



## REPORT

# MCCARTHY QUARRY

## *2020 Environmental Compliance Approval Annual Report*

Submitted to:

**Cindy Hood**

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

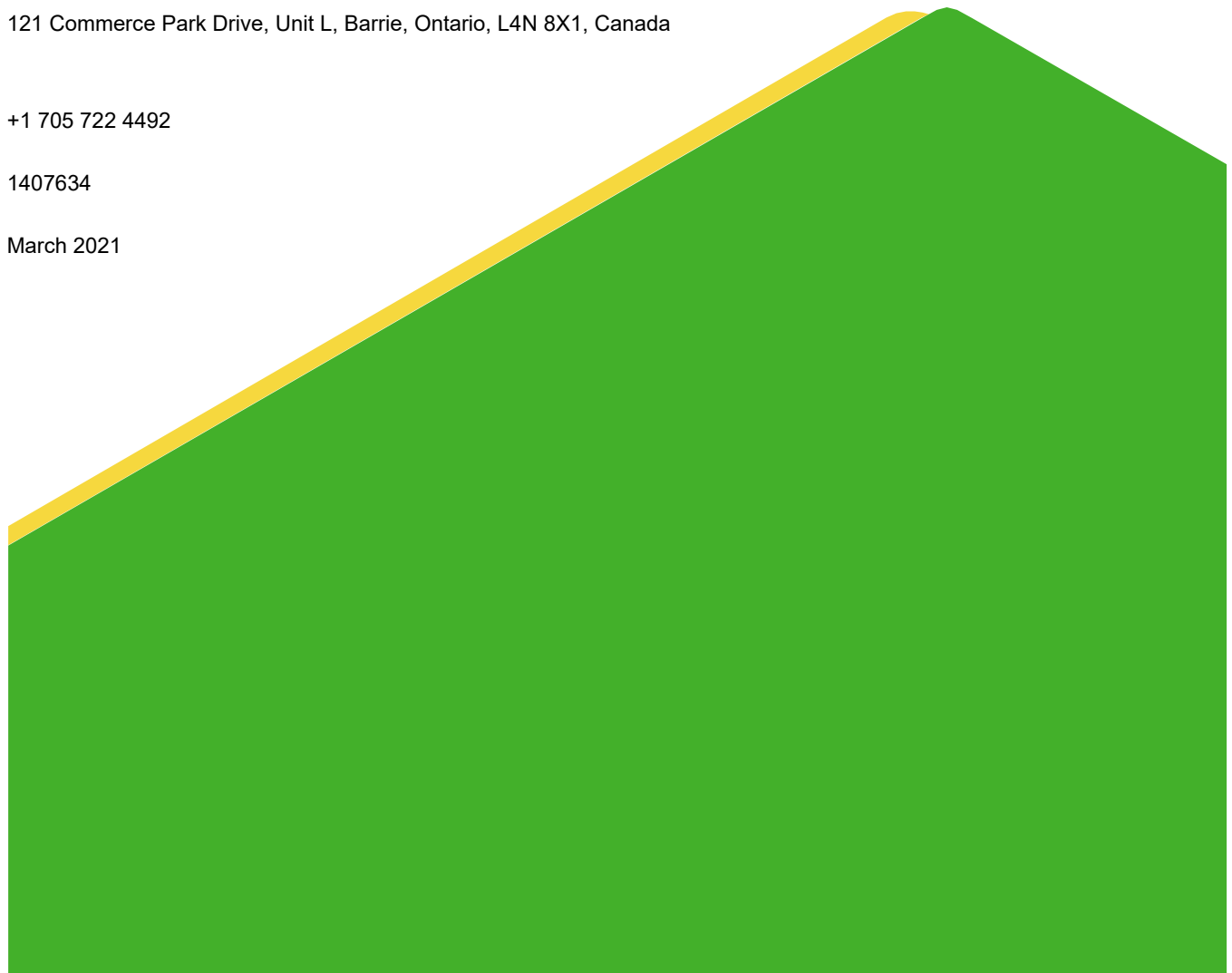
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1407634

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## Distribution List

1 Copy - Ministry of the Environment, Conservation and Parks

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### APPENDIX A

ECA No. 7737-BH6QEA

### APPENDIX B

Permit To Take Water No. 1603-BKTPQH

### APPENDIX C

Water Quality Results

## 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, 2020 to December 31, 2020. 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 4-inch Grindex pump with a maximum discharge rate of 35 L/sec which is attached to a 4-inch (101 mm) diameter discharge line. The water is pumped from the quarry floor up the quarry face via the discharge line to a 4-inch (101 mm) diameter pipeline that directs the water to a ditch that runs southward through the McCarthy property to the 14,000 m<sup>3</sup> 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 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), with the exception of the TSS concentration from sample collected on April 30, 2020. The concentration of TSS (37 mg/L) exceeded the 30 mg/L limit. The result from the first two samples collected subsequently in May 2020 reported TSS concentrations below the ECA guideline. As a result the sample collected on April 30 is considered a short-term anomaly, rather than being indicative of a chronic issue with the discharge treatment system.

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 April (16 mg/L) and August (17 mg/L), which marginally exceeded the 15 mg/L limit. The April exceedance was due to the TSS concentration reported for April 30 sample (see above). Only a single sample was collected in August 2020 with during very low flow conditions, which contributed to the elevated TSS concentration. TSS concentrations decreased to an average of 11.3 mg/L in September 2020 and 4.3 mg/L in October 2020.

### 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; results 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, 2020 to December 31, 2020 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 has indicated that no other operational problems were encountered with the dewatering system during the monitoring period of January to December 2020. Coco also indicated that no spills occurred during the January to December 2020 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 2020 monitoring period.

## 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, with the exception of the TSS concentration from sample collected on April 30, 2020; 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 April (16 mg/L) and August (17 mg/L), which marginally exceeded the 15 mg/L limit.

### ■ 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.

### ■ 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.  
*Project Scientist*



Sean McFarland, Ph.D., P.Geo.  
*Principal, Senior Hydrogeologist*

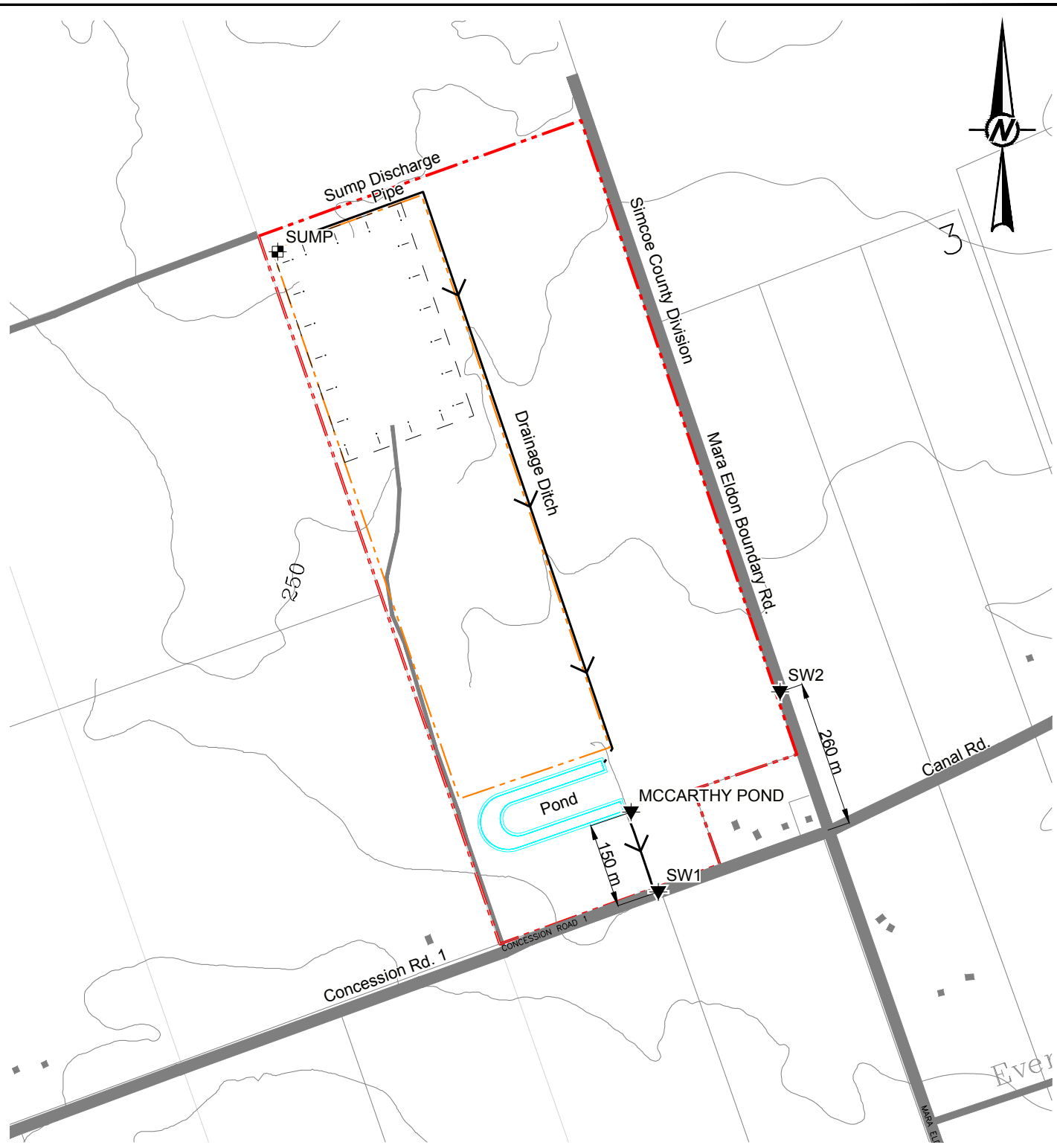
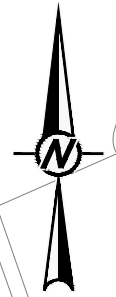
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Figure



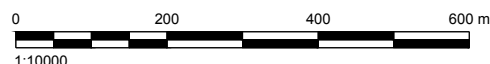


LEGEND

- - - 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



CLIENT  
COCO / QBJR AGGREGATES INC.

PROJECT  
STAN MCCARTHY QUARRY

TITLE  
**LOCATION MAP**

CONSULTANT	YYYY-MM-DD	2019-11-08
	PREPARED	STB
	DESIGN	
	REVIEW	
	APPROVED	



PROJECT No. 14-07634	SCALE AS SHOWN	Rev. A	Figure 1
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## TABLES

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

	Unit	RDL	PWQO <sup>1</sup>	Daily Limit <sup>2</sup>	McCarthy Quarry												
Sample ID					Pond												
Date					09-Jan-20	05-Mar-20	16-Apr-20	23-Apr-20	30-Apr-20	07-May-20	14-May-20	28-May-20	04-Jun-20	11-Jun-20	18-Jun-20	25-Jun-20	31-Aug-20
pH	pH	n/a		6.0-9.5	7.53	7.54	7.86	8.11	7.88	8.00	8.13	7.90	8.08	7.62	8.19	8.10	7.86
Total Suspended Solids	mg/L	1		30	2	3	3	8	37	19	2	2	2	5	8	5	17
Total Oil and Grease	mg/L	0.5	Note 3	30	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	3.7	<0.5	<0.5	<0.5	<0.5	2.2
Phenols (4AAP)	mg/L	<0.0010		0.04	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<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 discoloration 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 preceded by "<" denote concentrations that are below the laboratory Reportable Detection Limit (RDL).

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

	Unit	RDL	PWQO <sup>1</sup>	Daily Limit <sup>2</sup>	McCarthy Quarry										
Sample ID					Pond										
Date					08-Sep-20	14-Sep-20	21-Sep-20	28-Sep-20	08-Oct-20	13-Oct-20	19-Oct-20	26-Oct-20	05-Nov-20	12-Nov-20	15-Dec-20
pH	pH	n/a		6.0-9.5	7.76	7.97	8.00	8.05	7.84	7.98	7.91	7.92	8.05	8.06	7.77
Total Suspended Solids	mg/L	1		30	8	12	9	16	3	5	7	2	13	2	5
Total Oil and Grease	mg/L	0.5	Note 3	30	<0.5	<0.5	<0.5	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.9
Phenols (4AAP)	mg/L	<0.0010		0.04	<0.001	<0.001	<0.001	<0.001	<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 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 preceded 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 <sup>1</sup>	Monthly Concentration Limit <sup>2</sup>												
Sample ID																
Date					January 2020	February 2020	March 2020	April 2020	May 2020	June 2020	July 2020	August 2020	September 2020	October 2020	November 2020	December 2020
Total Suspended Solids	mg/L	1		15	2.0	-	3.0	<b>16.0</b>	7.7	5.0	-	<b>17.0</b>	11.3	4.3	7.5	5.0
Total Oil and Grease	mg/L	0.5	Note 3	15	<0.5	-	<0.5	<0.5	1.4	<0.5	-	2.2	0.7	<0.5	<0.5	0.9
Phenols (4AAP)	mg/L	<0.0010		0.02	<0.001	-	0.001	<0.001	<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. Monthly 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 preceded 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 <sup>1</sup>	Interim PWQO <sup>2</sup>	PTTW Effluent Limits	McCarthy Quarry	
Sample ID						Pond	Pond
Date						14-May-20	29-Oct-20
<b>Field Measured Parameters</b>							
Conductivity	mS/cm					376	723
pH	pH	n/a	6.5-8.5		6.0-9.5	8.25	8.36
Temperature	°C	n/a				10.4	6.7
<b>Calculated Parameters</b>							
Hardness (CaCO3)	mg/L	1.0				210	300
<b>Inorganics</b>							
Total Ammonia-N	mg/L	0.050				<0.050	<0.050
Conductivity	umho/cm	1.0				0.455	0.858
Total Dissolved Solids	mg/L	10				260	510
Fluoride (F-)	mg/L	0.10				0.13	0.40
Total Kjeldahl Nitrogen (TKN)	mg/L	0.10				0.44	0.34
Dissolved Organic Carbon	mg/L	0.20				6.5	6.5
pH	pH	N/A	6.5-8.5		6.0-9.5	8.10	7.68
Phenols-4AAP	mg/L	0.0010	0.001		0.04	<0.0010	<0.0010
Total Phosphorus	mg/L	0.002		0.03 <sup>5b</sup>		0.010	0.012
Total Suspended Solids	mg/L	10			30	<10	<10
Dissolved Sulphate (SO4)	mg/L	1				82	240
Alkalinity (Total as CaCO3)	mg/L	1.0				140	93
Dissolved Chloride (Cl)	mg/L	1				9	58
Nitrite (N)	mg/L	0.010				<0.010	<0.010
Nitrate (N)	mg/L	0.10				<0.10	0.28
<b>Petroleum Hydrocarbons</b>							
Total Oil & Grease	mg/L	0.50	Note 3		30	<0.50	<0.50
<b>Metals</b>							
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 <sup>5d</sup>		<0.10	<0.09
Dissolved Calcium (Ca)	mg/L	0.05				62	74
Total Calcium (Ca)	ug/L	200				63000	68000
Total Chromium (Cr)	ug/L	5	1-89 <sup>5e</sup>			<5.0	<5.0
Total Copper (Cu)	ug/L	1	5	1-5 <sup>5f</sup>		<1.0	<0.9
Total Iron (Fe)	ug/L	100	300			140	<100
Total Lead (Pb)	ug/L	0.5	5-25 <sup>5g</sup>	1-5 <sup>5h</sup>		<0.50	<0.50
Dissolved Magnesium (Mg)	mg/L	0.05				14	27
Total Magnesium (Mg)	ug/L	50				13000	26000
Total Manganese (Mn)	ug/L	2				16	6
Total Nickel (Ni)	ug/L	1	25			1.1	<1.0
Dissolved Potassium (K)	mg/L	1				1.8	7.4
Total Potassium (K)	ug/L	200				1700	7100
Dissolved Sodium (Na)	mg/L	0.5				12	56
Total Sodium (Na)	ug/L	100				12000	51000
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 discoloration 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 preceded 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.

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 <sup>1</sup>	Interim PWQO <sup>2</sup>	PTTW Effluent Limits	McCarthy Quarry	
Sample ID						SW1	SW1
Date						14-May-20	29-Oct-20
<b>Field Measured Parameters</b>							
Conductivity	mS/cm					675	800
pH		n/a	6.5-8.5		6.0-9.5	7.88	8.40
Temperature	°C	n/a				9.9	6.8
<b>Calculated Parameters</b>							
Anion Sum	me/L	N/A				9.82	9.82
Cation Sum	me/L	N/A				10.3	10.3
Hardness (CaCO3)	mg/L	1.0				360	380
<b>Inorganics</b>							
Total Ammonia-N	mg/L	0.050				<0.050	<0.050
Conductivity	umho/cm	1.0				0.822	0.931
Total Dissolved Solids	mg/L	10				490	545
Fluoride (F-)	mg/L	0.10				0.11	0.30
Total Kjeldahl Nitrogen (TKN)	mg/L	0.10				0.47	0.34
Dissolved Organic Carbon	mg/L	0.20				7.8	8.7
pH		N/A	6.5-8.5		6.0-9.5	7.99	7.94
Phenols-4AAP	mg/L	0.0010			0.04	<0.0010	<0.0010
Total Phosphorus	mg/L	0.002		0.03 <sup>5b</sup>		0.006	0.011
Total Suspended Solids	mg/L	10			30	<10	<10
Dissolved Sulphate (SO4)	mg/L	1				140	190
Alkalinity (Total as CaCO3)	mg/L	1.0				230	210
Dissolved Chloride (Cl)	mg/L	1				43	47
Nitrite (N)	mg/L	0.010				<0.010	<0.010
Nitrate (N)	mg/L	0.10				<0.10	0.34
<b>Petroleum Hydrocarbons</b>							
Total Oil & Grease	mg/L	0.50	Note 3		30	<0.50	<0.50
<b>Metals</b>							
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 <sup>5d</sup>		<0.10	<0.09
Dissolved Calcium (Ca)	mg/L	0.05				120	120
Total Calcium (Ca)	ug/L	200				120000	110000
Total Chromium (Cr)	ug/L	5	1-8g <sup>5e</sup>			<5.0	<5.0
Total Copper (Cu)	ug/L	1	5	1-5 <sup>5f</sup>		<1.0	<0.9
Total Iron (Fe)	ug/L	100	300			<100	130
Total Lead (Pb)	ug/L	0.5	5-25 <sup>5g</sup>	1-5 <sup>5h</sup>		<0.50	<0.50
Dissolved Magnesium (Mg)	mg/L	0.05				13	22
Total Magnesium (Mg)	ug/L	50				12000	22000
Total Manganese (Mn)	ug/L	2				13	30
Total Nickel (Ni)	ug/L	1	25			<1.0	1.8
Dissolved Potassium (K)	mg/L	1				2.4	5.9
Total Potassium (K)	ug/L	200				2200	5700
Dissolved Sodium (Na)	mg/L	0.5				37	49
Total Sodium (Na)	ug/L	100				37000	49000
Total Zinc (Zn)	ug/L	5	30	20		<5.0	<5.0
<p>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.</p> <p>2. Interim Provincial Water Quality Objectives (Interim PWQO); <i>shaded cells and italics denote Interim PWQO exceedance</i>; some PWQOs are dependent on other water quality parameters hence the range in guideline values, refer to PWQO notes.</p> <p>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 discoloration on the surface, can be detected by odour, can cause tainting of edible organisms, can form detectable deposits on shorelines and bottom sediments.</p> <p>4. Results that are preceded by "&lt;" denote concentrations that are below the laboratory Reportable Detection Limit (RDL).</p> <p><i>5a. Aluminum (Interim):</i></p> <p>- At pH 4.5 to 5.5 the Interim PWQO is 15 ug/L based on inorganic monomeric aluminum measured in clay-free samples.</p> <p>- At pH &gt;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.</p> <p>- At pH &gt;6.5 to 9.0, the Interim PWQO is 75 ug/L based on total aluminum measured in clay-free samples.</p> <p>- 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.</p> <p><i>5b. Phosphorus (Interim):</i></p> <p>- Current scientific evidence is insufficient to develop a firm Objective at this time.</p> <p>- Accordingly, the following phosphorus concentrations should be considered as general guidelines which should be supplemented by site-specific studies:</p> <p>(a) To avoid nuisance concentrations of algae in lakes, average total phosphorus concentrations for the ice-free period should not exceed 20 ug/L;</p> <p>(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;</p> <p>(c) Excessive plant growth in rivers and streams should be eliminated at a total phosphorus concentration below 30 ug/L.</p> <p><i>5c. Beryllium:</i> If Hardness &lt;75 mg/L (CaCO3), use 11 ug/L If Hardness &gt;75 mg/L (CaCO3), use 1100 ug/L</p> <p><i>5d. Cadmium (Interim):</i> If Hardness 0-100 mg/L (CaCO3), then use 0.1 ug/L If Hardness &gt;100 mg/L (CaCO3), then use 0.5 ug/L</p> <p><i>5e. Chromium:</i> 1 ug/L for hexavalent chromium (Cr VI) 8.9 ug/L for trivalent chromium (Cr III)</p> <p><i>5f. Copper (Interim):</i> If Hardness as CaCO3 (mg/L) is 0 - 20, then use 1 ug/L If Hardness as CaCO3 (mg/L) is &gt;20, then use 5 ug/L</p> <p><i>5g. Lead:</i> If Alkalinity as CaCO3 (mg/L) is &lt; 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 &gt; 80, use 25 ug/L</p> <p><i>5h. Lead (Interim):</i> If Hardness as CaCO3 (mg/L) is &lt; 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 &gt; 80, then use 5 ug/L</p>							

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

	Unit	Reportable Detection Limit (RDL)	PWQO <sup>1</sup>	Interim PWQO <sup>2</sup>	PTTW Effluent Limits	McCarthy Quarry	
Sample ID						SW2	SW2
Date						14-May-20	29-Oct-20
<b>Field Measured Parameters</b>							
Conductivity	mS/cm					846	673
pH	pH	n/a	6.5-8.5		6.0-9.5	7.65	7.99
Temperature	°C	n/a				10.1	7.0
<b>Calculated Parameters</b>							
Anion Sum	me/L	N/A				6.31	6.31
Cation Sum	me/L	N/A				6.52	6.52
Hardness (CaCO <sub>3</sub> )	mg/L	1.0				400	360
<b>Inorganics</b>							
Total Ammonia-N	mg/L	0.050				<0.050	<0.050
Conductivity	umho/cm	1.0				0.764	0.734
Total Dissolved Solids	mg/L	10				435	410
Fluoride (F <sup>-</sup> )	mg/L	0.10				<0.10	<0.10
Total Kjeldahl Nitrogen (TKN)	mg/L	0.10				0.31	0.30
Dissolved Organic Carbon	mg/L	0.20				5.0	8.6
pH	pH	N/A	6.5-8.5		6.0-9.5	7.98	7.88
Phenols-4AAP	mg/L	0.0010	0.001		0.04	<0.0010	<0.0010
Total Phosphorus	mg/L	0.002		0.03 <sup>5b</sup>		0.012	0.025
Total Suspended Solids	mg/L	10			30	<10	12
Dissolved Sulphate (SO <sub>4</sub> )	mg/L	1				81	42
Alkalinity (Total as CaCO <sub>3</sub> )	mg/L	1.0				300	320
Dissolved Chloride (Cl)	mg/L	1				26	23
Nitrite (N)	mg/L	0.010				<0.010	<0.010
Nitrate (N)	mg/L	0.10				<0.10	<0.10
<b>Petroleum Hydrocarbons</b>							
Total Oil & Grease	mg/L	0.50	Note 3		30	<0.50	<0.50
<b>Metals</b>							
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 <sup>5d</sup>		<0.10	<0.09
Dissolved Calcium (Ca)	mg/L	0.05				130	130
Total Calcium (Ca)	ug/L	200				120000	120000
Total Chromium (Cr)	ug/L	5	1-89 <sup>5e</sup>			<5.0	<5.0
Total Copper (Cu)	ug/L	1	5	1-5 <sup>5f</sup>		<1.0	1.5
Total Iron (Fe)	ug/L	100	300			140	250
Total Lead (Pb)	ug/L	0.5	5-25 <sup>5g</sup>	1-5 <sup>5h</sup>		<0.50	<0.50
Dissolved Magnesium (Mg)	mg/L	0.05				20	10
Total Magnesium (Mg)	ug/L	50				19000	9800
Total Manganese (Mn)	ug/L	2				6	14
Total Nickel (Ni)	ug/L	1	25			<1.0	<1.0
Dissolved Potassium (K)	mg/L	1				1.1	1.8
Total Potassium (K)	ug/L	200				1100	1700
Dissolved Sodium (Na)	mg/L	0.5				15	20
Total Sodium (Na)	ug/L	100				14000	20000
Total Zinc (Zn)	ug/L	5	30	20		<5.0	<5.0
<p>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.</p> <p>2. Interim Provincial Water Quality Objectives (Interim PWQO); <i>shaded cells and italics denote Interim PWQO exceedance</i>; some PWQOs are dependent on other water quality parameters hence the range in guideline values, refer to PWQO notes.</p> <p>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 discoloration on the surface, can be detected by odour, can cause tainting of edible organisms, can form detectable deposits on shorelines and bottom sediments.</p> <p>4. Results that are preceded by "&lt;" denote concentrations that are below the laboratory Reportable Detection Limit (RDL).</p> <p><i>5a. Aluminum (Interim):</i></p> <p>- At pH 4.5 to 5.5 the Interim PWQO is 15 ug/L based on inorganic monomeric aluminum measured in clay-free samples.</p> <p>- At pH &gt;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.</p> <p>- At pH &gt;6.5 to 9.0, the Interim PWQO is 75 ug/L based on total aluminum measured in clay-free samples.</p> <p>- 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.</p> <p><i>5b. Phosphorus (Interim):</i></p> <p>- Current scientific evidence is insufficient to develop a firm Objective at this time.</p> <p>- Accordingly, the following phosphorus concentrations should be considered as general guidelines which should be supplemented by site-specific studies:</p> <p>(a) To avoid nuisance concentrations of algae in lakes, average total phosphorus concentrations for the ice-free period should not exceed 20 ug/L;</p> <p>(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;</p> <p>(c) Excessive plant growth in rivers and streams should be eliminated at a total phosphorus concentration below 30 ug/L.</p> <p><i>5c. Beryllium:</i> If Hardness &lt;75 mg/L (CaCO<sub>3</sub>), use 11 ug/L If Hardness &gt;75 mg/L (CaCO<sub>3</sub>), use 1100 ug/L</p> <p><i>5d. Cadmium (Interim):</i> If Hardness 0-100 mg/L (CaCO<sub>3</sub>), then use 0.1 ug/L If Hardness &gt;100 mg/L (CaCO<sub>3</sub>), then use 0.5 ug/L</p> <p><i>5e. Chromium:</i> 1 ug/L for hexavalent chromium (Cr VI) 8.9 ug/L for trivalent chromium (Cr III)</p> <p><i>5f. Copper (Interim):</i> If Hardness as CaCO<sub>3</sub> (mg/L) is 0 - 20, then use 1 ug/L If Hardness as CaCO<sub>3</sub> (mg/L) is &gt;20, then use 5 ug/L</p> <p><i>5g. Lead:</i> If Alkalinity as CaCO<sub>3</sub> (mg/L) is &lt; 20, use 5 ug/L If Alkalinity as CaCO<sub>3</sub> (mg/L) is 20 to 40, use 10 ug/L If Alkalinity as CaCO<sub>3</sub> (mg/L) is 40 to 80, use 20 ug/L If Alkalinity as CaCO<sub>3</sub> (mg/L) is &gt; 80, use 25 ug/L</p> <p><i>5h. Lead (Interim):</i> If Hardness as CaCO<sub>3</sub> (mg/L) is &lt; 30, then use 1 ug/L If Hardness as CaCO<sub>3</sub> (mg/L) is 30 to 80, then use 3 ug/L If Hardness as CaCO<sub>3</sub> (mg/L) is &gt; 80, then use 5 ug/L</p>							



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)
<b>ECA Permitted Rate</b>					<b>6,550,000</b>	<b>76</b>	<b>4,545</b>
1-Jan-20	NO PUMP		0	0	-	-	-
2-Jan-20	NO PUMP		0	0	-	-	-
3-Jan-20	7AM	5PM	36000	600	720,000	20	1,200
4-Jan-20	7AM	5PM	36000	600	720,000	20	1,200
5-Jan-20	NO PUMP		0	0	-	-	-
6-Jan-20	NO PUMP		0	0	-	-	-
7-Jan-20	NO PUMP		0	0	-	-	-
8-Jan-20	NO PUMP		0	0	-	-	-
9-Jan-20	NO PUMP		0	0	-	-	-
10-Jan-20	NO PUMP		0	0	-	-	-
11-Jan-20	NO PUMP		0	0	-	-	-
12-Jan-20	NO PUMP		0	0	-	-	-
13-Jan-20	7AM	5PM	36000	600	720,000	20	1,200
14-Jan-20	7AM	5PM	36000	600	720,000	20	1,200
15-Jan-20	NO PUMP		0	0	-	-	-
16-Jan-20	NO PUMP		0	0	-	-	-
17-Jan-20	NO PUMP		0	0	-	-	-
18-Jan-20	NO PUMP		0	0	-	-	-
19-Jan-20	NO PUMP		0	0	-	-	-
20-Jan-20	NO PUMP		0	0	-	-	-
21-Jan-20	NO PUMP		0	0	-	-	-
22-Jan-20	NO PUMP		0	0	-	-	-
23-Jan-20	NO PUMP		0	0	-	-	-
24-Jan-20	NO PUMP		0	0	-	-	-
25-Jan-20	NO PUMP		0	0	-	-	-
26-Jan-20	NO PUMP		0	0	-	-	-
27-Jan-20	NO PUMP		0	0	-	-	-
28-Jan-20	NO PUMP		0	0	-	-	-
29-Jan-20	NO PUMP		0	0	-	-	-
30-Jan-20	NO PUMP		0	0	-	-	-
31-Jan-20	NO PUMP		0	0	-	-	-
1-Feb-20	NO PUMP		0	0	-	-	-
2-Feb-20	NO PUMP		0	0	-	-	-
3-Feb-20	7AM	4PM	32400	540	648,000	20	1,200
4-Feb-20	7AM	4PM	32400	540	648,000	20	1,200
5-Feb-20	NO PUMP		0	0	-	-	-
6-Feb-20	NO PUMP		0	0	-	-	-
7-Feb-20	NO PUMP		0	0	-	-	-
8-Feb-20	NO PUMP		0	0	-	-	-
9-Feb-20	NO PUMP		0	0	-	-	-
10-Feb-20	NO PUMP		0	0	-	-	-
11-Feb-20	NO PUMP		0	0	-	-	-
12-Feb-20	NO PUMP		0	0	-	-	-

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Date	Start	Stop	Total Sec.	Total Min.	Total Litres	Rate of Taking (L/sec)	Rate of Taking (L/min)
<b>ECA Permitted Rate</b>					<b>6,550,000</b>	<b>76</b>	<b>4,545</b>
13-Feb-20	NO PUMP		0	0	-	-	-
14-Feb-20	NO PUMP		0	0	-	-	-
15-Feb-20	NO PUMP		0	0	-	-	-
16-Feb-20	NO PUMP		0	0	-	-	-
17-Feb-20	NO PUMP		0	0	-	-	-
18-Feb-20	NO PUMP		0	0	-	-	-
19-Feb-20	NO PUMP		0	0	-	-	-
20-Feb-20	NO PUMP		0	0	-	-	-
21-Feb-20	NO PUMP		0	0	-	-	-
22-Feb-20	NO PUMP		0	0	-	-	-
23-Feb-20	NO PUMP		0	0	-	-	-
24-Feb-20	NO PUMP		0	0	-	-	-
25-Feb-20	NO PUMP		0	0	-	-	-
26-Feb-20	NO PUMP		0	0	-	-	-
27-Feb-20	NO PUMP		0	0	-	-	-
28-Feb-20	NO PUMP		0	0	-	-	-
29-Feb-20	NO PUMP		0	0	-	-	-
1-Mar-20	NO PUMP		0	0	-	-	-
2-Mar-20	NO PUMP		0	0	-	-	-
3-Mar-20	NO PUMP		0	0	-	-	-
4-Mar-20	NO PUMP		0	0	-	-	-
5-Mar-20	NO PUMP		0	0	-	-	-
6-Mar-20	NO PUMP		0	0	-	-	-
7-Mar-20	NO PUMP		0	0	-	-	-
8-Mar-20	NO PUMP		0	0	-	-	-
9-Mar-20	NO PUMP		0	0	-	-	-
10-Mar-20	NO PUMP		0	0	-	-	-
11-Mar-20	NO PUMP		0	0	-	-	-
12-Mar-20	NO PUMP		0	0	-	-	-
13-Mar-20	NO PUMP		0	0	-	-	-
14-Mar-20	NO PUMP		0	0	-	-	-
15-Mar-20	NO PUMP		0	0	-	-	-
16-Mar-20	NO PUMP		0	0	-	-	-
17-Mar-20	NO PUMP		0	0	-	-	-
18-Mar-20	NO PUMP		0	0	-	-	-
19-Mar-20	NO PUMP		0	0	-	-	-
20-Mar-20	NO PUMP		0	0	-	-	-
21-Mar-20	NO PUMP		0	0	-	-	-
22-Mar-20	NO PUMP		0	0	-	-	-
23-Mar-20	7AM	4PM	32400	540	648,000	20	1,200
24-Mar-20	7AM	4PM	32400	540	648,000	20	1,200
25-Mar-20	7AM	4PM	32400	540	648,000	20	1,200
26-Mar-20	7AM	4PM	32400	540	648,000	20	1,200

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Date	Start	Stop	Total Sec.	Total Min.	Total Litres	Rate of Taking (L/sec)	Rate of Taking (L/min)
<b>ECA Permitted Rate</b>					<b>6,550,000</b>	<b>76</b>	<b>4,545</b>
27-Mar-20	7AM	4PM	32400	540	648,000	20	1,200
28-Mar-20	NO PUMP		0	0	-	-	-
29-Mar-20	NO PUMP		0	0	-	-	-
30-Mar-20	7AM	4PM	32400	540	648,000	20	1,200
31-Mar-20	7AM	4PM	32400	540	648,000	20	1,200
1-Apr-20	7AM	4PM	32400	540	648,000	20	1,200
2-Apr-20	7AM	4PM	32400	540	648,000	20	1,200
3-Apr-20	7AM	4PM	32400	540	648,000	20	1,200
4-Apr-20	NO PUMP		0	0	-	-	-
5-Apr-20	NO PUMP		0	0	-	-	-
6-Apr-20	7AM	4PM	32400	540	648,000	20	1,200
7-Apr-20	7AM	4PM	32400	540	648,000	20	1,200
8-Apr-20	7AM	4PM	32400	540	648,000	20	1,200
9-Apr-20	7AM	4PM	32400	540	648,000	20	1,200
10-Apr-20	NO PUMP		0	0	-	-	-
11-Apr-20	NO PUMP		0	0	-	-	-
12-Apr-20	NO PUMP		0	0	-	-	-
13-Apr-20	NO PUMP		0	0	-	-	-
14-Apr-20	7AM	4PM	32400	540	648,000	20	1,200
15-Apr-20	7AM	4PM	32400	540	648,000	20	1,200
16-Apr-20	7AM	4PM	32400	540	648,000	20	1,200
17-Apr-20	7AM	4PM	32400	540	648,000	20	1,200
18-Apr-20	NO PUMP		0	0	-	-	-
19-Apr-20	NO PUMP		0	0	-	-	-
20-Apr-20	7AM	4PM	32400	540	648,000	20	1,200
21-Apr-20	7AM	4PM	32400	540	648,000	20	1,200
22-Apr-20	7AM	4PM	32400	540	648,000	20	1,200
23-Apr-20	7AM	4PM	32400	540	648,000	20	1,200
24-Apr-20	7AM	4PM	32400	540	648,000	20	1,200
25-Apr-20	NO PUMP		0	0	-	-	-
26-Apr-20	NO PUMP		0	0	-	-	-
27-Apr-20	NO PUMP		0	0	-	-	-
28-Apr-20	NO PUMP		0	0	-	-	-
29-Apr-20	NO PUMP		0	0	-	-	-
30-Apr-20	NO PUMP		0	0	-	-	-
1-May-20	NO PUMP		0	0	-	-	-
2-May-20	NO PUMP		0	0	-	-	-
3-May-20	NO PUMP		0	0	-	-	-
4-May-20	NO PUMP		0	0	-	-	-
5-May-20	NO PUMP		0	0	-	-	-
6-May-20	NO PUMP		0	0	-	-	-
7-May-20	NO PUMP		0	0	-	-	-
8-May-20	NO PUMP		0	0	-	-	-

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Date	Start	Stop	Total Sec.	Total Min.	Total Litres	Rate of Taking (L/sec)	Rate of Taking (L/min)
<b>ECA Permitted Rate</b>					<b>6,550,000</b>	<b>76</b>	<b>4,545</b>
9-May-20	NO PUMP		0	0	-	-	-
10-May-20	NO PUMP		0	0	-	-	-
11-May-20	NO PUMP		0	0	-	-	-
12-May-20	NO PUMP		0	0	-	-	-
13-May-20	NO PUMP		0	0	-	-	-
14-May-20	NO PUMP		0	0	-	-	-
15-May-20	NO PUMP		0	0	-	-	-
16-May-20	NO PUMP		0	0	-	-	-
17-May-20	NO PUMP		0	0	-	-	-
18-May-20	NO PUMP		0	0	-	-	-
19-May-20	NO PUMP		0	0	-	-	-
20-May-20	NO PUMP		0	0	-	-	-
21-May-20	NO PUMP		0	0	-	-	-
22-May-20	NO PUMP		0	0	-	-	-
23-May-20	NO PUMP		0	0	-	-	-
24-May-20	NO PUMP		0	0	-	-	-
25-May-20	NO PUMP		0	0	-	-	-
26-May-20	NO PUMP		0	0	-	-	-
27-May-20	NO PUMP		0	0	-	-	-
28-May-20	NO PUMP		0	0	-	-	-
29-May-20	NO PUMP		0	0	-	-	-
30-May-20	NO PUMP		0	0	-	-	-
31-May-20	NO PUMP		0	0	-	-	-
1-Jun-20	NO PUMP		0	0	-	-	-
2-Jun-20	NO PUMP		0	0	-	-	-
3-Jun-20	NO PUMP		0	0	-	-	-
4-Jun-20	NO PUMP		0	0	-	-	-
5-Jun-20	NO PUMP		0	0	-	-	-
6-Jun-20	NO PUMP		0	0	-	-	-
7-Jun-20	NO PUMP		0	0	-	-	-
8-Jun-20	NO PUMP		0	0	-	-	-
9-Jun-20	NO PUMP		0	0	-	-	-
10-Jun-20	NO PUMP		0	0	-	-	-
11-Jun-20	NO PUMP		0	0	-	-	-
12-Jun-20	NO PUMP		0	0	-	-	-
13-Jun-20	NO PUMP		0	0	-	-	-
14-Jun-20	NO PUMP		0	0	-	-	-
15-Jun-20	NO PUMP		0	0	-	-	-
16-Jun-20	NO PUMP		0	0	-	-	-
17-Jun-20	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)
<b>ECA Permitted Rate</b>					<b>6,550,000</b>	<b>76</b>	<b>4,545</b>
18-Jun-20	NO PUMP		0	0	-	-	-
19-Jun-20	NO PUMP		0	0	-	-	-
20-Jun-20	NO PUMP		0	0	-	-	-
21-Jun-20	NO PUMP		0	0	-	-	-
22-Jun-20	NO PUMP		0	0	-	-	-
23-Jun-20	NO PUMP		0	0	-	-	-
24-Jun-20	NO PUMP		0	0	-	-	-
25-Jun-20	NO PUMP		0	0	-	-	-
26-Jun-20	NO PUMP		0	0	-	-	-
27-Jun-20	NO PUMP		0	0	-	-	-
28-Jun-20	NO PUMP		0	0	-	-	-
29-Jun-20	NO PUMP		0	0	-	-	-
30-Jun-20	NO PUMP		0	0	-	-	-
1-Jul-20	NO PUMP		0	0	-	-	-
2-Jul-20	NO PUMP		0	0	-	-	-
3-Jul-20	NO PUMP		0	0	-	-	-
4-Jul-20	NO PUMP		0	0	-	-	-
5-Jul-20	NO PUMP		0	0	-	-	-
6-Jul-20	NO PUMP		0	0	-	-	-
7-Jul-20	NO PUMP		0	0	-	-	-
8-Jul-20	NO PUMP		0	0	-	-	-
9-Jul-20	NO PUMP		0	0	-	-	-
10-Jul-20	NO PUMP		0	0	-	-	-
11-Jul-20	NO PUMP		0	0	-	-	-
12-Jul-20	NO PUMP		0	0	-	-	-
13-Jul-20	NO PUMP		0	0	-	-	-
14-Jul-20	NO PUMP		0	0	-	-	-
15-Jul-20	NO PUMP		0	0	-	-	-
16-Jul-20	NO PUMP		0	0	-	-	-
17-Jul-20	NO PUMP		0	0	-	-	-
18-Jul-20	NO PUMP		0	0	-	-	-
19-Jul-20	NO PUMP		0	0	-	-	-
20-Jul-20	NO PUMP		0	0	-	-	-
21-Jul-20	NO PUMP		0	0	-	-	-
22-Jul-20	NO PUMP		0	0	-	-	-
23-Jul-20	NO PUMP		0	0	-	-	-
24-Jul-20	NO PUMP		0	0	-	-	-
25-Jul-20	NO PUMP		0	0	-	-	-
26-Jul-20	NO PUMP		0	0	-	-	-
27-Jul-20	NO PUMP		0	0	-	-	-
28-Jul-20	NO PUMP		0	0	-	-	-
29-Jul-20	NO PUMP		0	0	-	-	-
30-Jul-20	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)
<b>ECA Permitted Rate</b>					<b>6,550,000</b>	<b>76</b>	<b>4,545</b>
31-Jul-20	NO PUMP		0	0	-	-	-
1-Aug-20	NO PUMP		0	0	-	-	-
2-Aug-20	NO PUMP		0	0	-	-	-
3-Aug-20	NO PUMP		0	0	-	-	-
4-Aug-20	NO PUMP		0	0	-	-	-
5-Aug-20	NO PUMP		0	0	-	-	-
6-Aug-20	NO PUMP		0	0	-	-	-
7-Aug-20	9AM	4PM	25200	420	504,000	20	1,200
8-Aug-20	NO PUMP		0	0	-	-	-
9-Aug-20	NO PUMP		0	0	-	-	-
10-Aug-20	7AM	4PM	32400	540	648,000	20	1,200
11-Aug-20	7AM	4PM	32400	540	648,000	20	1,200
12-Aug-20	7AM	4PM	32400	540	648,000	20	1,200
13-Aug-20	7AM	4PM	32400	540	648,000	20	1,200
14-Aug-20	7AM	4PM	32400	540	648,000	20	1,200
15-Aug-20	NO PUMP		0	0	-	-	-
16-Aug-20	NO PUMP		0	0	-	-	-
17-Aug-20	7AM	4PM	32400	540	648,000	20	1,200
18-Aug-20	7AM	4PM	32400	540	648,000	20	1,200
19-Aug-20	7AM	4PM	32400	540	648,000	20	1,200
20-Aug-20	7AM	4PM	32400	540	648,000	20	1,200
21-Aug-20	7AM	4PM	32400	540	648,000	20	1,200
22-Aug-20	NO PUMP		0	0	-	-	-
23-Aug-20	NO PUMP		0	0	-	-	-
24-Aug-20	7AM	4PM	32400	540	648,000	20	1,200
25-Aug-20	7AM	4PM	32400	540	648,000	20	1,200
26-Aug-20	7AM	4PM	32400	540	648,000	20	1,200
27-Aug-20	7AM	4PM	32400	540	648,000	20	1,200
28-Aug-20	7AM	4PM	32400	540	648,000	20	1,200
29-Aug-20	NO PUMP		0	0	-	-	-
30-Aug-20	NO PUMP		0	0	-	-	-
31-Aug-20	7AM	4PM	32400	540	648,000	20	1,200
1-Sep-20	7AM	4PM	32400	540	648,000	20	1,200
2-Sep-20	7AM	4PM	32400	540	648,000	20	1,200
3-Sep-20	7AM	4PM	32400	540	648,000	20	1,200
4-Sep-20	7AM	4PM	32400	540	648,000	20	1,200
5-Sep-20	NO PUMP		0	0	-	-	-
6-Sep-20	NO PUMP		0	0	-	-	-
7-Sep-20	NO PUMP		0	0	-	-	-
8-Sep-20	7AM	4PM	32400	540	648,000	20	1,200
9-Sep-20	7AM	4PM	32400	540	648,000	20	1,200
10-Sep-20	7AM	4PM	32400	540	648,000	20	1,200
11-Sep-20	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)
<b>ECA Permitted Rate</b>					<b>6,550,000</b>	<b>76</b>	<b>4,545</b>
12-Sep-20	NO PUMP		0	0	-	-	-
13-Sep-20	NO PUMP		0	0	-	-	-
14-Sep-20	7AM	4PM	32400	540	648,000	20	1,200
15-Sep-20	7AM	4PM	32400	540	648,000	20	1,200
16-Sep-20	7AM	4PM	32400	540	648,000	20	1,200
17-Sep-20	7AM	4PM	32400	540	648,000	20	1,200
18-Sep-20	7AM	4PM	32400	540	648,000	20	1,200
19-Sep-20	NO PUMP		0	0	-	-	-
20-Sep-20	NO PUMP		0	0	-	-	-
21-Sep-20	7AM	4PM	32400	540	648,000	20	1,200
22-Sep-20	7AM	4PM	32400	540	648,000	20	1,200
23-Sep-20	7AM	4PM	32400	540	648,000	20	1,200
24-Sep-20	7AM	4PM	32400	540	648,000	20	1,200
25-Sep-20	7AM	4PM	32400	540	648,000	20	1,200
26-Sep-20	NO PUMP		0	0	-	-	-
27-Sep-20	NO PUMP		0	0	-	-	-
28-Sep-20	7AM	4PM	32400	540	648,000	20	1,200
29-Sep-20	7AM	4PM	32400	540	648,000	20	1,200
30-Sep-20	7AM	4PM	32400	540	648,000	20	1,200
1-Oct-20	7AM	4PM	32400	540	648,000	20	1,200
2-Oct-20	7AM	4PM	32400	540	648,000	20	1,200
3-Oct-20	NO PUMP		0	0	-	-	-
4-Oct-20	NO PUMP		0	0	-	-	-
5-Oct-20	7AM	4PM	32400	540	648,000	20	1,200
6-Oct-20	7AM	4PM	32400	540	648,000	20	1,200
7-Oct-20	7AM	4PM	32400	540	648,000	20	1,200
8-Oct-20	7AM	4PM	32400	540	648,000	20	1,200
9-Oct-20	7AM	4PM	32400	540	648,000	20	1,200
10-Oct-20	NO PUMP		0	0	-	-	-
11-Oct-20	NO PUMP		0	0	-	-	-
12-Oct-20	NO PUMP		0	0	-	-	-
13-Oct-20	7AM	4PM	32400	540	648,000	20	1,200
14-Oct-20	7AM	4PM	32400	540	648,000	20	1,200
15-Oct-20	7AM	4PM	32400	540	648,000	20	1,200
16-Oct-20	7AM	4PM	32400	540	648,000	20	1,200
17-Oct-20	NO PUMP		0	0	-	-	-
18-Oct-20	NO PUMP		0	0	-	-	-
19-Oct-20	7AM	4PM	32400	540	648,000	20	1,200
20-Oct-20	7AM	4PM	32400	540	648,000	20	1,200
21-Oct-20	7AM	4PM	32400	540	648,000	20	1,200
22-Oct-20	7AM	4PM	32400	540	648,000	20	1,200
23-Oct-20	7AM	4PM	32400	540	648,000	20	1,200
24-Oct-20	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)
<b>ECA Permitted Rate</b>					<b>6,550,000</b>	<b>76</b>	<b>4,545</b>
25-Oct-20	NO PUMP		0	0	-	-	-
26-Oct-20	7AM	4PM	32400	540	648,000	20	1,200
27-Oct-20	7AM	4PM	32400	540	648,000	20	1,200
28-Oct-20	7AM	4PM	32400	540	648,000	20	1,200
29-Oct-20	7AM	4PM	32400	540	648,000	20	1,200
30-Oct-20	7AM	4PM	32400	540	648,000	20	1,200
31-Oct-20	NO PUMP		0	0	-	-	-
1-Nov-20	NO PUMP		0	0	-	-	-
2-Nov-20	7AM	4PM	32400	540	648,000	20	1,200
3-Nov-20	7AM	4PM	32400	540	648,000	20	1,200
4-Nov-20	7AM	4PM	32400	540	648,000	20	1,200
5-Nov-20	7AM	4PM	32400	540	648,000	20	1,200
6-Nov-20	7AM	4PM	32400	540	648,000	20	1,200
7-Nov-20	NO PUMP		0	0	-	-	-
8-Nov-20	NO PUMP		0	0	-	-	-
9-Nov-20	7AM	4PM	32400	540	648,000	20	1,200
10-Nov-20	7AM	4PM	32400	540	648,000	20	1,200
11-Nov-20	7AM	4PM	32400	540	648,000	20	1,200
12-Nov-20	7AM	4PM	32400	540	648,000	20	1,200
13-Nov-20	7AM	4PM	32400	540	648,000	20	1,200
14-Nov-20	NO PUMP		0	0	-	-	-
15-Nov-20	NO PUMP		0	0	-	-	-
16-Nov-20	7AM	4PM	32400	540	648,000	20	1,200
17-Nov-20	7AM	4PM	32400	540	648,000	20	1,200
18-Nov-20	7AM	4PM	32400	540	648,000	20	1,200
19-Nov-20	7AM	4PM	32400	540	648,000	20	1,200
20-Nov-20	7AM	4PM	32400	540	648,000	20	1,200
21-Nov-20	NO PUMP		0	0	-	-	-
22-Nov-20	NO PUMP		0	0	-	-	-
23-Nov-20	7AM	4PM	32400	540	648,000	20	1,200
24-Nov-20	7AM	4PM	32400	540	648,000	20	1,200
25-Nov-20	7AM	4PM	32400	540	648,000	20	1,200
26-Nov-20	7AM	4PM	32400	540	648,000	20	1,200
27-Nov-20	7AM	4PM	32400	540	648,000	20	1,200
28-Nov-20	NO PUMP		0	0	-	-	-
29-Nov-20	NO PUMP		0	0	-	-	-
30-Nov-20	7AM	4PM	32400	540	648,000	20	1,200
1-Dec-20	7AM	4PM	32400	540	648,000	20	1,200
2-Dec-20	7AM	4PM	32400	540	648,000	20	1,200
3-Dec-20	7AM	4PM	32400	540	648,000	20	1,200
4-Dec-20	7AM	4PM	32400	540	648,000	20	1,200
5-Dec-20	NO PUMP		0	0	-	-	-
6-Dec-20	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)
<b>ECA Permitted Rate</b>					<b>6,550,000</b>	<b>76</b>	<b>4,545</b>
7-Dec-20	7AM	4PM	32400	540	648,000	20	1,200
8-Dec-20	7AM	4PM	32400	540	648,000	20	1,200
9-Dec-20	7AM	4PM	32400	540	648,000	20	1,200
10-Dec-20	7AM	4PM	32400	540	648,000	20	1,200
11-Dec-20	7AM	4PM	32400	540	648,000	20	1,200
12-Dec-20	NO PUMP		0	0	-	-	-
13-Dec-20	NO PUMP		0	0	-	-	-
14-Dec-20	7AM	4PM	32400	540	648,000	20	1,200
15-Dec-20	7AM	4PM	32400	540	648,000	20	1,200
16-Dec-20	7AM	4PM	32400	540	648,000	20	1,200
17-Dec-20	7AM	4PM	32400	540	648,000	20	1,200
18-Dec-20	7AM	4PM	32400	540	648,000	20	1,200
19-Dec-20	NO PUMP		0	0	-	-	-
20-Dec-20	NO PUMP		0	0	-	-	-
21-Dec-20	NO PUMP		0	0	-	-	-
22-Dec-20	NO PUMP		0	0	-	-	-
23-Dec-20	NO PUMP		0	0	-	-	-
24-Dec-20	NO PUMP		0	0	-	-	-
25-Dec-20	NO PUMP		0	0	-	-	-
26-Dec-20	NO PUMP		0	0	-	-	-
27-Dec-20	NO PUMP		0	0	-	-	-
28-Dec-20	NO PUMP		0	0	-	-	-
29-Dec-20	NO PUMP		0	0	-	-	-
30-Dec-20	NO PUMP		0	0	-	-	-
31-Dec-20	NO PUMP		0	0	-	-	-

**APPENDIX A**

**ECA No. 7737-BH6QEA**

**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
						<b>Total Taking:</b>	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 (CaCO <sub>3</sub> )	Magnesium	Colour	Iron
Bicarbonate	Calcium	Turbidity	Lead
Conductivity	Sodium	Aluminium	Manganese
Fluoride	Potassium	Arsenic	Selenium
Chloride	Ammonia (N)	Barium	Zinc
Nitrate	Phosphate	Boron	Hardness (CaCO <sub>3</sub> )
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:
- The review and assessment of all monitoring data required by this Permit.
  - 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:
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  - b) An up-date of the quarry operations and predicted quarrying and dewatering for the duration of the requested permit.
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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:***

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www.ert.gov.on.ca

*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 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
						<b>Total Taking:</b>	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 (CaCO <sub>3</sub> )	Magnesium	Colour	Iron
Bicarbonate	Calcium	Turbidity	Lead
Conductivity	Sodium	Aluminium	Manganese
Fluoride	Potassium	Arsenic	Selenium
Chloride	Ammonia (N)	Barium	Zinc
Nitrate	Phosphate	Boron	Hardness (CaCO <sub>3</sub> )
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.
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An electronic copy of the data collected must also accompany the report.

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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.
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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.
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- b. The address of the appellant;
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- e. The name of the Director;
- f. The municipality within which the works are located;

*This notice must be served upon:*

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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  
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*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. #: 734802-01-01

**Attention: Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2020/01/16**  
Report #: R6038875  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**BV LABS JOB #: C007448**

**Received: 2020/01/10, 09:10**

Sample Matrix: Water  
# Samples Received: 1

Analyses	Quantity	Date	Date	Laboratory Method	Analytical Method
		Extracted	Analyzed		
Animal and Vegetable Oil and Grease	1	N/A	2020/01/14	CAM SOP-00326	EPA1664B m,SM5520B m
Total Oil and Grease	1	2020/01/14	2020/01/14	CAM SOP-00326	EPA1664B m,SM5520A m
pH	1	2020/01/14	2020/01/14	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	1	N/A	2020/01/15	CAM SOP-00444	OMOE E3179 m
Mineral/Synthetic O & G (TPH Heavy Oil) (1)	1	2020/01/14	2020/01/14	CAM SOP-00326	EPA1664B m,SM5520F m
Low Level Total Suspended Solids	1	2020/01/14	2020/01/15	CAM SOP-00428	SM 23 2540D m

**Remarks:**

Bureau Veritas Laboratories are accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by BV Labs 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 BV Labs profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and BV Labs 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.

BV Labs liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. BV Labs 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 BV Labs, unless otherwise agreed in writing. BV Labs 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 BV Labs, results relate to the supplied samples tested.

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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 #: 1407634  
Site#: 1407634  
Site Location: MCCARTHY  
Your C.O.C. #: 734802-01-01

**Attention: Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2020/01/16**  
Report #: R6038875  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**BV LABS JOB #: C007448**  
**Received: 2020/01/10, 09:10**

Encryption Key

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

=====

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BUREAU  
VERITAS

BV Labs Job #: C007448  
Report Date: 2020/01/16

Golder Associates Ltd  
Client Project #: 1407634  
Site Location: MCCARTHY  
Sampler Initials: SB

### RESULTS OF ANALYSES OF WATER

<b>BV Labs ID</b>			LSZ226		
<b>Sampling Date</b>			2020/01/09 15:33		
<b>COC Number</b>			734802-01-01		
	<b>UNITS</b>	<b>Criteria</b>	<b>POND</b>	<b>RDL</b>	<b>QC Batch</b>
<b>Calculated Parameters</b>					
Total Animal/Vegetable Oil and Grease	mg/L	-	<0.50	0.50	6536712
<b>Inorganics</b>					
pH	pH	<b>6.5:8.5</b>	7.53	N/A	6537089
Phenols-4AAP	mg/L	<b>0.001</b>	<0.0010	0.0010	6538704
Total Suspended Solids	mg/L	-	2	1	6538343
<b>Petroleum Hydrocarbons</b>					
Total Oil & Grease	mg/L	-	<0.50	0.50	6537149
Total Oil & Grease Mineral/Synthetic	mg/L	<b>0.5</b>	<0.50	0.50	6537150
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Criteria: Ontario Provincial Water Quality Objectives Ref. to MOEE Water Management document dated Feb.1999 N/A = Not Applicable					



BUREAU  
VERITAS

BV Labs Job #: C007448  
Report Date: 2020/01/16

Golder Associates Ltd  
Client Project #: 1407634  
Site Location: MCCARTHY  
Sampler Initials: SB

### GENERAL COMMENTS

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

Package 1	11.0°C
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Sample LSZ226 [POND] : Analysis completed as per client request.

**Results relate only to the items tested.**



BUREAU  
VERITASBV Labs Job #: C007448  
Report Date: 2020/01/16Golder Associates Ltd  
Client Project #: 1407634  
Site Location: MCCARTHY  
Sampler Initials: SB

## QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
6537089	KAD	Spiked Blank	pH	2020/01/14		101	%	98 - 103
6537089	KAD	RPD	pH	2020/01/14	0.12		%	N/A
6537149	GSG	Spiked Blank	Total Oil & Grease	2020/01/14		98	%	85 - 115
6537149	GSG	RPD	Total Oil & Grease	2020/01/14	1.8		%	25
6537149	GSG	Method Blank	Total Oil & Grease	2020/01/14	<0.50		mg/L	
6537150	GSG	Spiked Blank	Total Oil & Grease Mineral/Synthetic	2020/01/14		95	%	85 - 115
6537150	GSG	RPD	Total Oil & Grease Mineral/Synthetic	2020/01/14	3.8		%	25
6537150	GSG	Method Blank	Total Oil & Grease Mineral/Synthetic	2020/01/14	<0.50		mg/L	
6538343	SDE	QC Standard	Total Suspended Solids	2020/01/15		98	%	85 - 115
6538343	SDE	Method Blank	Total Suspended Solids	2020/01/15	<1		mg/L	
6538343	SDE	RPD	Total Suspended Solids	2020/01/15	13		%	25
6538704	BMO	Matrix Spike	Phenols-4AAP	2020/01/15		97	%	80 - 120
6538704	BMO	Spiked Blank	Phenols-4AAP	2020/01/15		99	%	80 - 120
6538704	BMO	Method Blank	Phenols-4AAP	2020/01/15	<0.0010		mg/L	
6538704	BMO	RPD	Phenols-4AAP	2020/01/15	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.



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VERITAS

BV Labs Job #: C007448  
Report Date: 2020/01/16

Golder Associates Ltd  
Client Project #: 1407634  
Site Location: MCCARTHY  
Sampler Initials: SB

### VALIDATION SIGNATURE PAGE

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

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Brad Newman, Scientific Service Specialist

---

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Your Project #: 1407634  
Site#: 1407634  
Site Location: MCCARTHY  
Your C.O.C. #: 752753-01-01

**Attention: Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2020/03/11**  
Report #: R6106341  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**BV LABS JOB #: C061052**

**Received: 2020/03/06, 08:48**

Sample Matrix: Water  
# Samples Received: 1

Analyses	Quantity	Date	Date	Laboratory Method	Analytical Method
		Extracted	Analyzed		
Animal and Vegetable Oil and Grease	1	N/A	2020/03/11	CAM SOP-00326	EPA1664B m,SM5520B m
Total Oil and Grease	1	2020/03/11	2020/03/11	CAM SOP-00326	EPA1664B m,SM5520A m
pH	1	2020/03/07	2020/03/09	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	1	N/A	2020/03/09	CAM SOP-00444	OMOE E3179 m
Mineral/Synthetic O & G (TPH Heavy Oil) (1)	1	2020/03/11	2020/03/11	CAM SOP-00326	EPA1664B m,SM5520F m
Low Level Total Suspended Solids	1	2020/03/07	2020/03/09	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 BV Labs, results relate to the supplied samples tested.

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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 #: 1407634  
Site#: 1407634  
Site Location: MCCARTHY  
Your C.O.C. #: 752753-01-01

**Attention: Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2020/03/11**  
Report #: R6106341  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**BV LABS JOB #: C061052**  
**Received: 2020/03/06, 08:48**

Encryption Key

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

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BV Labs Job #: C061052  
Report Date: 2020/03/11

Golder Associates Ltd  
Client Project #: 1407634  
Site Location: MCCARTHY  
Sampler Initials: BR

### RESULTS OF ANALYSES OF WATER

<b>BV Labs ID</b>			MEJ107		
<b>Sampling Date</b>			2020/03/05 11:44		
<b>COC Number</b>			752753-01-01		
	<b>UNITS</b>	<b>Criteria</b>	<b>POND</b>	<b>RDL</b>	<b>QC Batch</b>
<b>Calculated Parameters</b>					
Total Animal/Vegetable Oil and Grease	mg/L	-	<0.50	0.50	6622743
<b>Inorganics</b>					
pH	pH	<b>6.5:8.5</b>	7.54	N/A	6624695
Phenols-4AAP	mg/L	<b>0.001</b>	0.0010	0.0010	6625508
Total Suspended Solids	mg/L	-	3	1	6624723
<b>Petroleum Hydrocarbons</b>					
Total Oil & Grease	mg/L	-	<0.50	0.50	6629669
Total Oil & Grease Mineral/Synthetic	mg/L	<b>0.5</b>	<0.50	0.50	6629673
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Criteria: Ontario Provincial Water Quality Objectives Ref. to MOEE Water Management document dated Feb.1999 N/A = Not Applicable					



BUREAU  
VERITAS

BV Labs Job #: C061052  
Report Date: 2020/03/11

Golder Associates Ltd  
Client Project #: 1407634  
Site Location: MCCARTHY  
Sampler Initials: BR

### GENERAL COMMENTS

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

Package 1	12.7°C
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**Results relate only to the items tested.**

BUREAU  
VERITASBV Labs Job #: C061052  
Report Date: 2020/03/11Golder Associates Ltd  
Client Project #: 1407634  
Site Location: MCCARTHY  
Sampler Initials: BR

## QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
6624695	SAU	Spiked Blank	pH	2020/03/09		101	%	98 - 103
6624695	SAU	RPD	pH	2020/03/09	0.57		%	N/A
6624723	MKX	QC Standard	Total Suspended Solids	2020/03/09		102	%	85 - 115
6624723	MKX	Method Blank	Total Suspended Solids	2020/03/09	<1		mg/L	
6624723	MKX	RPD	Total Suspended Solids	2020/03/09	15		%	25
6625508	BMO	Matrix Spike	Phenols-4AAP	2020/03/09		97	%	80 - 120
6625508	BMO	Spiked Blank	Phenols-4AAP	2020/03/09		101	%	80 - 120
6625508	BMO	Method Blank	Phenols-4AAP	2020/03/09	<0.0010		mg/L	
6625508	BMO	RPD	Phenols-4AAP	2020/03/09	0		%	20
6629669	FA	Spiked Blank	Total Oil & Grease	2020/03/11		94	%	85 - 115
6629669	FA	RPD	Total Oil & Grease	2020/03/11	4.4		%	25
6629669	FA	Method Blank	Total Oil & Grease	2020/03/11	<0.50		mg/L	
6629673	FA	Spiked Blank	Total Oil & Grease Mineral/Synthetic	2020/03/11		92	%	85 - 115
6629673	FA	RPD	Total Oil & Grease Mineral/Synthetic	2020/03/11	2.2		%	25
6629673	FA	Method Blank	Total Oil & Grease Mineral/Synthetic	2020/03/11	<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 #: C061052  
Report Date: 2020/03/11

Golder Associates Ltd  
Client Project #: 1407634  
Site Location: MCCARTHY  
Sampler Initials: BR

### VALIDATION SIGNATURE PAGE

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

Anastassia Hamanov, Scientific Specialist

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Your Project #: 1407634  
Site Location: MCCARTHY  
Your C.O.C. #: 766888-01-01

**Attention: Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2020/04/27**  
Report #: R6156884  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**BV LABS JOB #: C096446**

**Received: 2020/04/17, 08:56**

Sample Matrix: Surface Water  
# Samples Received: 1

Analyses	Quantity	Date	Date	Laboratory Method	Analytical Method
		Extracted	Analyzed		
Animal and Vegetable Oil and Grease	1	N/A	2020/04/27	CAM SOP-00326	EPA1664B m,SM5520B m
Total Oil and Grease	1	2020/04/27	2020/04/27	CAM SOP-00326	EPA1664B m,SM5520B m
pH	1	2020/04/21	2020/04/21	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	1	N/A	2020/04/22	CAM SOP-00444	OMOE E3179 m
Mineral/Synthetic O & G (TPH Heavy Oil) (1)	1	2020/04/27	2020/04/27	CAM SOP-00326	EPA1664B m,SM5520F m
Low Level Total Suspended Solids	1	2020/04/21	2020/04/22	CAM SOP-00428	SM 23 2540D m

**Remarks:**

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Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.

Results relate to samples tested. When sampling is not conducted by BV Labs, results relate to the supplied samples tested.

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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 #: 1407634  
Site Location: MCCARTHY  
Your C.O.C. #: 766888-01-01

**Attention: Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2020/04/27**  
Report #: R6156884  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**BV LABS JOB #: C096446**  
**Received: 2020/04/17, 08:56**

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Ema Gitej, Senior Project Manager  
Email: Ema.Gitej@bvlabs.com  
Phone# (905)817-5829

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VERITAS

BV Labs Job #: C096446  
Report Date: 2020/04/27

Golder Associates Ltd  
Client Project #: 1407634  
Site Location: MCCARTHY

## RESULTS OF ANALYSES OF SURFACE WATER

<b>BV Labs ID</b>			MLV045		
<b>Sampling Date</b>			2020/04/16 09:45		
<b>COC Number</b>			766888-01-01		
	<b>UNITS</b>	<b>Criteria</b>	<b>POND</b>	<b>RDL</b>	<b>QC Batch</b>
<b>Calculated Parameters</b>					
Total Animal/Vegetable Oil and Grease	mg/L	-	<0.50	0.50	6688099
<b>Inorganics</b>					
pH	pH	<b>6.5:8.5</b>	7.86	N/A	6690434
Phenols-4AAP	mg/L	<b>0.001</b>	<0.0010	0.0010	6691711
Total Suspended Solids	mg/L	-	3	1	6690045
<b>Petroleum Hydrocarbons</b>					
Total Oil & Grease	mg/L	-	<0.50	0.50	6698753
Total Oil & Grease Mineral/Synthetic	mg/L	<b>0.5</b>	<0.50	0.50	6698754
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Criteria: Ontario Provincial Water Quality Objectives Ref. to MOEE Water Management document dated Feb.1999 N/A = Not Applicable					



### GENERAL COMMENTS

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

Package 1	10.0°C
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Results relate only to the items tested.



BUREAU  
VERITAS

BV Labs Job #: C096446  
Report Date: 2020/04/27

Golder Associates Ltd  
Client Project #: 1407634  
Site Location: MCCARTHY

## QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
6690045	JS7	QC Standard	Total Suspended Solids	2020/04/22		95	%	85 - 115
6690045	JS7	Method Blank	Total Suspended Solids	2020/04/22	<1		mg/L	
6690045	JS7	RPD	Total Suspended Solids	2020/04/22	NC		%	25
6690434	YPA	Spiked Blank	pH	2020/04/21		101	%	98 - 103
6690434	YPA	RPD	pH	2020/04/21	2.0		%	N/A
6691711	BMO	Matrix Spike	Phenols-4AAP	2020/04/22		100	%	80 - 120
6691711	BMO	Spiked Blank	Phenols-4AAP	2020/04/22		100	%	80 - 120
6691711	BMO	Method Blank	Phenols-4AAP	2020/04/22	<0.0010		mg/L	
6691711	BMO	RPD	Phenols-4AAP	2020/04/22	NC		%	20
6698753	GSG	Spiked Blank	Total Oil & Grease	2020/04/27		98	%	85 - 115
6698753	GSG	RPD	Total Oil & Grease	2020/04/27	1.8		%	25
6698753	GSG	Method Blank	Total Oil & Grease	2020/04/27	<0.50		mg/L	
6698754	GSG	Spiked Blank	Total Oil & Grease Mineral/Synthetic	2020/04/27		95	%	85 - 115
6698754	GSG	RPD	Total Oil & Grease Mineral/Synthetic	2020/04/27	3.2		%	25
6698754	GSG	Method Blank	Total Oil & Grease Mineral/Synthetic	2020/04/27	<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

BV Labs Job #: C096446  
Report Date: 2020/04/27

Golder Associates Ltd  
Client Project #: 1407634  
Site Location: MCCARTHY

### VALIDATION SIGNATURE PAGE

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

Anastassia Hamanov, Scientific Specialist

---

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Your Project #: 1407634  
Site Location: MCCARTHY  
Your C.O.C. #: 762593-06-01

**Attention: Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2020/05/04**  
Report #: R6163763  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**BV LABS JOB #: C0A1936**

**Received: 2020/04/24, 09:23**

Sample Matrix: Water  
# Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Animal and Vegetable Oil and Grease	1	N/A	2020/05/04	CAM SOP-00326	EPA1664B m,SM5520B m
Total Oil and Grease	1	2020/05/04	2020/05/04	CAM SOP-00326	EPA1664B m,SM5520B m
pH	1	2020/04/30	2020/04/30	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	1	N/A	2020/04/28	CAM SOP-00444	OMOE E3179 m
Mineral/Synthetic O & G (TPH Heavy Oil) (1)	1	2020/05/04	2020/05/04	CAM SOP-00326	EPA1664B m,SM5520F m
Low Level Total Suspended Solids	1	2020/04/29	2020/04/29	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 BV Labs, results relate to the supplied samples tested.

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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 #: 1407634  
Site Location: MCCARTHY  
Your C.O.C. #: 762593-06-01

**Attention: Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2020/05/04**  
Report #: R6163763  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**BV LABS JOB #: C0A1936**  
**Received: 2020/04/24, 09:23**

Encryption Key

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

=====

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BUREAU  
VERITAS

BV Labs Job #: COA1936  
Report Date: 2020/05/04

Golder Associates Ltd  
Client Project #: 1407634  
Site Location: MCCARTHY  
Sampler Initials: SA

### RESULTS OF ANALYSES OF WATER

<b>BV Labs ID</b>			MMW353		
<b>Sampling Date</b>			2020/04/23 14:00		
<b>COC Number</b>			762593-06-01		
	<b>UNITS</b>	<b>Criteria</b>	<b>POND</b>	<b>RDL</b>	<b>QC Batch</b>
<b>Calculated Parameters</b>					
Total Animal/Vegetable Oil and Grease	mg/L	-	<0.50	0.50	6695786
<b>Inorganics</b>					
pH	pH	<b>6.5:8.5</b>	8.11	N/A	6704117
Phenols-4AAP	mg/L	<b>0.001</b>	<0.0010	0.0010	6698448
Total Suspended Solids	mg/L	-	8	1	6700324
<b>Petroleum Hydrocarbons</b>					
Total Oil & Grease	mg/L	-	<0.50	0.50	6708525
Total Oil & Grease Mineral/Synthetic	mg/L	<b>0.5</b>	<0.50	0.50	6708528
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Criteria: Ontario Provincial Water Quality Objectives Ref. to MOEE Water Management document dated Feb.1999 N/A = Not Applicable					



BUREAU  
VERITAS

BV Labs Job #: COA1936

Report Date: 2020/05/04

Golder Associates Ltd

Client Project #: 1407634

Site Location: MCCARTHY

Sampler Initials: SA

### GENERAL COMMENTS

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

Package 1	12.3°C
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**Results relate only to the items tested.**



BUREAU  
VERITAS

BV Labs Job #: COA1936  
Report Date: 2020/05/04

Golder Associates Ltd  
Client Project #: 1407634  
Site Location: MCCARTHY  
Sampler Initials: SA

### QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
6698448	BMO	Matrix Spike	Phenols-4AAP	2020/04/27		95	%	80 - 120
6698448	BMO	Spiked Blank	Phenols-4AAP	2020/04/27		95	%	80 - 120
6698448	BMO	Method Blank	Phenols-4AAP	2020/04/27	<0.0010		mg/L	
6698448	BMO	RPD	Phenols-4AAP	2020/04/27	NC		%	20
6700324	JS7	QC Standard	Total Suspended Solids	2020/04/29		100	%	85 - 115
6700324	JS7	Method Blank	Total Suspended Solids	2020/04/29	<1		mg/L	
6700324	JS7	RPD	Total Suspended Solids	2020/04/29	NC		%	25
6704117	SAU	Spiked Blank	pH	2020/04/30		102	%	98 - 103
6704117	SAU	RPD	pH	2020/04/30	0.0077		%	N/A
6708525	GSG	Spiked Blank	Total Oil & Grease	2020/05/04		99	%	85 - 115
6708525	GSG	RPD	Total Oil & Grease	2020/05/04	2.3		%	25
6708525	GSG	Method Blank	Total Oil & Grease	2020/05/04	<0.50		mg/L	
6708528	GSG	Spiked Blank	Total Oil & Grease Mineral/Synthetic	2020/05/04		98	%	85 - 115
6708528	GSG	RPD	Total Oil & Grease Mineral/Synthetic	2020/05/04	5.2		%	25
6708528	GSG	Method Blank	Total Oil & Grease Mineral/Synthetic	2020/05/04	<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  $\leq 2 \times \text{RDL}$ ).



BUREAU  
VERITAS

BV Labs Job #: COA1936  
Report Date: 2020/05/04

Golder Associates Ltd  
Client Project #: 1407634  
Site Location: MCCARTHY  
Sampler Initials: SA

### VALIDATION SIGNATURE PAGE

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

---

Brad Newman, Scientific Service Specialist

---

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Your Project #: 1407634  
Site Location: MCCARTHY  
Your C.O.C. #: 752753-04-01

**Attention: Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2020/05/09**  
Report #: R6169339  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**BV LABS JOB #: C0A7320**

**Received: 2020/05/01, 09:05**

Sample Matrix: Water  
# Samples Received: 1

Analyses	Quantity	Date	Date	Laboratory Method	Analytical Method
		Extracted	Analyzed		
Animal and Vegetable Oil and Grease	1	N/A	2020/05/09	CAM SOP-00326	EPA1664B m,SM5520B m
Total Oil and Grease	1	2020/05/09	2020/05/09	CAM SOP-00326	EPA1664B m,SM5520B m
pH	1	2020/05/05	2020/05/05	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	1	N/A	2020/05/05	CAM SOP-00444	OMOE E3179 m
Mineral/Synthetic O & G (TPH Heavy Oil) (1)	1	2020/05/09	2020/05/09	CAM SOP-00326	EPA1664B m,SM5520F m
Low Level Total Suspended Solids	1	2020/05/05	2020/05/06	CAM SOP-00428	SM 23 2540D m

**Remarks:**

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Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.

Results relate to samples tested. When sampling is not conducted by BV Labs, results relate to the supplied samples tested.

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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 #: 1407634  
Site Location: MCCARTHY  
Your C.O.C. #: 752753-04-01

**Attention: Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2020/05/09**  
Report #: R6169339  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**BV LABS JOB #: C0A7320**  
**Received: 2020/05/01, 09:05**

Encryption Key

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

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VERITAS

BV Labs Job #: COA7320  
Report Date: 2020/05/09

Golder Associates Ltd  
Client Project #: 1407634  
Site Location: MCCARTHY

## RESULTS OF ANALYSES OF WATER

<b>BV Labs ID</b>			MNX540		
<b>Sampling Date</b>			2020/04/30 10:05		
<b>COC Number</b>			752753-04-01		
	<b>UNITS</b>	<b>Criteria</b>	<b>POND</b>	<b>RDL</b>	<b>QC Batch</b>
<b>Calculated Parameters</b>					
Total Animal/Vegetable Oil and Grease	mg/L	-	<0.50	0.50	6708580
<b>Inorganics</b>					
pH	pH	<b>6.5:8.5</b>	7.88	N/A	6710330
Phenols-4AAP	mg/L	<b>0.001</b>	<0.0010	0.0010	6709948
Total Suspended Solids	mg/L	-	37	1	6710372
<b>Petroleum Hydrocarbons</b>					
Total Oil & Grease	mg/L	-	<0.50	0.50	6717581
Total Oil & Grease Mineral/Synthetic	mg/L	<b>0.5</b>	<0.50	0.50	6717582
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Criteria: Ontario Provincial Water Quality Objectives Ref. to MOEE Water Management document dated Feb.1999 N/A = Not Applicable					



BUREAU  
VERITAS

BV Labs Job #: COA7320  
Report Date: 2020/05/09

Golder Associates Ltd  
Client Project #: 1407634  
Site Location: MCCARTHY

### GENERAL COMMENTS

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

Package 1	13.0°C
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Results relate only to the items tested.



BUREAU  
VERITASBV Labs Job #: COA7320  
Report Date: 2020/05/09Golder Associates Ltd  
Client Project #: 1407634  
Site Location: MCCARTHY

## QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
6709948	BMO	Matrix Spike	Phenols-4AAP	2020/05/05		97	%	80 - 120
6709948	BMO	Spiked Blank	Phenols-4AAP	2020/05/05		99	%	80 - 120
6709948	BMO	Method Blank	Phenols-4AAP	2020/05/05	<0.0010		mg/L	
6709948	BMO	RPD	Phenols-4AAP	2020/05/05	NC		%	20
6710330	GTO	Spiked Blank	pH	2020/05/05		99	%	98 - 103
6710330	GTO	RPD	pH	2020/05/05	0.34		%	N/A
6710372	JS7	QC Standard	Total Suspended Solids	2020/05/06		98	%	85 - 115
6710372	JS7	Method Blank	Total Suspended Solids	2020/05/06	<1		mg/L	
6710372	JS7	RPD	Total Suspended Solids	2020/05/06	NC		%	25
6717581	GSG	Spiked Blank	Total Oil & Grease	2020/05/09		99	%	85 - 115
6717581	GSG	RPD	Total Oil & Grease	2020/05/09	1.8		%	25
6717581	GSG	Method Blank	Total Oil & Grease	2020/05/09	<0.50		mg/L	
6717582	GSG	Spiked Blank	Total Oil & Grease Mineral/Synthetic	2020/05/09		97	%	85 - 115
6717582	GSG	RPD	Total Oil & Grease Mineral/Synthetic	2020/05/09	4.8		%	25
6717582	GSG	Method Blank	Total Oil & Grease Mineral/Synthetic	2020/05/09	<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 (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  $\leq 2 \times \text{RDL}$ ).



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BV Labs Job #: COA7320  
Report Date: 2020/05/09

Golder Associates Ltd  
Client Project #: 1407634  
Site Location: MCCARTHY

### VALIDATION SIGNATURE PAGE

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

Anastassia Hamanov, Scientific Specialist

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Your Project #: 1407634  
Site#: McCarthy  
Your C.O.C. #: 762593-04-01

**Attention: Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2020/05/15**  
Report #: R6175746  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**BV LABS JOB #: C0B3277**

**Received: 2020/05/08, 09:33**

Sample Matrix: Water  
# Samples Received: 1

Analyses	Quantity	Date	Date	Laboratory Method	Analytical Method
		Extracted	Analyzed		
Animal and Vegetable Oil and Grease	1	N/A	2020/05/14	CAM SOP-00326	EPA1664B m,SM5520B m
Total Oil and Grease	1	2020/05/14	2020/05/14	CAM SOP-00326	EPA1664B m,SM5520B m
pH	1	2020/05/12	2020/05/12	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	1	N/A	2020/05/12	CAM SOP-00444	OMOE E3179 m
Mineral/Synthetic O & G (TPH Heavy Oil) (1)	1	2020/05/14	2020/05/14	CAM SOP-00326	EPA1664B m,SM5520F m
Low Level Total Suspended Solids	1	2020/05/12	2020/05/13	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 BV Labs, results relate to the supplied samples tested.

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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 #: 1407634  
Site#: McCarthy  
Your C.O.C. #: 762593-04-01

**Attention: Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2020/05/15**  
Report #: R6175746  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**BV LABS JOB #: C0B3277**

**Received: 2020/05/08, 09:33**

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Ema Gitej, Senior Project Manager

Email: Ema.Gitej@bvlabs.com

Phone# (905)817-5829

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BUREAU  
VERITAS

BV Labs Job #: COB3277  
Report Date: 2020/05/15

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

## RESULTS OF ANALYSES OF WATER

<b>BV Labs ID</b>			MPB379		
<b>Sampling Date</b>			2020/05/07 14:03		
<b>COC Number</b>			762593-04-01		
	<b>UNITS</b>	<b>Criteria</b>	<b>POND</b>	<b>RDL</b>	<b>QC Batch</b>
<b>Calculated Parameters</b>					
Total Animal/Vegetable Oil and Grease	mg/L	-	<0.50	0.50	6717887
<b>Inorganics</b>					
pH	pH	<b>6.5:8.5</b>	8.00	N/A	6720542
Phenols-4AAP	mg/L	<b>0.001</b>	<0.0010	0.0010	6720126
Total Suspended Solids	mg/L	-	19	1	6720573
<b>Petroleum Hydrocarbons</b>					
Total Oil & Grease	mg/L	-	<0.50	0.50	6725800
Total Oil & Grease Mineral/Synthetic	mg/L	<b>0.5</b>	<0.50	0.50	6725802
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Criteria: Ontario Provincial Water Quality Objectives Ref. to MOEE Water Management document dated Feb.1999 N/A = Not Applicable					



BUREAU  
VERITAS

BV Labs Job #: COB3277  
Report Date: 2020/05/15

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

### GENERAL COMMENTS

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

Package 1	13.3°C
-----------	--------

**Results relate only to the items tested.**



BUREAU  
VERITAS

BV Labs Job #: COB3277  
Report Date: 2020/05/15

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

## QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
6720126	BMO	Matrix Spike	Phenols-4AAP	2020/05/12		96	%	80 - 120
6720126	BMO	Spiked Blank	Phenols-4AAP	2020/05/12		97	%	80 - 120
6720126	BMO	Method Blank	Phenols-4AAP	2020/05/12	<0.0010		mg/L	
6720126	BMO	RPD	Phenols-4AAP	2020/05/12	NC		%	20
6720542	GTO	Spiked Blank	pH	2020/05/12		100	%	98 - 103
6720542	GTO	RPD	pH	2020/05/12	0.52		%	N/A
6720573	JS7	QC Standard	Total Suspended Solids	2020/05/13		95	%	85 - 115
6720573	JS7	Method Blank	Total Suspended Solids	2020/05/13	<1		mg/L	
6720573	JS7	RPD	Total Suspended Solids	2020/05/13	7.4		%	25
6725800	KRW	Spiked Blank	Total Oil & Grease	2020/05/14		98	%	85 - 115
6725800	KRW	RPD	Total Oil & Grease	2020/05/14	3.4		%	25
6725800	KRW	Method Blank	Total Oil & Grease	2020/05/14	<0.50		mg/L	
6725802	KRW	Spiked Blank	Total Oil & Grease Mineral/Synthetic	2020/05/14		91	%	85 - 115
6725802	KRW	RPD	Total Oil & Grease Mineral/Synthetic	2020/05/14	5.4		%	25
6725802	KRW	Method Blank	Total Oil & Grease Mineral/Synthetic	2020/05/14	<0.50		mg/L	

N/A = Not Applicable

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

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

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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  $\leq 2 \times$  RDL).



BUREAU  
VERITAS

BV Labs Job #: COB3277  
Report Date: 2020/05/15

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

### VALIDATION SIGNATURE PAGE

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

Anastassia Hamanov, Scientific Specialist

---

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Your Project #: 1407634  
Your C.O.C. #: 772251-02-01

**Attention: Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2020/05/22**  
Report #: R6182339  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**BV LABS JOB #: C0B9782**

**Received: 2020/05/15, 09:52**

Sample Matrix: Water  
# Samples Received: 1

Analyses	Quantity	Date	Date	Laboratory Method	Analytical Method
		Extracted	Analyzed		
Animal and Vegetable Oil and Grease	1	N/A	2020/05/21	CAM SOP-00326	EPA1664B m,SM5520B m
Total Oil and Grease	1	2020/05/21	2020/05/21	CAM SOP-00326	EPA1664B m,SM5520B m
pH	1	2020/05/21	2020/05/21	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	1	N/A	2020/05/20	CAM SOP-00444	OMOE E3179 m
Mineral/Synthetic O & G (TPH Heavy Oil) (1)	1	2020/05/21	2020/05/21	CAM SOP-00326	EPA1664B m,SM5520F m
Low Level Total Suspended Solids	1	2020/05/20	2020/05/21	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 BV Labs, results relate to the supplied samples tested.

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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 #: 1407634  
Your C.O.C. #: 772251-02-01

**Attention: Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2020/05/22**  
Report #: R6182339  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**BV LABS JOB #: C0B9782**  
**Received: 2020/05/15, 09:52**

Encryption Key

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

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VERITAS

BV Labs Job #: COB9782

Report Date: 2020/05/22

Golder Associates Ltd

Client Project #: 1407634

Sampler Initials: DH

## RESULTS OF ANALYSES OF WATER

<b>BV Labs ID</b>			MQM041		MQM041	
<b>Sampling Date</b>			2020/05/14 10:30		2020/05/14 10:30	
<b>COC Number</b>			772251-02-01		772251-02-01	
	<b>UNITS</b>	<b>Criteria</b>	<b>POND</b>	<b>RDL</b>	<b>POND Lab-Dup</b>	<b>QC Batch</b>
<b>Calculated Parameters</b>						
Total Animal/Vegetable Oil and Grease	mg/L	-	<0.50	0.50	N/A	6729239
<b>Inorganics</b>						
pH	pH	<b>6.5:8.5</b>	8.13	N/A	8.25	6734007
Phenols-4AAP	mg/L	<b>0.001</b>	<0.0010	0.0010	N/A	6732033
Total Suspended Solids	mg/L	-	2	1	N/A	6732079
<b>Petroleum Hydrocarbons</b>						
Total Oil & Grease	mg/L	-	<0.50	0.50	N/A	6734179
Total Oil & Grease Mineral/Synthetic	mg/L	<b>0.5</b>	<0.50	0.50	N/A	6734180
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						



### GENERAL COMMENTS

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

Package 1	4.7°C
Package 2	3.3°C
Package 3	4.3°C

**Results relate only to the items tested.**



BUREAU  
VERITAS

BV Labs Job #: COB9782  
Report Date: 2020/05/22

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

## QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
6732033	BMO	Matrix Spike	Phenols-4AAP	2020/05/20		93	%	80 - 120
6732033	BMO	Spiked Blank	Phenols-4AAP	2020/05/20		96	%	80 - 120
6732033	BMO	Method Blank	Phenols-4AAP	2020/05/20	<0.0010		mg/L	
6732033	BMO	RPD	Phenols-4AAP	2020/05/20	NC		%	20
6732079	JS7	QC Standard	Total Suspended Solids	2020/05/21		96	%	85 - 115
6732079	JS7	Method Blank	Total Suspended Solids	2020/05/21	<1		mg/L	
6732079	JS7	RPD	Total Suspended Solids	2020/05/21	NC		%	25
6734007	GTO	Spiked Blank	pH	2020/05/21		99	%	98 - 103
6734007	GTO	RPD [MQM041-03]	pH	2020/05/21	1.4		%	N/A
6734179	KK4	Spiked Blank	Total Oil & Grease	2020/05/21		94	%	85 - 115
6734179	KK4	RPD	Total Oil & Grease	2020/05/21	1.8		%	25
6734179	KK4	Method Blank	Total Oil & Grease	2020/05/21	<0.50		mg/L	
6734180	KK4	Spiked Blank	Total Oil & Grease Mineral/Synthetic	2020/05/21		94	%	85 - 115
6734180	KK4	RPD	Total Oil & Grease Mineral/Synthetic	2020/05/21	0.53		%	25
6734180	KK4	Method Blank	Total Oil & Grease Mineral/Synthetic	2020/05/21	<0.50		mg/L	

N/A = Not Applicable

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

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

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

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

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

NC (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  $\leq 2 \times$  RDL).



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VERITAS

BV Labs Job #: COB9782  
Report Date: 2020/05/22

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

### VALIDATION SIGNATURE PAGE

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

Anastassia Hamanov, Scientific Specialist

---

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Your Project #: 1407634  
Site#: 1407634  
Site Location: MCCARTHY  
Your C.O.C. #: 772254-05-01

**Attention: Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2020/06/05**  
Report #: R6199226  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**BV LABS JOB #: C0D1869**

**Received: 2020/05/29, 10:03**

Sample Matrix: Water  
# Samples Received: 1

Analyses	Quantity	Date	Date	Laboratory Method	Analytical Method
		Extracted	Analyzed		
Animal and Vegetable Oil and Grease	1	N/A	2020/06/05	CAM SOP-00326	EPA1664B m,SM5520B m
Total Oil and Grease	1	2020/06/05	2020/06/05	CAM SOP-00326	EPA1664B m,SM5520B m
pH	1	2020/06/03	2020/06/03	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	1	N/A	2020/06/03	CAM SOP-00444	OMOE E3179 m
Mineral/Synthetic O & G (TPH Heavy Oil) (1)	1	2020/06/05	2020/06/05	CAM SOP-00326	EPA1664B m,SM5520F m
Low Level Total Suspended Solids	1	2020/06/03	2020/06/04	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 BV Labs, results relate to the supplied samples tested.

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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 #: 1407634  
Site#: 1407634  
Site Location: MCCARTHY  
Your C.O.C. #: 772254-05-01

**Attention: Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2020/06/05**  
Report #: R6199226  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**BV LABS JOB #: C0D1869**  
**Received: 2020/05/29, 10:03**

Encryption Key

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

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BV Labs Job #: COD1869  
Report Date: 2020/06/05

Golder Associates Ltd  
Client Project #: 1407634  
Site Location: MCCARTHY  
Sampler Initials: AL

### RESULTS OF ANALYSES OF WATER

<b>BV Labs ID</b>		MTB539		
<b>Sampling Date</b>		2020/05/28 02:30		
<b>COC Number</b>		772254-05-01		
	<b>UNITS</b>	<b>590331</b>	<b>RDL</b>	<b>QC Batch</b>
<b>Calculated Parameters</b>				
Total Animal/Vegetable Oil and Grease	mg/L	2.9	0.50	6765747
<b>Inorganics</b>				
pH	pH	7.90	N/A	6766136
Phenols-4AAP	mg/L	<0.0010	0.0010	6767164
Total Suspended Solids	mg/L	11	1	6765386
<b>Petroleum Hydrocarbons</b>				
Total Oil & Grease	mg/L	3.7	0.50	6771502
Total Oil & Grease Mineral/Synthetic	mg/L	0.80	0.50	6771503
RDL = Reportable Detection Limit QC Batch = Quality Control Batch N/A = Not Applicable				



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BV Labs Job #: COD1869

Report Date: 2020/06/05

Golder Associates Ltd

Client Project #: 1407634

Site Location: MCCARTHY

Sampler Initials: AL

### GENERAL COMMENTS

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

Package 1	20.0°C
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**Results relate only to the items tested.**



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BV Labs Job #: COD1869  
Report Date: 2020/06/05

Golder Associates Ltd  
Client Project #: 1407634  
Site Location: MCCARTHY  
Sampler Initials: AL

## QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
6765386	JS7	QC Standard	Total Suspended Solids	2020/06/04		95	%	85 - 115
6765386	JS7	Method Blank	Total Suspended Solids	2020/06/04	<1		mg/L	
6765386	JS7	RPD	Total Suspended Solids	2020/06/04	18		%	25
6766136	SAU	Spiked Blank	pH	2020/06/03		101	%	98 - 103
6766136	SAU	RPD	pH	2020/06/03	0.11		%	N/A
6767164	BMO	Matrix Spike	Phenols-4AAP	2020/06/03		96	%	80 - 120
6767164	BMO	Spiked Blank	Phenols-4AAP	2020/06/03		96	%	80 - 120
6767164	BMO	Method Blank	Phenols-4AAP	2020/06/03	<0.0010		mg/L	
6767164	BMO	RPD	Phenols-4AAP	2020/06/03	NC		%	20
6771502	GSG	Spiked Blank	Total Oil & Grease	2020/06/05		98	%	85 - 115
6771502	GSG	RPD	Total Oil & Grease	2020/06/05	2.1		%	25
6771502	GSG	Method Blank	Total Oil & Grease	2020/06/05	<0.50		mg/L	
6771503	GSG	Spiked Blank	Total Oil & Grease Mineral/Synthetic	2020/06/05		97	%	85 - 115
6771503	GSG	RPD	Total Oil & Grease Mineral/Synthetic	2020/06/05	4.8		%	25
6771503	GSG	Method Blank	Total Oil & Grease Mineral/Synthetic	2020/06/05	<0.50		mg/L	

N/A = Not Applicable

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

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

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

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

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

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



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BV Labs Job #: COD1869  
Report Date: 2020/06/05

Golder Associates Ltd  
Client Project #: 1407634  
Site Location: MCCARTHY  
Sampler Initials: AL

### VALIDATION SIGNATURE PAGE

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Anastassia Hamanov, Scientific Specialist

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Your Project #: 1407634  
 Site#: 1407634  
 Site Location: MCCARTHY  
 Your C.O.C. #: 772254-04-01

**Attention: Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2020/06/10**  
 Report #: R6205041  
 Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**BV LABS JOB #: C0D8171**

**Received: 2020/06/05, 09:19**

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	2020/06/10	CAM SOP-00326	EPA1664B m,SM5520B m
Total Oil and Grease	1	2020/06/10	2020/06/10	CAM SOP-00326	EPA1664B m,SM5520B m
pH	1	2020/06/05	2020/06/08	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	1	N/A	2020/06/08	CAM SOP-00444	OMOE E3179 m
Mineral/Synthetic O & G (TPH Heavy Oil) (1)	1	2020/06/10	2020/06/10	CAM SOP-00326	EPA1664B m,SM5520F m
Low Level Total Suspended Solids	1	2020/06/08	2020/06/10	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 BV Labs, results relate to the supplied samples tested.

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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 #: 1407634  
Site#: 1407634  
Site Location: MCCARTHY  
Your C.O.C. #: 772254-04-01

**Attention: Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2020/06/10**  
Report #: R6205041  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**BV LABS JOB #: C0D8171**  
**Received: 2020/06/05, 09:19**

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Ema Gitej, Senior Project Manager  
Email: Ema.Gitej@bvlabs.com  
Phone# (905)817-5829

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VERITAS

BV Labs Job #: COD8171  
Report Date: 2020/06/10

Golder Associates Ltd  
Client Project #: 1407634  
Site Location: MCCARTHY

### RESULTS OF ANALYSES OF WATER

<b>BV Labs ID</b>		MUK965		
<b>Sampling Date</b>		2020/06/04 14:00		
<b>COC Number</b>		772254-04-01		
	<b>UNITS</b>	<b>590331</b>	<b>RDL</b>	<b>QC Batch</b>
<b>Calculated Parameters</b>				
Total Animal/Vegetable Oil and Grease	mg/L	<0.50	0.50	6772314
<b>Inorganics</b>				
pH	pH	8.08	N/A	6772731
Phenols-4AAP	mg/L	<0.0010	0.0010	6774647
Total Suspended Solids	mg/L	2	1	6774004
<b>Petroleum Hydrocarbons</b>				
Total Oil & Grease	mg/L	<0.50	0.50	6778820
Total Oil & Grease Mineral/Synthetic	mg/L	<0.50	0.50	6778821
RDL = Reportable Detection Limit				
QC Batch = Quality Control Batch				
N/A = Not Applicable				



BUREAU  
VERITAS

BV Labs Job #: COD8171

Report Date: 2020/06/10

Golder Associates Ltd

Client Project #: 1407634

Site Location: MCCARTHY

### GENERAL COMMENTS

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

Package 1	22.0°C
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Results relate only to the items tested.





BUREAU  
VERITAS

BV Labs Job #: COD8171  
Report Date: 2020/06/10

Golder Associates Ltd  
Client Project #: 1407634  
Site Location: MCCARTHY

## QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
6772731	NYS	Spiked Blank	pH	2020/06/08		102	%	98 - 103
6772731	NYS	RPD	pH	2020/06/08	0.023		%	N/A
6774004	MJ1	QC Standard	Total Suspended Solids	2020/06/10		100	%	85 - 115
6774004	MJ1	Method Blank	Total Suspended Solids	2020/06/10	<1		mg/L	
6774004	MJ1	RPD	Total Suspended Solids	2020/06/10	18		%	25
6774647	BMO	Matrix Spike	Phenols-4AAP	2020/06/08		97	%	80 - 120
6774647	BMO	Spiked Blank	Phenols-4AAP	2020/06/08		95	%	80 - 120
6774647	BMO	Method Blank	Phenols-4AAP	2020/06/08	<0.0010		mg/L	
6774647	BMO	RPD	Phenols-4AAP	2020/06/08	NC		%	20
6778820	GSG	Spiked Blank	Total Oil & Grease	2020/06/10		99	%	85 - 115
6778820	GSG	RPD	Total Oil & Grease	2020/06/10	2.1		%	25
6778820	GSG	Method Blank	Total Oil & Grease	2020/06/10	<0.50		mg/L	
6778821	GSG	Spiked Blank	Total Oil & Grease Mineral/Synthetic	2020/06/10		97	%	85 - 115
6778821	GSG	RPD	Total Oil & Grease Mineral/Synthetic	2020/06/10	3.2		%	25
6778821	GSG	Method Blank	Total Oil & Grease Mineral/Synthetic	2020/06/10	<0.50		mg/L	

N/A = Not Applicable

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

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

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

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BUREAU  
VERITAS

BV Labs Job #: COD8171

Report Date: 2020/06/10

Golder Associates Ltd

Client Project #: 1407634

Site Location: MCCARTHY

### VALIDATION SIGNATURE PAGE

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

Anastassia Hamanov, Scientific Specialist

---

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Your Project #: 1407634  
Site#: 1407634  
Site Location: MCCARTHY  
Your C.O.C. #: 728212-03-01

**Attention: Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2020/06/17**  
Report #: R6213420  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**BV LABS JOB #: C0E5310**

**Received: 2020/06/12, 09:12**

Sample Matrix: Water  
# Samples Received: 1

Analyses	Quantity	Date	Date	Laboratory Method	Analytical Method
		Extracted	Analyzed		
Animal and Vegetable Oil and Grease	1	N/A	2020/06/17	CAM SOP-00326	EPA1664B m,SM5520B m
Total Oil and Grease	1	2020/06/17	2020/06/17	CAM SOP-00326	EPA1664B m,SM5520B m
pH	1	2020/06/13	2020/06/15	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	1	N/A	2020/06/15	CAM SOP-00444	OMOE E3179 m
Mineral/Synthetic O & G (TPH Heavy Oil) (1)	1	2020/06/17	2020/06/17	CAM SOP-00326	EPA1664B m,SM5520F m
Low Level Total Suspended Solids	1	2020/06/16	2020/06/17	CAM SOP-00428	SM 23 2540D m

**Remarks:**

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All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in BV Labs profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and BV Labs 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.

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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 BV Labs, results relate to the supplied samples tested.

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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 #: 1407634  
Site#: 1407634  
Site Location: MCCARTHY  
Your C.O.C. #: 728212-03-01

**Attention: Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2020/06/17**  
Report #: R6213420  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**BV LABS JOB #: C0E5310**  
**Received: 2020/06/12, 09:12**

Encryption Key

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

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BV Labs Job #: COE5310  
Report Date: 2020/06/17

Golder Associates Ltd  
Client Project #: 1407634  
Site Location: MCCARTHY  
Sampler Initials: SH

### RESULTS OF ANALYSES OF WATER

<b>BV Labs ID</b>		MVY862		MVY862	
<b>Sampling Date</b>		2020/06/11 11:30		2020/06/11 11:30	
<b>COC Number</b>		728212-03-01		728212-03-01	
	<b>UNITS</b>	<b>POND</b>	<b>RDL</b>	<b>POND Lab-Dup</b>	<b>QC Batch</b>
<b>Calculated Parameters</b>					
Total Animal/Vegetable Oil and Grease	mg/L	<0.50	0.50	N/A	6785224
<b>Inorganics</b>					
pH	pH	7.62	N/A	7.61	6785911
Phenols-4AAP	mg/L	<0.0010	0.0010	N/A	6786445
Total Suspended Solids	mg/L	5	1	N/A	6785680
<b>Petroleum Hydrocarbons</b>					
Total Oil & Grease	mg/L	<0.50	0.50	N/A	6790397
Total Oil & Grease Mineral/Synthetic	mg/L	<0.50	0.50	N/A	6790398
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Lab-Dup = Laboratory Initiated Duplicate N/A = Not Applicable					



BUREAU  
VERITAS

BV Labs Job #: COE5310  
Report Date: 2020/06/17

Golder Associates Ltd  
Client Project #: 1407634  
Site Location: MCCARTHY  
Sampler Initials: SH

### GENERAL COMMENTS

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

Package 1	17.7°C
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**Results relate only to the items tested.**



## QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
6785680	JS7	QC Standard	Total Suspended Solids	2020/06/17		97	%	85 - 115
6785680	JS7	Method Blank	Total Suspended Solids	2020/06/17	<1		mg/L	
6785680	JS7	RPD	Total Suspended Solids	2020/06/17	5.4		%	25
6785911	SAU	Spiked Blank	pH	2020/06/15		101	%	98 - 103
6785911	SAU	RPD [MVY862-03]	pH	2020/06/15	0.13		%	N/A
6786445	BMO	Matrix Spike	Phenols-4AAP	2020/06/15		101	%	80 - 120
6786445	BMO	Spiked Blank	Phenols-4AAP	2020/06/15		100	%	80 - 120
6786445	BMO	Method Blank	Phenols-4AAP	2020/06/15	<0.0010		mg/L	
6786445	BMO	RPD	Phenols-4AAP	2020/06/15	NC		%	20
6790397	GSG	Spiked Blank	Total Oil & Grease	2020/06/17		97	%	85 - 115
6790397	GSG	RPD	Total Oil & Grease	2020/06/17	1.8		%	25
6790397	GSG	Method Blank	Total Oil & Grease	2020/06/17	<0.50		mg/L	
6790398	GSG	Spiked Blank	Total Oil & Grease Mineral/Synthetic	2020/06/17		92	%	85 - 115
6790398	GSG	RPD	Total Oil & Grease Mineral/Synthetic	2020/06/17	4.8		%	25
6790398	GSG	Method Blank	Total Oil & Grease Mineral/Synthetic	2020/06/17	<0.50		mg/L	

N/A = Not Applicable

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

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

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

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

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

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference  $\leq 2 \times \text{RDL}$ ).



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VERITAS

BV Labs Job #: COE5310  
Report Date: 2020/06/17

Golder Associates Ltd  
Client Project #: 1407634  
Site Location: MCCARTHY  
Sampler Initials: SH

### VALIDATION SIGNATURE PAGE

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

Anastassia Hamanov, 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.





Your Project #: 1407634  
Site#: 1407634  
Site Location: MCCARTHY  
Your C.O.C. #: 772254-03-01

**Attention: Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2020/06/24**  
Report #: R6222243  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**BV LABS JOB #: C0F2926**

**Received: 2020/06/19, 09:46**

Sample Matrix: Water  
# Samples Received: 1

Analyses	Quantity	Date	Date	Laboratory Method	Analytical Method
		Extracted	Analyzed		
Animal and Vegetable Oil and Grease	1	N/A	2020/06/24	CAM SOP-00326	EPA1664B m,SM5520B m
Total Oil and Grease	1	2020/06/24	2020/06/24	CAM SOP-00326	EPA1664B m,SM5520B m
pH	1	2020/06/22	2020/06/23	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	1	N/A	2020/06/23	CAM SOP-00444	OMOE E3179 m
Mineral/Synthetic O & G (TPH Heavy Oil) (1)	1	2020/06/24	2020/06/24	CAM SOP-00326	EPA1664B m,SM5520F m
Low Level Total Suspended Solids	1	2020/06/23	2020/06/24	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 BV Labs, results relate to the supplied samples tested.

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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 #: 1407634  
Site#: 1407634  
Site Location: MCCARTHY  
Your C.O.C. #: 772254-03-01

**Attention: Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2020/06/24**  
Report #: R6222243  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**BV LABS JOB #: C0F2926**  
**Received: 2020/06/19, 09:46**

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

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BV Labs Job #: C0F2926  
Report Date: 2020/06/24

Golder Associates Ltd  
Client Project #: 1407634  
Site Location: MCCARTHY  
Sampler Initials: S

### RESULTS OF ANALYSES OF WATER

<b>BV Labs ID</b>		MXN242		
<b>Sampling Date</b>		2020/06/18 14:30		
<b>COC Number</b>		772254-03-01		
	<b>UNITS</b>	<b>POND</b>	<b>RDL</b>	<b>QC Batch</b>
<b>Calculated Parameters</b>				
Total Animal/Vegetable Oil and Grease	mg/L	<0.50	0.50	6795247
<b>Inorganics</b>				
pH	pH	8.19	N/A	6799638
Phenols-4AAP	mg/L	<0.0010	0.0010	6798084
Total Suspended Solids	mg/L	8	1	6800869
<b>Petroleum Hydrocarbons</b>				
Total Oil & Grease	mg/L	<0.50	0.50	6802335
Total Oil & Grease Mineral/Synthetic	mg/L	<0.50	0.50	6802336
RDL = Reportable Detection Limit QC Batch = Quality Control Batch N/A = Not Applicable				



BUREAU  
VERITAS

BV Labs Job #: C0F2926  
Report Date: 2020/06/24

Golder Associates Ltd  
Client Project #: 1407634  
Site Location: MCCARTHY  
Sampler Initials: S

### GENERAL COMMENTS

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

Package 1	22.0°C
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**Results relate only to the items tested.**



BUREAU  
VERITAS

BV Labs Job #: COF2926  
Report Date: 2020/06/24

Golder Associates Ltd  
Client Project #: 1407634  
Site Location: MCCARTHY  
Sampler Initials: S

## QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
6798084	BMO	Matrix Spike	Phenols-4AAP	2020/06/23		105	%	80 - 120
6798084	BMO	Spiked Blank	Phenols-4AAP	2020/06/23		104	%	80 - 120
6798084	BMO	Method Blank	Phenols-4AAP	2020/06/23	<0.0010		mg/L	
6798084	BMO	RPD	Phenols-4AAP	2020/06/23	15		%	20
6799638	SAU	Spiked Blank	pH	2020/06/23		102	%	98 - 103
6799638	SAU	RPD	pH	2020/06/23	0.93		%	N/A
6800869	JS7	QC Standard	Total Suspended Solids	2020/06/24		100	%	N/A
6800869	JS7	Method Blank	Total Suspended Solids	2020/06/24	<1		mg/L	
6800869	JS7	RPD	Total Suspended Solids	2020/06/24	0		%	25
6802335	GSG	Spiked Blank	Total Oil & Grease	2020/06/24		99	%	85 - 115
6802335	GSG	RPD	Total Oil & Grease	2020/06/24	2.3		%	25
6802335	GSG	Method Blank	Total Oil & Grease	2020/06/24	<0.50		mg/L	
6802336	GSG	Spiked Blank	Total Oil & Grease Mineral/Synthetic	2020/06/24		97	%	85 - 115
6802336	GSG	RPD	Total Oil & Grease Mineral/Synthetic	2020/06/24	5.3		%	25
6802336	GSG	Method Blank	Total Oil & Grease Mineral/Synthetic	2020/06/24	<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.



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BV Labs Job #: C0F2926  
Report Date: 2020/06/24

Golder Associates Ltd  
Client Project #: 1407634  
Site Location: MCCARTHY  
Sampler Initials: S

### VALIDATION SIGNATURE PAGE

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Anastassia Hamanov, Scientific Specialist

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Your Project #: 1407634  
Site#: 1407634  
Site Location: MCCARTHY  
Your C.O.C. #: 752753-03-01

**Attention: Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2020/07/06**  
Report #: R6235892  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**BV LABS JOB #: C0F9331**

**Received: 2020/06/26, 09:10**

Sample Matrix: Water  
# Samples Received: 1

Analyses	Quantity	Date	Date	Laboratory Method	Analytical Method
		Extracted	Analyzed		
Animal and Vegetable Oil and Grease	1	N/A	2020/07/04	CAM SOP-00326	EPA1664B m,SM5520B m
Total Oil and Grease	1	2020/07/04	2020/07/04	CAM SOP-00326	EPA1664B m,SM5520B m
pH	1	2020/07/02	2020/07/02	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	1	N/A	2020/07/03	CAM SOP-00444	OMOE E3179 m
Mineral/Synthetic O & G (TPH Heavy Oil) (1)	1	2020/07/04	2020/07/04	CAM SOP-00326	EPA1664B m,SM5520F m
Low Level Total Suspended Solids	1	2020/07/02	2020/07/03	CAM SOP-00428	SM 23 2540D m

**Remarks:**

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Results relate to samples tested. When sampling is not conducted by BV Labs, results relate to the supplied samples tested.

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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 #: 1407634  
Site#: 1407634  
Site Location: MCCARTHY  
Your C.O.C. #: 752753-03-01

**Attention: Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2020/07/06**  
Report #: R6235892  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**BV LABS JOB #: C0F9331**

**Received: 2020/06/26, 09:10**

Encryption Key

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Ema Gitej, Senior Project Manager

Email: Ema.Gitej@bvlabs.com

Phone# (905)817-5829

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VERITAS

BV Labs Job #: C0F9331  
Report Date: 2020/07/06

Golder Associates Ltd  
Client Project #: 1407634  
Site Location: MCCARTHY  
Sampler Initials: B

### RESULTS OF ANALYSES OF WATER

<b>BV Labs ID</b>		MY959	MY959		
<b>Sampling Date</b>		2020/06/25 13:30	2020/06/25 13:30		
<b>COC Number</b>		752753-03-01	752753-03-01		
	<b>UNITS</b>	<b>POND</b>	<b>POND Lab-Dup</b>	<b>RDL</b>	<b>QC Batch</b>
<b>Calculated Parameters</b>					
Total Animal/Vegetable Oil and Grease	mg/L	<0.50	N/A	0.50	6812780
<b>Inorganics</b>					
pH	pH	8.10	N/A	N/A	6815381
Phenols-4AAP	mg/L	<0.0010	<0.0010	0.0010	6817198
Total Suspended Solids	mg/L	5	N/A	1	6812736
<b>Petroleum Hydrocarbons</b>					
Total Oil & Grease	mg/L	<0.50	N/A	0.50	6818998
Total Oil & Grease Mineral/Synthetic	mg/L	<0.50	N/A	0.50	6818999
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Lab-Dup = Laboratory Initiated Duplicate N/A = Not Applicable					



BUREAU  
VERITAS

BV Labs Job #: COF9331  
Report Date: 2020/07/06

Golder Associates Ltd  
Client Project #: 1407634  
Site Location: MCCARTHY  
Sampler Initials: B

### GENERAL COMMENTS

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

Package 1	23.0°C
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Results relate only to the items tested.



BUREAU  
VERITAS

BV Labs Job #: C0F9331  
Report Date: 2020/07/06

Golder Associates Ltd  
Client Project #: 1407634  
Site Location: MCCARTHY  
Sampler Initials: B

## QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
6812736	JS7	QC Standard	Total Suspended Solids	2020/07/03		95	%	85 - 115
6812736	JS7	Method Blank	Total Suspended Solids	2020/07/03	<1		mg/L	
6812736	JS7	RPD	Total Suspended Solids	2020/07/03	10		%	25
6815381	NYS	Spiked Blank	pH	2020/07/02		102	%	98 - 103
6815381	NYS	RPD	pH	2020/07/02	0.31		%	N/A
6817198	LHA	Matrix Spike [MY959-04]	Phenols-4AAP	2020/07/03		94	%	80 - 120
6817198	LHA	Spiked Blank	Phenols-4AAP	2020/07/03		99	%	80 - 120
6817198	LHA	Method Blank	Phenols-4AAP	2020/07/03	<0.0010		mg/L	
6817198	LHA	RPD [MY959-04]	Phenols-4AAP	2020/07/03	NC		%	20
6818998	GSG	Spiked Blank	Total Oil & Grease	2020/07/04		98	%	85 - 115
6818998	GSG	RPD	Total Oil & Grease	2020/07/04	1.8		%	25
6818998	GSG	Method Blank	Total Oil & Grease	2020/07/04	<0.50		mg/L	
6818999	GSG	Spiked Blank	Total Oil & Grease Mineral/Synthetic	2020/07/04		96	%	85 - 115
6818999	GSG	RPD	Total Oil & Grease Mineral/Synthetic	2020/07/04	3.2		%	25
6818999	GSG	Method Blank	Total Oil & Grease Mineral/Synthetic	2020/07/04	<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

BV Labs Job #: C0F9331

Report Date: 2020/07/06

Golder Associates Ltd

Client Project #: 1407634

Site Location: MCCARTHY

Sampler Initials: B

### VALIDATION SIGNATURE PAGE

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

Anastassia Hamanov, Scientific Specialist

---

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Your Project #: 1407634  
Your C.O.C. #: 772251-01-01

**Attention: Jamie Bonany**

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

**Report Date: 2020/05/25**  
Report #: R6185519  
Version: 1 - Final

## CERTIFICATE OF ANALYSIS

**BV LABS JOB #: C0B9834**

**Received: 2020/05/15, 09:54**

Sample Matrix: Water  
# Samples Received: 4

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Alkalinity	4	N/A	2020/05/21	CAM SOP-00448	SM 23 2320 B m
Chloride by Automated Colourimetry	4	N/A	2020/05/21	CAM SOP-00463	SM 23 4500-Cl E m
Conductivity	4	N/A	2020/05/21	CAM SOP-00414	SM 23 2510 m
Dissolved Organic Carbon (DOC) (1)	1	N/A	2020/05/21	CAM SOP-00446	SM 23 5310 B m
Dissolved Organic Carbon (DOC) (1)	3	N/A	2020/05/23	CAM SOP-00446	SM 23 5310 B m
Fluoride	4	2020/05/21	2020/05/21	CAM SOP-00449	SM 23 4500-F C m
Hardness (calculated as CaCO3)	4	N/A	2020/05/22	CAM SOP 00102/00408/00447	SM 2340 B
Lab Filtered Metals by ICPMS	4	2020/05/20	2020/05/21	CAM SOP-00447	EPA 6020B m
Total Metals Analysis by ICPMS	4	N/A	2020/05/21	CAM SOP-00447	EPA 6020B m
Anion and Cation Sum	4	N/A	2020/05/22		
Total Ammonia-N	4	N/A	2020/05/22	CAM SOP-00441	USGS I-2522-90 m
Nitrate (NO3) and Nitrite (NO2) in Water (2)	4	N/A	2020/05/21	CAM SOP-00440	SM 23 4500-NO3I/NO2B
Total Oil and Grease	4	2020/05/21	2020/05/21	CAM SOP-00326	EPA1664B m,SM5520B m
pH	4	2020/05/21	2020/05/21	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	4	N/A	2020/05/20	CAM SOP-00444	OMOE E3179 m
Sulphate by Automated Colourimetry	4	N/A	2020/05/21	CAM SOP-00464	EPA 375.4 m
Total Dissolved Solids	4	2020/05/20	2020/05/21	CAM SOP-00428	SM 23 2540C m
Total Kjeldahl Nitrogen in Water	3	2020/05/22	2020/05/22	CAM SOP-00938	OMOE E3516 m
Total Kjeldahl Nitrogen in Water	1	2020/05/22	2020/05/25	CAM SOP-00938	OMOE E3516 m
Total Phosphorus (Colourimetric)	4	2020/05/22	2020/05/25	CAM SOP-00407	SM 23 4500 P B H m
Total Suspended Solids	3	2020/05/20	2020/05/21	CAM SOP-00428	SM 23 2540D m
Total Suspended Solids	1	2020/05/21	2020/05/21	CAM SOP-00428	SM 23 2540D m

**Remarks:**

Bureau Veritas Laboratories are accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by BV Labs 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 BV Labs profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and BV Labs 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



Your Project #: 1407634  
Your C.O.C. #: 772251-01-01

**Attention: Jamie Bonany**

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

**Report Date: 2020/05/25**  
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**CERTIFICATE OF ANALYSIS**

**BV LABS JOB #: C0B9834**

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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.

BV Labs liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. BV Labs 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 BV Labs, unless otherwise agreed in writing. BV Labs 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 BV Labs, results relate to the supplied samples tested.

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

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.

**Encryption Key**

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Ema Gitej, Senior Project Manager

Email: Ema.Gitej@bvlabs.com

Phone# (905)817-5829

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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.

BUREAU  
VERITASBV Labs Job #: COB9834  
Report Date: 2020/05/25Golder Associates Ltd  
Client Project #: 1407634  
Sampler Initials: DH

## RESULTS OF ANALYSES OF WATER

BV Labs ID		MQM269			MQM269			MQM270		
Sampling Date		2020/05/14 10:30			2020/05/14 10:30			2020/05/14 10:00		
COC Number		772251-01-01			772251-01-01			772251-01-01		
	UNITS	POND	RDL	QC Batch	POND Lab-Dup	RDL	QC Batch	SW1	RDL	QC Batch

## Calculated Parameters

Anion Sum	me/L	4.78	N/A	6729238				8.65	N/A	6729238
Cation Sum	me/L	4.84	N/A	6729238				8.86	N/A	6729238
Hardness (CaCO <sub>3</sub> )	mg/L	210	1.0	6729230				360	1.0	6729230

## Inorganics

Total Ammonia-N	mg/L	<0.050	0.050	6737479				<0.050	0.050	6737479
Conductivity	mS/cm	0.455	0.001	6733875				0.822	0.001	6733875
Total Dissolved Solids	mg/L	260	10	6732144				490	10	6732144
Fluoride (F <sup>-</sup> )	mg/L	0.13	0.10	6733876				0.11	0.10	6733876
Total Kjeldahl Nitrogen (TKN)	mg/L	0.44	0.10	6738282				0.47	0.10	6738282
Dissolved Organic Carbon	mg/L	6.5	0.40	6740975				7.8	0.40	6732269
pH	pH	8.10		6733880				7.99		6733880
Phenols-4AAP	mg/L	<0.0010	0.0010	6732033	<0.0010	0.0010	6732033	<0.0010	0.0010	6732033
Total Phosphorus	mg/L	0.010	0.004	6738035				0.006	0.004	6738035
Total Suspended Solids	mg/L	<10	10	6731213				<10	10	6731213
Dissolved Sulphate (SO <sub>4</sub> )	mg/L	82	1.0	6732599				140	1.0	6732599
Alkalinity (Total as CaCO <sub>3</sub> )	mg/L	140	1.0	6733873				230	1.0	6733873
Dissolved Chloride (Cl <sup>-</sup> )	mg/L	9.3	1.0	6732594				43	1.0	6732594
Nitrite (N)	mg/L	<0.010	0.010	6733860				<0.010	0.010	6733860
Nitrate (N)	mg/L	<0.10	0.10	6733860				<0.10	0.10	6733860
Nitrate + Nitrite (N)	mg/L	<0.10	0.10	6733860				<0.10	0.10	6733860

## Petroleum Hydrocarbons

Total Oil & Grease	mg/L	<0.50	0.50	6734179				<0.50	0.50	6734179
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RDL = Reportable Detection Limit

QC Batch = Quality Control Batch

Lab-Dup = Laboratory Initiated Duplicate

N/A = Not Applicable



BUREAU  
VERITAS

BV Labs Job #: COB9834  
Report Date: 2020/05/25

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

## RESULTS OF ANALYSES OF WATER

BV Labs ID		MQM270			MQM271		MQM272		
Sampling Date		2020/05/14 10:00			2020/05/14 12:00		2020/05/14 10:00		
COC Number		772251-01-01			772251-01-01		772251-01-01		
	UNITS	SW1 Lab-Dup	RDL	QC Batch	SW2	QC Batch	SW1-D	RDL	QC Batch
<b>Calculated Parameters</b>									
Anion Sum	me/L				8.40	6729238	8.64	N/A	6729238
Cation Sum	me/L				8.73	6729238	8.99	N/A	6729238
Hardness (CaCO <sub>3</sub> )	mg/L				400	6729230	360	1.0	6729230
<b>Inorganics</b>									
Total Ammonia-N	mg/L				<0.050	6737479	<0.050	0.050	6737479
Conductivity	mS/cm	0.820	0.001	6733875	0.764	6733875	0.820	0.001	6733875
Total Dissolved Solids	mg/L				435	6732144	495	10	6732144
Fluoride (F <sup>-</sup> )	mg/L	0.10	0.10	6733876	<0.10	6733876	0.10	0.10	6733876
Total Kjeldahl Nitrogen (TKN)	mg/L	0.45	0.10	6738282	0.31	6738282	0.36	0.10	6738282
Dissolved Organic Carbon	mg/L				5.0	6740975	8.0	0.40	6740975
pH	pH	7.99		6733880	7.98	6733880	7.98		6733880
Phenols-4AAP	mg/L				<0.0010	6732033	<0.0010	0.0010	6732033
Total Phosphorus	mg/L				0.012	6738035	0.005	0.004	6738035
Total Suspended Solids	mg/L				<10	6731213	<10	10	6732172
Dissolved Sulphate (SO <sub>4</sub> )	mg/L				81	6732599	140	1.0	6732599
Alkalinity (Total as CaCO <sub>3</sub> )	mg/L	230	1.0	6733873	300	6733873	230	1.0	6733873
Dissolved Chloride (Cl <sup>-</sup> )	mg/L				26	6732594	43	1.0	6732594
Nitrite (N)	mg/L				<0.010	6733860	<0.010	0.010	6733860
Nitrate (N)	mg/L				<0.10	6733860	<0.10	0.10	6733860
Nitrate + Nitrite (N)	mg/L				<0.10	6733860	<0.10	0.10	6733860
<b>Petroleum Hydrocarbons</b>									
Total Oil & Grease	mg/L				<0.50	6734179	<0.50	0.50	6734179
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Lab-Dup = Laboratory Initiated Duplicate N/A = Not Applicable									



BUREAU  
VERITASBV Labs Job #: COB9834  
Report Date: 2020/05/25Golder Associates Ltd  
Client Project #: 1407634  
Sampler Initials: DH**ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)**

BV Labs ID		MQM269	MQM270	MQM271	MQM272			MQM272		
Sampling Date		2020/05/14 10:30	2020/05/14 10:00	2020/05/14 12:00	2020/05/14 10:00			2020/05/14 10:00		
COC Number		772251-01-01	772251-01-01	772251-01-01	772251-01-01			772251-01-01		
	UNITS	POND	SW1	SW2	SW1-D	RDL	QC Batch	SW1-D Lab-Dup	RDL	QC Batch
<b>Metals</b>										
Dissolved Aluminum (Al)	ug/L	<5.0	9.6	<5.0	<5.0	5.0	6732680	<5.0	5.0	6732680
Total Arsenic (As)	ug/L	<1.0	<1.0	<1.0	<1.0	1.0	6734006			
Total Cadmium (Cd)	ug/L	<0.10	<0.10	<0.10	<0.10	0.10	6734006			
Dissolved Calcium (Ca)	ug/L	62000	120000	130000	120000	200	6732680	120000	200	6732680
Total Calcium (Ca)	ug/L	63000	120000	120000	120000	200	6734006			
Total Chromium (Cr)	ug/L	<5.0	<5.0	<5.0	<5.0	5.0	6734006			
Total Copper (Cu)	ug/L	<1.0	<1.0	<1.0	<1.0	1.0	6734006			
Total Iron (Fe)	ug/L	140	<100	140	<100	100	6734006			
Total Lead (Pb)	ug/L	<0.50	<0.50	<0.50	<0.50	0.50	6734006			
Dissolved Magnesium (Mg)	ug/L	14000	13000	20000	13000	50	6732680	13000	50	6732680
Total Magnesium (Mg)	ug/L	13000	12000	19000	12000	50	6734006			
Total Manganese (Mn)	ug/L	16	13	6.4	14	2.0	6734006			
Total Nickel (Ni)	ug/L	1.1	<1.0	<1.0	<1.0	1.0	6734006			
Dissolved Potassium (K)	ug/L	1800	2400	1100	2400	200	6732680	2400	200	6732680
Total Potassium (K)	ug/L	1700	2200	1100	2300	200	6734006			
Dissolved Sodium (Na)	ug/L	12000	37000	15000	38000	100	6732680	37000	100	6732680
Total Sodium (Na)	ug/L	12000	37000	14000	37000	100	6734006			
Total Zinc (Zn)	ug/L	<5.0	<5.0	<5.0	<5.0	5.0	6734006			
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Lab-Dup = Laboratory Initiated Duplicate										



BUREAU  
VERITAS

BV Labs Job #: COB9834  
Report Date: 2020/05/25

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

## TEST SUMMARY

**BV Labs ID:** MQM269  
**Sample ID:** POND  
**Matrix:** Water

**Collected:** 2020/05/14  
**Shipped:**  
**Received:** 2020/05/15

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	6733873	N/A	2020/05/21	Surinder Rai
Chloride by Automated Colourimetry	KONE	6732594	N/A	2020/05/21	Deonarine Ramnarine
Conductivity	AT	6733875	N/A	2020/05/21	Surinder Rai
Dissolved Organic Carbon (DOC)	TOCV/NDIR	6740975	N/A	2020/05/23	Nimarta Singh
Fluoride	ISE	6733876	2020/05/21	2020/05/21	Surinder Rai
Hardness (calculated as CaCO <sub>3</sub> )		6729230	N/A	2020/05/22	Automated Statchk
Lab Filtered Metals by ICPMS	ICP/MS	6732680	2020/05/20	2020/05/21	Arefa Dabhad
Total Metals Analysis by ICPMS	ICP/MS	6734006	N/A	2020/05/21	Azita Fazaeli
Anion and Cation Sum	CALC	6729238	N/A	2020/05/22	Automated Statchk
Total Ammonia-N	LACH/NH <sub>4</sub>	6737479	N/A	2020/05/22	Amanpreet Sappal
Nitrate (NO <sub>3</sub> ) and Nitrite (NO <sub>2</sub> ) in Water	LACH	6733860	N/A	2020/05/21	Chandra Nandlal
Total Oil and Grease	BAL	6734179	2020/05/21	2020/05/21	Khushboo Kapoor
pH	AT	6733880	2020/05/21	2020/05/21	Surinder Rai
Phenols (4AAP)	TECH/PHEN	6732033	N/A	2020/05/20	Bramdeo Motiram
Sulphate by Automated Colourimetry	KONE	6732599	N/A	2020/05/21	Deonarine Ramnarine
Total Dissolved Solids	BAL	6732144	2020/05/20	2020/05/21	Jingwei (Alvin) Shi
Total Kjeldahl Nitrogen in Water	SKAL	6738282	2020/05/22	2020/05/22	Rajni Tyagi
Total Phosphorus (Colourimetric)	LACH/P	6738035	2020/05/22	2020/05/25	Shivani Shivani
Total Suspended Solids	BAL	6731213	2020/05/20	2020/05/21	Massarat Jan

**BV Labs ID:** MQM269 Dup  
**Sample ID:** POND  
**Matrix:** Water

**Collected:** 2020/05/14  
**Shipped:**  
**Received:** 2020/05/15

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Phenols (4AAP)	TECH/PHEN	6732033	N/A	2020/05/20	Bramdeo Motiram

**BV Labs ID:** MQM270  
**Sample ID:** SW1  
**Matrix:** Water

**Collected:** 2020/05/14  
**Shipped:**  
**Received:** 2020/05/15

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	6733873	N/A	2020/05/21	Surinder Rai
Chloride by Automated Colourimetry	KONE	6732594	N/A	2020/05/21	Deonarine Ramnarine
Conductivity	AT	6733875	N/A	2020/05/21	Surinder Rai
Dissolved Organic Carbon (DOC)	TOCV/NDIR	6732269	N/A	2020/05/21	Nimarta Singh
Fluoride	ISE	6733876	2020/05/21	2020/05/21	Surinder Rai
Hardness (calculated as CaCO <sub>3</sub> )		6729230	N/A	2020/05/22	Automated Statchk
Lab Filtered Metals by ICPMS	ICP/MS	6732680	2020/05/20	2020/05/21	Arefa Dabhad
Total Metals Analysis by ICPMS	ICP/MS	6734006	N/A	2020/05/21	Azita Fazaeli
Anion and Cation Sum	CALC	6729238	N/A	2020/05/22	Automated Statchk
Total Ammonia-N	LACH/NH <sub>4</sub>	6737479	N/A	2020/05/22	Amanpreet Sappal
Nitrate (NO <sub>3</sub> ) and Nitrite (NO <sub>2</sub> ) in Water	LACH	6733860	N/A	2020/05/21	Chandra Nandlal
Total Oil and Grease	BAL	6734179	2020/05/21	2020/05/21	Khushboo Kapoor
pH	AT	6733880	2020/05/21	2020/05/21	Surinder Rai



BUREAU  
VERITAS

BV Labs Job #: COB9834  
Report Date: 2020/05/25

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

## TEST SUMMARY

**BV Labs ID:** MQM270  
**Sample ID:** SW1  
**Matrix:** Water

**Collected:** 2020/05/14  
**Shipped:**  
**Received:** 2020/05/15

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Phenols (4AAP)	TECH/PHEN	6732033	N/A	2020/05/20	Bramdeo Motiram
Sulphate by Automated Colourimetry	KONE	6732599	N/A	2020/05/21	Deonarine Ramnarine
Total Dissolved Solids	BAL	6732144	2020/05/20	2020/05/21	Jingwei (Alvin) Shi
Total Kjeldahl Nitrogen in Water	SKAL	6738282	2020/05/22	2020/05/25	Rajni Tyagi
Total Phosphorus (Colourimetric)	LACH/P	6738035	2020/05/22	2020/05/25	Shivani Shivani
Total Suspended Solids	BAL	6731213	2020/05/20	2020/05/21	Massarat Jan

**BV Labs ID:** MQM270 Dup  
**Sample ID:** SW1  
**Matrix:** Water

**Collected:** 2020/05/14  
**Shipped:**  
**Received:** 2020/05/15

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	6733873	N/A	2020/05/21	Surinder Rai
Conductivity	AT	6733875	N/A	2020/05/21	Surinder Rai
Fluoride	ISE	6733876	2020/05/21	2020/05/21	Surinder Rai
pH	AT	6733880	2020/05/21	2020/05/21	Surinder Rai
Total Kjeldahl Nitrogen in Water	SKAL	6738282	2020/05/22	2020/05/25	Rajni Tyagi

**BV Labs ID:** MQM271  
**Sample ID:** SW2  
**Matrix:** Water

**Collected:** 2020/05/14  
**Shipped:**  
**Received:** 2020/05/15

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	6733873	N/A	2020/05/21	Surinder Rai
Chloride by Automated Colourimetry	KONE	6732594	N/A	2020/05/21	Deonarine Ramnarine
Conductivity	AT	6733875	N/A	2020/05/21	Surinder Rai
Dissolved Organic Carbon (DOC)	TOCV/NDIR	6740975	N/A	2020/05/23	Nimarta Singh
Fluoride	ISE	6733876	2020/05/21	2020/05/21	Surinder Rai
Hardness (calculated as CaCO <sub>3</sub> )		6729230	N/A	2020/05/22	Automated Statchk
Lab Filtered Metals by ICPMS	ICP/MS	6732680	2020/05/20	2020/05/21	Arefa Dabhad
Total Metals Analysis by ICPMS	ICP/MS	6734006	N/A	2020/05/21	Azita Fazaeli
Anion and Cation Sum	CALC	6729238	N/A	2020/05/22	Automated Statchk
Total Ammonia-N	LACH/NH <sub>4</sub>	6737479	N/A	2020/05/22	Amanpreet Sappal
Nitrate (NO <sub>3</sub> ) and Nitrite (NO <sub>2</sub> ) in Water	LACH	6733860	N/A	2020/05/21	Chandra Nandlal
Total Oil and Grease	BAL	6734179	2020/05/21	2020/05/21	Khushboo Kapoor
pH	AT	6733880	2020/05/21	2020/05/21	Surinder Rai
Phenols (4AAP)	TECH/PHEN	6732033	N/A	2020/05/20	Bramdeo Motiram
Sulphate by Automated Colourimetry	KONE	6732599	N/A	2020/05/21	Deonarine Ramnarine
Total Dissolved Solids	BAL	6732144	2020/05/20	2020/05/21	Jingwei (Alvin) Shi
Total Kjeldahl Nitrogen in Water	SKAL	6738282	2020/05/22	2020/05/22	Rajni Tyagi
Total Phosphorus (Colourimetric)	LACH/P	6738035	2020/05/22	2020/05/25	Shivani Shivani
Total Suspended Solids	BAL	6731213	2020/05/20	2020/05/21	Massarat Jan



BUREAU  
VERITAS

BV Labs Job #: COB9834  
Report Date: 2020/05/25

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

## TEST SUMMARY

**BV Labs ID:** MQM272  
**Sample ID:** SW1-D  
**Matrix:** Water

**Collected:** 2020/05/14  
**Shipped:**  
**Received:** 2020/05/15

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	6733873	N/A	2020/05/21	Surinder Rai
Chloride by Automated Colourimetry	KONE	6732594	N/A	2020/05/21	Deonarine Ramnarine
Conductivity	AT	6733875	N/A	2020/05/21	Surinder Rai
Dissolved Organic Carbon (DOC)	TOCV/NDIR	6740975	N/A	2020/05/23	Nimarta Singh
Fluoride	ISE	6733876	2020/05/21	2020/05/21	Surinder Rai
Hardness (calculated as CaCO <sub>3</sub> )		6729230	N/A	2020/05/22	Automated Statchk
Lab Filtered Metals by ICPMS	ICP/MS	6732680	2020/05/20	2020/05/21	Arefa Dabhad
Total Metals Analysis by ICPMS	ICP/MS	6734006	N/A	2020/05/21	Azita Fazaeli
Anion and Cation Sum	CALC	6729238	N/A	2020/05/22	Automated Statchk
Total Ammonia-N	LACH/NH <sub>4</sub>	6737479	N/A	2020/05/22	Amanpreet Sappal
Nitrate (NO <sub>3</sub> ) and Nitrite (NO <sub>2</sub> ) in Water	LACH	6733860	N/A	2020/05/21	Chandra Nandlal
Total Oil and Grease	BAL	6734179	2020/05/21	2020/05/21	Khushboo Kapoor
pH	AT	6733880	2020/05/21	2020/05/21	Surinder Rai
Phenols (4AAP)	TECH/PHEN	6732033	N/A	2020/05/20	Bramdeo Motiram
Sulphate by Automated Colourimetry	KONE	6732599	N/A	2020/05/21	Deonarine Ramnarine
Total Dissolved Solids	BAL	6732144	2020/05/20	2020/05/21	Jingwei (Alvin) Shi
Total Kjeldahl Nitrogen in Water	SKAL	6738282	2020/05/22	2020/05/22	Rajni Tyagi
Total Phosphorus (Colourimetric)	LACH/P	6738035	2020/05/22	2020/05/25	Shivani Shivani
Total Suspended Solids	BAL	6732172	2020/05/21	2020/05/21	Massarat Jan

**BV Labs ID:** MQM272 Dup  
**Sample ID:** SW1-D  
**Matrix:** Water

**Collected:** 2020/05/14  
**Shipped:**  
**Received:** 2020/05/15

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Lab Filtered Metals by ICPMS	ICP/MS	6732680	2020/05/20	2020/05/21	Arefa Dabhad



### GENERAL COMMENTS

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

Package 1	4.7°C
Package 2	3.3°C
Package 3	4.3°C

**Results relate only to the items tested.**



BUREAU  
VERITAS

BV Labs Job #: COB9834  
Report Date: 2020/05/25

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

## QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
6731213	MJ1	QC Standard	Total Suspended Solids	2020/05/21		102	%	85 - 115
6731213	MJ1	Method Blank	Total Suspended Solids	2020/05/21	<10		mg/L	
6731213	MJ1	RPD	Total Suspended Solids	2020/05/21	NC		%	25
6732033	BMO	Matrix Spike [MQM269-07]	Phenols-4AAP	2020/05/20		93	%	80 - 120
6732033	BMO	Spiked Blank	Phenols-4AAP	2020/05/20		96	%	80 - 120
6732033	BMO	Method Blank	Phenols-4AAP	2020/05/20	<0.0010		mg/L	
6732033	BMO	RPD [MQM269-07]	Phenols-4AAP	2020/05/20	NC		%	20
6732144	JS7	QC Standard	Total Dissolved Solids	2020/05/21		100	%	90 - 110
6732144	JS7	Method Blank	Total Dissolved Solids	2020/05/21	<10		mg/L	
6732144	JS7	RPD	Total Dissolved Solids	2020/05/21	0.60		%	25
6732172	MJ1	QC Standard	Total Suspended Solids	2020/05/21		101	%	85 - 115
6732172	MJ1	Method Blank	Total Suspended Solids	2020/05/21	<10		mg/L	
6732172	MJ1	RPD	Total Suspended Solids	2020/05/21	NC		%	25
6732269	NS3	Matrix Spike	Dissolved Organic Carbon	2020/05/21		NC	%	80 - 120
6732269	NS3	Spiked Blank	Dissolved Organic Carbon	2020/05/21		96	%	80 - 120
6732269	NS3	Method Blank	Dissolved Organic Carbon	2020/05/21	<0.40		mg/L	
6732269	NS3	RPD	Dissolved Organic Carbon	2020/05/21	1.0		%	20
6732594	DRM	Matrix Spike	Dissolved Chloride (Cl-)	2020/05/21		NC	%	80 - 120
6732594	DRM	Spiked Blank	Dissolved Chloride (Cl-)	2020/05/21		101	%	80 - 120
6732594	DRM	Method Blank	Dissolved Chloride (Cl-)	2020/05/21	<1.0		mg/L	
6732594	DRM	RPD	Dissolved Chloride (Cl-)	2020/05/21	1.9		%	20
6732599	DRM	Matrix Spike	Dissolved Sulphate (SO4)	2020/05/21		NC	%	75 - 125
6732599	DRM	Spiked Blank	Dissolved Sulphate (SO4)	2020/05/21		104	%	80 - 120
6732599	DRM	Method Blank	Dissolved Sulphate (SO4)	2020/05/21	<1.0		mg/L	
6732599	DRM	RPD	Dissolved Sulphate (SO4)	2020/05/21	0.19		%	20
6732680	ADA	Matrix Spike [MQM272-01]	Dissolved Aluminum (Al)	2020/05/21		100	%	80 - 120
			Dissolved Calcium (Ca)	2020/05/21		NC	%	80 - 120
			Dissolved Magnesium (Mg)	2020/05/21		106	%	80 - 120
			Dissolved Potassium (K)	2020/05/21		106	%	80 - 120
			Dissolved Sodium (Na)	2020/05/21		NC	%	80 - 120
6732680	ADA	Spiked Blank	Dissolved Aluminum (Al)	2020/05/21		95	%	80 - 120
			Dissolved Calcium (Ca)	2020/05/21		107	%	80 - 120
			Dissolved Magnesium (Mg)	2020/05/21		101	%	80 - 120
			Dissolved Potassium (K)	2020/05/21		101	%	80 - 120
			Dissolved Sodium (Na)	2020/05/21		97	%	80 - 120
6732680	ADA	Method Blank	Dissolved Aluminum (Al)	2020/05/21	<5.0		ug/L	
			Dissolved Calcium (Ca)	2020/05/21	<200		ug/L	
			Dissolved Magnesium (Mg)	2020/05/21	<50		ug/L	
			Dissolved Potassium (K)	2020/05/21	<200		ug/L	
			Dissolved Sodium (Na)	2020/05/21	<100		ug/L	
6732680	ADA	RPD [MQM272-01]	Dissolved Aluminum (Al)	2020/05/21	NC		%	20
			Dissolved Calcium (Ca)	2020/05/21	1.2		%	20
			Dissolved Magnesium (Mg)	2020/05/21	4.2		%	20
			Dissolved Potassium (K)	2020/05/21	1.6		%	20
			Dissolved Sodium (Na)	2020/05/21	2.7		%	20
6733860	C_N	Matrix Spike	Nitrite (N)	2020/05/21		107	%	80 - 120
			Nitrate (N)	2020/05/21		103	%	80 - 120
6733860	C_N	Spiked Blank	Nitrite (N)	2020/05/21		108	%	80 - 120
			Nitrate (N)	2020/05/21		104	%	80 - 120
6733860	C_N	Method Blank	Nitrite (N)	2020/05/21	<0.010		mg/L	

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VERITASBV Labs Job #: COB9834  
Report Date: 2020/05/25Golder Associates Ltd  
Client Project #: 1407634  
Sampler Initials: DH

## QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
6733860	C_N	RPD	Nitrate (N)	2020/05/21	<0.10		mg/L	
			Nitrite (N)	2020/05/21	10		%	20
			Nitrate (N)	2020/05/21	NC		%	20
6733873	SAU	Spiked Blank	Alkalinity (Total as CaCO <sub>3</sub> )	2020/05/21		95	%	85 - 115
6733873	SAU	Method Blank	Alkalinity (Total as CaCO <sub>3</sub> )	2020/05/21	<1.0		mg/L	
6733873	SAU	RPD [MQM270-01]	Alkalinity (Total as CaCO <sub>3</sub> )	2020/05/21	0.47		%	20
6733875	SAU	Spiked Blank	Conductivity	2020/05/21		100	%	85 - 115
6733875	SAU	Method Blank	Conductivity	2020/05/21	<0.001		mS/cm	
6733875	SAU	RPD [MQM270-01]	Conductivity	2020/05/21	0.24		%	25
6733876	SAU	Matrix Spike [MQM270-01]	Fluoride (F-)	2020/05/21		97	%	80 - 120
6733876	SAU	Spiked Blank	Fluoride (F-)	2020/05/21		106	%	80 - 120
6733876	SAU	Method Blank	Fluoride (F-)	2020/05/21	<0.10		mg/L	
6733876	SAU	RPD [MQM270-01]	Fluoride (F-)	2020/05/21	6.7		%	20
6733880	SAU	Spiked Blank	pH	2020/05/21		102	%	98 - 103
6733880	SAU	RPD [MQM270-01]	pH	2020/05/21	0.053		%	N/A
6734006	AFZ	Matrix Spike	Total Arsenic (As)	2020/05/21		101	%	80 - 120
			Total Cadmium (Cd)	2020/05/21		89	%	80 - 120
			Total Calcium (Ca)	2020/05/21		NC	%	80 - 120
			Total Chromium (Cr)	2020/05/21		NC	%	80 - 120
			Total Copper (Cu)	2020/05/21		99	%	80 - 120
			Total Iron (Fe)	2020/05/21		91	%	80 - 120
			Total Lead (Pb)	2020/05/21		82	%	80 - 120
			Total Magnesium (Mg)	2020/05/21		93	%	80 - 120
			Total Manganese (Mn)	2020/05/21		93	%	80 - 120
			Total Nickel (Ni)	2020/05/21		88	%	80 - 120
			Total Potassium (K)	2020/05/21		NC	%	80 - 120
			Total Sodium (Na)	2020/05/21		NC	%	80 - 120
			Total Zinc (Zn)	2020/05/21		84	%	80 - 120
			Total Arsenic (As)	2020/05/21		98	%	80 - 120
			Total Cadmium (Cd)	2020/05/21		98	%	80 - 120
			Total Calcium (Ca)	2020/05/21		98	%	80 - 120
			Total Chromium (Cr)	2020/05/21		93	%	80 - 120
			Total Copper (Cu)	2020/05/21		96	%	80 - 120
			Total Iron (Fe)	2020/05/21		93	%	80 - 120
			Total Lead (Pb)	2020/05/21		92	%	80 - 120
			Total Magnesium (Mg)	2020/05/21		93	%	80 - 120
			Total Manganese (Mn)	2020/05/21		93	%	80 - 120
			Total Nickel (Ni)	2020/05/21		93	%	80 - 120
			Total Potassium (K)	2020/05/21		93	%	80 - 120
			Total Sodium (Na)	2020/05/21		95	%	80 - 120
			Total Zinc (Zn)	2020/05/21		101	%	80 - 120
6734006	AFZ	Method Blank	Total Arsenic (As)	2020/05/21	<1.0		ug/L	
			Total Cadmium (Cd)	2020/05/21	<0.10		ug/L	
			Total Calcium (Ca)	2020/05/21	<200		ug/L	
			Total Chromium (Cr)	2020/05/21	<5.0		ug/L	
			Total Copper (Cu)	2020/05/21	<1.0		ug/L	
			Total Iron (Fe)	2020/05/21	<100		ug/L	
			Total Lead (Pb)	2020/05/21	<0.50		ug/L	
			Total Magnesium (Mg)	2020/05/21	<50		ug/L	
			Total Manganese (Mn)	2020/05/21	<2.0		ug/L	
			Total Nickel (Ni)	2020/05/21	<1.0		ug/L	



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VERITAS

BV Labs Job #: COB9834  
Report Date: 2020/05/25

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

### QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
6734006	AFZ	RPD	Total Potassium (K)	2020/05/21	<200		ug/L	
			Total Sodium (Na)	2020/05/21	<100		ug/L	
			Total Zinc (Zn)	2020/05/21	<5.0		ug/L	
			Total Arsenic (As)	2020/05/21	NC		%	20
			Total Cadmium (Cd)	2020/05/21	3.0		%	20
			Total Calcium (Ca)	2020/05/21	0.090		%	20
			Total Chromium (Cr)	2020/05/21	0.24		%	20
			Total Copper (Cu)	2020/05/21	7.0		%	20
			Total Iron (Fe)	2020/05/21	1.0		%	20
			Total Lead (Pb)	2020/05/21	4.6		%	20
			Total Magnesium (Mg)	2020/05/21	1.0		%	20
			Total Manganese (Mn)	2020/05/21	NC		%	20
			Total Nickel (Ni)	2020/05/21	0.47		%	20
			Total Potassium (K)	2020/05/21	1.0		%	20
			Total Sodium (Na)	2020/05/21	0.030		%	20
			Total Zinc (Zn)	2020/05/21	NC		%	20
6734179	KK4	Spiked Blank	Total Oil & Grease	2020/05/21		94	%	85 - 115
6734179	KK4	RPD	Total Oil & Grease	2020/05/21	1.8		%	25
6734179	KK4	Method Blank	Total Oil & Grease	2020/05/21	<0.50		mg/L	
6737479	ASP	Matrix Spike	Total Ammonia-N	2020/05/22		98	%	75 - 125
6737479	ASP	Spiked Blank	Total Ammonia-N	2020/05/22		100	%	80 - 120
6737479	ASP	Method Blank	Total Ammonia-N	2020/05/22	<0.050		mg/L	
6737479	ASP	RPD	Total Ammonia-N	2020/05/22	0.57		%	20
6738035	SSV	Matrix Spike	Total Phosphorus	2020/05/25		90	%	80 - 120
6738035	SSV	QC Standard	Total Phosphorus	2020/05/25		96	%	80 - 120
6738035	SSV	Spiked Blank	Total Phosphorus	2020/05/25		101	%	80 - 120
6738035	SSV	Method Blank	Total Phosphorus	2020/05/25	<0.004		mg/L	
6738035	SSV	RPD	Total Phosphorus	2020/05/25	NC		%	20
6738282	RTY	Matrix Spike [MQM270-05]	Total Kjeldahl Nitrogen (TKN)	2020/05/25		104	%	80 - 120
6738282	RTY	QC Standard	Total Kjeldahl Nitrogen (TKN)	2020/05/22		110	%	80 - 120
6738282	RTY	Spiked Blank	Total Kjeldahl Nitrogen (TKN)	2020/05/22		106	%	80 - 120
6738282	RTY	Method Blank	Total Kjeldahl Nitrogen (TKN)	2020/05/22	<0.10		mg/L	
6738282	RTY	RPD [MQM270-05]	Total Kjeldahl Nitrogen (TKN)	2020/05/25	2.8		%	20
6740975	NS3	Matrix Spike	Dissolved Organic Carbon	2020/05/23		94	%	80 - 120
6740975	NS3	Spiked Blank	Dissolved Organic Carbon	2020/05/23		98	%	80 - 120
6740975	NS3	Method Blank	Dissolved Organic Carbon	2020/05/23	<0.40		mg/L	
6740975	NS3	RPD	Dissolved Organic Carbon	2020/05/23	0.64		%	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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VERITAS

BV Labs Job #: COB9834  
Report Date: 2020/05/25

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

### VALIDATION SIGNATURE PAGE

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

Anastassia Hamanov, 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.



Your Project #: 1407634  
Site#: 1407634  
Site Location: MCCARTHY  
Your C.O.C. #: 778077-03-01

**Attention: Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2020/09/08**  
Report #: R6323141  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**BV LABS JOB #: COM4751**

**Received: 2020/09/01, 09:29**

Sample Matrix: Water  
# Samples Received: 1

Analyses	Quantity	Date	Date	Laboratory Method	Analytical Method
		Extracted	Analyzed		
Animal and Vegetable Oil and Grease	1	N/A	2020/09/08	CAM SOP-00326	EPA1664B m,SM5520B m
Total Oil and Grease	1	2020/09/08	2020/09/08	CAM SOP-00326	EPA1664B m,SM5520B m
pH	1	2020/09/02	2020/09/02	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	1	N/A	2020/09/03	CAM SOP-00444	OMOE E3179 m
Mineral/Synthetic O & G (TPH Heavy Oil) (1)	1	2020/09/08	2020/09/08	CAM SOP-00326	EPA1664B m,SM5520F m
Low Level Total Suspended Solids	1	2020/09/03	2020/09/04	CAM SOP-00428	SM 23 2540D m

**Remarks:**

Bureau Veritas Laboratories are accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by BV Labs 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 BV Labs profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and BV Labs 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.

BV Labs liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. BV Labs 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 BV Labs, unless otherwise agreed in writing. BV Labs 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 BV Labs, results relate to the supplied samples tested.

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

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. #: 778077-03-01

**Attention: Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2020/09/08**  
Report #: R6323141  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**BV LABS JOB #: C0M4751**  
**Received: 2020/09/01, 09:29**

Encryption Key

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

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BV Labs Job #: COM4751

Report Date: 2020/09/08

Golder Associates Ltd

Client Project #: 1407634

Site Location: MCCARTHY

Sampler Initials: S

## RESULTS OF ANALYSES OF WATER

<b>BV Labs ID</b>		NNB424		
<b>Sampling Date</b>		2020/08/31 13:00		
<b>COC Number</b>		778077-03-01		
	<b>UNITS</b>	<b>POND</b>	<b>RDL</b>	<b>QC Batch</b>
<b>Calculated Parameters</b>				
Total Animal/Vegetable Oil and Grease	mg/L	2.2	0.50	6920613
<b>Inorganics</b>				
pH	pH	7.86	N/A	6923239
Phenols-4AAP	mg/L	<0.0010	0.0010	6925355
Total Suspended Solids	mg/L	17	1	6924505
<b>Petroleum Hydrocarbons</b>				
Total Oil & Grease	mg/L	2.2	0.50	6930957
Total Oil & Grease Mineral/Synthetic	mg/L	<0.50	0.50	6930962
RDL = Reportable Detection Limit				
QC Batch = Quality Control Batch				
N/A = Not Applicable				



BUREAU  
VERITAS

BV Labs Job #: COM4751

Report Date: 2020/09/08

Golder Associates Ltd

Client Project #: 1407634

Site Location: MCCARTHY

Sampler Initials: S

### GENERAL COMMENTS

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

Package 1	21.0°C
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Results relate only to the items tested.



BUREAU  
VERITAS

BV Labs Job #: COM4751

Report Date: 2020/09/08

Golder Associates Ltd

Client Project #: 1407634

Site Location: MCCARTHY

Sampler Initials: S

## QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
6923239	NYS	Spiked Blank	pH	2020/09/02		101	%	98 - 103
6923239	NYS	RPD	pH	2020/09/02	0.18		%	N/A
6924505	JS7	QC Standard	Total Suspended Solids	2020/09/04		100	%	85 - 115
6924505	JS7	Method Blank	Total Suspended Solids	2020/09/04	<1		mg/L	
6924505	JS7	RPD	Total Suspended Solids	2020/09/04	0		%	25
6925355	BMO	Matrix Spike	Phenols-4AAP	2020/09/03		106	%	80 - 120
6925355	BMO	Spiked Blank	Phenols-4AAP	2020/09/03		104	%	80 - 120
6925355	BMO	Method Blank	Phenols-4AAP	2020/09/03	<0.0010		mg/L	
6925355	BMO	RPD	Phenols-4AAP	2020/09/03	6.5		%	20
6930957	FA	Spiked Blank	Total Oil & Grease	2020/09/08		95	%	85 - 115
6930957	FA	RPD	Total Oil & Grease	2020/09/08	4.1		%	25
6930957	FA	Method Blank	Total Oil & Grease	2020/09/08	<0.50		mg/L	
6930962	FA	Spiked Blank	Total Oil & Grease Mineral/Synthetic	2020/09/08		92	%	85 - 115
6930962	FA	RPD	Total Oil & Grease Mineral/Synthetic	2020/09/08	2.7		%	25
6930962	FA	Method Blank	Total Oil & Grease Mineral/Synthetic	2020/09/08	<0.50		mg/L	

N/A = Not Applicable

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

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

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

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

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



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VERITAS

BV Labs Job #: COM4751

Report Date: 2020/09/08

Golder Associates Ltd

Client Project #: 1407634

Site Location: MCCARTHY

Sampler Initials: S

### VALIDATION SIGNATURE PAGE

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

Anastassia Hamanov, Scientific Specialist

---

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Your Project #: 1407634  
Site#: McCarthy  
Site Location: MCCARTHY  
Your C.O.C. #: 778077-05-01

**Attention: Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2020/09/14**  
Report #: R6330243  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**BV LABS JOB #: CON2321**

**Received: 2020/09/09, 09:32**

Sample Matrix: Water  
# Samples Received: 1

Analyses	Quantity	Date	Date	Laboratory Method	Analytical Method
		Extracted	Analyzed		
Animal and Vegetable Oil and Grease	1	N/A	2020/09/13	CAM SOP-00326	EPA1664B m,SM5520B m
Total Oil and Grease	1	2020/09/13	2020/09/13	CAM SOP-00326	EPA1664B m,SM5520B m
pH	1	2020/09/10	2020/09/14	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	1	N/A	2020/09/14	CAM SOP-00444	OMOE E3179 m
Mineral/Synthetic O & G (TPH Heavy Oil) (1)	1	2020/09/13	2020/09/13	CAM SOP-00326	EPA1664B m,SM5520F m
Low Level Total Suspended Solids	1	2020/09/11	2020/09/14	CAM SOP-00428	SM 23 2540D m

**Remarks:**

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All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in BV Labs profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and BV Labs 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.

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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 BV Labs, results relate to the supplied samples tested.

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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 #: 1407634  
Site#: McCarthy  
Site Location: MCCARTHY  
Your C.O.C. #: 778077-05-01

**Attention: Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2020/09/14**  
Report #: R6330243  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**BV LABS JOB #: CON2321**  
**Received: 2020/09/09, 09:32**

Encryption Key

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

=====

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VERITAS

BV Labs Job #: CON2321

Report Date: 2020/09/14

Golder Associates Ltd

Client Project #: 1407634

Site Location: MCCARTHY

Sampler Initials: SA

## RESULTS OF ANALYSES OF WATER

<b>BV Labs ID</b>		NOR957		
<b>Sampling Date</b>		2020/09/08 14:00		
<b>COC Number</b>		778077-05-01		
	<b>UNITS</b>	<b>590331 POND</b>	<b>RDL</b>	<b>QC Batch</b>
<b>Calculated Parameters</b>				
Total Animal/Vegetable Oil and Grease	mg/L	<0.50	0.50	6934904
<b>Inorganics</b>				
pH	pH	7.76	N/A	6937243
Phenols-4AAP	mg/L	<0.0010	0.0010	6941535
Total Suspended Solids	mg/L	8	1	6936088
<b>Petroleum Hydrocarbons</b>				
Total Oil & Grease	mg/L	<0.50	0.50	6941332
Total Oil & Grease Mineral/Synthetic	mg/L	<0.50	0.50	6941333
RDL = Reportable Detection Limit QC Batch = Quality Control Batch N/A = Not Applicable				



BUREAU  
VERITAS

BV Labs Job #: CON2321

Report Date: 2020/09/14

Golder Associates Ltd

Client Project #: 1407634

Site Location: MCCARTHY

Sampler Initials: SA

### GENERAL COMMENTS

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

Package 1	18.0°C
-----------	--------

Sample NOR957 [590331 POND] : Sampling date and time updated as per container label.

**Results relate only to the items tested.**



BUREAU  
VERITAS

BV Labs Job #: CON2321  
Report Date: 2020/09/14

Golder Associates Ltd  
Client Project #: 1407634  
Site Location: MCCARTHY  
Sampler Initials: SA

## QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
6936088	MJ1	QC Standard	Total Suspended Solids	2020/09/14		100	%	85 - 115
6936088	MJ1	Method Blank	Total Suspended Solids	2020/09/14	<1		mg/L	
6936088	MJ1	RPD	Total Suspended Solids	2020/09/14	0		%	25
6937243	SAU	Spiked Blank	pH	2020/09/14		102	%	98 - 103
6937243	SAU	RPD	pH	2020/09/14	1.7		%	N/A
6941332	KRW	Spiked Blank	Total Oil & Grease	2020/09/13		95	%	85 - 115
6941332	KRW	RPD	Total Oil & Grease	2020/09/13	2.1		%	25
6941332	KRW	Method Blank	Total Oil & Grease	2020/09/13	<0.50		mg/L	
6941333	KRW	Spiked Blank	Total Oil & Grease Mineral/Synthetic	2020/09/13		97	%	85 - 115
6941333	KRW	RPD	Total Oil & Grease Mineral/Synthetic	2020/09/13	4.8		%	25
6941333	KRW	Method Blank	Total Oil & Grease Mineral/Synthetic	2020/09/13	<0.50		mg/L	
6941535	BMO	Matrix Spike	Phenols-4AAP	2020/09/14		97	%	80 - 120
6941535	BMO	Spiked Blank	Phenols-4AAP	2020/09/14		98	%	80 - 120
6941535	BMO	Method Blank	Phenols-4AAP	2020/09/14	<0.0010		mg/L	
6941535	BMO	RPD	Phenols-4AAP	2020/09/14	NC		%	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  $\leq 2 \times$  RDL).



BUREAU  
VERITAS

BV Labs Job #: CON2321

Report Date: 2020/09/14

Golder Associates Ltd

Client Project #: 1407634

Site Location: MCCARTHY

Sampler Initials: SA

### VALIDATION SIGNATURE PAGE

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

---

Brad Newman, Scientific Service Specialist

---

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Your Project #: 1407634  
Site Location: MCCARTHY  
Your C.O.C. #: 778077-01-01

**Attention: Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2020/09/21**  
Report #: R6339091  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**BV LABS JOB #: CON8290**

**Received: 2020/09/15, 10:30**

Sample Matrix: Water  
# Samples Received: 1

Analyses	Quantity	Date	Date	Laboratory Method	Analytical Method
		Extracted	Analyzed		
Animal and Vegetable Oil and Grease	1	N/A	2020/09/18	CAM SOP-00326	EPA1664B m,SM5520B m
Total Oil and Grease	1	2020/09/18	2020/09/18	CAM SOP-00326	EPA1664B m,SM5520B m
pH	1	2020/09/16	2020/09/16	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	1	N/A	2020/09/16	CAM SOP-00444	OMOE E3179 m
Mineral/Synthetic O & G (TPH Heavy Oil) (1)	1	2020/09/18	2020/09/18	CAM SOP-00326	EPA1664B m,SM5520F m
Low Level Total Suspended Solids	1	2020/09/17	2020/09/18	CAM SOP-00428	SM 23 2540D m

**Remarks:**

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Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.

Results relate to samples tested. When sampling is not conducted by BV Labs, results relate to the supplied samples tested.

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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 #: 1407634  
Site Location: MCCARTHY  
Your C.O.C. #: 778077-01-01

**Attention: Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2020/09/21**  
Report #: R6339091  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**BV LABS JOB #: CON8290**  
**Received: 2020/09/15, 10:30**

Encryption Key

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

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VERITAS

BV Labs Job #: CON8290

Report Date: 2020/09/21

Golder Associates Ltd

Client Project #: 1407634

Site Location: MCCARTHY

Sampler Initials: SA

## RESULTS OF ANALYSES OF WATER

<b>BV Labs ID</b>		NPW750		
<b>Sampling Date</b>		2020/09/14 15:30		
<b>COC Number</b>		778077-01-01		
	<b>UNITS</b>	<b>POND</b>	<b>RDL</b>	<b>QC Batch</b>
<b>Calculated Parameters</b>				
Total Animal/Vegetable Oil and Grease	mg/L	<0.50	0.50	6943962
<b>Inorganics</b>				
pH	pH	7.97	N/A	6944770
Phenols-4AAP	mg/L	<0.0010	0.0010	6946264
Total Suspended Solids	mg/L	12	1	6947311
<b>Petroleum Hydrocarbons</b>				
Total Oil & Grease	mg/L	<0.50	0.50	6952234
Total Oil & Grease Mineral/Synthetic	mg/L	<0.50	0.50	6952235
RDL = Reportable Detection Limit				
QC Batch = Quality Control Batch				
N/A = Not Applicable				





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BV Labs Job #: CON8290

Report Date: 2020/09/21

Golder Associates Ltd

Client Project #: 1407634

Site Location: MCCARTHY

Sampler Initials: SA

### GENERAL COMMENTS

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

Package 1	14.3°C
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Sample NPW750 [POND] : Sampling date and time have been updated as per container label.

**Results relate only to the items tested.**



BUREAU  
VERITAS

BV Labs Job #: CON8290  
Report Date: 2020/09/21

Golder Associates Ltd  
Client Project #: 1407634  
Site Location: MCCARTHY  
Sampler Initials: SA

### QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
6944770	NYS	Spiked Blank	pH	2020/09/16		102	%	98 - 103
6944770	NYS	RPD	pH	2020/09/16	0.0057		%	N/A
6946264	BMO	Matrix Spike	Phenols-4AAP	2020/09/16		100	%	80 - 120
6946264	BMO	Spiked Blank	Phenols-4AAP	2020/09/16		96	%	80 - 120
6946264	BMO	Method Blank	Phenols-4AAP	2020/09/16	<0.0010		mg/L	
6946264	BMO	RPD	Phenols-4AAP	2020/09/16	5.4		%	20
6947311	MAN	QC Standard	Total Suspended Solids	2020/09/18		95	%	85 - 115
6947311	MAN	Method Blank	Total Suspended Solids	2020/09/18	<1		mg/L	
6947311	MAN	RPD	Total Suspended Solids	2020/09/18	15		%	25
6952234	GSG	Spiked Blank	Total Oil & Grease	2020/09/18		98	%	85 - 115
6952234	GSG	RPD	Total Oil & Grease	2020/09/18	2.3		%	25
6952234	GSG	Method Blank	Total Oil & Grease	2020/09/18	<0.50		mg/L	
6952235	GSG	Spiked Blank	Total Oil & Grease Mineral/Synthetic	2020/09/18		97	%	85 - 115
6952235	GSG	RPD	Total Oil & Grease Mineral/Synthetic	2020/09/18	3.1		%	25
6952235	GSG	Method Blank	Total Oil & Grease Mineral/Synthetic	2020/09/18	<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 #: CON8290

Report Date: 2020/09/21

Golder Associates Ltd

Client Project #: 1407634

Site Location: MCCARTHY

Sampler Initials: SA

### VALIDATION SIGNATURE PAGE

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

Anastassia Hamanov, Scientific Specialist

---

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Your Project #: 1407634  
Site#: 1407634  
Site Location: MCCARTHY  
Your C.O.C. #: 778077-04-01

**Attention: Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2020/09/29**  
Report #: R6350302  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**BV LABS JOB #: C005985**

**Received: 2020/09/22, 09:20**

Sample Matrix: Water  
# Samples Received: 1

Analyses	Quantity	Date	Date	Laboratory Method	Analytical Method
		Extracted	Analyzed		
Animal and Vegetable Oil and Grease	1	N/A	2020/09/26	CAM SOP-00326	EPA1664B m,SM5520B m
Total Oil and Grease	1	2020/09/26	2020/09/26	CAM SOP-00326	EPA1664B m,SM5520B m
pH	1	2020/09/25	2020/09/28	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	1	N/A	2020/09/28	CAM SOP-00444	OMOE E3179 m
Mineral/Synthetic O & G (TPH Heavy Oil) (1)	1	2020/09/26	2020/09/26	CAM SOP-00326	EPA1664B m,SM5520F m
Low Level Total Suspended Solids	1	2020/09/26	2020/09/28	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 BV Labs, results relate to the supplied samples tested.

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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 #: 1407634  
Site#: 1407634  
Site Location: MCCARTHY  
Your C.O.C. #: 778077-04-01

**Attention: Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2020/09/29**  
Report #: R6350302  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**BV LABS JOB #: C005985**  
**Received: 2020/09/22, 09:20**

Encryption Key

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

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BV Labs Job #: C005985

Report Date: 2020/09/29

Golder Associates Ltd

Client Project #: 1407634

Site Location: MCCARTHY

Sampler Initials: SH

## RESULTS OF ANALYSES OF WATER

<b>BV Labs ID</b>		NRP673		
<b>Sampling Date</b>		2020/09/21 14:30		
<b>COC Number</b>		778077-04-01		
	<b>UNITS</b>	<b>POND</b>	<b>RDL</b>	<b>QC Batch</b>
<b>Calculated Parameters</b>				
Total Animal/Vegetable Oil and Grease	mg/L	<0.50	0.50	6962250
<b>Inorganics</b>				
pH	pH	8.00	N/A	6965636
Phenols-4AAP	mg/L	<0.0010	0.0010	6968100
Total Suspended Solids	mg/L	9	1	6967498
<b>Petroleum Hydrocarbons</b>				
Total Oil & Grease	mg/L	<0.50	0.50	6967011
Total Oil & Grease Mineral/Synthetic	mg/L	<0.50	0.50	6967014
RDL = Reportable Detection Limit				
QC Batch = Quality Control Batch				
N/A = Not Applicable				



BUREAU  
VERITAS

BV Labs Job #: C005985

Report Date: 2020/09/29

Golder Associates Ltd

Client Project #: 1407634

Site Location: MCCARTHY

Sampler Initials: SH

### GENERAL COMMENTS

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

Package 1	16.0°C
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**Results relate only to the items tested.**



BUREAU  
VERITAS

BV Labs Job #: C005985

Report Date: 2020/09/29

Golder Associates Ltd

Client Project #: 1407634

Site Location: MCCARTHY

Sampler Initials: SH

## QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
6965636	SAU	Spiked Blank	pH	2020/09/28		102	%	98 - 103
6965636	SAU	RPD	pH	2020/09/28	0.089		%	N/A
6967011	GSG	Spiked Blank	Total Oil & Grease	2020/09/26		97	%	85 - 115
6967011	GSG	RPD	Total Oil & Grease	2020/09/26	2.1		%	25
6967011	GSG	Method Blank	Total Oil & Grease	2020/09/26	<0.50		mg/L	
6967014	GSG	Spiked Blank	Total Oil & Grease Mineral/Synthetic	2020/09/26		93	%	85 - 115
6967014	GSG	RPD	Total Oil & Grease Mineral/Synthetic	2020/09/26	4.2		%	25
6967014	GSG	Method Blank	Total Oil & Grease Mineral/Synthetic	2020/09/26	<0.50		mg/L	
6967498	SDE	QC Standard	Total Suspended Solids	2020/09/28		95	%	85 - 115
6967498	SDE	Method Blank	Total Suspended Solids	2020/09/28	<1		mg/L	
6967498	SDE	RPD	Total Suspended Solids	2020/09/28	18		%	25
6968100	BMO	Matrix Spike	Phenols-4AAP	2020/09/28		97	%	80 - 120
6968100	BMO	Spiked Blank	Phenols-4AAP	2020/09/28		96	%	80 - 120
6968100	BMO	Method Blank	Phenols-4AAP	2020/09/28	<0.0010		mg/L	
6968100	BMO	RPD	Phenols-4AAP	2020/09/28	NC		%	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  $\leq 2 \times \text{RDL}$ ).





BUREAU  
VERITAS

BV Labs Job #: C005985

Report Date: 2020/09/29

Golder Associates Ltd

Client Project #: 1407634

Site Location: MCCARTHY

Sampler Initials: SH

### VALIDATION SIGNATURE PAGE

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

Anastassia Hamanov, Scientific Specialist

---

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Your Project #: 1407634  
Site#: 1407634  
Site Location: MCCARTHY  
Your C.O.C. #: 766888-05-01

**Attention: Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2020/10/07**  
Report #: R6361171  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**BV LABS JOB #: COP6126**

**Received: 2020/10/01, 10:27**

Sample Matrix: Water  
# Samples Received: 1

Analyses	Quantity	Date	Date	Laboratory Method	Analytical Method
		Extracted	Analyzed		
Animal and Vegetable Oil and Grease	1	N/A	2020/10/07	CAM SOP-00326	EPA1664B m,SM5520B m
Total Oil and Grease	1	2020/10/07	2020/10/07	CAM SOP-00326	EPA1664B m,SM5520B m
pH	1	2020/10/03	2020/10/05	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	1	N/A	2020/10/06	CAM SOP-00444	OMOE E3179 m
Mineral/Synthetic O & G (TPH Heavy Oil) (1)	1	2020/10/07	2020/10/07	CAM SOP-00326	EPA1664B m,SM5520F m
Low Level Total Suspended Solids	1	2020/10/03	2020/10/05	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 BV Labs, results relate to the supplied samples tested.

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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 #: 1407634  
Site#: 1407634  
Site Location: MCCARTHY  
Your C.O.C. #: 766888-05-01

**Attention: Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2020/10/07**  
Report #: R6361171  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**BV LABS JOB #: C0P6126**  
**Received: 2020/10/01, 10:27**

Encryption Key

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

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VERITAS

BV Labs Job #: COP6126  
Report Date: 2020/10/07

Golder Associates Ltd  
Client Project #: 1407634  
Site Location: MCCARTHY  
Sampler Initials: SH

## RESULTS OF ANALYSES OF WATER

<b>BV Labs ID</b>			NTV364		
<b>Sampling Date</b>			2020/09/28 14:30		
<b>COC Number</b>			766888-05-01		
	<b>UNITS</b>	<b>Criteria</b>	<b>POND</b>	<b>RDL</b>	<b>QC Batch</b>
<b>Calculated Parameters</b>					
Total Animal/Vegetable Oil and Grease	mg/L	-	1.2	0.50	6978793
<b>Inorganics</b>					
pH	pH	<b>6.5:8.5</b>	8.05	N/A	6981546
Phenols-4AAP	mg/L	<b>0.001</b>	<0.0010	0.0010	6982578
Total Suspended Solids	mg/L	-	16	1	6981384
<b>Petroleum Hydrocarbons</b>					
Total Oil & Grease	mg/L	-	1.2	0.50	6987130
Total Oil & Grease Mineral/Synthetic	mg/L	<b>0.5</b>	<0.50	0.50	6987150
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Criteria: Ontario Provincial Water Quality Objectives Ref. to MOEE Water Management document dated Feb.1999 N/A = Not Applicable					



BUREAU  
VERITAS

BV Labs Job #: COP6126  
Report Date: 2020/10/07

Golder Associates Ltd  
Client Project #: 1407634  
Site Location: MCCARTHY  
Sampler Initials: SH

### GENERAL COMMENTS

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

Package 1	2.3°C
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Results relate only to the items tested.



BUREAU  
VERITAS

BV Labs Job #: COP6126  
Report Date: 2020/10/07

Golder Associates Ltd  
Client Project #: 1407634  
Site Location: MCCARTHY  
Sampler Initials: SH

### QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
6981384	SDE	QC Standard	Total Suspended Solids	2020/10/05		96	%	85 - 115
6981384	SDE	Method Blank	Total Suspended Solids	2020/10/05	<1		mg/L	
6981384	SDE	RPD	Total Suspended Solids	2020/10/05	0		%	25
6981546	YPA	Spiked Blank	pH	2020/10/05		102	%	98 - 103
6981546	YPA	RPD	pH	2020/10/05	0.35		%	N/A
6982578	BMO	Matrix Spike	Phenols-4AAP	2020/10/06		102	%	80 - 120
6982578	BMO	Spiked Blank	Phenols-4AAP	2020/10/06		98	%	80 - 120
6982578	BMO	Method Blank	Phenols-4AAP	2020/10/06	<0.0010		mg/L	
6982578	BMO	RPD	Phenols-4AAP	2020/10/06	NC		%	20
6987130	FA	Spiked Blank	Total Oil & Grease	2020/10/07		96	%	85 - 115
6987130	FA	RPD	Total Oil & Grease	2020/10/07	2.6		%	25
6987130	FA	Method Blank	Total Oil & Grease	2020/10/07	<0.50		mg/L	
6987150	FA	Spiked Blank	Total Oil & Grease Mineral/Synthetic	2020/10/07		92	%	85 - 115
6987150	FA	RPD	Total Oil & Grease Mineral/Synthetic	2020/10/07	2.7		%	25
6987150	FA	Method Blank	Total Oil & Grease Mineral/Synthetic	2020/10/07	<0.50		mg/L	

N/A = Not Applicable

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

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

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

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

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

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference  $\leq 2 \times \text{RDL}$ ).



BUREAU  
VERITAS

BV Labs Job #: COP6126  
Report Date: 2020/10/07

Golder Associates Ltd  
Client Project #: 1407634  
Site Location: MCCARTHY  
Sampler Initials: SH

### 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 #: 1407634  
Site#: McCarthy  
Your C.O.C. #: 766888-02-01

**Attention: Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2020/10/16**  
Report #: R6372559  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**BV LABS JOB #: C0Q6598**

**Received: 2020/10/10, 10:29**

Sample Matrix: Water  
# Samples Received: 1

Analyses	Quantity	Date	Date	Laboratory Method	Analytical Method
		Extracted	Analyzed		
Animal and Vegetable Oil and Grease	1	N/A	2020/10/14	CAM SOP-00326	EPA1664B m,SM5520B m
Total Oil and Grease	1	2020/10/14	2020/10/14	CAM SOP-00326	EPA1664B m,SM5520B m
pH	1	2020/10/13	2020/10/13	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	1	N/A	2020/10/14	CAM SOP-00444	OMOE E3179 m
Mineral/Synthetic O & G (TPH Heavy Oil) (1)	1	2020/10/14	2020/10/14	CAM SOP-00326	EPA1664B m,SM5520F m
Low Level Total Suspended Solids	1	2020/10/15	2020/10/16	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 BV Labs, results relate to the supplied samples tested.

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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 #: 1407634  
Site#: McCarthy  
Your C.O.C. #: 766888-02-01

**Attention: Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2020/10/16**  
Report #: R6372559  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**BV LABS JOB #: C0Q6598**  
**Received: 2020/10/10, 10:29**

Encryption Key

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

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BUREAU  
VERITAS

BV Labs Job #: COQ6598

Report Date: 2020/10/16

Golder Associates Ltd

Client Project #: 1407634

Sampler Initials: SA

## RESULTS OF ANALYSES OF WATER

<b>BV Labs ID</b>			NWA885		
<b>Sampling Date</b>			2020/10/08 14:30		
<b>COC Number</b>			766888-02-01		
	<b>UNITS</b>	<b>Criteria</b>	<b>590331 POND</b>	<b>RDL</b>	<b>QC Batch</b>
<b>Calculated Parameters</b>					
Total Animal/Vegetable Oil and Grease	mg/L	-	<0.50	0.50	6994782
<b>Inorganics</b>					
pH	pH	<b>6.5:8.5</b>	7.84	N/A	6997305
Phenols-4AAP	mg/L	<b>0.001</b>	<0.0010	0.0010	6998404
Total Suspended Solids	mg/L	-	3	1	6998830
<b>Petroleum Hydrocarbons</b>					
Total Oil & Grease	mg/L	-	<0.50	0.50	6999790
Total Oil & Grease Mineral/Synthetic	mg/L	<b>0.5</b>	<0.50	0.50	6999791
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Criteria: Ontario Provincial Water Quality Objectives Ref. to MOEE Water Management document dated Feb.1999 N/A = Not Applicable					



BUREAU  
VERITAS

BV Labs Job #: C0Q6598

Report Date: 2020/10/16

Golder Associates Ltd

Client Project #: 1407634

Sampler Initials: SA

### GENERAL COMMENTS

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

Package 1	7.3°C
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Results relate only to the items tested.



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VERITAS

BV Labs Job #: CQ6598  
Report Date: 2020/10/16

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

## QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
6997305	NYS	Spiked Blank	pH	2020/10/13		102	%	98 - 103
6997305	NYS	RPD	pH	2020/10/13	0.37		%	N/A
6998404	BMO	Matrix Spike	Phenols-4AAP	2020/10/14		100	%	80 - 120
6998404	BMO	Spiked Blank	Phenols-4AAP	2020/10/14		100	%	80 - 120
6998404	BMO	Method Blank	Phenols-4AAP	2020/10/14	<0.0010		mg/L	
6998404	BMO	RPD	Phenols-4AAP	2020/10/14	NC		%	20
6998830	MAN	QC Standard	Total Suspended Solids	2020/10/16		97	%	85 - 115
6998830	MAN	Method Blank	Total Suspended Solids	2020/10/16	<1		mg/L	
6998830	MAN	RPD	Total Suspended Solids	2020/10/16	0		%	25
6999790	GSG	Spiked Blank	Total Oil & Grease	2020/10/14		97	%	85 - 115
6999790	GSG	RPD	Total Oil & Grease	2020/10/14	2.1		%	25
6999790	GSG	Method Blank	Total Oil & Grease	2020/10/14	<0.50		mg/L	
6999791	GSG	Spiked Blank	Total Oil & Grease Mineral/Synthetic	2020/10/14		93	%	85 - 115
6999791	GSG	RPD	Total Oil & Grease Mineral/Synthetic	2020/10/14	3.7		%	25
6999791	GSG	Method Blank	Total Oil & Grease Mineral/Synthetic	2020/10/14	<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  $\leq 2 \times \text{RDL}$ ).



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BV Labs Job #: C0Q6598

Report Date: 2020/10/16

Golder Associates Ltd

Client Project #: 1407634

Sampler Initials: SA

### VALIDATION SIGNATURE PAGE

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

Anastassia Hamanov, Scientific Specialist

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Your Project #: 1407634  
Site Location: MCCARTHY  
Your C.O.C. #: 766888-04-01

**Attention: Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2020/10/19**  
Report #: R6375487  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**BV LABS JOB #: C0Q9082**

**Received: 2020/10/14, 10:04**

Sample Matrix: Water  
# Samples Received: 1

Analyses	Quantity	Date	Date	Laboratory Method	Analytical Method
		Extracted	Analyzed		
Animal and Vegetable Oil and Grease	1	N/A	2020/10/15	CAM SOP-00326	EPA1664B m,SM5520B m
Total Oil and Grease	1	2020/10/15	2020/10/15	CAM SOP-00326	EPA1664B m,SM5520B m
pH	1	2020/10/16	2020/10/16	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	1	N/A	2020/10/16	CAM SOP-00444	OMOE E3179 m
Mineral/Synthetic O & G (TPH Heavy Oil) (1)	1	2020/10/15	2020/10/15	CAM SOP-00326	EPA1664B m,SM5520F m
Low Level Total Suspended Solids	1	2020/10/16	2020/10/17	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 BV Labs, results relate to the supplied samples tested.

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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 #: 1407634  
Site Location: MCCARTHY  
Your C.O.C. #: 766888-04-01

**Attention: Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2020/10/19**  
Report #: R6375487  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**BV LABS JOB #: C0Q9082**  
**Received: 2020/10/14, 10:04**

Encryption Key

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Ema Gitej, Senior Project Manager  
Email: Ema.Gitej@bvlabs.com  
Phone# (905)817-5829

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VERITAS

BV Labs Job #: COQ9082  
Report Date: 2020/10/19

Golder Associates Ltd  
Client Project #: 1407634  
Site Location: MCCARTHY  
Sampler Initials: SH

### RESULTS OF ANALYSES OF WATER

<b>BV Labs ID</b>		NWP918		NWP918	
<b>Sampling Date</b>		2020/10/13 14:00		2020/10/13 14:00	
<b>COC Number</b>		766888-04-01		766888-04-01	
	<b>UNITS</b>	<b>POND</b>	<b>RDL</b>	<b>POND Lab-Dup</b>	<b>QC Batch</b>
<b>Calculated Parameters</b>					
Total Animal/Vegetable Oil and Grease	mg/L	<0.50	0.50	N/A	6998675
<b>Inorganics</b>					
pH	pH	7.98	N/A	7.98	7003902
Phenols-4AAP	mg/L	<0.0010	0.0010	N/A	7003578
Total Suspended Solids	mg/L	5	1	N/A	7002728
<b>Petroleum Hydrocarbons</b>					
Total Oil & Grease	mg/L	<0.50	0.50	N/A	7002075
Total Oil & Grease Mineral/Synthetic	mg/L	<0.50	0.50	N/A	7002081
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Lab-Dup = Laboratory Initiated Duplicate N/A = Not Applicable					





BUREAU  
VERITAS

BV Labs Job #: COQ9082

Report Date: 2020/10/19

Golder Associates Ltd

Client Project #: 1407634

Site Location: MCCARTHY

Sampler Initials: SH

### GENERAL COMMENTS

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

Package 1	16.3°C
-----------	--------

Results relate only to the items tested.



BUREAU  
VERITAS

BV Labs Job #: COQ9082  
Report Date: 2020/10/19

Golder Associates Ltd  
Client Project #: 1407634  
Site Location: MCCARTHY  
Sampler Initials: SH

### QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
7002075	GSG	Spiked Blank	Total Oil & Grease	2020/10/15		99	%	85 - 115
7002075	GSG	RPD	Total Oil & Grease	2020/10/15	2.8		%	25
7002075	GSG	Method Blank	Total Oil & Grease	2020/10/15	<0.50		mg/L	
7002081	GSG	Spiked Blank	Total Oil & Grease Mineral/Synthetic	2020/10/15		97	%	85 - 115
7002081	GSG	RPD	Total Oil & Grease Mineral/Synthetic	2020/10/15	3.7		%	25
7002081	GSG	Method Blank	Total Oil & Grease Mineral/Synthetic	2020/10/15	<0.50		mg/L	
7002728	MJ1	QC Standard	Total Suspended Solids	2020/10/17		97	%	85 - 115
7002728	MJ1	Method Blank	Total Suspended Solids	2020/10/17	<1		mg/L	
7002728	MJ1	RPD	Total Suspended Solids	2020/10/17	0		%	25
7003578	BMO	Matrix Spike	Phenols-4AAP	2020/10/16		101	%	80 - 120
7003578	BMO	Spiked Blank	Phenols-4AAP	2020/10/16		100	%	80 - 120
7003578	BMO	Method Blank	Phenols-4AAP	2020/10/16	<0.0010		mg/L	
7003578	BMO	RPD	Phenols-4AAP	2020/10/16	NC		%	20
7003902	NYS	Spiked Blank	pH	2020/10/16		102	%	98 - 103
7003902	NYS	RPD [NWP918-03]	pH	2020/10/16	0.015		%	N/A

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  $\leq 2 \times \text{RDL}$ ).



BUREAU  
VERITAS

BV Labs Job #: CQ9082

Report Date: 2020/10/19

Golder Associates Ltd

Client Project #: 1407634

Site Location: MCCARTHY

Sampler Initials: SH

### VALIDATION SIGNATURE PAGE

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

Anastassia Hamanov, Scientific Specialist

---

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Your Project #: 1407634  
Site#: 1407634  
Site Location: MCCARTHY  
Your C.O.C. #: 762593-03-01

**Attention: Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2020/10/23**  
Report #: R6382110  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**BV LABS JOB #: C0R5630**

**Received: 2020/10/20, 10:18**

Sample Matrix: Water  
# Samples Received: 1

Analyses	Quantity	Date	Date	Laboratory Method	Analytical Method
		Extracted	Analyzed		
Animal and Vegetable Oil and Grease	1	N/A	2020/10/23	CAM SOP-00326	EPA1664B m,SM5520B m
Total Oil and Grease	1	2020/10/22	2020/10/22	CAM SOP-00326	EPA1664B m,SM5520B m
pH	1	2020/10/21	2020/10/23	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	1	N/A	2020/10/22	CAM SOP-00444	OMOE E3179 m
Mineral/Synthetic O & G (TPH Heavy Oil) (1)	1	2020/10/22	2020/10/22	CAM SOP-00326	EPA1664B m,SM5520F m
Low Level Total Suspended Solids	1	2020/10/22	2020/10/23	CAM SOP-00428	SM 23 2540D m

**Remarks:**

Bureau Veritas Laboratories are accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by BV Labs 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 BV Labs profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and BV Labs 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.

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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 BV Labs, results relate to the supplied samples tested.

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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 #: 1407634  
Site#: 1407634  
Site Location: MCCARTHY  
Your C.O.C. #: 762593-03-01

**Attention: Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2020/10/23**  
Report #: R6382110  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**BV LABS JOB #: C0R5630**  
**Received: 2020/10/20, 10:18**

Encryption Key

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

=====

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BUREAU  
VERITAS

BV Labs Job #: COR5630  
Report Date: 2020/10/23

Golder Associates Ltd  
Client Project #: 1407634  
Site Location: MCCARTHY  
Sampler Initials: SH

## RESULTS OF ANALYSES OF WATER

<b>BV Labs ID</b>			NYA398		NYA398	
<b>Sampling Date</b>			2020/10/19 14:00		2020/10/19 14:00	
<b>COC Number</b>			762593-03-01		762593-03-01	
	<b>UNITS</b>	<b>Criteria</b>	<b>POND</b>	<b>RDL</b>	<b>POND Lab-Dup</b>	<b>QC Batch</b>
<b>Calculated Parameters</b>						
Total Animal/Vegetable Oil and Grease	mg/L	-	<0.50	0.50	N/A	7009242
<b>Inorganics</b>						
pH	pH	<b>6.5:8.5</b>	7.91	N/A	7.93	7013336
Phenols-4AAP	mg/L	<b>0.001</b>	<0.0010	0.0010	N/A	7014024
Total Suspended Solids	mg/L	-	7	1	N/A	7014307
<b>Petroleum Hydrocarbons</b>						
Total Oil & Grease	mg/L	-	<0.50	0.50	N/A	7015253
Total Oil & Grease Mineral/Synthetic	mg/L	<b>0.5</b>	<0.50	0.50	N/A	7015254
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						



BUREAU  
VERITAS

BV Labs Job #: COR5630  
Report Date: 2020/10/23

Golder Associates Ltd  
Client Project #: 1407634  
Site Location: MCCARTHY  
Sampler Initials: SH

### GENERAL COMMENTS

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

Package 1	12.7°C
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**Results relate only to the items tested.**



BUREAU  
VERITAS

BV Labs Job #: COR5630  
Report Date: 2020/10/23

Golder Associates Ltd  
Client Project #: 1407634  
Site Location: MCCARTHY  
Sampler Initials: SH

### QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
7013336	SAU	Spiked Blank	pH	2020/10/23		101	%	98 - 103
7013336	SAU	RPD [NYA398-03]	pH	2020/10/23	0.27		%	N/A
7014024	BMO	Matrix Spike	Phenols-4AAP	2020/10/22		102	%	80 - 120
7014024	BMO	Spiked Blank	Phenols-4AAP	2020/10/22		103	%	80 - 120
7014024	BMO	Method Blank	Phenols-4AAP	2020/10/22	<0.0010		mg/L	
7014024	BMO	RPD	Phenols-4AAP	2020/10/22	3.0		%	20
7014307	MAN	QC Standard	Total Suspended Solids	2020/10/23		95	%	85 - 115
7014307	MAN	Method Blank	Total Suspended Solids	2020/10/23	<1		mg/L	
7014307	MAN	RPD	Total Suspended Solids	2020/10/23	18		%	25
7015253	GSG	Spiked Blank	Total Oil & Grease	2020/10/22		99	%	85 - 115
7015253	GSG	RPD	Total Oil & Grease	2020/10/22	2.6		%	25
7015253	GSG	Method Blank	Total Oil & Grease	2020/10/22	<0.50		mg/L	
7015254	GSG	Spiked Blank	Total Oil & Grease Mineral/Synthetic	2020/10/22		98	%	85 - 115
7015254	GSG	RPD	Total Oil & Grease Mineral/Synthetic	2020/10/22	4.7		%	25
7015254	GSG	Method Blank	Total Oil & Grease Mineral/Synthetic	2020/10/22	<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.





BUREAU  
VERITAS

BV Labs Job #: COR5630

Report Date: 2020/10/23

Golder Associates Ltd

Client Project #: 1407634

Site Location: MCCARTHY

Sampler Initials: SH

### VALIDATION SIGNATURE PAGE

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


Ewa Pranjić, 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.



Your Project #: 1407634  
Site#: 1407634  
Site Location: MCCARTHY  
Your C.O.C. #: 772254-02-01

**Attention: Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2020/11/02**  
Report #: R6395147  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**BV LABS JOB #: C0S3500**

**Received: 2020/10/27, 10:12**

Sample Matrix: Water  
# Samples Received: 1

Analyses	Quantity	Date	Date	Laboratory Method	Analytical Method
		Extracted	Analyzed		
Animal and Vegetable Oil and Grease	1	N/A	2020/11/02	CAM SOP-00326	EPA1664B m,SM5520B m
Total Oil and Grease	1	2020/11/02	2020/11/02	CAM SOP-00326	EPA1664B m,SM5520B m
pH	1	2020/10/28	2020/10/29	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	1	N/A	2020/10/30	CAM SOP-00444	OMOE E3179 m
Mineral/Synthetic O & G (TPH Heavy Oil) (1)	1	2020/11/02	2020/11/02	CAM SOP-00326	EPA1664B m,SM5520F m
Low Level Total Suspended Solids	1	2020/10/29	2020/10/30	CAM SOP-00428	SM 23 2540D m

**Remarks:**

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Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.

Results relate to samples tested. When sampling is not conducted by BV Labs, results relate to the supplied samples tested.

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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 #: 1407634  
Site#: 1407634  
Site Location: MCCARTHY  
Your C.O.C. #: 772254-02-01

**Attention: Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2020/11/02**  
Report #: R6395147  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**BV LABS JOB #: C0S3500**  
**Received: 2020/10/27, 10:12**

Encryption Key

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

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VERITAS

BV Labs Job #: COS3500  
Report Date: 2020/11/02

Golder Associates Ltd  
Client Project #: 1407634  
Site Location: MCCARTHY  
Sampler Initials: SHA

### RESULTS OF ANALYSES OF WATER

<b>BV Labs ID</b>		NZS025		
<b>Sampling Date</b>		2020/10/26 14:00		
<b>COC Number</b>		772254-02-01		
	<b>UNITS</b>	<b>POND</b>	<b>RDL</b>	<b>QC Batch</b>
<b>Calculated Parameters</b>				
Total Animal/Vegetable Oil and Grease	mg/L	<0.50	0.50	7022070
<b>Inorganics</b>				
pH	pH	7.92	N/A	7025318
Phenols-4AAP	mg/L	<0.0010	0.0010	7026651
Total Suspended Solids	mg/L	2	1	7027067
<b>Petroleum Hydrocarbons</b>				
Total Oil & Grease	mg/L	<0.50	0.50	7032394
Total Oil & Grease Mineral/Synthetic	mg/L	<0.50	0.50	7032398
RDL = Reportable Detection Limit QC Batch = Quality Control Batch N/A = Not Applicable				



BUREAU  
VERITAS

BV Labs Job #: COS3500  
Report Date: 2020/11/02

Golder Associates Ltd  
Client Project #: 1407634  
Site Location: MCCARTHY  
Sampler Initials: SHA

### GENERAL COMMENTS

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

Package 1	12.0°C
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**Results relate only to the items tested.**



BUREAU  
VERITAS

BV Labs Job #: COS3500  
Report Date: 2020/11/02

Golder Associates Ltd  
Client Project #: 1407634  
Site Location: MCCARTHY  
Sampler Initials: SHA

### QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
7025318	SAU	Spiked Blank	pH	2020/10/29		102	%	98 - 103
7025318	SAU	RPD	pH	2020/10/29	2.2		%	N/A
7026651	BMO	Matrix Spike	Phenols-4AAP	2020/10/30		101	%	80 - 120
7026651	BMO	Spiked Blank	Phenols-4AAP	2020/10/30		98	%	80 - 120
7026651	BMO	Method Blank	Phenols-4AAP	2020/10/30	<0.0010		mg/L	
7026651	BMO	RPD	Phenols-4AAP	2020/10/30	NC		%	20
7027067	SDE	QC Standard	Total Suspended Solids	2020/10/30		99	%	85 - 115
7027067	SDE	Method Blank	Total Suspended Solids	2020/10/30	<1		mg/L	
7027067	SDE	RPD	Total Suspended Solids	2020/10/30	8.1		%	25
7032394	FA	Spiked Blank	Total Oil & Grease	2020/11/02		98	%	85 - 115
7032394	FA	RPD	Total Oil & Grease	2020/11/02	3.9		%	25
7032394	FA	Method Blank	Total Oil & Grease	2020/11/02	<0.50		mg/L	
7032398	FA	Spiked Blank	Total Oil & Grease Mineral/Synthetic	2020/11/02		96	%	85 - 115
7032398	FA	RPD	Total Oil & Grease Mineral/Synthetic	2020/11/02	3.2		%	25
7032398	FA	Method Blank	Total Oil & Grease Mineral/Synthetic	2020/11/02	<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  $\leq 2 \times \text{RDL}$ ).



BUREAU  
VERITAS

BV Labs Job #: COS3500  
Report Date: 2020/11/02

Golder Associates Ltd  
Client Project #: 1407634  
Site Location: MCCARTHY  
Sampler Initials: SHA

### VALIDATION SIGNATURE PAGE

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

---

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

---

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Your Project #: 1407634  
 Site Location: McCarthy  
 Your C.O.C. #: 796496-01-02, 796496-01-01

**Attention: Dawn Hoyle**

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

**Report Date: 2020/11/10**  
 Report #: R6405178  
 Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**BV LABS JOB #: C0T0976**

**Received: 2020/11/03, 09:32**

Sample Matrix: Water  
 # Samples Received: 4

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Alkalinity	4	N/A	2020/11/05	CAM SOP-00448	SM 23 2320 B m
Chloride by Automated Colourimetry	4	N/A	2020/11/06	CAM SOP-00463	SM 23 4500-Cl E m
Conductivity	4	N/A	2020/11/05	CAM SOP-00414	SM 23 2510 m
Dissolved Organic Carbon (DOC) (1)	4	N/A	2020/11/06	CAM SOP-00446	SM 23 5310 B m
Fluoride	4	2020/11/05	2020/11/05	CAM SOP-00449	SM 23 4500-F C m
Hardness (calculated as CaCO3)	4	N/A	2020/11/09	CAM SOP 00102/00408/00447	SM 2340 B
Lab Filtered Metals by ICPMS	4	2020/11/06	2020/11/09	CAM SOP-00447	EPA 6020B m
Total Metals Analysis by ICPMS	4	N/A	2020/11/06	CAM SOP-00447	EPA 6020B m
Anion and Cation Sum	4	N/A	2020/11/09		
Total Ammonia-N	4	N/A	2020/11/09	CAM SOP-00441	USGS I-2522-90 m
Nitrate (NO3) and Nitrite (NO2) in Water (2)	4	N/A	2020/11/05	CAM SOP-00440	SM 23 4500-NO3I/NO2B
Total Oil and Grease	4	2020/11/07	2020/11/07	CAM SOP-00326	EPA1664B m, SM5520B m
pH	4	2020/11/05	2020/11/05	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	4	N/A	2020/11/05	CAM SOP-00444	OMOE E3179 m
Sulphate by Automated Colourimetry	4	N/A	2020/11/06	CAM SOP-00464	EPA 375.4 m
Total Dissolved Solids	4	2020/11/05	2020/11/07	CAM SOP-00428	SM 23 2540C m
Total Kjeldahl Nitrogen in Water	4	2020/11/05	2020/11/05	CAM SOP-00938	OMOE E3516 m
Total Phosphorus (Colourimetric)	4	2020/11/05	2020/11/06	CAM SOP-00407	SM 23 4500 P B H m
Total Suspended Solids	3	2020/11/05	2020/11/06	CAM SOP-00428	SM 23 2540D m
Total Suspended Solids	1	2020/11/05	2020/11/09	CAM SOP-00428	SM 23 2540D m

**Remarks:**

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

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Your Project #: 1407634  
Site Location: McCarthy  
Your C.O.C. #: 796496-01-02, 796496-01-01

**Attention: Dawn Hoyle**

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

**Report Date: 2020/11/10**  
Report #: R6405178  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**BV LABS JOB #: C0T0976**

**Received: 2020/11/03, 09:32**

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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 BV Labs, results relate to the supplied samples tested.

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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) 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.

**Encryption Key**

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Ema Gitej, Senior Project Manager

Email: Ema.Gitej@bvlabs.com

Phone# (905)817-5829

=====

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BUREAU  
VERITAS

BV Labs Job #: COT0976  
Report Date: 2020/11/10

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

## RESULTS OF ANALYSES OF WATER

BV Labs ID			OBH326		OBH327		OBH328		
Sampling Date			2020/10/29 03:30		2020/10/29 03:15		2020/10/29 02:13		
COC Number			796496-01-01		796496-01-01		796496-01-01		
	UNITS	Criteria	Pond	QC Batch	SW1	QC Batch	SW2	RDL	QC Batch
Calculated Parameters									
Anion Sum	me/L	-	8.50	7038060	9.57	7038060	7.83	N/A	7038060
Cation Sum	me/L	-	8.58	7038060	9.91	7038060	8.13	N/A	7038060
Hardness (CaCO3)	mg/L	-	300	7037785	380	7037785	360	1.0	7037785
Inorganics									
Total Ammonia-N	mg/L	-	<0.050	7043136	<0.050	7043139	<0.050	0.050	7043136
Conductivity	mS/cm	-	0.858	7040474	0.931	7040474	0.734	0.001	7040474
Total Dissolved Solids	mg/L	-	510	7040487	545	7040487	410	10	7040487
Fluoride (F-)	mg/L	-	0.40	7040448	0.30	7040448	<0.10	0.10	7040448
Total Kjeldahl Nitrogen (TKN)	mg/L	-	0.34	7040122	0.34	7040122	0.30	0.10	7040122
Dissolved Organic Carbon	mg/L	-	6.5	7041052	8.7	7041052	8.6	0.40	7041052
pH	pH	6.5:8.5	7.68	7040492	7.94	7040492	7.88		7040492
Phenols-4AAP	mg/L	0.001	<0.0010	7039375	<0.0010	7039375	<0.0010	0.0010	7039375
Total Phosphorus	mg/L	0.01	0.012	7040569	0.011	7040569	0.025	0.004	7040569
Total Suspended Solids	mg/L	-	<10	7039796	<10	7039796	12	10	7039796
Dissolved Sulphate (SO4)	mg/L	-	240	7040640	190	7040640	42	1.0	7040640
Alkalinity (Total as CaCO3)	mg/L	-	93	7040489	210	7040489	320	1.0	7040489
Dissolved Chloride (Cl-)	mg/L	-	58	7040618	47	7040618	23	1.0	7040618
Nitrite (N)	mg/L	-	<0.010	7040505	<0.010	7040505	<0.010	0.010	7040505
Nitrate (N)	mg/L	-	0.28	7040505	0.34	7040505	<0.10	0.10	7040505
Nitrate + Nitrite (N)	mg/L	-	0.28	7040505	0.34	7040505	<0.10	0.10	7040505
Petroleum Hydrocarbons									
Total Oil & Grease	mg/L	-	<0.50	7044491	<0.50	7044491	<0.50	0.50	7044491
No Fill	No Exceedance								
Grey	Exceeds 1 criteria policy/level								
Black	Exceeds both criteria/levels								
RDL = Reportable Detection Limit									
QC Batch = Quality Control Batch									
Criteria: Ontario Provincial Water Quality Objectives									
Ref. to MOEE Water Management document dated Feb.1999									
N/A = Not Applicable									



## RESULTS OF ANALYSES OF WATER

BV Labs ID			OBH329		
Sampling Date			2020/10/29 03:15		
COC Number			796496-01-01		
	UNITS	Criteria	DUP1	RDL	QC Batch
Calculated Parameters					
Anion Sum	me/L	-	9.53	N/A	7038060
Cation Sum	me/L	-	9.59	N/A	7038060
Hardness (CaCO3)	mg/L	-	370	1.0	7037785
Inorganics					
Total Ammonia-N	mg/L	-	<0.050	0.050	7043136
Conductivity	mS/cm	-	0.928	0.001	7040474
Total Dissolved Solids	mg/L	-	530	10	7040487
Fluoride (F-)	mg/L	-	0.29	0.10	7040448
Total Kjeldahl Nitrogen (TKN)	mg/L	-	0.36	0.10	7040606
Dissolved Organic Carbon	mg/L	-	8.6	0.40	7041052
pH	pH	6.5:8.5	7.84		7040492
Phenols-4AAP	mg/L	0.001	<0.0010	0.0010	7039375
Total Phosphorus	mg/L	0.01	0.007	0.004	7040289
Total Suspended Solids	mg/L	-	<10	10	7039977
Dissolved Sulphate (SO4)	mg/L	-	190	1.0	7040640
Alkalinity (Total as CaCO3)	mg/L	-	210	1.0	7040489
Dissolved Chloride (Cl-)	mg/L	-	46	1.0	7040618
Nitrite (N)	mg/L	-	<0.010	0.010	7040505
Nitrate (N)	mg/L	-	0.34	0.10	7040505
Nitrate + Nitrite (N)	mg/L	-	0.34	0.10	7040505
Petroleum Hydrocarbons					
Total Oil & Grease	mg/L	-	<0.50	0.50	7044491
No Fill	No Exceedance				
Grey	Exceeds 1 criteria policy/level				
Black	Exceeds both criteria/levels				
RDL = Reportable Detection Limit					
QC Batch = Quality Control Batch					
Criteria: Ontario Provincial Water Quality Objectives					
Ref. to MOEE Water Management document dated Feb.1999					
N/A = Not Applicable					

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VERITASBV Labs Job #: COT0976  
Report Date: 2020/11/10Golder Associates Ltd  
Client Project #: 1407634  
Site Location: McCarthy  
Sampler Initials: SDP

## ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

BV Labs ID			OBH326	OBH327	OBH328	OBH329		
Sampling Date			2020/10/29 03:30	2020/10/29 03:15	2020/10/29 02:13	2020/10/29 03:15		
COC Number			796496-01-01	796496-01-01	796496-01-01	796496-01-01		
	UNITS	Criteria	Pond	SW1	SW2	DUP1	RDL	QC Batch
Metals								
Total Arsenic (As)	ug/L	100	<1.0	<1.0	<1.0	<1.0	1.0	7042178
Total Cadmium (Cd)	ug/L	0.2	<0.090	<0.090	<0.090	<0.090	0.090	7042178
Dissolved Calcium (Ca)	ug/L	-	74000	120000	130000	110000	200	7043170
Total Calcium (Ca)	ug/L	-	68000	110000	120000	110000	200	7042178
Total Chromium (Cr)	ug/L	-	<5.0	<5.0	<5.0	<5.0	5.0	7042178
Total Copper (Cu)	ug/L	5	<0.90	<0.90	1.5	1.4	0.90	7042178
Total Iron (Fe)	ug/L	300	<100	130	250	130	100	7042178
Total Lead (Pb)	ug/L	5	<0.50	<0.50	<0.50	<0.50	0.50	7042178
Dissolved Magnesium (Mg)	ug/L	-	27000	22000	9800	22000	50	7043170
Total Magnesium (Mg)	ug/L	-	26000	22000	9800	22000	50	7042178
Total Manganese (Mn)	ug/L	-	5.8	30	14	30	2.0	7042178
Total Nickel (Ni)	ug/L	25	<1.0	1.8	<1.0	1.7	1.0	7042178
Dissolved Potassium (K)	ug/L	-	7400	5900	1800	5600	200	7043170
Total Potassium (K)	ug/L	-	7100	5700	1700	5800	200	7042178
Dissolved Sodium (Na)	ug/L	-	56000	49000	20000	48000	100	7043170
Total Sodium (Na)	ug/L	-	51000	49000	20000	49000	100	7042178
Total Zinc (Zn)	ug/L	30	<5.0	<5.0	<5.0	<5.0	5.0	7042178
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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BV Labs Job #: COT0976

Report Date: 2020/11/10

Golder Associates Ltd

Client Project #: 1407634

Site Location: McCarthy

Sampler Initials: SDP

## TEST SUMMARY

**BV Labs ID:** OBH326

**Sample ID:** Pond

**Matrix:** Water

**Collected:** 2020/10/29

**Shipped:**

**Received:** 2020/11/03

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	7040489	N/A	2020/11/05	Surinder Rai
Chloride by Automated Colourimetry	KONE	7040618	N/A	2020/11/06	Alina Dobreanu
Conductivity	AT	7040474	N/A	2020/11/05	Surinder Rai
Dissolved Organic Carbon (DOC)	TOCV/NDIR	7041052	N/A	2020/11/06	Nimarta Singh
Fluoride	ISE	7040448	2020/11/05	2020/11/05	Surinder Rai
Hardness (calculated as CaCO <sub>3</sub> )		7037785	N/A	2020/11/09	Automated Statchk
Lab Filtered Metals by ICPMS	ICP/MS	7043170	2020/11/06	2020/11/09	Nan Raykha
Total Metals Analysis by ICPMS	ICP/MS	7042178	N/A	2020/11/06	Prempal Bhatti
Anion and Cation Sum	CALC	7038060	N/A	2020/11/09	Automated Statchk
Total Ammonia-N	LACH/NH <sub>4</sub>	7043136	N/A	2020/11/09	Amanpreet Sappal
Nitrate (NO <sub>3</sub> ) and Nitrite (NO <sub>2</sub> ) in Water	LACH	7040505	N/A	2020/11/05	Chandra Nandlal
Total Oil and Grease	BAL	7044491	2020/11/07	2020/11/07	Jay Tailor
pH	AT	7040492	2020/11/05	2020/11/05	Surinder Rai
Phenols (4AAP)	TECH/PHEN	7039375	N/A	2020/11/05	Bramdeo Motiram
Sulphate by Automated Colourimetry	KONE	7040640	N/A	2020/11/06	Deonarine Ramnarine
Total Dissolved Solids	BAL	7040487	2020/11/05	2020/11/07	Shaneil Hall
Total Kjeldahl Nitrogen in Water	SKAL	7040122	2020/11/05	2020/11/05	Rajni Tyagi
Total Phosphorus (Colourimetric)	LACH/P	7040569	2020/11/05	2020/11/06	Shivani Shivani
Total Suspended Solids	BAL	7039796	2020/11/05	2020/11/06	Margesh Majmunda

**BV Labs ID:** OBH327

**Sample ID:** SW1

**Matrix:** Water

**Collected:** 2020/10/29

**Shipped:**

**Received:** 2020/11/03

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	7040489	N/A	2020/11/05	Surinder Rai
Chloride by Automated Colourimetry	KONE	7040618	N/A	2020/11/06	Alina Dobreanu
Conductivity	AT	7040474	N/A	2020/11/05	Surinder Rai
Dissolved Organic Carbon (DOC)	TOCV/NDIR	7041052	N/A	2020/11/06	Nimarta Singh
Fluoride	ISE	7040448	2020/11/05	2020/11/05	Surinder Rai
Hardness (calculated as CaCO <sub>3</sub> )		7037785	N/A	2020/11/09	Automated Statchk
Lab Filtered Metals by ICPMS	ICP/MS	7043170	2020/11/06	2020/11/09	Nan Raykha
Total Metals Analysis by ICPMS	ICP/MS	7042178	N/A	2020/11/06	Prempal Bhatti
Anion and Cation Sum	CALC	7038060	N/A	2020/11/09	Automated Statchk
Total Ammonia-N	LACH/NH <sub>4</sub>	7043139	N/A	2020/11/09	Amanpreet Sappal
Nitrate (NO <sub>3</sub> ) and Nitrite (NO <sub>2</sub> ) in Water	LACH	7040505	N/A	2020/11/05	Chandra Nandlal
Total Oil and Grease	BAL	7044491	2020/11/07	2020/11/07	Jay Tailor
pH	AT	7040492	2020/11/05	2020/11/05	Surinder Rai
Phenols (4AAP)	TECH/PHEN	7039375	N/A	2020/11/05	Bramdeo Motiram
Sulphate by Automated Colourimetry	KONE	7040640	N/A	2020/11/06	Deonarine Ramnarine
Total Dissolved Solids	BAL	7040487	2020/11/05	2020/11/07	Shaneil Hall
Total Kjeldahl Nitrogen in Water	SKAL	7040122	2020/11/05	2020/11/05	Rajni Tyagi
Total Phosphorus (Colourimetric)	LACH/P	7040569	2020/11/05	2020/11/06	Shivani Shivani
Total Suspended Solids	BAL	7039796	2020/11/05	2020/11/06	Margesh Majmunda



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BV Labs Job #: COT0976

Report Date: 2020/11/10

Golder Associates Ltd

Client Project #: 1407634

Site Location: McCarthy

Sampler Initials: SDP

## TEST SUMMARY

**BV Labs ID:** OBH328

**Sample ID:** SW2

**Matrix:** Water

**Collected:** 2020/10/29

**Shipped:**

**Received:** 2020/11/03

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	7040489	N/A	2020/11/05	Surinder Rai
Chloride by Automated Colourimetry	KONE	7040618	N/A	2020/11/06	Alina Dobreanu
Conductivity	AT	7040474	N/A	2020/11/05	Surinder Rai
Dissolved Organic Carbon (DOC)	TOCV/NDIR	7041052	N/A	2020/11/06	Nimarta Singh
Fluoride	ISE	7040448	2020/11/05	2020/11/05	Surinder Rai
Hardness (calculated as CaCO <sub>3</sub> )		7037785	N/A	2020/11/09	Automated Statchk
Lab Filtered Metals by ICPMS	ICP/MS	7043170	2020/11/06	2020/11/09	Nan Raykha
Total Metals Analysis by ICPMS	ICP/MS	7042178	N/A	2020/11/06	Prempal Bhatti
Anion and Cation Sum	CALC	7038060	N/A	2020/11/09	Automated Statchk
Total Ammonia-N	LACH/NH <sub>4</sub>	7043136	N/A	2020/11/09	Amanpreet Sappal
Nitrate (NO <sub>3</sub> ) and Nitrite (NO <sub>2</sub> ) in Water	LACH	7040505	N/A	2020/11/05	Chandra Nandlal
Total Oil and Grease	BAL	7044491	2020/11/07	2020/11/07	Jay Tailor
pH	AT	7040492	2020/11/05	2020/11/05	Surinder Rai
Phenols (4AAP)	TECH/PHEN	7039375	N/A	2020/11/05	Bramdeo Motiram
Sulphate by Automated Colourimetry	KONE	7040640	N/A	2020/11/06	Deonarine Ramnarine
Total Dissolved Solids	BAL	7040487	2020/11/05	2020/11/07	Shaneil Hall
Total Kjeldahl Nitrogen in Water	SKAL	7040122	2020/11/05	2020/11/05	Rajni Tyagi
Total Phosphorus (Colourimetric)	LACH/P	7040569	2020/11/05	2020/11/06	Shivani Shivani
Total Suspended Solids	BAL	7039796	2020/11/05	2020/11/06	Margesh Majmunda

**BV Labs ID:** OBH329

**Sample ID:** DUP1

**Matrix:** Water

**Collected:** 2020/10/29

**Shipped:**

**Received:** 2020/11/03

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	7040489	N/A	2020/11/05	Surinder Rai
Chloride by Automated Colourimetry	KONE	7040618	N/A	2020/11/06	Alina Dobreanu
Conductivity	AT	7040474	N/A	2020/11/05	Surinder Rai
Dissolved Organic Carbon (DOC)	TOCV/NDIR	7041052	N/A	2020/11/06	Nimarta Singh
Fluoride	ISE	7040448	2020/11/05	2020/11/05	Surinder Rai
Hardness (calculated as CaCO <sub>3</sub> )		7037785	N/A	2020/11/09	Automated Statchk
Lab Filtered Metals by ICPMS	ICP/MS	7043170	2020/11/06	2020/11/09	Nan Raykha
Total Metals Analysis by ICPMS	ICP/MS	7042178	N/A	2020/11/06	Prempal Bhatti
Anion and Cation Sum	CALC	7038060	N/A	2020/11/09	Automated Statchk
Total Ammonia-N	LACH/NH <sub>4</sub>	7043136	N/A	2020/11/09	Amanpreet Sappal
Nitrate (NO <sub>3</sub> ) and Nitrite (NO <sub>2</sub> ) in Water	LACH	7040505	N/A	2020/11/05	Chandra Nandlal
Total Oil and Grease	BAL	7044491	2020/11/07	2020/11/07	Jay Tailor
pH	AT	7040492	2020/11/05	2020/11/05	Surinder Rai
Phenols (4AAP)	TECH/PHEN	7039375	N/A	2020/11/05	Bramdeo Motiram
Sulphate by Automated Colourimetry	KONE	7040640	N/A	2020/11/06	Deonarine Ramnarine
Total Dissolved Solids	BAL	7040487	2020/11/05	2020/11/07	Shaneil Hall
Total Kjeldahl Nitrogen in Water	SKAL	7040606	2020/11/05	2020/11/05	Rajni Tyagi
Total Phosphorus (Colourimetric)	LACH/P	7040289	2020/11/05	2020/11/06	Shivani Shivani
Total Suspended Solids	BAL	7039977	2020/11/05	2020/11/09	Margesh Majmunda



### GENERAL COMMENTS

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

Package 1	4.0°C
Package 2	4.7°C
Package 3	5.7°C

**Results relate only to the items tested.**



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BV Labs Job #: COT0976  
Report Date: 2020/11/10

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

## QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
7039375	BMO	Matrix Spike	Phenols-4AAP	2020/11/05		102	%	80 - 120
7039375	BMO	Spiked Blank	Phenols-4AAP	2020/11/05		98	%	80 - 120
7039375	BMO	Method Blank	Phenols-4AAP	2020/11/05	<0.0010		mg/L	
7039375	BMO	RPD	Phenols-4AAP	2020/11/05	NC		%	20
7039796	MAN	QC Standard	Total Suspended Solids	2020/11/06		95	%	85 - 115
7039796	MAN	Method Blank	Total Suspended Solids	2020/11/06	<10		mg/L	
7039796	MAN	RPD	Total Suspended Solids	2020/11/06	0		%	25
7039977	MAN	QC Standard	Total Suspended Solids	2020/11/09		96	%	85 - 115
7039977	MAN	Method Blank	Total Suspended Solids	2020/11/09	<10		mg/L	
7039977	MAN	RPD	Total Suspended Solids	2020/11/09	13		%	25
7040122	RTY	Matrix Spike	Total Kjeldahl Nitrogen (TKN)	2020/11/05		100	%	80 - 120
7040122	RTY	QC Standard	Total Kjeldahl Nitrogen (TKN)	2020/11/05		102	%	80 - 120
7040122	RTY	Spiked Blank	Total Kjeldahl Nitrogen (TKN)	2020/11/05		97	%	80 - 120
7040122	RTY	Method Blank	Total Kjeldahl Nitrogen (TKN)	2020/11/05	<0.10		mg/L	
7040122	RTY	RPD	Total Kjeldahl Nitrogen (TKN)	2020/11/05	17		%	20
7040289	SSV	Matrix Spike	Total Phosphorus	2020/11/06		96	%	80 - 120
7040289	SSV	QC Standard	Total Phosphorus	2020/11/06		97	%	80 - 120
7040289	SSV	Spiked Blank	Total Phosphorus	2020/11/06		104	%	80 - 120
7040289	SSV	Method Blank	Total Phosphorus	2020/11/06	<0.004		mg/L	
7040289	SSV	RPD	Total Phosphorus	2020/11/06	NC		%	20
7040448	SAU	Matrix Spike	Fluoride (F-)	2020/11/05		91	%	80 - 120
7040448	SAU	Spiked Blank	Fluoride (F-)	2020/11/05		105	%	80 - 120
7040448	SAU	Method Blank	Fluoride (F-)	2020/11/05	<0.10		mg/L	
7040448	SAU	RPD	Fluoride (F-)	2020/11/05	1.9		%	20
7040474	SAU	Spiked Blank	Conductivity	2020/11/05		100	%	85 - 115
7040474	SAU	Method Blank	Conductivity	2020/11/05	<0.001		mS/cm	
7040474	SAU	RPD	Conductivity	2020/11/05	3.1		%	25
7040487	SHD	QC Standard	Total Dissolved Solids	2020/11/07		97	%	90 - 110
7040487	SHD	Method Blank	Total Dissolved Solids	2020/11/07	<10		mg/L	
7040487	SHD	RPD	Total Dissolved Solids	2020/11/07	4.1		%	25
7040489	SAU	Spiked Blank	Alkalinity (Total as CaCO3)	2020/11/05		98	%	85 - 115
7040489	SAU	Method Blank	Alkalinity (Total as CaCO3)	2020/11/05	<1.0		mg/L	
7040489	SAU	RPD	Alkalinity (Total as CaCO3)	2020/11/05	0.53		%	20
7040492	SAU	Spiked Blank	pH	2020/11/05		101	%	98 - 103
7040492	SAU	RPD	pH	2020/11/05	0.37		%	N/A
7040505	C_N	Matrix Spike	Nitrite (N)	2020/11/05		101	%	80 - 120
			Nitrate (N)	2020/11/05		86	%	80 - 120
7040505	C_N	Spiked Blank	Nitrite (N)	2020/11/05		109	%	80 - 120
			Nitrate (N)	2020/11/05		90	%	80 - 120
7040505	C_N	Method Blank	Nitrite (N)	2020/11/05	<0.010		mg/L	
			Nitrate (N)	2020/11/05	<0.10		mg/L	
7040505	C_N	RPD	Nitrite (N)	2020/11/05	NC		%	20
			Nitrate (N)	2020/11/05	0.25		%	20
7040569	SSV	Matrix Spike	Total Phosphorus	2020/11/06		101	%	80 - 120
7040569	SSV	QC Standard	Total Phosphorus	2020/11/06		99	%	80 - 120
7040569	SSV	Spiked Blank	Total Phosphorus	2020/11/06		102	%	80 - 120
7040569	SSV	Method Blank	Total Phosphorus	2020/11/06	<0.004		mg/L	
7040569	SSV	RPD	Total Phosphorus	2020/11/06	NC		%	20
7040606	RTY	Matrix Spike	Total Kjeldahl Nitrogen (TKN)	2020/11/06		NC	%	80 - 120
7040606	RTY	QC Standard	Total Kjeldahl Nitrogen (TKN)	2020/11/05		101	%	80 - 120
7040606	RTY	Spiked Blank	Total Kjeldahl Nitrogen (TKN)	2020/11/05		101	%	80 - 120





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BV Labs Job #: COT0976  
Report Date: 2020/11/10

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

### QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
7040606	RTY	Method Blank	Total Kjeldahl Nitrogen (TKN)	2020/11/05	<0.10		mg/L	
7040606	RTY	RPD	Total Kjeldahl Nitrogen (TKN)	2020/11/06	0.074		%	20
7040618	ADB	Matrix Spike	Dissolved Chloride (Cl-)	2020/11/06		NC	%	80 - 120
7040618	ADB	Spiked Blank	Dissolved Chloride (Cl-)	2020/11/06		102	%	80 - 120
7040618	ADB	Method Blank	Dissolved Chloride (Cl-)	2020/11/06	<1.0		mg/L	
7040618	ADB	RPD	Dissolved Chloride (Cl-)	2020/11/06	1.1		%	20
7040640	DRM	Matrix Spike	Dissolved Sulphate (SO4)	2020/11/06		125	%	75 - 125
7040640	DRM	Spiked Blank	Dissolved Sulphate (SO4)	2020/11/06		100	%	80 - 120
7040640	DRM	Method Blank	Dissolved Sulphate (SO4)	2020/11/06	<1.0		mg/L	
7040640	DRM	RPD	Dissolved Sulphate (SO4)	2020/11/06	NC		%	20
7041052	NS3	Matrix Spike	Dissolved Organic Carbon	2020/11/06		94	%	80 - 120
7041052	NS3	Spiked Blank	Dissolved Organic Carbon	2020/11/06		100	%	80 - 120
7041052	NS3	Method Blank	Dissolved Organic Carbon	2020/11/06	<0.40		mg/L	
7041052	NS3	RPD	Dissolved Organic Carbon	2020/11/06	2.5		%	20
7042178	PBA	Matrix Spike	Total Arsenic (As)	2020/11/06		102	%	80 - 120
			Total Cadmium (Cd)	2020/11/06		102	%	80 - 120
			Total Calcium (Ca)	2020/11/06		93	%	80 - 120
			Total Chromium (Cr)	2020/11/06		100	%	80 - 120
			Total Copper (Cu)	2020/11/06		101	%	80 - 120
			Total Iron (Fe)	2020/11/06		97	%	80 - 120
			Total Lead (Pb)	2020/11/06		96	%	80 - 120
			Total Magnesium (Mg)	2020/11/06		92	%	80 - 120
			Total Manganese (Mn)	2020/11/06		111	%	80 - 120
			Total Nickel (Ni)	2020/11/06		96	%	80 - 120
			Total Potassium (K)	2020/11/06		100	%	80 - 120
			Total Sodium (Na)	2020/11/06		102	%	80 - 120
			Total Zinc (Zn)	2020/11/06		100	%	80 - 120
7042178	PBA	Spiked Blank	Total Arsenic (As)	2020/11/06		102	%	80 - 120
			Total Cadmium (Cd)	2020/11/06		105	%	80 - 120
			Total Calcium (Ca)	2020/11/06		100	%	80 - 120
			Total Chromium (Cr)	2020/11/06		101	%	80 - 120
			Total Copper (Cu)	2020/11/06		105	%	80 - 120
			Total Iron (Fe)	2020/11/06		97	%	80 - 120
			Total Lead (Pb)	2020/11/06		97	%	80 - 120
			Total Magnesium (Mg)	2020/11/06		101	%	80 - 120
			Total Manganese (Mn)	2020/11/06		96	%	80 - 120
			Total Nickel (Ni)	2020/11/06		97	%	80 - 120
			Total Potassium (K)	2020/11/06		99	%	80 - 120
			Total Sodium (Na)	2020/11/06		98	%	80 - 120
			Total Zinc (Zn)	2020/11/06		103	%	80 - 120
7042178	PBA	Method Blank	Total Arsenic (As)	2020/11/09	<1.0		ug/L	
			Total Cadmium (Cd)	2020/11/09	<0.090		ug/L	
			Total Calcium (Ca)	2020/11/09	<200		ug/L	
			Total Chromium (Cr)	2020/11/09	<5.0		ug/L	
			Total Copper (Cu)	2020/11/09	<0.90		ug/L	
			Total Iron (Fe)	2020/11/09	<100		ug/L	
			Total Lead (Pb)	2020/11/09	<0.50		ug/L	
			Total Magnesium (Mg)	2020/11/09	<50		ug/L	
			Total Manganese (Mn)	2020/11/09	<2.0		ug/L	
			Total Nickel (Ni)	2020/11/09	<1.0		ug/L	
			Total Potassium (K)	2020/11/09	<200		ug/L	



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BV Labs Job #: COT0976  
Report Date: 2020/11/10

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

### QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Total Sodium (Na)	2020/11/09	<100		ug/L	
			Total Zinc (Zn)	2020/11/09	<5.0		ug/L	
7042178	PBA	RPD	Total Arsenic (As)	2020/11/06	3.6		%	20
7043136	ASP	Matrix Spike	Total Ammonia-N	2020/11/09		95	%	75 - 125
7043136	ASP	Spiked Blank	Total Ammonia-N	2020/11/09		99	%	80 - 120
7043136	ASP	Method Blank	Total Ammonia-N	2020/11/09	<0.050		mg/L	
7043136	ASP	RPD	Total Ammonia-N	2020/11/09	1.6		%	20
7043139	ASP	Matrix Spike	Total Ammonia-N	2020/11/09		96	%	75 - 125
7043139	ASP	Spiked Blank	Total Ammonia-N	2020/11/09		99	%	80 - 120
7043139	ASP	Method Blank	Total Ammonia-N	2020/11/09	<0.050		mg/L	
7043139	ASP	RPD	Total Ammonia-N	2020/11/09	2.2		%	20
7043170	N_R	Matrix Spike	Dissolved Calcium (Ca)	2020/11/09		NC	%	80 - 120
			Dissolved Magnesium (Mg)	2020/11/09		100	%	80 - 120
			Dissolved Potassium (K)	2020/11/09		101	%	80 - 120
			Dissolved Sodium (Na)	2020/11/09		98	%	80 - 120
7043170	N_R	Spiked Blank	Dissolved Calcium (Ca)	2020/11/09		106	%	80 - 120
			Dissolved Magnesium (Mg)	2020/11/09		102	%	80 - 120
			Dissolved Potassium (K)	2020/11/09		104	%	80 - 120
			Dissolved Sodium (Na)	2020/11/09		101	%	80 - 120
7043170	N_R	Method Blank	Dissolved Calcium (Ca)	2020/11/09	<200		ug/L	
			Dissolved Magnesium (Mg)	2020/11/09	<50		ug/L	
			Dissolved Potassium (K)	2020/11/09	<200		ug/L	
			Dissolved Sodium (Na)	2020/11/09	<100		ug/L	
7043170	N_R	RPD	Dissolved Calcium (Ca)	2020/11/09	2.2		%	20
			Dissolved Magnesium (Mg)	2020/11/09	0.17		%	20
			Dissolved Potassium (K)	2020/11/09	0.72		%	20
			Dissolved Sodium (Na)	2020/11/09	1.4		%	20
7044491	JT5	Spiked Blank	Total Oil & Grease	2020/11/07		97	%	85 - 115
7044491	JT5	RPD	Total Oil & Grease	2020/11/07	1.8		%	25
7044491	JT5	Method Blank	Total Oil & Grease	2020/11/07	<0.50		mg/L	

N/A = Not Applicable

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

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

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

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

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

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

BV Labs Job #: COT0976  
Report Date: 2020/11/10

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

### VALIDATION SIGNATURE PAGE

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

Anastassia Hamanov, Scientific Specialist

---

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BUREAU  
VERITAS

BV Labs Job #: COT0976  
Report Date: 2020/11/10

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

**Exceedance Summary Table – Prov. Water Quality Obj.**  
**Result Exceedances**

Sample ID	BV Labs ID	Parameter	Criteria	Result	DL	UNITS
Pond	OBH326-01	Total Phosphorus	0.01	0.012	0.004	mg/L
SW1	OBH327-01	Total Phosphorus	0.01	0.011	0.004	mg/L
SW2	OBH328-01	Total Phosphorus	0.01	0.025	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.						



Your Project #: 1407634  
Site#: 1407634  
Site Location: McCarthy  
Your C.O.C. #: 796497-04-01

**Attention: Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2020/11/16**  
Report #: R6412460  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**BV LABS JOB #: COT5731**

**Received: 2020/11/06, 11:31**

Sample Matrix: Water  
# Samples Received: 1

Analyses	Quantity	Date	Date	Laboratory Method	Analytical Method
		Extracted	Analyzed		
Animal and Vegetable Oil and Grease	1	N/A	2020/11/13	CAM SOP-00326	EPA1664B m,SM5520B m
Total Oil and Grease	1	2020/11/13	2020/11/13	CAM SOP-00326	EPA1664B m,SM5520B m
pH	1	2020/11/11	2020/11/11	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	1	N/A	2020/11/11	CAM SOP-00444	OMOE E3179 m
Mineral/Synthetic O & G (TPH Heavy Oil) (1)	1	2020/11/13	2020/11/13	CAM SOP-00326	EPA1664B m,SM5520F m
Low Level Total Suspended Solids	1	2020/11/12	2020/11/13	CAM SOP-00428	SM 23 2540D m

**Remarks:**

Bureau Veritas Laboratories are accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by BV Labs 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 BV Labs profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and BV Labs 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.

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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 BV Labs, results relate to the supplied samples tested.

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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 #: 1407634  
Site#: 1407634  
Site Location: McCarthy  
Your C.O.C. #: 796497-04-01

**Attention: Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2020/11/16**  
Report #: R6412460  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**BV LABS JOB #: C0T5731**  
**Received: 2020/11/06, 11:31**

Encryption Key

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

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BUREAU  
VERITAS

BV Labs Job #: COT5731  
Report Date: 2020/11/16

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

### RESULTS OF ANALYSES OF WATER

<b>BV Labs ID</b>		OCI072		
<b>Sampling Date</b>		2020/11/05 13:00		
<b>COC Number</b>		796497-04-01		
	<b>UNITS</b>	<b>POND</b>	<b>RDL</b>	<b>QC Batch</b>
<b>Calculated Parameters</b>				
Total Animal/Vegetable Oil and Grease	mg/L	<0.50	0.50	7048462
<b>Inorganics</b>				
pH	pH	8.05	N/A	7050744
Phenols-4AAP	mg/L	<0.0010	0.0010	7050024
Total Suspended Solids	mg/L	13	1	7052704
<b>Petroleum Hydrocarbons</b>				
Total Oil & Grease	mg/L	<0.50	0.50	7055185
Total Oil & Grease Mineral/Synthetic	mg/L	<0.50	0.50	7055210
RDL = Reportable Detection Limit QC Batch = Quality Control Batch N/A = Not Applicable				



BUREAU  
VERITAS

BV Labs Job #: COT5731  
Report Date: 2020/11/16

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

### GENERAL COMMENTS

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

Package 1	18.0°C
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Results relate only to the items tested.





BUREAU  
VERITAS

BV Labs Job #: COT5731  
Report Date: 2020/11/16

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

### QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
7050024	BMO	Matrix Spike	Phenols-4AAP	2020/11/11		101	%	80 - 120
7050024	BMO	Spiked Blank	Phenols-4AAP	2020/11/11		101	%	80 - 120
7050024	BMO	Method Blank	Phenols-4AAP	2020/11/11	<0.0010		mg/L	
7050024	BMO	RPD	Phenols-4AAP	2020/11/11	9.5		%	20
7050744	NYS	Spiked Blank	pH	2020/11/11		102	%	98 - 103
7050744	NYS	RPD	pH	2020/11/11	0.61		%	N/A
7052704	SHD	QC Standard	Total Suspended Solids	2020/11/13		96	%	85 - 115
7052704	SHD	Method Blank	Total Suspended Solids	2020/11/13	<1		mg/L	
7052704	SHD	RPD	Total Suspended Solids	2020/11/13	5.1		%	25
7055185	JTS	Spiked Blank	Total Oil & Grease	2020/11/13		98	%	85 - 115
7055185	JTS	RPD	Total Oil & Grease	2020/11/13	1.6		%	25
7055185	JTS	Method Blank	Total Oil & Grease	2020/11/13	<0.50		mg/L	
7055210	JTS	Spiked Blank	Total Oil & Grease Mineral/Synthetic	2020/11/13		95	%	85 - 115
7055210	JTS	RPD	Total Oil & Grease Mineral/Synthetic	2020/11/13	4.7		%	25
7055210	JTS	Method Blank	Total Oil & Grease Mineral/Synthetic	2020/11/13	<0.50		mg/L	

N/A = Not Applicable

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

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

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

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

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



BUREAU  
VERITAS

BV Labs Job #: COT5731  
Report Date: 2020/11/16

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

### VALIDATION SIGNATURE PAGE

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

Anastassia Hamanov, Scientific Specialist

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

---

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Your Project #: 1407634  
Site#: 1407634  
Site Location: MCCARTHY  
Your C.O.C. #: c#762593-05-01

**Attention: Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2020/11/20**  
Report #: R6418214  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**BV LABS JOB #: C0U3864**

**Received: 2020/11/16, 10:00**

Sample Matrix: Water  
# Samples Received: 1

Analyses	Quantity	Date	Date	Laboratory Method	Analytical Method
		Extracted	Analyzed		
Animal and Vegetable Oil and Grease	1	N/A	2020/11/19	CAM SOP-00326	EPA1664B m,SM5520B m
Total Oil and Grease	1	2020/11/19	2020/11/19	CAM SOP-00326	EPA1664B m,SM5520B m
pH	1	2020/11/17	2020/11/18	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	1	N/A	2020/11/18	CAM SOP-00444	OMOE E3179 m
Mineral/Synthetic O & G (TPH Heavy Oil) (1)	1	2020/11/19	2020/11/19	CAM SOP-00326	EPA1664B m,SM5520F m
Low Level Total Suspended Solids	1	2020/11/17	2020/11/19	CAM SOP-00428	SM 23 2540D m

**Remarks:**

Bureau Veritas Laboratories are accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by BV Labs 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 BV Labs, results relate to the supplied samples tested.

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

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. #: c#762593-05-01

**Attention: Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2020/11/20**  
Report #: R6418214  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**BV LABS JOB #: C0U3864**  
**Received: 2020/11/16, 10:00**

Encryption Key

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

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BV Labs Job #: COU3864

Report Date: 2020/11/20

Golder Associates Ltd

Client Project #: 1407634

Site Location: MCCARTHY

Sampler Initials: SJ

## RESULTS OF ANALYSES OF WATER

<b>BV Labs ID</b>		OED774		
<b>Sampling Date</b>		2020/11/12 14:30		
<b>COC Number</b>		c#762593-05-01		
	<b>UNITS</b>	<b>POND</b>	<b>RDL</b>	<b>QC Batch</b>
<b>Calculated Parameters</b>				
Total Animal/Vegetable Oil and Grease	mg/L	<0.50	0.50	7058258
<b>Inorganics</b>				
pH	pH	8.06	N/A	7060301
Phenols-4AAP	mg/L	<0.0010	0.0010	7062131
Total Suspended Solids	mg/L	2	1	7060211
<b>Petroleum Hydrocarbons</b>				
Total Oil & Grease	mg/L	<0.50	0.50	7064840
Total Oil & Grease Mineral/Synthetic	mg/L	<0.50	0.50	7064848
RDL = Reportable Detection Limit QC Batch = Quality Control Batch N/A = Not Applicable				



BUREAU  
VERITAS

BV Labs Job #: COU3864

Report Date: 2020/11/20

Golder Associates Ltd

Client Project #: 1407634

Site Location: MCCARTHY

Sampler Initials: SJ

### GENERAL COMMENTS

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

Package 1	13.7°C
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Results relate only to the items tested.



BUREAU  
VERITAS

BV Labs Job #: COU3864  
Report Date: 2020/11/20

Golder Associates Ltd  
Client Project #: 1407634  
Site Location: MCCARTHY  
Sampler Initials: SJ

## QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
7060211	SHD	QC Standard	Total Suspended Solids	2020/11/19		95	%	85 - 115
7060211	SHD	Method Blank	Total Suspended Solids	2020/11/19	<1		mg/L	
7060211	SHD	RPD	Total Suspended Solids	2020/11/19	11		%	25
7060301	SAU	Spiked Blank	pH	2020/11/18		101	%	98 - 103
7060301	SAU	RPD	pH	2020/11/18	2.4		%	N/A
7062131	BMO	Matrix Spike	Phenols-4AAP	2020/11/18		105	%	80 - 120
7062131	BMO	Spiked Blank	Phenols-4AAP	2020/11/18		103	%	80 - 120
7062131	BMO	Method Blank	Phenols-4AAP	2020/11/18	<0.0010		mg/L	
7062131	BMO	RPD	Phenols-4AAP	2020/11/18	13		%	20
7064840	SA5	Spiked Blank	Total Oil & Grease	2020/11/19		98	%	85 - 115
7064840	SA5	RPD	Total Oil & Grease	2020/11/19	2.8		%	25
7064840	SA5	Method Blank	Total Oil & Grease	2020/11/19	<0.50		mg/L	
7064848	SA5	Spiked Blank	Total Oil & Grease Mineral/Synthetic	2020/11/19		96	%	85 - 115
7064848	SA5	RPD	Total Oil & Grease Mineral/Synthetic	2020/11/19	1.6		%	25
7064848	SA5	Method Blank	Total Oil & Grease Mineral/Synthetic	2020/11/19	<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 #: COU3864

Report Date: 2020/11/20

Golder Associates Ltd

Client Project #: 1407634

Site Location: MCCARTHY

Sampler Initials: SJ

### 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 #: 1407634  
Site#: McCarthy  
Your C.O.C. #: 799445-01-01

**Attention: Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2020/12/23**  
Report #: R6461758  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**BV LABS JOB #: C0X8025**

**Received: 2020/12/17, 16:37**

Sample Matrix: Water  
# Samples Received: 1

Analyses	Quantity	Date	Date	Laboratory Method	Analytical Method
		Extracted	Analyzed		
Animal and Vegetable Oil and Grease	1	N/A	2020/12/23	CAM SOP-00326	EPA1664B m,SM5520B m
Total Oil and Grease	1	2020/12/23	2020/12/23	CAM SOP-00326	EPA1664B m,SM5520B m
pH	1	2020/12/19	2020/12/21	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	1	N/A	2020/12/21	CAM SOP-00444	OMOE E3179 m
Mineral/Synthetic O & G (TPH Heavy Oil) (1)	1	2020/12/23	2020/12/23	CAM SOP-00326	EPA1664B m,SM5520F m
Low Level Total Suspended Solids	1	2020/12/19	2020/12/21	CAM SOP-00428	SM 23 2540D m

**Remarks:**

Bureau Veritas Laboratories are accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by BV Labs 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 BV Labs, results relate to the supplied samples tested.

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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 #: 1407634  
Site#: McCarthy  
Your C.O.C. #: 799445-01-01

**Attention: Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2020/12/23**  
Report #: R6461758  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**BV LABS JOB #: C0X8025**  
**Received: 2020/12/17, 16:37**

Encryption Key

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

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BUREAU  
VERITAS

BV Labs Job #: COX8025  
Report Date: 2020/12/23

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

## RESULTS OF ANALYSES OF WATER

<b>BV Labs ID</b>		OLK547	OLK547		
<b>Sampling Date</b>		2020/12/15 11:00	2020/12/15 11:00		
<b>COC Number</b>		799445-01-01	799445-01-01		
	<b>UNITS</b>	<b>POND</b>	<b>POND Lab-Dup</b>	<b>RDL</b>	<b>QC Batch</b>
<b>Calculated Parameters</b>					
Total Animal/Vegetable Oil and Grease	mg/L	0.90	N/A	0.50	7117769
<b>Inorganics</b>					
pH	pH	7.77	N/A	N/A	7119201
Phenols-4AAP	mg/L	<0.0010	N/A	0.0010	7120557
Total Suspended Solids	mg/L	5	4	1	7119417
<b>Petroleum Hydrocarbons</b>					
Total Oil & Grease	mg/L	0.90	N/A	0.50	7124369
Total Oil & Grease Mineral/Synthetic	mg/L	<0.50	N/A	0.50	7124373
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Lab-Dup = Laboratory Initiated Duplicate N/A = Not Applicable					



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VERITAS

BV Labs Job #: COX8025  
Report Date: 2020/12/23

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

### GENERAL COMMENTS

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

Package 1	2.0°C
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**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
7119201	SAU	Spiked Blank	pH	2020/12/21		102	%	98 - 103
7119201	SAU	RPD	pH	2020/12/21	0.88		%	N/A
7119417	SDE	QC Standard	Total Suspended Solids	2020/12/21		99	%	85 - 115
7119417	SDE	Method Blank	Total Suspended Solids	2020/12/21	<1		mg/L	
7119417	SDE	RPD [OLK547-02]	Total Suspended Solids	2020/12/21	4.4		%	25
7120557	BMO	Matrix Spike	Phenols-4AAP	2020/12/21		98	%	80 - 120
7120557	BMO	Spiked Blank	Phenols-4AAP	2020/12/21		97	%	80 - 120
7120557	BMO	Method Blank	Phenols-4AAP	2020/12/21	<0.0010		mg/L	
7120557	BMO	RPD	Phenols-4AAP	2020/12/21	4.1		%	20
7124369	JT5	Spiked Blank	Total Oil & Grease	2020/12/23		98	%	85 - 115
7124369	JT5	RPD	Total Oil & Grease	2020/12/23	0.51		%	25
7124369	JT5	Method Blank	Total Oil & Grease	2020/12/23	<0.50		mg/L	
7124373	JT5	Spiked Blank	Total Oil & Grease Mineral/Synthetic	2020/12/23		93	%	85 - 115
7124373	JT5	RPD	Total Oil & Grease Mineral/Synthetic	2020/12/23	2.1		%	25
7124373	JT5	Method Blank	Total Oil & Grease Mineral/Synthetic	2020/12/23	<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.



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### VALIDATION SIGNATURE PAGE

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

Anastassia Hamanov, Scientific Specialist

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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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