



**REPORT**

**Environmental Compliance Approval  
Quarterly Monitoring Report (August to October 2020)  
*McCarthy Quarry***

Submitted to:

**Cindy Hood**

Ontario Ministry of Environment, Conservation and Parks  
Barrie District Office  
1203-54 Cedar Pointe Drive  
Barrie ON L4N 5R7

Submitted by:

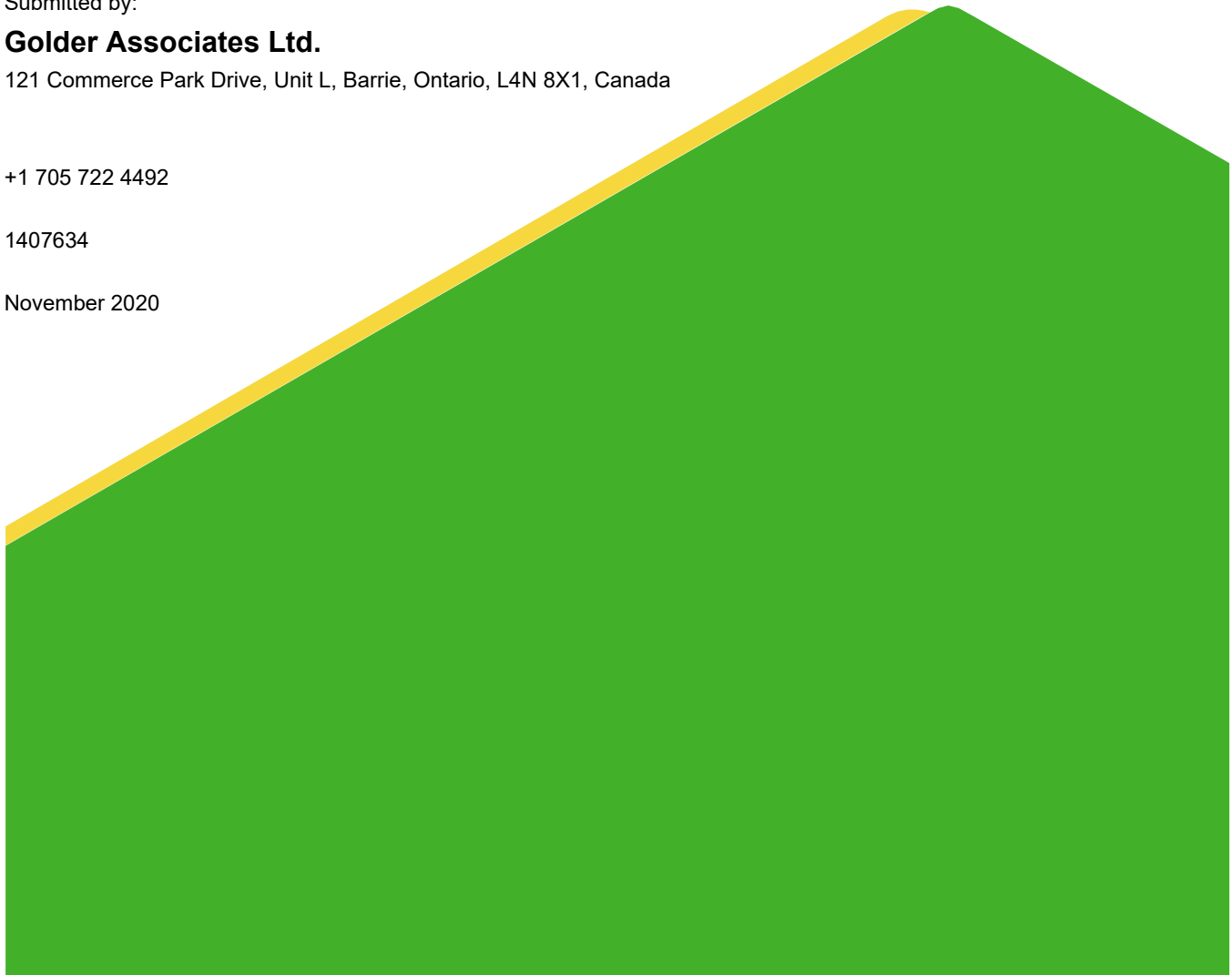
**Golder Associates Ltd.**

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1407634

November 2020



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ECA No. 7737-BH6QEA

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## 1.0 INTRODUCTION

Golder Associates Ltd. (Golder) was retained by QBJR/Coco Aggregates Inc. (Coco) to prepare a quarterly monitoring report for the McCarthy Quarry located in the Township of Ramara, County of Simcoe (Figure 1). The preparation of a quarterly monitoring report is a requirement of the Environmental Compliance Approval (ECA) No. 7737-BH6QEA (the 'ECA') issued on October 22, 2019. A copy of the ECA is provided in Appendix A. The following report is intended to fulfill the requirements of Section 8 (4) of the ECA and documents the results of the monitoring program activities described in Section 6 of the ECA for the period between August and October 2020.

## 2.0 BACKGROUND

The dewatering activities at the McCarthy Quarry in 2020 are regulated under Permit to Take Water (PTTW) No. 1603-BKTPQH, issued on January 31, 2020 and expiring on January 31, 2025. Under PTTW No. 1603-BKTPQH Coco is permitted to pump water from the quarry sump at a maximum rate of 4,545 L/min (76 L/sec). The quarry discharge monitoring plan and effluent quality limits are established in the ECA.

The McCarthy Quarry dewatering system includes a sump located in the northwest corner of the quarry floor which collects groundwater and surface water (hereafter referred to as "quarry discharge") accumulating at the base of the quarry. The sump is equipped with a 4-inch Grindex pump which is rated for a maximum discharge rate of up to 2,100 L/min (35 L/sec) and is attached to a 4-inch (101 mm nominal) diameter discharge line. Water is pumped from the quarry floor up the quarry face via the discharge line to a 4-inch (101 mm nominal) diameter pipeline that directs the water to a 14,000 m<sup>3</sup> settling pond (Figure 1). The settling pond is equipped with a Hickenbottom control structure via which the water discharges to the roadside ditch along Concession Road 1. The water flows eastward along the north side of Concession Road 1 to a municipal drain and eventually discharges to the Talbot River approximately 1.1 km downstream of the Quarry, which eventually discharges into Lake Simcoe.

## 3.0 QUARRY DISCHARGE MONITORING PLAN

The technical requirements of the quarry discharge monitoring plan are listed in Section 4 (Effluent [quality] Limits), Section 5 (Effluent – Visual Observations), and Section 6 (Monitoring and Recording) of the ECA. The monitoring requirements consist of:

- Weekly monitoring of the effluent quality (Total Suspended Solids [TSS], oil and grease, phenolics [4AAP] and pH) at the outfall of the settling pond (labelled as McCarthy Pond on Figure 1); and
- Semi-annual monitoring of effluent quality at three locations: 1) the McCarthy Pond outfall; 2) the culvert along Concession Road 1 at the McCarthy property (SW1 on Figure 1); and 3) 260 m north of the intersection of Concession Road 1 and the Mara Eldon Boundary Road (SW2 on Figure 1). The parameters required for semi-annual water quality monitoring (as listed in Table 3 of the ECA) include TSS, copper, lead, nickel, zinc, arsenic, oil and grease, phenolics (4AAP), hardness (as CaCO<sub>3</sub>), alkalinity (as CaCO<sub>3</sub>), conductivity, pH, fluoride, chloride, nitrate (as N), nitrite (as N), sulphate, calcium, magnesium, sodium, potassium, ammonia (as N), dissolved organic carbon, iron, total Kjeldahl nitrogen, phosphorus (total), cadmium, chromium, manganese, anions (sum), cations (sum) and total dissolved solids.

The weekly quarry discharge quality sampling was conducted by Coco staff directly from the discharge outfall. The weekly water quality samples were sent to Maxxam Analytics Laboratory of Mississauga, Ontario for analysis. These weekly water quality results are compared to the daily concentration limits of the ECA (Table 1).

A monthly average is calculated from the weekly water quality results and compared to the monthly concentration limits of the ECA ( Table 2).

Weekly water quality samples were not collected from the McCarthy Pond location on the period of August 3 to 28, 2020 as quarry staff reported that limited discharge was present at the sampling location during these periods.

## 4.0 MONITORING RESULTS AND RECOMMENDATIONS

All laboratory certificates of analysis for the August to October 2020 monitoring period for both weekly and semi-annual monitoring events are provided in Appendix B. Results of the quarry discharge sample analyses are summarized below:

- The TSS, pH, Oil and Grease and Phenol (4AAP) concentrations were all below the daily concentration limits of the ECA (Table 1);
- The TSS, Oil and Grease and Phenol (4AAP) concentrations were all below the monthly concentration limits of the ECA (Table 2), with the exception of TSS in August 2020. 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;
- The semi-annual surface water sampling results were below the PWQO (Table 3); and,
- The daily discharge rate between August to October 2020 was below the permitted rate of 4,545 L/min (76 L/sec) (Table 4) and Coco staff indicated there was no pumping completed during this period.

## 5.0 CLOSURE

We trust this report meets your current requirements. Should you have any questions please do not hesitate to contact the undersigned.

## Signature Page

### Golder Associates Ltd.



Jamie Bonany, M.A.Sc.  
*Project Scientist*



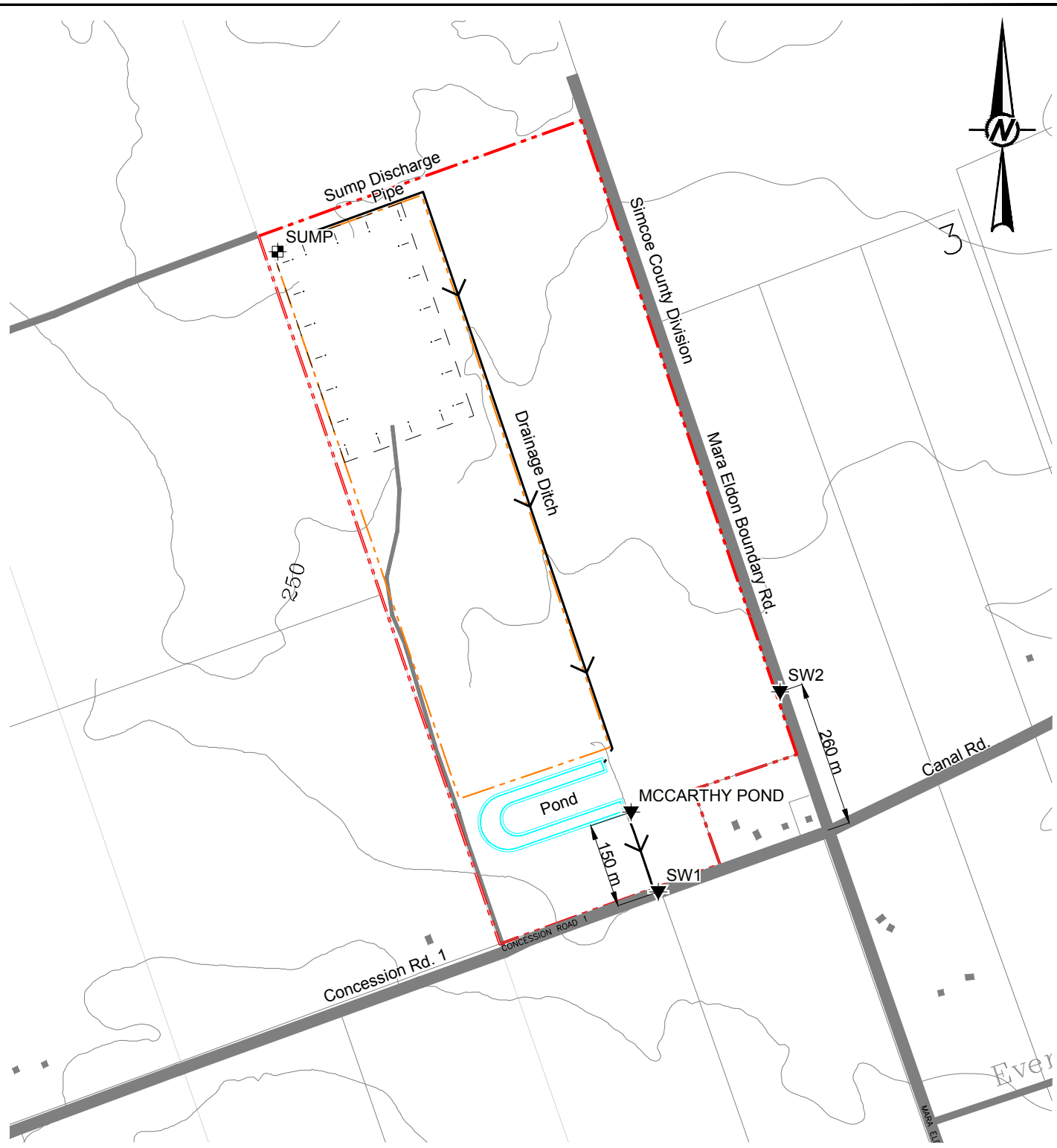
Devin Hannan, P.Eng.  
*Associate, Environmental Engineer*

JB/DH/cdr

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## Figures

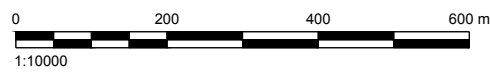


**LEGEND**

- - - 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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IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM ANSIA 26 mm

# Tables

**Table 1: McCarthy Pond Weekly Water Quality Results (August to October 2020)**

Sample ID	Unit	Reportable Detection Limit (RDL)	PWQO <sup>1</sup>	Daily Concentration Limit <sup>2</sup>	McCarthy Quarry								
					Pond								
Date					31-Aug-20	08-Sep-20	14-Sep-20	21-Sep-20	28-Sep-20	08-Oct-20	13-Oct-20	19-Oct-20	26-Oct-20
pH	pH	n/a		6.0-9.5	7.86	7.76	7.97	8.00	8.05	7.84	7.98	7.91	7.92
Total Suspended Solids	mg/L	1		30	17	8	12	9	16	3	5	7	2
Total Oil and Grease	mg/L	0.5	Note 3	30	2.2	<0.5	<0.5	<0.5	1.2	<0.5	<0.5	<0.5	<0.5
Phenols (4AAP)	mg/L	<0.0010		0.04	<0.001	<0.001	<0.001	<0.001	<0.001	<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 (ECA) 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 2: McCarthy Pond Monthly Water Quality Results (August to October 2020)**

Sample ID	Unit	Reportable Detection Limit (RDL)	PWQO <sup>1</sup>	Monthly Concentration Limit <sup>2</sup>	McCarthy Quarry		
					Pond		
Date					August	September	October
Total Suspended Solids	mg/L	1		15	<b>17.0</b>	11.3	4.3
Total Oil and Grease	mg/L	0.5	Note 3	15	2.2	0.7	<0.5
Phenols (4AAP)	mg/L	<0.0010		0.02	<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 (ECA) 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 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 3: McCarthy Semi-Annual Water Quality Monitoring Results (October 2020)**

Sample ID	Unit	Reportable Detection Limit (RDL)	PWQO <sup>1</sup>	Interim PWQO <sup>2</sup>	ECA Effluent Limits	McCarthy Quarry		
						Pond	SW1	SW2
Date						29-Oct-20	29-Oct-20	29-Oct-20
<b>Field Measured Parameters</b>								
Conductivity	µS/cm					723	800	673
pH	pH	n/a	6.5-8.5		6.0-9.5	8.36	8.40	7.99
Temperature	°C	n/a				6.7	6.8	7.0
<b>Calculated Parameters</b>								
Hardness (CaCO <sub>3</sub> )	mg/L	1.0				300	380	360
<b>Inorganics</b>								
Total Ammonia-N	mg/L	0.050				<0.050	<0.050	<0.050
Conductivity	ms/cm	0.001				0.858	0.931	0.734
Total Dissolved Solids	mg/L	10				510	545	410
Fluoride (F <sup>-</sup> )	mg/L	0.10				0.40	0.30	<0.10
Total Kjeldahl Nitrogen (TKN)	mg/L	0.10				0.34	0.34	0.30
Dissolved Organic Carbon	mg/L	0.50				6.5	8.7	8.6
pH	pH	N/A	6.5-8.5		6.0-9.5	7.68	7.94	7.88
Phenols-4AAP	mg/L	0.0010	0.001		0.04	<0.0010	<0.0010	<0.0010
Total Phosphorus	mg/L	0.020		0.03 <sup>5b</sup>		0.012	0.011	0.025
Total Suspended Solids	mg/L	10			30	<10	<10	12
Dissolved Sulphate (SO <sub>4</sub> )	mg/L	1				240	190	42
Alkalinity (Total as CaCO <sub>3</sub> )	mg/L	1.0				93	210	320
Dissolved Chloride (Cl)	mg/L	1				58	47	23
Nitrite (N)	mg/L	0.010				<0.010	<0.010	<0.010
Nitrate (N)	mg/L	0.10				0.28	0.34	<0.10
<b>Petroleum Hydrocarbons</b>								
Total Oil & Grease	mg/L	0.50	Note 3		30	<0.50	<0.50	<0.50
<b>Metals</b>								
Total Arsenic (As)	ug/L	1	100	5		<1.0	<1.0	<1.0
Total Cadmium (Cd)	ug/L	0.09	0.2	0.1-0.5 <sup>5d</sup>		<0.09	<0.09	<0.09
Dissolved Calcium (Ca)	mg/L	0.05				74	120	130
Total Calcium (Ca)	ug/L	200				68000	110000	120000
Total Chromium (Cr)	ug/L	5	1-89 <sup>5e</sup>			<5.0	<5.0	<5.0
Total Copper (Cu)	ug/L	0.9	5	1-5 <sup>5f</sup>		<0.9	<0.9	1.5
Total Iron (Fe)	ug/L	100	300			<100	130	250
Total Lead (Pb)	ug/L	0.5	5-25 <sup>5g</sup>	1-5 <sup>5h</sup>		<0.50	<0.50	<0.50
Dissolved Magnesium (Mg)	mg/L	0.05				27	22	10
Total Magnesium (Mg)	ug/L	50				26000	22000	9800
Total Manganese (Mn)	ug/L	2				6	30	14
Total Nickel (Ni)	ug/L	1	25			<1.0	1.8	<1.0
Dissolved Potassium (K)	mg/L	1				7.4	5.9	1.8
Total Potassium (K)	ug/L	200				7100	5700	1700
Dissolved Sodium (Na)	mg/L	0.5				56	49	20
Total Sodium (Na)	ug/L	100				51000	49000	20000
Total Zinc (Zn)	ug/L	5	30	20		<5.0	<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); 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 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>5b. Phosphorus (Interim):</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>5a. Aluminum (Interim):</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>5c. Beryllium: 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>5d. Cadmium (Interim): 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>5e. Chromium: 1 ug/L for hexavalent chromium (Cr VI) 8.9 ug/L for trivalent chromium (Cr III)</p> <p>5f. Copper (Interim): 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>5g. Lead: 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>5h. Lead (Interim): 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 4: 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>PTTW Permitted Rate</b>					<b>6,550,000</b>	<b>76</b>	<b>4,545</b>
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	-	-	-

Table 4: 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>PTTW Permitted Rate</b>					<b>6,550,000</b>	<b>76</b>	<b>4,545</b>
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
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	-	-	-
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Table 4: 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>PTTW Permitted Rate</b>					<b>6,550,000</b>	<b>76</b>	<b>4,545</b>
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	-	-	-
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	-	-	-

**APPENDIX A**

**ECA No. 7737-BH6QEA**

**AMENDED ENVIRONMENTAL COMPLIANCE APPROVAL**

NUMBER 7737-BH6QEA  
Issue Date: October 22, 2019

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

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

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

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

- one (1) sump, measuring 20 metres long, 10 metres wide and 3 metres deep, located at the base of the quarry floor, equipped with two (2) submersible pumps each rated at 38 litres per second with a suction intake approximately one (1) metre above the bottom of the sump, discharging to a settling pond via a 203 millimetre diameter pipeline; and
- one (1) horse-shoe shaped settling pond with an approximate volume of 14,000 cubic metres (at elevation 248.2 metres), with a Hickenbottom control structure equipped with a 150 millimetre diameter orifice plate, discharging to the roadside ditch along Concession Road 1 with ultimate discharge to the Talbot River via a private ditch.

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

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

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

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

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

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

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

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

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

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

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

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

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

## **TERMS AND CONDITIONS**

### **1. GENERAL CONDITION**

- (1) The Owner shall ensure that any person authorized to carry out work on or operate any aspect of the Works is notified of this Approval and the terms and conditions herein and shall take all reasonable measures to ensure any such person complies with the same.
- (2) Except as otherwise provided by these terms and conditions, the Owner shall design, build, install, operate and maintain the Works in accordance with this Approval.
- (3) Where there is a conflict between a provision of this environmental compliance approval and any document submitted by the Owner, the conditions in this environmental compliance approval shall take precedence. Where there is a conflict between one or more of the documents submitted by the Owner, the Application shall take precedence

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

- (4) Where there is a conflict between the documents listed in the Schedule A, and the application, the application shall take precedence unless it is clear that the purpose of the document was to amend the application.
- (5) The terms and conditions of this Approval are severable. If any term and condition of this environmental compliance approval, or the application of any requirement of this environmental compliance approval to any circumstance, is held invalid or unenforceable, the application of such condition to other circumstances and the remainder of this Approval shall not be affected thereby.
- (6) The issuance of, and compliance with the conditions of, this Approval does not:
  - a) relieve any person of any obligation to comply with any provision of any applicable statute, regulation or other legal requirement, including, but not limited to, the obligation to obtain approval from the local conservation authority necessary to construct or operate the sewage Works; or
  - b) limit in any way the authority of the Ministry to require certain steps be taken to require the Owner to furnish any further information related to compliance with this Approval.

## 2. CHANGE OF OWNER

- (1) The Owner shall notify the District Manager and the Director, in writing, of any of the following changes within **thirty (30) days** of the change occurring:
  - (a) change of address of Owner or operating authority;
  - (b) change of Owner or operating authority or both, including address of new Owner or operating authority, or both;
  - (c) change of partners where the Owner or operating authority is or at any time becomes a partnership, and a copy of the most recent declaration filed under the *Business Names Act, R.S.O. 1990, c. B.17* ; and
  - (d) change of name of the corporation where the Owner or operator is or at any time becomes a corporation, and a copy of the “Initial Return” or “Notice of Change” filed under the *Corporations Information Act, R.S.O. 1990, c. C.39* , shall be included in the notification to the District Manager.
- (2) In the event of any change in ownership of the Works, the Owner shall notify in writing the succeeding owner of the existence of this Approval, and a copy of such notice shall be

forwarded to the District Manager.

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

### **3. OPERATION AND MAINTENANCE**

- (1) The Owner shall prepare an operations manual of the Works that includes, but is not limited to, the following information:
  - (a) operating procedures for routine operation of the Works;
  - (b) inspection programs, including frequency of inspection, for the Works and the methods or tests to be employed to detect when maintenance is necessary;
  - (c) repair and maintenance programs, including the frequency of repair and maintenance for the Works;
  - (d) contingency plans and procedures for dealing with a potential spill, bypasses or any other abnormal situations, including notifying the District Manager of the situation; and
  - (e) procedures for receiving and responding to public complaints.
- (2) The Owner shall ensure that the Works and related equipment and appurtenances which are installed or used to achieve compliance with this Approval are properly operated and maintained.
- (3) The Owner shall inspect the sump, discharge pump and settling pond on a monthly basis and keep a log or record of the inspections at the Quarry.
- (4) The Owner shall carry out on an as-needed basis, specific maintenance requirements like removing build-up, associated with the sump, pump and settling pond.
- (5) The Owner shall, upon identification of a loss of oil and fuel, take immediate action to prevent the further occurrence of such loss and prevent the spill from entering into the sump and/or the settling pond.
- (6) In furtherance of, but without limiting the generality of, the obligation imposed by subsection (2), the Owner shall ensure that equipment and material for the containment, clean-up and disposal of oil and fuel and materials contaminated with oil or fuel are kept on hand and in good repair for immediate use in the event of:
  - (a) loss of oil or fuel during refuelling or equipment maintenance;

- (b) a spill within the meaning of Part X of the Environmental Protection Act; and/or
- (c) the identification of an abnormal amount of oil or fuel in the sump and/or settling pond.

**4. EFFLUENT LIMITS**

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

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

- (2) For the purposes of determining compliance with and enforcing subsection (1):
  - (a) non-compliance with respect to a Daily Concentration is deemed to have occurred when any single grab sample analyzed for a parameter named in Column 1 of subsection (1) is greater than the corresponding daily concentration set out in Column 2 of subsection (1);
  - (b) non-compliance with respect to an Monthly Average Concentration is deemed to have occurred when the arithmetic mean concentration of all samples taken in a month, analyzed for a parameter named in Column 1 of subsection (1) is greater than the corresponding monthly average concentration set out in Column 3 of subsection (1); and
  - (c) non-compliance with respect to pH is deemed to have occurred when any single measurement is outside of the indicated range.

**5. EFFLUENT - VISUAL OBSERVATIONS**

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

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

## 6. MONITORING AND RECORDING

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

- (1) All samples and measurements taken for the purposes of this Approval are to be taken at a time and in a location characteristic of the quality and quantity of the effluent stream over the time period being monitored.
- (2) Samples shall be collected and analyzed at the following sampling point, at the sampling frequencies and using the sample type specified for each parameter listed:

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

<b>Table 3 - Effluent and Surface Water Monitoring</b>	
<b>Sample Point</b>	<ol style="list-style-type: none"> <li>1. Outfall of settling pond approximately 150 metres north of Concession 1 (i.e. end of pipe discharge).</li> <li>2. Box culvert on Eldon-Ramara Townline approximately 260 metres north of the intersection of Ramara Concession 1 and Eldon-Ramara Townline (i.e. upgradient of end of pipe discharge).</li> <li>3. 80 centimetre CSP located at Concession 1 Road on McCarthy property (i.e. downgradient of end of pipe discharge).</li> </ol>
<b>Frequency</b>	Semi-Annually during discharge event.
<b>Sample Type</b>	Grab
<b>Parameters</b>	Total Suspended Solids, Copper, Lead, Nickel, Zinc, Arsenic, Oil and Grease, Phenolics (4AAP), Hardness (as CaCO <sub>3</sub> ), Alkalinity(as CaCO <sub>3</sub> ), Conductivity, pH, Fluoride, Chloride, Nitrate (N), Nitrite (N), Sulphate, Calcium, Magnesium, Sodium, Potassium, Ammonia (N), Dissolved Organic Carbon, Iron, Total Kjeldahl Nitrogen, Phosphorus (Total), Cadmium, Chromium, Manganese, Anion (Sum), Cation (Sum) and Total Dissolved Solids.

- (3) The methods and protocols for sampling, analysis and recording shall conform, in order of precedence, to the methods and protocols specified in the following:
  - (a) the Ministry's publication "Protocol for the Sampling and Analysis of Industrial/Municipal Wastewater" (August 1994), ISBN 0-7778-1880-9, as amended from time to time by more recently published editions; and
  - (b) the publication "Standard Methods for the Examination of Water and Wastewater" (21st edition), as amended from time to time by more recently published editions.
- (4) The Owner shall measure, record and calculate the discharge rate and volume from the Works on a daily basis during discharging period.
- (5) The Owner shall retain for a minimum of **five (5) years** from the date of their creation, all records and information related to or resulting from the monitoring activities required by this Approval.

## **7. RECEIVER INSPECTION**

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

## **8. REPORTING**

- (1) The Owner shall report to the District Manager or designate, any exceedance of any parameter specified in condition 4 orally, forthwith, and in writing within **seven (7) days** of the exceedance.
- (2) In addition to the obligations under Part X of the EPA, the Owner shall, within **ten (10) working days** of the occurrence of any reportable spill as defined in Ontario Regulation 675/98, bypass or loss of any product, by-product, intermediate product, oil, solvent, waste material or any other polluting substance into the environment, submit a full written report of the occurrence to the District Manager describing the cause and discovery of the spill or loss, clean-up and recovery measures taken, preventative measures to be taken and schedule of implementation.
- (3) The Owner shall, upon request, make all manuals, plans, records, data, procedures and supporting documentation available to Ministry staff.
- (4) The Owner shall submit quarterly reports of the information obtained under condition 6 within **30 days** of the end of each quarter.
- (5) The Owner shall prepare, and submit to the District Manager, a **performance report**, on

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

- (a) a summary and interpretation of all monitoring data and a comparison to the effluent limits outlined in condition 4, including an overview of the success and adequacy of the sewage Works;
- (b) a description of any operating problems encountered and corrective actions taken;
- (c) a summary of all maintenance carried out on any major structure, equipment, apparatus, mechanism or thing forming part of the sewage works;
- (d) a summary of any effluent quality assurance or control measures undertaken in the reporting period;
- (e) any other information the District Manager requires from time to time.

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

1. Condition 1 is imposed to ensure that the Works are built and operated in the manner in which they were described for review and upon which approval was granted. This condition is also included to emphasize the precedence of Conditions in the Approval and the practice that the Approval is based on the most current document, if several conflicting documents are submitted for review. Condition 1.(6) is included to emphasize that the issuance of this Approval does not diminish any other statutory and regulatory obligations to which the Owner is subject in the construction, maintenance and operation of the Works. The Condition specifically highlights the need to obtain any necessary conservation authority approvals. The Condition also emphasizes the fact that this Approval doesn't limit the authority of the Ministry to require further information.
2. Condition 2 is included to ensure that the Ministry records are kept accurate and current with respect to approved Works and to ensure that subsequent owners of the Works are made aware of the Approval and continue to operate the works in compliance with it.
3. Condition 3 is included to ensure that a comprehensive operations manual governing all significant areas of operation, maintenance and repair is prepared, implemented and kept up-to-date by the Owner and made available to the Ministry. Such a manual is an integral part of the operation of the Works. Its compilation and use should assist the owner in staff training, in proper plant operation and in identifying and planning for contingencies during possible abnormal conditions. The manual will also act as a benchmark for Ministry staff when reviewing the Owner's operation of the Works. The condition is also included to ensure that the Works will be operated and maintained in a manner enabling compliance with the terms and conditions of this Approval, such that the environment is protected and deterioration, loss, injury or damage to

any person or property is minimised and/or prevented.

4. Conditions 4 and 5 are imposed to ensure that the effluent discharged from the Works to the environment meets the Ministry's effluent quality requirements thus minimizing environmental impact on the receiver.
5. Condition 6 is included to enable the Owner to evaluate and demonstrate the performance of the Works, on a continual basis, so that the Works are properly operated and maintained at a level which is consistent with the design objectives and effluent limits specified in the Approval and that the Works does not cause any impairment to the receiver.
6. Condition 7 is included in order to determine if the ongoing discharge of quarry water is having a negative impact on the downstream ditches so that abatement measures can be taken to prevent such occurrences.
7. Condition 8 is included to provide a performance record for future references, to ensure that the Ministry is made aware of problems as they arise, and to provide a compliance record for all the terms and conditions outlined in this Approval, so that the Ministry can work with the Owner in resolving any problems in a timely manner.

## **SCHEDULE 'A'**

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

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

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

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

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

*The Notice should also include:*

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

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

*This Notice must be served upon:*

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

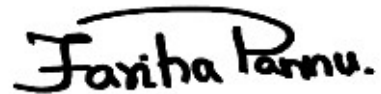
AND

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

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

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

DATED AT TORONTO this 22nd day of October, 2019

A handwritten signature in black ink that reads "Fariha Pannu." The signature is written in a cursive style with a horizontal line above the name.

---

Fariha Pannu, P.Eng.

Director

appointed for the purposes of Part II.1 of the  
*Environmental Protection Act*

AA/

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

**APPENDIX B**

**Water Quality Data**



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 #: COM4751**  
**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

=====

This report has been generated and distributed using a secure automated process.

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BUREAU  
VERITAS

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.



BUREAU  
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).

A handwritten signature in black ink, appearing to read "Anastassia Hamanov", written over a horizontal line.

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#: 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:**

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#: 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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BUREAU  
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 <= 2x 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).

A handwritten signature in black ink, appearing to read "Brad Newman", written over a horizontal line.

Brad Newman, Scientific Service 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 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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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.

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 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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**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				



BUREAU  
VERITAS

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
-----------	--------

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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VERITAS

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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BUREAU  
VERITAS

BV Labs Job #: COO5985  
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 #: COO5985  
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 <= 2x 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 #: COP6126**  
**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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**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 <= 2x 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).

A handwritten signature in black ink, appearing to read 'Brad Newman', written over a horizontal line.

Brad Newman, B.Sc., C.Chem., Scientific Service 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#: 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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**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 #: COQ6598  
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.**



BUREAU  
VERITAS

BV Labs Job #: COQ6598  
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 <= 2x RDL).



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BV Labs Job #: COQ6598

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).

A handwritten signature in black ink, appearing to read 'A. Hamanov', written over a horizontal line.

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

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 #: COQ9082  
Report Date: 2020/10/19

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

### RESULTS OF ANALYSES OF WATER

BV Labs ID		NWP918		NWP918	
Sampling Date		2020/10/13 14:00		2020/10/13 14:00	
COC Number		766888-04-01		766888-04-01	
	UNITS	POND	RDL	POND Lab-Dup	QC Batch
<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 <= 2x RDL).



BUREAU  
VERITAS

BV Labs Job #: COQ9082

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).

A handwritten signature in black ink, appearing to read 'Anastassia Hamanov', written over a horizontal line.

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 #: COR5630**

**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.

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. #: 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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**RESULTS OF ANALYSES OF WATER**

BV Labs ID			NYA398		NYA398	
Sampling Date			2020/10/19 14:00		2020/10/19 14:00	
COC Number			762593-03-01		762593-03-01	
	UNITS	Criteria	POND	RDL	POND Lab-Dup	QC Batch
<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).

*Eva Pranjić*

---

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 #: COS3500**

**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.

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. #: 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 #: COS3500**  
**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 <= 2x 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).

*Eva Pranjić*

---

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

<b>Analyses</b>	<b>Quantity</b>	<b>Date Extracted</b>	<b>Date Analyzed</b>	<b>Laboratory Method</b>	<b>Analytical Method</b>
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:**

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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
<b>Calculated Parameters</b>									
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
<b>Inorganics</b>									
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	<b>0.012</b>	7040569	<b>0.011</b>	7040569	<b>0.025</b>	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
<b>Petroleum Hydrocarbons</b>									
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									



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			OBH329		
Sampling Date			2020/10/29 03:15		
COC Number			796496-01-01		
	UNITS	Criteria	DUP1	RDL	QC Batch
<b>Calculated Parameters</b>					
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
<b>Inorganics</b>					
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
<b>Petroleum Hydrocarbons</b>					
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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BV Labs Job #: COT0976  
Report Date: 2020/11/10

Golder 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
<b>Metals</b>								
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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VERITAS

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 CaCO3)		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/NH4	7043136	N/A	2020/11/09	Amanpreet Sappal
Nitrate (NO3) and Nitrite (NO2) 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 CaCO3)		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/NH4	7043139	N/A	2020/11/09	Amanpreet Sappal
Nitrate (NO3) and Nitrite (NO2) 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 CaCO3)		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/NH4	7043136	N/A	2020/11/09	Amanpreet Sappal
Nitrate (NO3) and Nitrite (NO2) 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 CaCO3)		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/NH4	7043136	N/A	2020/11/09	Amanpreet Sappal
Nitrate (NO3) and Nitrite (NO2) 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).

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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.



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.



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