750986	N/A	2022/01/06	Chandra Nandlal
Animal and Vegetable Oil and Grease	BAL	7747211	N/A	2021/12/24	Automated Statchk
Total Oil and Grease	BAL	7753023	2021/12/23	2021/12/24	Saumya Modh
pH	AT	7751021	2021/12/23	2021/12/23	Surinder Rai
Phenols (4AAP)	TECH/PHEN	7753857	N/A	2021/12/24	Louise Harding
Sulphate by Automated Colourimetry	KONE	7751056	N/A	2021/12/29	Avneet Kour Sudan
Total Dissolved Solids	BAL	7752666	2021/12/23	2021/12/24	Kristen Chan
Total Kjeldahl Nitrogen in Water	SKAL	7754304	2021/12/24	2022/01/04	Rajni Tyagi
Total Phosphorus (Colourimetric)	LACH/P	7757223	2021/12/29	2022/01/06	Shivani Shivani
Mineral/Synthetic O & G (TPH Heavy Oil)	BAL	7753037	2021/12/23	2021/12/24	Saumya Modh
Low Level Total Suspended Solids	BAL	7751919	2021/12/23	2021/12/24	Kristen Chan

Bureau Veritas ID: RLF513 Dup
Sample ID: POND
Matrix: Water

Collected: 2021/12/17
Shipped:
Received: 2021/12/21

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	7751017	N/A	2021/12/23	Surinder Rai
Conductivity	AT	7751038	N/A	2021/12/23	Surinder Rai
Fluoride	ISE	7751029	2021/12/23	2021/12/23	Surinder Rai
Lab Filtered Metals Analysis by ICP	ICP	7752455	2021/12/23	2021/12/24	Suban Kanapathippllai
pH	AT	7751021	2021/12/23	2021/12/23	Surinder Rai

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GENERAL COMMENTS

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

Package 1	4.3°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
7750986	C_N	Matrix Spike	Nitrite (N)	2022/01/06		108	%	80 - 120
			Nitrate (N)	2022/01/06		108	%	80 - 120
7750986	C_N	Spiked Blank	Nitrite (N)	2022/01/06		110	%	80 - 120
			Nitrate (N)	2022/01/06		104	%	80 - 120
7750986	C_N	Method Blank	Nitrite (N)	2022/01/06	<0.010		mg/L	
			Nitrate (N)	2022/01/06	<0.10		mg/L	
7750986	C_N	RPD	Nitrite (N)	2022/01/06	2.9		%	20
			Nitrate (N)	2022/01/06	0.14		%	20
7751017	SAU	Spiked Blank	Alkalinity (Total as CaCO3)	2021/12/23		95	%	85 - 115
7751017	SAU	Method Blank	Alkalinity (Total as CaCO3)	2021/12/23	<1.0		mg/L	
7751017	SAU	RPD [RLF513-03]	Alkalinity (Total as CaCO3)	2021/12/23	0.16		%	20
7751021	SAU	Spiked Blank	pH	2021/12/23		102	%	98 - 103
7751021	SAU	RPD [RLF513-03]	pH	2021/12/23	0.99		%	N/A
7751029	SAU	Matrix Spike [RLF513-03]	Fluoride (F-)	2021/12/23		110	%	80 - 120
7751029	SAU	Spiked Blank	Fluoride (F-)	2021/12/23		105	%	80 - 120
7751029	SAU	Method Blank	Fluoride (F-)	2021/12/23	<0.10		mg/L	
7751029	SAU	RPD [RLF513-03]	Fluoride (F-)	2021/12/23	5.2		%	20
7751038	SAU	Spiked Blank	Conductivity	2021/12/23		97	%	85 - 115
7751038	SAU	Method Blank	Conductivity	2021/12/23	<1.0		umho/cm	
7751038	SAU	RPD [RLF513-03]	Conductivity	2021/12/23	0		%	25
7751056	AKD	Matrix Spike	Dissolved Sulphate (SO4)	2021/12/29		NC	%	75 - 125
7751056	AKD	Spiked Blank	Dissolved Sulphate (SO4)	2021/12/23		105	%	80 - 120
7751056	AKD	Method Blank	Dissolved Sulphate (SO4)	2021/12/23	<1.0		mg/L	
7751056	AKD	RPD	Dissolved Sulphate (SO4)	2021/12/29	0.54		%	20
7751063	AKD	Matrix Spike	Dissolved Chloride (Cl-)	2021/12/23		NC	%	80 - 120
7751063	AKD	Spiked Blank	Dissolved Chloride (Cl-)	2021/12/23		101	%	80 - 120
7751063	AKD	Method Blank	Dissolved Chloride (Cl-)	2021/12/23	<1.0		mg/L	
7751063	AKD	RPD	Dissolved Chloride (Cl-)	2021/12/23	4.1		%	20
7751919	KCB	QC Standard	Total Suspended Solids	2021/12/24		100	%	85 - 115
7751919	KCB	Method Blank	Total Suspended Solids	2021/12/24	<1		mg/L	
7751919	KCB	RPD	Total Suspended Solids	2021/12/24	NC		%	25
7752455	SUK	Matrix Spike [RLF513-03]	Dissolved Calcium (Ca)	2021/12/24		NC	%	80 - 120
			Dissolved Magnesium (Mg)	2021/12/24		NC	%	80 - 120
			Dissolved Potassium (K)	2021/12/24		98	%	80 - 120
			Dissolved Sodium (Na)	2021/12/24		NC	%	80 - 120
7752455	SUK	Spiked Blank	Dissolved Calcium (Ca)	2021/12/24		96	%	80 - 120
			Dissolved Magnesium (Mg)	2021/12/24		94	%	80 - 120
			Dissolved Potassium (K)	2021/12/24		96	%	80 - 120
			Dissolved Sodium (Na)	2021/12/24		96	%	80 - 120
7752455	SUK	Method Blank	Dissolved Calcium (Ca)	2021/12/24	<0.05		mg/L	
			Dissolved Magnesium (Mg)	2021/12/24	<0.05		mg/L	
			Dissolved Potassium (K)	2021/12/24	<1		mg/L	
			Dissolved Sodium (Na)	2021/12/24	<0.5		mg/L	
7752455	SUK	RPD [RLF513-03]	Dissolved Calcium (Ca)	2021/12/24	0.19		%	25
			Dissolved Magnesium (Mg)	2021/12/24	0.40		%	25
			Dissolved Potassium (K)	2021/12/24	0.26		%	25
			Dissolved Sodium (Na)	2021/12/24	0.12		%	25
7752594	AGD	Matrix Spike	Dissolved Organic Carbon	2021/12/23		93	%	80 - 120
7752594	AGD	Spiked Blank	Dissolved Organic Carbon	2021/12/23		97	%	80 - 120
7752594	AGD	Method Blank	Dissolved Organic Carbon	2021/12/23	<0.40		mg/L	
7752594	AGD	RPD	Dissolved Organic Carbon	2021/12/23	1.1		%	20

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
7752666	KCB	QC Standard	Total Dissolved Solids	2021/12/24		97	%	90 - 110
7752666	KCB	Method Blank	Total Dissolved Solids	2021/12/24	<10		mg/L	
7752666	KCB	RPD	Total Dissolved Solids	2021/12/24	1.3		%	25
7753023	SA5	Spiked Blank	Total Oil & Grease	2021/12/24		97	%	85 - 115
7753023	SA5	RPD	Total Oil & Grease	2021/12/24	2.3		%	25
7753023	SA5	Method Blank	Total Oil & Grease	2021/12/24	<0.50		mg/L	
7753037	SA5	Spiked Blank	Total Oil & Grease Mineral/Synthetic	2021/12/24		92	%	85 - 115
7753037	SA5	RPD	Total Oil & Grease Mineral/Synthetic	2021/12/24	2.2		%	25
7753037	SA5	Method Blank	Total Oil & Grease Mineral/Synthetic	2021/12/24	<0.50		mg/L	
7753852	AFZ	Matrix Spike	Total Arsenic (As)	2021/12/29		103	%	80 - 120
			Total Cadmium (Cd)	2021/12/29		101	%	80 - 120
			Total Calcium (Ca)	2021/12/29		NC	%	80 - 120
			Total Chromium (Cr)	2021/12/29		98	%	80 - 120
			Total Copper (Cu)	2021/12/29		100	%	80 - 120
			Total Iron (Fe)	2021/12/29		98	%	80 - 120
			Total Lead (Pb)	2021/12/29		95	%	80 - 120
			Total Magnesium (Mg)	2021/12/29		103	%	80 - 120
			Total Manganese (Mn)	2021/12/29		98	%	80 - 120
			Total Nickel (Ni)	2021/12/29		97	%	80 - 120
			Total Potassium (K)	2021/12/29		100	%	80 - 120
			Total Sodium (Na)	2021/12/29		NC	%	80 - 120
			Total Zinc (Zn)	2021/12/29		99	%	80 - 120
7753852	AFZ	Spiked Blank	Total Arsenic (As)	2021/12/29		100	%	80 - 120
			Total Cadmium (Cd)	2021/12/29		100	%	80 - 120
			Total Calcium (Ca)	2021/12/29		96	%	80 - 120
			Total Chromium (Cr)	2021/12/29		96	%	80 - 120
			Total Copper (Cu)	2021/12/29		98	%	80 - 120
			Total Iron (Fe)	2021/12/29		97	%	80 - 120
			Total Lead (Pb)	2021/12/29		94	%	80 - 120
			Total Magnesium (Mg)	2021/12/29		94	%	80 - 120
			Total Manganese (Mn)	2021/12/29		97	%	80 - 120
			Total Nickel (Ni)	2021/12/29		96	%	80 - 120
			Total Potassium (K)	2021/12/29		96	%	80 - 120
			Total Sodium (Na)	2021/12/29		96	%	80 - 120
			Total Zinc (Zn)	2021/12/29		102	%	80 - 120
7753852	AFZ	Method Blank	Total Arsenic (As)	2021/12/29	<1.0		ug/L	
			Total Cadmium (Cd)	2021/12/29	<0.090		ug/L	
			Total Calcium (Ca)	2021/12/29	<200		ug/L	
			Total Chromium (Cr)	2021/12/29	<5.0		ug/L	
			Total Copper (Cu)	2021/12/29	<0.90		ug/L	
			Total Iron (Fe)	2021/12/29	<100		ug/L	
			Total Lead (Pb)	2021/12/29	<0.50		ug/L	
			Total Magnesium (Mg)	2021/12/29	<50		ug/L	
			Total Manganese (Mn)	2021/12/29	<2.0		ug/L	
			Total Nickel (Ni)	2021/12/29	<1.0		ug/L	
			Total Potassium (K)	2021/12/29	<200		ug/L	
			Total Sodium (Na)	2021/12/29	<100		ug/L	
			Total Zinc (Zn)	2021/12/29	<5.0		ug/L	
7753852	AFZ	RPD	Total Cadmium (Cd)	2021/12/29	NC		%	20
			Total Chromium (Cr)	2021/12/29	NC		%	20
			Total Copper (Cu)	2021/12/29	4.5		%	20

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Total Iron (Fe)	2021/12/29	NC		%	20
			Total Lead (Pb)	2021/12/29	NC		%	20
			Total Nickel (Ni)	2021/12/29	18		%	20
			Total Zinc (Zn)	2021/12/29	2.4		%	20
7753857	LHA	Matrix Spike	Phenols-4AAP	2021/12/24		100	%	80 - 120
7753857	LHA	Spiked Blank	Phenols-4AAP	2021/12/24		99	%	80 - 120
7753857	LHA	Method Blank	Phenols-4AAP	2021/12/24	<0.0010		mg/L	
7753857	LHA	RPD	Phenols-4AAP	2021/12/24	NC		%	20
7754304	RTY	Matrix Spike	Total Kjeldahl Nitrogen (TKN)	2022/01/04		99	%	80 - 120
7754304	RTY	QC Standard	Total Kjeldahl Nitrogen (TKN)	2022/01/04		101	%	80 - 120
7754304	RTY	Spiked Blank	Total Kjeldahl Nitrogen (TKN)	2022/01/04		95	%	80 - 120
7754304	RTY	Method Blank	Total Kjeldahl Nitrogen (TKN)	2022/01/04	<0.10		mg/L	
7754304	RTY	RPD	Total Kjeldahl Nitrogen (TKN)	2022/01/04	NC		%	20
7754737	ASP	Matrix Spike	Total Ammonia-N	2021/12/29		100	%	75 - 125
7754737	ASP	Spiked Blank	Total Ammonia-N	2021/12/29		101	%	80 - 120
7754737	ASP	Method Blank	Total Ammonia-N	2021/12/29	<0.050		mg/L	
7754737	ASP	RPD	Total Ammonia-N	2021/12/29	6.9		%	20
7757223	SSV	Matrix Spike	Total Phosphorus	2022/01/06		96	%	80 - 120
7757223	SSV	QC Standard	Total Phosphorus	2022/01/06		104	%	80 - 120
7757223	SSV	Spiked Blank	Total Phosphorus	2022/01/06		97	%	80 - 120
7757223	SSV	Method Blank	Total Phosphorus	2022/01/06	<0.004		mg/L	
7757223	SSV	RPD	Total Phosphorus	2022/01/06	2.0		%	20

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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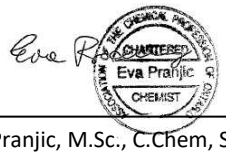
Bureau Veritas Job #: C1AA376
Report Date: 2022/01/19

Golder Associates Ltd
Client Project #: 20448776
Site Location: MCCARTHY
Sampler Initials: CI

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

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

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Exceedance Summary Table – Prov. Water Quality Obj.

Result Exceedances

Sample ID	Bureau Veritas ID	Parameter	Criteria	Result	DL	UNITS
No Exceedances						

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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