



GOLDER

REPORT

Environmental Compliance Approval Quarterly Monitoring Report (August to November)

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.

121 Commerce Park Drive, Unit L, Barrie, Ontario, L4N 8X1, Canada

+1 705 722 4492

1407634

November 2019



Distribution List

Distribution:

1 Copy - Ontario MECP Barrie District Office

1 Copy - Coco Aggregates Inc.

e Copy - Golder Associates Ltd.

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ECA No. 4731-987KM8

ECA No. 7777-BH6QEA

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Water Quality Data

1.0 INTRODUCTION

Golder Associates Ltd. (Golder) was retained by QBJR/Coco Aggregates Inc. (Coco) to prepare a quarterly compliance report for the McCarthy Quarry located in the Township of Ramara, County of Simcoe (Figure 1). The Environmental Compliance Approval (ECA) No. 4731-987KM8 issued on October 15, 2013 requires this task. A copy of the ECA No. 4731-987KM8 is found in Appendix A.

Golder prepared a letter requesting the removal of Condition 8 of the ECA, dated April 12, 2019. Condition 8 of the ECA requires monthly lethality monitoring of the pond discharge for Rainbow Trout and *Daphnia Magna*. In an email from the Barrie District Office dated April 18, 2019, Darren Peltoniemi, Provincial Officer, provided their support for the removal of Condition 8. In addition, the Barrie District Office also recommended the removal of Condition 5(3) and Condition 5(7) which relate to the compliance and enforcement of Condition 8. An application to amend the ECA was submitted in September 2019; the updated ECA No. 7737-BH6QEA was issued on October 22, 2019 and is found in Appendix A.

The following report addresses the requirements described in Sections 7 and 8 of the ECA No. 4731-987KM8. Included herein are a brief background, summary and discussion of the sampling results and data collected on-site during each sampling event.

2.0 BACKGROUND

The McCarthy Quarry dewatering system consists of the collection of groundwater and surface water (hereafter referred to as “quarry discharge”) at the base of the quarry floor in a quarry sump which is pumped to a settling pond, at grade, to the south of the active quarry area (Figure 1). The sump is equipped with a 4-inch Grindex pump which is operating at a rate of 15 L/sec (or whatever they measured) and is attached to a 4-inch (101 mm) diameter discharge line. Water is pumped from the quarry floor up the quarry face to a 4-inch (101 mm) diameter pipeline that directs the water to the 14,000 m³ settling pond. The water in the settling pond is equipped with a Hickenbottom control structure that discharges the water 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 to the Talbot River, which discharges into Lake Simcoe.

The dewatering activities from the McCarthy Quarry are currently carried out under the existing Permit to Take Water (PTTW) No. 7818-9QJNL4 issued on December 30, 2014. Under the current PTTW Coco is permitted to pump water from the quarry sump at a rate of 4,545 L/min (76 L/sec).

3.0 QUARRY DISCHARGE MONITORING PLAN

Weekly monitoring of the effluent is required by the ECA at three locations, as shown on Figure 1:

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

Weekly quarry discharge monitoring is required per Section 7(2) for Total Suspended Solids (TSS), Oil and Grease, Phenolics (4AAP) and pH at the McCarthy Pond. Additional water quality sampling is required under Section 7(3) at a semi-annual frequency at all three locations, recognizing that, as of April 24, 2014 this

monitoring was reduced from weekly sampling frequency to a semi-annual frequency following one year of quarry operation according to Section 7(7). The parameters required for semi-annual water quality monitoring at all three locations are listed in Table 3 of the ECA. Monthly acute lethality is also required at the McCarthy Pond under Section 8.

The weekly quarry discharge samples (Section 7(2)) were collected by staff at the McCarthy Quarry. The semi-annual water quality samples (Section 7(3) and Section 7(7)) were collected by Golder. Both the weekly and semi-annual water quality samples were sent to Maxxam Analytics Laboratory for analysis. Additionally, the monthly lethality samples were collected by Golder and sent to AGAT Laboratories Ltd.

The weekly water quality sample was not collected from the McCarthy Pond on the weeks of July 29 to August 2, August 5 to 9, August 12 to 16, August 19 to 23, August 26 to 30, September 2 to 6, September 9 to 13, September 16 to 20 and September 23 to 27 as quarry staff reported there was no discharge at the time of sampling. In addition, the monthly lethality sample was not collected from the McCarthy Pond during the months of August, September, and October 2019 as there was no quarry discharge at the time of sampling. Semi-Annual sampling was completed at October 2019 at SW2 but was not completed at SW1 or the McCarthy pond, which was not discharging. An additional attempt to collect samples at these locations will be completed in November.

4.0 QUARRY DISCHARGE MONITORING RESULTS

All laboratory certificates of analysis for the August to November 2019 monitoring period are included in Appendix B. Results of the quarry discharge monitoring are summarized below:

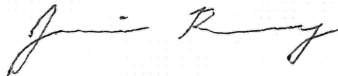
- The TSS, pH, Oil and Grease, and Phenol (4AAP) concentrations were all below the daily concentration limits of the ECA (Table 1);
- The TSS, Oil and Grease, and Phenol (4AAP) concentrations were all below the monthly concentration limits of the ECA (Table 2);
- The semi-annual surface water sampling results were below the PWQO, with the exception of phosphorus and iron at SW2 (Table 3);
- The discharge rate between August and November 2019 was below the permitted rate of 4,545 L/min (76 L/sec) (Table 4).

5.0 SUMMARY AND RECOMMENDATIONS


All samples met the daily and monthly concentration limits of the ECA No. 4731-987KM8.

Signature Page

Golder Associates Ltd.



Jamie Bonany, M.A.Sc.
Project Scientist



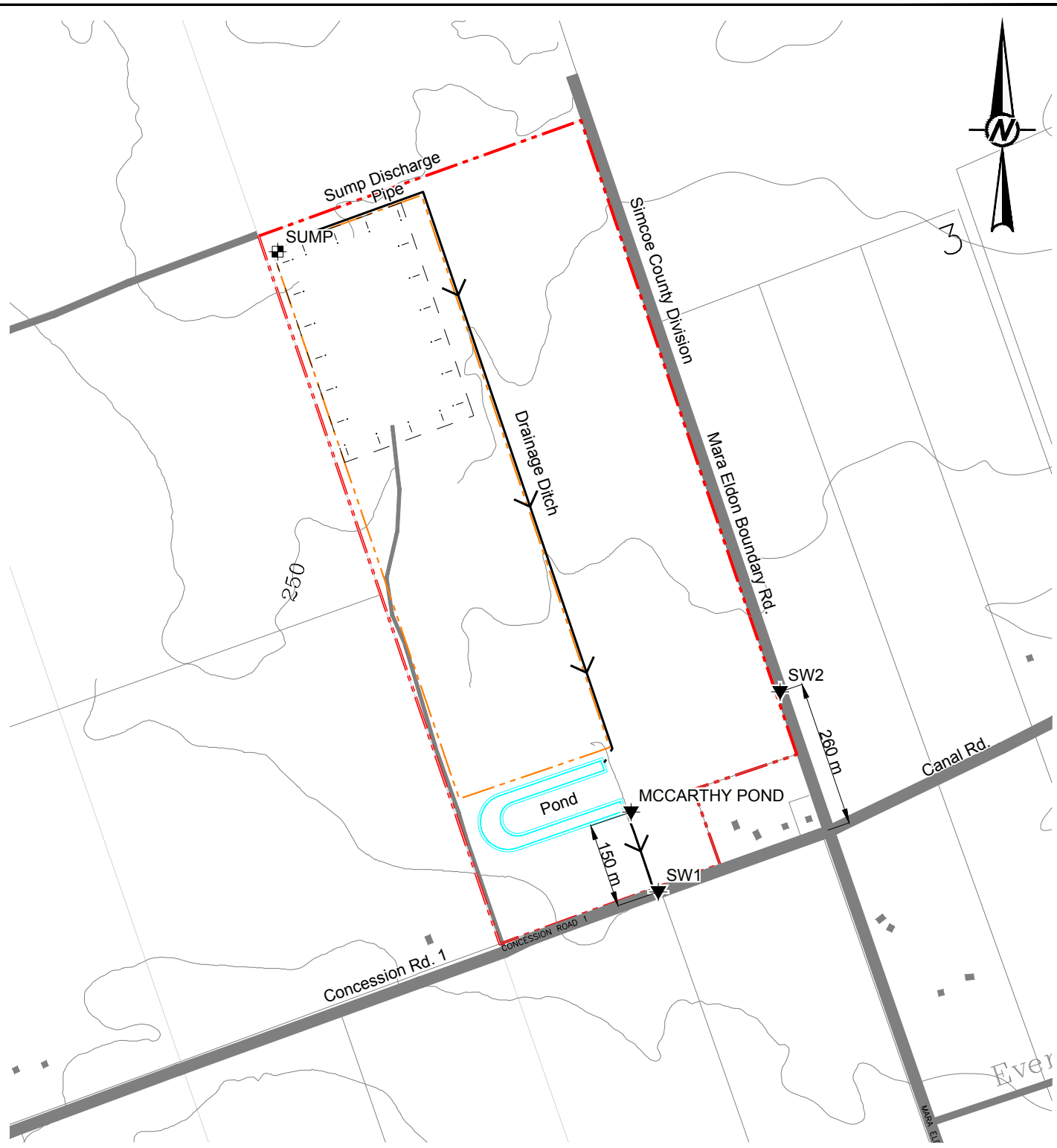
John Easton, M.Sc., P.Geol.
Associate Senior Hydrogeologist

JB/JE/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 ANS/A 25 mm

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Tables

Table 1: McCarthy Pond Weekly Water Quality Results (August to November 2019)

	Unit	Reportable Detection Limit (RDL)	PWQO ¹	Daily Concentration Limit ²	McCarthy Quarry				
Sample ID					Pond				
Date					03-Oct-19	10-Oct-19	17-Oct-19	24-Oct-19	31-Oct-19
pH	pH	n/a		6.0-9.5	8.11	8.09	7.98	8.03	7.6
Total Suspended Solids	mg/L	1		30	3	4	2	6	11
Total Oil and Grease	mg/L	0.5	Note 3	30	<0.5	<0.5	<0.5	1.6	<0.5
Phenols (4AAP)	mg/L	<0.0010		0.04	<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 Permit to Take Waters 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 November 2019)

Sample ID	Unit	Reportable Detection Limit (RDL)	PWQO ¹	Monthly Concentration Limit ²	McCarthy Quarry		
					Pond		
Date					August	September	October
Total Suspended Solids	mg/L	1		15	-	-	5.2
Total Oil and Grease	mg/L	0.5	Note 3	15	-	-	0.7
Phenols (4AAP)	mg/L	<0.0010		0.02	-	-	<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 Permit to Take Waters 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 2019)

	Unit	Reportable Detection Limit (RDL)	PWQO ¹	Interim PWQO ²	PTTW Effluent Limits	McCarthy Quarry
Sample ID						SW2
Date						4-Oct-19
Field Measured Parameters						
Conductivity	µS/cm					2762
pH		n/a	6.5-8.5		6.0-9.5	6.94
Temperature	°C	n/a				11.3
Calculated Parameters						
Hardness (CaCO ₃)	mg/L	1.0				580
Inorganics						
Total Ammonia-N	mg/L	0.050				<0.050
Conductivity	ms/cm	0.001				2.63
Total Dissolved Solids	mg/L	10				2060
Fluoride (F ⁻)	mg/L	0.10				0.1
Total Kjeldahl Nitrogen (TKN)	mg/L	0.10				0.74
Dissolved Organic Carbon	mg/L	0.50				11
pH		N/A	6.5-8.5		6.0-9.5	7.48
Phenols-4AAP	mg/L	0.0010			0.04	0.0039
Total Phosphorus	mg/L	0.020		0.02 ^{5b}		0.066
Total Suspended Solids	mg/L	10			30	22
Dissolved Sulphate (SO ₄)	mg/L	1				940
Alkalinity (Total as CaCO ₃)	mg/L	1.0				330
Dissolved Chloride (Cl)	mg/L	1				200
Nitrite (N)	mg/L	0.010				<0.010
Nitrate (N)	mg/L	0.10				<0.10
Petroleum Hydrocarbons						
Total Oil & Grease	mg/L	0.50	Note 3		30	<0.50
Metals						
Total Arsenic (As)	ug/L	1	100	5		1.0
Total Cadmium (Cd)	ug/L	0.1	0.2	0.1-0.5 ^{5d}		0.11
Dissolved Calcium (Ca)	mg/L	0.05				480
Total Calcium (Ca)	ug/L	200				480000
Total Chromium (Cr)	ug/L	5	1-89 ^{5e}			<5.0
Total Copper (Cu)	ug/L	1	5	1-5 ^{5f}		2.1
Total Iron (Fe)	ug/L	100	300			1400
Total Lead (Pb)	ug/L	0.5	5-25 ^{5g}	1-5 ^{5h}		<0.50
Dissolved Magnesium (Mg)	mg/L	0.05				46
Total Magnesium (Mg)	ug/L	50				43000
Total Manganese (Mn)	ug/L	2				1000
Total Nickel (Ni)	ug/L	1	25			1.2
Dissolved Potassium (K)	mg/L	1				9
Total Potassium (K)	ug/L	200				8500
Dissolved Sodium (Na)	mg/L	0.5				110
Total Sodium (Na)	ug/L	100				110000
Total Zinc (Zn)	ug/L	5	30	20		13
<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 "<" denote concentrations that are below the laboratory Reportable Detection Limit (RDL).</p>					<p>5b. <i>Phosphorus (Interim):</i></p> <p>- Current scientific evidence is insufficient to develop a firm Objective at this time.</p> <p>- Accordingly, the following phosphorus concentrations should be considered as general guidelines which should be supplemented by site-specific studies:</p> <p>(a) To avoid nuisance concentrations of algae in lakes, average total phosphorus concentrations for the ice-free period should not exceed 20 ug/L;</p> <p>(b) A high level of protection against aesthetic deterioration will be provided by a total phosphorus concentration for the ice-free period of 10 ug/L or less. This should apply to all lakes naturally below this value;</p> <p>(c) Excessive plant growth in rivers and streams should be eliminated at a total phosphorus concentration below 30 ug/L</p>	
<p>5a. <i>Aluminum (Interim):</i></p> <p>- At pH 4.5 to 5.5 the Interim PWQO is 15 ug/L based on inorganic monomeric aluminum measured in clay-free samples.</p> <p>- At pH >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 >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. <i>Beryllium:</i></p> <p>5d. <i>Cadmium (Interim)</i></p> <p>5e. <i>Chromium:</i></p> <p>5f. <i>Copper (Interim)</i></p> <p>5g. <i>Lead:</i></p>	
					<p>5h. <i>Lead (Interim)</i></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)
ECA Permitted Rate					6,550,000	76	4,545
1-Aug-19	NO PUMP		0	0	-	-	-
2-Aug-19	NO PUMP		0	0	-	-	-
3-Aug-19	NO PUMP		0	0	-	-	-
4-Aug-19	NO PUMP		0	0	-	-	-
5-Aug-19	NO PUMP		0	0	-	-	-
6-Aug-19	NO PUMP		0	0	-	-	-
7-Aug-19	NO PUMP		0	0	-	-	-
8-Aug-19	NO PUMP		0	0	-	-	-
9-Aug-19	NO PUMP		0	0	-	-	-
10-Aug-19	NO PUMP		0	0	-	-	-
11-Aug-19	NO PUMP		0	0	-	-	-
12-Aug-19	NO PUMP		0	0	-	-	-
13-Aug-19	NO PUMP		0	0	-	-	-
14-Aug-19	NO PUMP		0	0	-	-	-
15-Aug-19	NO PUMP		0	0	-	-	-
16-Aug-19	NO PUMP		0	0	-	-	-
17-Aug-19	NO PUMP		0	0	-	-	-
18-Aug-19	NO PUMP		0	0	-	-	-
19-Aug-19	NO PUMP		0	0	-	-	-
20-Aug-19	NO PUMP		0	0	-	-	-
21-Aug-19	NO PUMP		0	0	-	-	-
22-Aug-19	NO PUMP		0	0	-	-	-
23-Aug-19	NO PUMP		0	0	-	-	-
24-Aug-19	NO PUMP		0	0	-	-	-
25-Aug-19	NO PUMP		0	0	-	-	-
26-Aug-19	NO PUMP		0	0	-	-	-
27-Aug-19	NO PUMP		0	0	-	-	-
28-Aug-19	NO PUMP		0	0	-	-	-
29-Aug-19	NO PUMP		0	0	-	-	-
30-Aug-19	NO PUMP		0	0	-	-	-
31-Aug-19	NO PUMP		0	0	-	-	-
1-Sep-19	NO PUMP		0	0	-	-	-
2-Sep-19	NO PUMP		0	0	-	-	-
3-Sep-19	NO PUMP		0	0	-	-	-
4-Sep-19	NO PUMP		0	0	-	-	-
5-Sep-19	NO PUMP		0	0	-	-	-
6-Sep-19	NO PUMP		0	0	-	-	-
7-Sep-19	NO PUMP		0	0	-	-	-
8-Sep-19	NO PUMP		0	0	-	-	-
9-Sep-19	NO PUMP		0	0	-	-	-
10-Sep-19	NO PUMP		0	0	-	-	-
11-Sep-19	7AM	5PM	36000	600	1,260,000	20	2,100
12-Sep-19	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)
ECA Permitted Rate					6,550,000	76	4,545
13-Sep-19	NO PUMP		0	0	-	-	-
14-Sep-19	NO PUMP		0	0	-	-	-
15-Sep-19	NO PUMP		0	0	-	-	-
16-Sep-19	NO PUMP		0	0	-	-	-
17-Sep-19	NO PUMP		0	0	-	-	-
18-Sep-19	NO PUMP		0	0	-	-	-
19-Sep-19	NO PUMP		0	0	-	-	-
20-Sep-19	7AM	5PM	36000	600	720,000	20	1,200
21-Sep-19	NO PUMP		0	0	-	-	-
22-Sep-19	NO PUMP		0	0	-	-	-
23-Sep-19	NO PUMP		0	0	-	-	-
24-Sep-19	NO PUMP		0	0	-	-	-
25-Sep-19	NO PUMP		0	0	-	-	-
26-Sep-19	NO PUMP		0	0	-	-	-
27-Sep-19	NO PUMP		0	0	-	-	-
28-Sep-19	NO PUMP		0	0	-	-	-
29-Sep-19	NO PUMP		0	0	-	-	-
30-Sep-19	NO PUMP		0	0	-	-	-
1-Oct-19	NO PUMP		0	0	-	-	-
2-Oct-19	NO PUMP		0	0	-	-	-
3-Oct-19	7AM	5PM	36000	600	720,000	20	1,200
4-Oct-19	7AM	5PM	36000	600	720,000	20	1,200
5-Oct-19	NO PUMP		0	0	-	-	-
6-Oct-19	NO PUMP		0	0	-	-	-
7-Oct-19	7AM	5PM	36000	600	720,000	20	1,200
8-Oct-19	7AM	5PM	36000	600	720,000	20	1,200
9-Oct-19	7AM	5PM	36000	600	720,000	20	1,200
10-Oct-19	7AM	5PM	36000	600	720,000	20	1,200
11-Oct-19	7AM	5PM	36000	600	720,000	20	1,200
12-Oct-19	NO PUMP		0	0	-	-	-
13-Oct-19	NO PUMP		0	0	-	-	-
14-Oct-19	7AM	5PM	36000	600	720,000	20	1,200
15-Oct-19	7AM	5PM	36000	600	720,000	20	1,200
16-Oct-19	7AM	5PM	36000	600	720,000	20	1,200
17-Oct-19	7AM	5PM	36000	600	720,000	20	1,200
18-Oct-19	7AM	5PM	36000	600	720,000	20	1,200
19-Oct-19	NO PUMP		0	0	-	-	-
20-Oct-19	NO PUMP		0	0	-	-	-
21-Oct-19	7AM	5PM	36000	600	720,000	20	1,200
22-Oct-19	7AM	5PM	36000	600	720,000	20	1,200
23-Oct-19	7AM	5PM	36000	600	720,000	20	1,200
24-Oct-19	7AM	5PM	36000	600	720,000	20	1,200
25-Oct-19	7AM	5PM	36000	600	720,000	20	1,200

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)
ECA Permitted Rate					6,550,000	76	4,545
26-Oct-19	NO PUMP		0	0	-	-	-
27-Oct-19	NO PUMP		0	0	-	-	-
28-Oct-19	7AM	5PM	36000	600	720,000	20	1,200
29-Oct-19	7AM	5PM	36000	600	720,000	20	1,200
30-Oct-19	7AM	5PM	36000	600	720,000	20	1,200
31-Oct-19	7AM	5PM	36000	600	720,000	20	1,200

APPENDIX A

ECA No. 4731-987KM8
ECA No. 7777-BH6QEA



- AKossi
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Ministry of the Environment
Ministère de l'Environnement

AMENDED ENVIRONMENTAL COMPLIANCE APPROVAL

NUMBER 4731-987KM8

Issue Date: October 15, 2013

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

Site Location: McCarthy Quarry
Lot 1, Concession 1, Original Township of Mara
Lot 1, Concession 1
Ramara Township, 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:

a sewage works for the collection, transmission, treatment and disposal of quarry water effluent from an aggregate 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;
- 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:

"Approval" means this entire document and 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 Barrie District Office of the Ministry;

"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 its successors and assignees;

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

"Quarterly" means all or part of a period of three consecutive months beginning on the first day of January, April, July or October;

"Semi-annually" means all or part of a period of six months beginning on the first day of January or July;

"Weekly" means a period of seven days, starting on Sunday and ending on Saturday; and

"Works" means the sewage works described in the Owner's application, this *Approval* and in the supporting documentation referred to herein, to the extent approved by this *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) Except as otherwise provided by these Conditions, the *Owner* shall design, build, install, operate and maintain the *Works* in accordance with the description given in this *Approval*, the application for approval of the *Works* and the submitted supporting documents and plans and specifications as listed in this *Approval*.

(2) Where there is a conflict between a provision of any submitted document referred to in this *Approval* and the Conditions of this *Approval*, the Conditions in this *Approval* shall take precedence, and where there is a conflict between the listed submitted documents, the document bearing the most recent date shall prevail.

2. CHANGE OF OWNER

(1) The *Owner* shall notify the *District Manager* and the *Director* , in writing, of any of the following changes within seven (7) days of the change occurring:

(a) change of *Owner* or operating authority, or both;

(b) change of address of *Owner* or operating authority or address of new owner or operating authority;

(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 *Partnerships Registration Act* ;

(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 most current "Initial Notice or Notice of Change" (Form 1, 2 or 3 of O. Reg. 189, R.R.O. 1980, as amended from time to time), filed under the *Corporations Informations Act* 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 certificate, 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 will refer to this Approval's number.

3. CHANGES IN PROCESSES OR PROCESS MATERIALS

The *Owner* shall give written notice to the *District Manager* of any plans to change the processes or process materials in the *Owner's* enterprise serviced by the *Works* where the change may significantly alter the quantity or quality of the influent to or effluent from the *Works* , and no such changes shall be made unless with the written concurrence or approval of the *District Manager* .

4. OPERATIONS MANUAL

(1) The *Owner* shall prepare an operations manual prior to the commencement of operation of the sewage *Works* , that includes, but not necessarily 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 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 potential spill, bypasses and any other abnormal situations and for notifying the *District Manager* ; and

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

(2) The *Owner* shall maintain the operations manual up to date through revisions undertaken from time to time and retain a copy at the location of the sewage works. Upon request, the *Owner* shall make the manual available for inspection and copying by Ministry personnel.

(3) A copy of the operations manual required by subsection (1) shall be provided to the *Director* no later than **three (3) months** prior to the commencement of operation of the sewage works.

5. EFFLUENT LIMITS

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

Effluent Parameter	Daily Concentration Limit (mg/L)	Monthly Average Concentration Limit (mg/L)
Column 1	Column 2	Column 3
Total Suspended Solids	30	15
Oil and Grease	30	15
Phenolics (4AAP)	0.04	0.02

(2) pH of the effluent maintained between 6.0 to 9.5, inclusive, at all times.

(3) The *Owner* shall ensure that the quarry water effluent shall be non-lethal to rainbow trout and *Daphnia magna* at all times.

(4) For the purposes of determining compliance with and enforcing subsection (1), exceedance of a daily concentration is deemed to have occurred when any daily single grab sample, analyzed for a parameter named in Column 1 of Table 1, is greater than the corresponding daily concentration set in Column 2 of Table 1.

(5) For the purposes of determining compliance with and enforcing subsection (1), exceedance of a monthly average concentration is deemed to have occurred when the arithmetic mean concentration of all samples taken in a calendar month, analyzed for a parameter named in Column 1 of Table 1, is greater than the corresponding monthly average concentration set in Column 3 of Table 1.

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

(7) For the purposes of determining compliance with and enforcing subsection (3), the effluent is deemed to be non-lethal if the test results, required pursuant to Condition 8, show mortality for no more than 50 percent of either test organism in each sample of undiluted effluent.

6. EFFLUENT - VISUAL OBSERVATIONS

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.

7. EFFLUENT MONITORING AND RECORDING

The *Owner* shall, upon commencement of operation of the sewage works, carry out the following sampling from the final effluent control point (i.e. the outfall of the settling pond which is approximately 150 metres north of Concession 1) at the commencement of effluent discharge and for the duration of the discharge period, as follows:

(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:

Effluent Parameter	Frequency	Sample Type
Total Suspended Solids	Weekly	Grab
Oil and Grease	Weekly	Grab
Phenolics (4AAP)	Weekly	Grab

(3) The *Owner* shall collect effluent samples at the following locations and analyze for the parameters listed in Table 3 at a frequency of once per week:

- (a) Outfall of settling pond approximately 150 metres north of Concession 1 (i.e. end of pipe discharge);
- (b) Box culvert on Eldon-Ramara Townline approximately 260 metres north of intersection of Ramara Concession 1 and Eldon-Ramara Townline (i.e. upgradient of end of pipe discharge);

- (c) 80 centimetre CSP located at Concession 1 Road on McCarthy property (i.e. downgradient of end of pipe discharge).

Table 3 - Effluent and Surface Water Monitoring	
Frequency	Weekly
Sample Type	Grab
Parameters	Total Suspended Solids, Copper, Lead, Nickel, Zinc, Arsenic, Oil and Grease, Phenolics (4AAP), Hardness (as CaCO ₃), Alkalinity(as CaCO ₃), Conductivity, pH, Fluoride, Chloride, Nitrate (N), Nitrite (N), Sulphate, Calcium, Magnesium, Sodium, Potassium, Ammonia (N), Dissolved Organic Carbon, Iron, Total Kjeldahl Nitrogen, Phosphorus (Total), Cadmium, Chromium, Manganese, Anion (Sum), Cation (Sum) and Total Dissolved Solids

- (4) There shall be at least **four days** between successive sampling.
- (5) 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;
 - (b) the publication "Standard Methods for the Examination of Water and Wastewater" (17th edition) as amended from time to time by more recently published editions; and,
 - (c) in respect of any parameters not mentioned in (a) and (b), the written approval of the *District Manager* , shall be obtained prior to sampling.
- (6) The measurement frequencies specified in subsection (2) in respect of any parameter are minimum requirements which may, **after 48 months** of monitoring in accordance with this Condition, be modified by the *District Manager* in writing from time to time.
- (7) The measurement frequencies specified in subsection (3) in respect of any parameter shall be changed to semi-annually after one year of quarry operation.
- (8) A continuous flow measuring device shall be installed and maintained to measure the flowrate of the effluent from the sewage works, with an accuracy to within plus or minus 15 per cent of the actual flowrate for the entire design range of the flow measuring device and the *Owner* shall measure, record and calculate the flowrate for each effluent stream on each day of sampling.
- (9) The *Owner* shall retain for a minimum of **three (3) years** from the date of their creation, all records

and information related to or resulting from the monitoring activities required by this *Approval* .

8. LETHALITY MONITORING

(1) The *Owner* shall perform rainbow trout acute lethality test and *Daphnia magna* acute lethality test at least once a month on the quarry water effluent according to procedures published in Environment Canada publications entitled "Biological Test Method: Reference Method for Determining Acute Lethality of Effluents to Rainbow Trout", dated July 1990 and "Biological Test Method: Reference Method for Determining Acute Lethality of Effluents to *Daphnia magna* ", dated July 1990 and as updated from time to time.

(2) The acute lethality tests shall be carried out on a grab sample as a single concentration test using 100 per cent quarry water effluent.

(3) A minimum of two samples shall be tested for either test animal per each discharge period.

9. RECEIVER INSPECTION

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.

10. REPORTING

(1) One week prior to the start up of the operation of the *Works* , the *Owner* shall notify the *District Manager* (in writing) of the pending start up date.

(2) The *Owner* shall report to the *District Manager* or designate, any exceedance of any parameter specified in Condition 5 orally, forthwith, and in writing within seven (7) days of the exceedance.

(3) In addition to the obligations under Part X of the *Environmental Protection Act* , the *Owner* shall, within 10 working days of the occurrence of any spill, bypass or loss of any product, by product, intermediate product, oils, solvents, 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.

(4) The *Owner* shall submit quarterly reports of the information obtained under Conditions 7 and 8 within 30 days of the end of each quarter.

(5) The *Owner* shall prepare and submit a performance report to the *District Manager* on an annual basis within sixty (60) days following the end of the period being reported upon. The first such report shall cover the first annual period following the commencement of operation of the *Works* and subsequent reports shall be submitted to cover successive annual periods following thereafter. 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 5, 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; and
- (e) a summary of the calibration and maintenance carried out on all effluent monitoring equipment.

Schedule A

Environmental Compliance Approval (ECA) supporting documents:

1. Application for Approval of Industrial Sewage Works submitted by Thomas S. McCarthy dated July 21, 2001 and revised January 25, 2002;
2. McCarthy Property - Certificate of Approval Application prepared by Dixon Hydrogeology Limited dated July 2001;
3. Revised Permit to Take Water - McCarthy Property prepared by Dixon Hydrogeology Limited dated April 11, 2002;
4. Letter and attachments dated January 25, 2002 from John Easton of Dixon Hydrogeology Limited to Mohamed Dhalla of the Ministry of the Environment;
5. Letter and attachments dated April 1, 2002 from Dave Hulme of Dave T. Hulme Enterprises Inc. to Stefanos Habtom of the Ministry of the Environment;
6. Letter dated April 10, 2002 from John Easton of Dixon Hydrogeology Limited to Stefanos Habtom of the Ministry of the Environment;
7. Environmental Review Amended Tribunal Decision: 02-214/02-217 and 03-188/03-189, dated May 25, 2006 - Trent Talbot River Property Owners Association, Marchand Lamarre and Jodi McIntosh v. Director, Ministry of the Environment; and
8. Notification of Change of Address/Ownership dated June 29, 2012, MOE Reference Number 3620-8VQPTZ acknowledging change in company address/ownership from Thomas S. McCarty, Rural Route No.1 Brechin, Ontario, L0K 1B0 to QBJR Aggregates Inc., 949 Wilson Ave., Toronto, Ontario, M3K 1G.

1. 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;
2. 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:

3. The name of the appellant;
4. The address of the appellant;
5. The environmental compliance approval number;
6. The date of the environmental compliance approval;
7. The name of the Director, and;
8. 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
 2 St. Clair Avenue West, Floor 12A
 Toronto, Ontario
 M4V 1L5

* 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) 314-4506 or www.ert.gov.on.ca

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

DATED AT TORONTO this 15th day of October, 2013



Edgardo Tovilla
 Director
 appointed for the purposes of Part II.1 of the
Environmental Protection Act

AMENDED ENVIRONMENTAL COMPLIANCE APPROVAL

NUMBER 7737-BH6QEA
Issue Date: October 22, 2019

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

TERMS AND CONDITIONS

1. GENERAL CONDITION

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

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

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

2. CHANGE OF OWNER

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

forwarded to the District Manager.

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

3. OPERATION AND MAINTENANCE

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

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

4. EFFLUENT LIMITS

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

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

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

5. EFFLUENT - VISUAL OBSERVATIONS

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

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

6. MONITORING AND RECORDING

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

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

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

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

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

7. RECEIVER INSPECTION

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

8. REPORTING

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

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

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

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

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

any person or property is minimised and/or prevented.

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

SCHEDULE 'A'

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

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

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

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

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

The Notice should also include:

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

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

This Notice must be served upon:

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

AND

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

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

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

DATED AT TORONTO this 22nd day of October, 2019

A handwritten signature in black ink that reads "Fariha Pannu." The signature is written in a cursive style with a large, sweeping flourish over the first few letters.

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 Location: MCCARTHY
 Your C.O.C. #: 728212-05-01

Attention: Dawn Hoyle/Jamie Bonany

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

Report Date: 2019/10/11
 Report #: R5917499
 Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: B9R9161
Received: 2019/10/04, 09:17

Sample Matrix: Water
 # Samples Received: 1

Analyses	Quantity	Date	Date	Laboratory Method	Reference
		Extracted	Analyzed		
Animal and Vegetable Oil and Grease	1	N/A	2019/10/10	CAM SOP-00326	EPA1664B m,SM5520B m
Total Oil and Grease	1	2019/10/10	2019/10/10	CAM SOP-00326	EPA1664B m,SM5520A m
pH	1	2019/10/08	2019/10/09	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	1	N/A	2019/10/09	CAM SOP-00444	OMOE E3179 m
Mineral/Synthetic O & G (TPH Heavy Oil) (1)	1	2019/10/10	2019/10/10	CAM SOP-00326	EPA1664B m,SM5520F m
Low Level Total Suspended Solids	1	2019/10/09	2019/10/09	CAM SOP-00428	SM 23 2540D m

Remarks:

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

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. #: 728212-05-01

Attention: Dawn Hoyle/Jamie Bonany

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

Report Date: 2019/10/11
Report #: R5917499
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: B9R9161
Received: 2019/10/04, 09:17

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 #: B9R9161
Report Date: 2019/10/11

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

RESULTS OF ANALYSES OF WATER

BV Labs ID		KYO548		
Sampling Date		2019/10/03 12:22		
COC Number		728212-05-01		
	UNITS	POND	RDL	QC Batch
Calculated Parameters				
Total Animal/Vegetable Oil and Grease	mg/L	<0.50	0.50	6374984
Inorganics				
pH	pH	8.11	N/A	6376310
Phenols-4AAP	mg/L	<0.0010	0.0010	6377357
Total Suspended Solids	mg/L	3	1	6377266
Petroleum Hydrocarbons				
Total Oil & Grease	mg/L	<0.50	0.50	6380619
Total Oil & Grease Mineral/Synthetic	mg/L	<0.50	0.50	6380620
RDL = Reportable Detection Limit QC Batch = Quality Control Batch N/A = Not Applicable				



BUREAU
VERITAS

BV Labs Job #: B9R9161
Report Date: 2019/10/11

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

GENERAL COMMENTS

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

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



BUREAU
VERITAS

BV Labs Job #: B9R9161
Report Date: 2019/10/11

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

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
6376310	SAU	Spiked Blank	pH	2019/10/09		102	%	98 - 103
6376310	SAU	RPD	pH	2019/10/09	0.17		%	N/A
6377266	MJ1	QC Standard	Total Suspended Solids	2019/10/09		95	%	85 - 115
6377266	MJ1	Method Blank	Total Suspended Solids	2019/10/09	<1		mg/L	
6377266	MJ1	RPD	Total Suspended Solids	2019/10/09	6.9		%	25
6377357	RSN	Matrix Spike	Phenols-4AAP	2019/10/09		98	%	80 - 120
6377357	RSN	Spiked Blank	Phenols-4AAP	2019/10/09		98	%	80 - 120
6377357	RSN	Method Blank	Phenols-4AAP	2019/10/09	<0.0010		mg/L	
6377357	RSN	RPD	Phenols-4AAP	2019/10/09	NC		%	20
6380619	GSG	Spiked Blank	Total Oil & Grease	2019/10/10		98	%	85 - 115
6380619	GSG	RPD	Total Oil & Grease	2019/10/10	1.5		%	25
6380619	GSG	Method Blank	Total Oil & Grease	2019/10/10	<0.50		mg/L	
6380620	GSG	Spiked Blank	Total Oil & Grease Mineral/Synthetic	2019/10/10		94	%	85 - 115
6380620	GSG	RPD	Total Oil & Grease Mineral/Synthetic	2019/10/10	3.2		%	25
6380620	GSG	Method Blank	Total Oil & Grease Mineral/Synthetic	2019/10/10	<0.50		mg/L	

N/A = Not Applicable

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

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

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

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

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

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



BUREAU
VERITAS

BV Labs Job #: B9R9161

Report Date: 2019/10/11

Golder Associates Ltd

Client Project #: 1407634

Site Location: MCCARTHY

Sampler Initials: SB

VALIDATION SIGNATURE PAGE

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

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#: MCCARTHY
 Site Location: MCCARTHY
 Your C.O.C. #: 740182-04-01

Attention: Dawn Hoyle/Jamie Bonany

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

Report Date: 2019/10/19
 Report #: R5927648
 Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: B9S7045

Received: 2019/10/11, 09:02

Sample Matrix: Water
 # Samples Received: 1

Analyses	Quantity	Date	Date	Laboratory Method	Reference
		Extracted	Analyzed		
Animal and Vegetable Oil and Grease	1	N/A	2019/10/19	CAM SOP-00326	EPA1664B m,SM5520B m
Total Oil and Grease	1	2019/10/19	2019/10/19	CAM SOP-00326	EPA1664B m,SM5520A m
pH	1	2019/10/12	2019/10/15	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	1	N/A	2019/10/15	CAM SOP-00444	OMOE E3179 m
Mineral/Synthetic O & G (TPH Heavy Oil) (1)	1	2019/10/19	2019/10/19	CAM SOP-00326	EPA1664B m,SM5520F m
Low Level Total Suspended Solids	1	2019/10/15	2019/10/16	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
Site Location: MCCARTHY
Your C.O.C. #: 740182-04-01

Attention: Dawn Hoyle/Jamie Bonany

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

Report Date: 2019/10/19
Report #: R5927648
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: B9S7045
Received: 2019/10/11, 09:02

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			LAG637		
Sampling Date			2019/10/10 12:36		
COC Number			740182-04-01		
	UNITS	Criteria	POND	RDL	QC Batch
Calculated Parameters					
Total Animal/Vegetable Oil and Grease	mg/L	-	<0.50	0.50	6384944
Inorganics					
pH	pH	6.5:8.5	8.09	N/A	6385165
Phenols-4AAP	mg/L	0.001	<0.0010	0.0010	6386205
Total Suspended Solids	mg/L	-	4	1	6387473
Petroleum Hydrocarbons					
Total Oil & Grease	mg/L	-	<0.50	0.50	6395607
Total Oil & Grease Mineral/Synthetic	mg/L	0.5	<0.50	0.50	6395608
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 #: B9S7045
Report Date: 2019/10/19

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

GENERAL COMMENTS

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

Package 1	18.7°C
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Results relate only to the items tested.



BUREAU
VERITAS

BV Labs Job #: B9S7045
Report Date: 2019/10/19

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

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
6385165	SAU	Spiked Blank	pH	2019/10/15		103	%	98 - 103
6385165	SAU	RPD	pH	2019/10/15	0.094		%	N/A
6386205	BMO	Matrix Spike	Phenols-4AAP	2019/10/15		98	%	80 - 120
6386205	BMO	Spiked Blank	Phenols-4AAP	2019/10/15		97	%	80 - 120
6386205	BMO	Method Blank	Phenols-4AAP	2019/10/15	<0.0010		mg/L	
6386205	BMO	RPD	Phenols-4AAP	2019/10/15	NC		%	20
6387473	MKX	QC Standard	Total Suspended Solids	2019/10/16		101	%	85 - 115
6387473	MKX	Method Blank	Total Suspended Solids	2019/10/16	<1		mg/L	
6387473	MKX	RPD	Total Suspended Solids	2019/10/16	11		%	25
6395607	SPK	Spiked Blank	Total Oil & Grease	2019/10/19		96	%	85 - 115
6395607	SPK	RPD	Total Oil & Grease	2019/10/19	5.1		%	25
6395607	SPK	Method Blank	Total Oil & Grease	2019/10/19	<0.50		mg/L	
6395608	SPK	Spiked Blank	Total Oil & Grease Mineral/Synthetic	2019/10/19		93	%	85 - 115
6395608	SPK	RPD	Total Oil & Grease Mineral/Synthetic	2019/10/19	3.7		%	25
6395608	SPK	Method Blank	Total Oil & Grease Mineral/Synthetic	2019/10/19	<0.50		mg/L	

N/A = Not Applicable

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

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

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

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

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

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 #: B9S7045

Report Date: 2019/10/19

Golder Associates Ltd

Client Project #: 1407634

Site Location: MCCARTHY

Sampler Initials: SB

VALIDATION SIGNATURE PAGE

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

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. #: 740182-01-01

Attention: Dawn Hoyle/Jamie Bonany

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

Report Date: 2019/10/25
 Report #: R5936786
 Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: B9T3152

Received: 2019/10/18, 10:12

Sample Matrix: Water
 # Samples Received: 1

Analyses	Quantity	Date	Date	Laboratory Method	Reference
		Extracted	Analyzed		
Animal and Vegetable Oil and Grease	1	N/A	2019/10/25	CAM SOP-00326	EPA1664B m,SM5520B m
Total Oil and Grease	1	2019/10/25	2019/10/25	CAM SOP-00326	EPA1664B m,SM5520A m
pH	1	2019/10/19	2019/10/21	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	1	N/A	2019/10/21	CAM SOP-00444	OMOE E3179 m
Mineral/Synthetic O & G (TPH Heavy Oil) (1)	1	2019/10/25	2019/10/25	CAM SOP-00326	EPA1664B m,SM5520F m
Low Level Total Suspended Solids	1	2019/10/22	2019/10/23	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. #: 740182-01-01

Attention: Dawn Hoyle/Jamie Bonany

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

Report Date: 2019/10/25
Report #: R5936786
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: B9T3152
Received: 2019/10/18, 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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RESULTS OF ANALYSES OF WATER

BV Labs ID			LBO815		
Sampling Date			2019/10/17 11:15		
COC Number			740182-01-01		
	UNITS	Criteria	POND	RDL	QC Batch
Calculated Parameters					
Total Animal/Vegetable Oil and Grease	mg/L	-	<0.50	0.50	6394751
Inorganics					
pH	pH	6.5:8.5	7.98	N/A	6395797
Phenols-4AAP	mg/L	0.001	<0.0010	0.0010	6396487
Total Suspended Solids	mg/L	-	2	1	6399270
Petroleum Hydrocarbons					
Total Oil & Grease	mg/L	-	<0.50	0.50	6406974
Total Oil & Grease Mineral/Synthetic	mg/L	0.5	<0.50	0.50	6406975
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 #: B9T3152
Report Date: 2019/10/25

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

GENERAL COMMENTS

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

Package 1	15.0°C
-----------	--------

Results relate only to the items tested.



BUREAU
VERITAS

BV Labs Job #: B9T3152
Report Date: 2019/10/25

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

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
6395797	SAU	Spiked Blank	pH	2019/10/21		102	%	98 - 103
6395797	SAU	RPD	pH	2019/10/21	0.64		%	N/A
6396487	BMO	Matrix Spike	Phenols-4AAP	2019/10/21		99	%	80 - 120
6396487	BMO	Spiked Blank	Phenols-4AAP	2019/10/21		98	%	80 - 120
6396487	BMO	Method Blank	Phenols-4AAP	2019/10/21	<0.0010		mg/L	
6396487	BMO	RPD	Phenols-4AAP	2019/10/21	0		%	20
6399270	SDE	QC Standard	Total Suspended Solids	2019/10/23		95	%	85 - 115
6399270	SDE	Method Blank	Total Suspended Solids	2019/10/23	<1		mg/L	
6399270	SDE	RPD	Total Suspended Solids	2019/10/23	11		%	25
6406974	SPK	Spiked Blank	Total Oil & Grease	2019/10/25		97	%	85 - 115
6406974	SPK	RPD	Total Oil & Grease	2019/10/25	2.3		%	25
6406974	SPK	Method Blank	Total Oil & Grease	2019/10/25	<0.50		mg/L	
6406975	SPK	Spiked Blank	Total Oil & Grease Mineral/Synthetic	2019/10/25		97	%	85 - 115
6406975	SPK	RPD	Total Oil & Grease Mineral/Synthetic	2019/10/25	2.1		%	25
6406975	SPK	Method Blank	Total Oil & Grease Mineral/Synthetic	2019/10/25	<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 #: B9T3152

Report Date: 2019/10/25

Golder Associates Ltd

Client Project #: 1407634

Site Location: MCCARTHY

Sampler Initials: SB

VALIDATION SIGNATURE PAGE

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

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. #: 728212-01-01

Attention: Dawn Hoyle/Jamie Bonany

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

Report Date: 2019/11/01
 Report #: R5947715
 Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: B9U0519

Received: 2019/10/25, 09:24

Sample Matrix: Water
 # Samples Received: 1

Analyses	Quantity	Date	Date	Laboratory Method	Reference
		Extracted	Analyzed		
Animal and Vegetable Oil and Grease	1	N/A	2019/11/01	CAM SOP-00326	EPA1664B m,SM5520B m
Total Oil and Grease	1	2019/11/01	2019/11/01	CAM SOP-00326	EPA1664B m,SM5520A m
pH	1	2019/10/26	2019/10/28	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	1	N/A	2019/10/29	CAM SOP-00444	OMOE E3179 m
Mineral/Synthetic O & G (TPH Heavy Oil) (1)	1	2019/11/01	2019/11/01	CAM SOP-00326	EPA1664B m,SM5520F m
Low Level Total Suspended Solids	1	2019/10/29	2019/10/30	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.

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. #: 728212-01-01

Attention: Dawn Hoyle/Jamie Bonany

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

Report Date: 2019/11/01
Report #: R5947715
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: B9U0519
Received: 2019/10/25, 09:24

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 #: B9U0519
Report Date: 2019/11/01

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

RESULTS OF ANALYSES OF WATER

BV Labs ID			LDC845	LDC845		
Sampling Date			2019/10/24 13:05	2019/10/24 13:05		
COC Number			728212-01-01	728212-01-01		
	UNITS	Criteria	Pond	Pond Lab-Dup	RDL	QC Batch
Calculated Parameters						
Total Animal/Vegetable Oil and Grease	mg/L	-	1.6	N/A	0.50	6406335
Inorganics						
pH	pH	6.5:8.5	8.03	N/A	N/A	6407756
Phenols-4AAP	mg/L	0.001	<0.0010	N/A	0.0010	6411725
Total Suspended Solids	mg/L	-	6	6	1	6413373
Petroleum Hydrocarbons						
Total Oil & Grease	mg/L	-	1.6	N/A	0.50	6419102
Total Oil & Grease Mineral/Synthetic	mg/L	0.5	<0.50	N/A	0.50	6419109
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 #: B9U0519

Report Date: 2019/11/01

Golder Associates Ltd

Client Project #: 1407634

Site Location: MCCARTHY

GENERAL COMMENTS

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

Package 1	16.7°C
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Results relate only to the items tested.



BUREAU
VERITAS

BV Labs Job #: B9U0519
Report Date: 2019/11/01

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

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
6407756	SAU	Spiked Blank	pH	2019/10/28		102	%	98 - 103
6407756	SAU	RPD	pH	2019/10/28	0.022		%	N/A
6411725	BMO	Matrix Spike	Phenols-4AAP	2019/10/29		103	%	80 - 120
6411725	BMO	Spiked Blank	Phenols-4AAP	2019/10/29		101	%	80 - 120
6411725	BMO	Method Blank	Phenols-4AAP	2019/10/29	<0.0010		mg/L	
6411725	BMO	RPD	Phenols-4AAP	2019/10/29	NC		%	20
6413373	JS7	QC Standard	Total Suspended Solids	2019/10/30		95	%	85 - 115
6413373	JS7	Method Blank	Total Suspended Solids	2019/10/30	<1		mg/L	
6413373	JS7	RPD [LDC845-02]	Total Suspended Solids	2019/10/30	10		%	25
6419102	FA	Spiked Blank	Total Oil & Grease	2019/11/01		99	%	85 - 115
6419102	FA	RPD	Total Oil & Grease	2019/11/01	4.1		%	25
6419102	FA	Method Blank	Total Oil & Grease	2019/11/01	<0.50		mg/L	
6419109	FA	Spiked Blank	Total Oil & Grease Mineral/Synthetic	2019/11/01		95	%	85 - 115
6419109	FA	RPD	Total Oil & Grease Mineral/Synthetic	2019/11/01	3.8		%	25
6419109	FA	Method Blank	Total Oil & Grease Mineral/Synthetic	2019/11/01	<0.50		mg/L	

N/A = Not Applicable

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

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

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

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

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

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



BUREAU
VERITAS

BV Labs Job #: B9U0519

Report Date: 2019/11/01

Golder Associates Ltd

Client Project #: 1407634

Site Location: MCCARTHY

VALIDATION SIGNATURE PAGE

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

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#: 1407634
 Site Location: MCCARTHY
 Your C.O.C. #: 740182-03-01

Attention: Dawn Hoyle/Jamie Bonany

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

Report Date: 2019/11/07
 Report #: R5955137
 Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: B9U7759

Received: 2019/11/01, 09:20

Sample Matrix: Water
 # Samples Received: 1

Analyses	Quantity	Date	Date	Laboratory Method	Reference
		Extracted	Analyzed		
Animal and Vegetable Oil and Grease	1	N/A	2019/11/06	CAM SOP-00326	EPA1664B m,SM5520B m
Total Oil and Grease	1	2019/11/06	2019/11/06	CAM SOP-00326	EPA1664B m,SM5520A m
pH	1	2019/11/04	2019/11/05	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	1	N/A	2019/11/04	CAM SOP-00444	OMOE E3179 m
Mineral/Synthetic O & G (TPH Heavy Oil) (1)	1	2019/11/06	2019/11/06	CAM SOP-00326	EPA1664B m,SM5520F m
Low Level Total Suspended Solids	1	2019/11/04	2019/11/05	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. #: 740182-03-01

Attention: Dawn Hoyle/Jamie Bonany

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

Report Date: 2019/11/07
Report #: R5955137
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: B9U7759
Received: 2019/11/01, 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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RESULTS OF ANALYSES OF WATER

BV Labs ID			LES825		
Sampling Date			2019/10/31 11:29		
COC Number			740182-03-01		
	UNITS	Criteria	POND	RDL	QC Batch
Calculated Parameters					
Total Animal/Vegetable Oil and Grease	mg/L	-	<0.50	0.50	6421547
Inorganics					
pH	pH	6.5:8.5	7.60	N/A	6423505
Phenols-4AAP	mg/L	0.001	<0.0010	0.0010	6422396
Total Suspended Solids	mg/L	-	11	1	6421971
Petroleum Hydrocarbons					
Total Oil & Grease	mg/L	-	<0.50	0.50	6427800
Total Oil & Grease Mineral/Synthetic	mg/L	0.5	<0.50	0.50	6427801
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 #: B9U7759

Report Date: 2019/11/07

Golder Associates Ltd

Client Project #: 1407634

Site Location: MCCARTHY

Sampler Initials: SB

GENERAL COMMENTS

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

Package 1	14.7°C
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Results relate only to the items tested.



BUREAU
VERITAS

BV Labs Job #: B9U7759
Report Date: 2019/11/07

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

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
6421971	XH1	QC Standard	Total Suspended Solids	2019/11/05		97	%	85 - 115
6421971	XH1	Method Blank	Total Suspended Solids	2019/11/05	<1		mg/L	
6421971	XH1	RPD	Total Suspended Solids	2019/11/05	19		%	25
6422396	BMO	Matrix Spike	Phenols-4AAP	2019/11/04		96	%	80 - 120
6422396	BMO	Spiked Blank	Phenols-4AAP	2019/11/04		96	%	80 - 120
6422396	BMO	Method Blank	Phenols-4AAP	2019/11/04	<0.0010		mg/L	
6422396	BMO	RPD	Phenols-4AAP	2019/11/04	NC		%	20
6423505	SAU	Spiked Blank	pH	2019/11/05		102	%	98 - 103
6423505	SAU	RPD	pH	2019/11/05	0.034		%	N/A
6427800	GSG	Spiked Blank	Total Oil & Grease	2019/11/06		97	%	85 - 115
6427800	GSG	RPD	Total Oil & Grease	2019/11/06	1.3		%	25
6427800	GSG	Method Blank	Total Oil & Grease	2019/11/06	<0.50		mg/L	
6427801	GSG	Spiked Blank	Total Oil & Grease Mineral/Synthetic	2019/11/06		96	%	85 - 115
6427801	GSG	RPD	Total Oil & Grease Mineral/Synthetic	2019/11/06	2.6		%	25
6427801	GSG	Method Blank	Total Oil & Grease Mineral/Synthetic	2019/11/06	<0.50		mg/L	

N/A = Not Applicable

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

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

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

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

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

NC (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 #: B9U7759

Report Date: 2019/11/07

Golder Associates Ltd

Client Project #: 1407634

Site Location: MCCARTHY

Sampler Initials: SB

VALIDATION SIGNATURE PAGE

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

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

Brad Newman, Scientific Service Specialist

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Your Project #: 1407634
 Your C.O.C. #: 740179-01-01

Attention: Jamie Bonany

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

Report Date: 2019/10/15
 Report #: R5920821
 Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: B9S0294

Received: 2019/10/05, 10:15

Sample Matrix: Water
 # Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
Alkalinity	1	N/A	2019/10/08	CAM SOP-00448	SM 23 2320 B m
Chloride by Automated Colourimetry	1	N/A	2019/10/08	CAM SOP-00463	SM 23 4500-Cl E m
Conductivity	1	N/A	2019/10/08	CAM SOP-00414	SM 23 2510 m
Dissolved Organic Carbon (DOC) (1)	1	N/A	2019/10/08	CAM SOP-00446	SM 23 5310 B m
Fluoride	1	2019/10/07	2019/10/08	CAM SOP-00449	SM 23 4500-F C m
Hardness (calculated as CaCO3)	1	N/A	2019/10/10	CAM SOP 00102/00408/00447	SM 2340 B
Lab Filtered Metals by ICPMS	1	2019/10/07	2019/10/09	CAM SOP-00447	EPA 6020B m
Total Metals Analysis by ICPMS	1	N/A	2019/10/10	CAM SOP-00447	EPA 6020B m
Anion and Cation Sum	1	N/A	2019/10/10		
Total Ammonia-N	1	N/A	2019/10/09	CAM SOP-00441	USGS I-2522-90 m
Nitrate (NO3) and Nitrite (NO2) in Water (2)	1	N/A	2019/10/08	CAM SOP-00440	SM 23 4500-NO3I/NO2B
Total Oil and Grease	1	2019/10/12	2019/10/12	CAM SOP-00326	EPA1664B m,SM5520A m
pH	1	2019/10/07	2019/10/08	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	1	N/A	2019/10/09	CAM SOP-00444	OMOE E3179 m
Sulphate by Automated Colourimetry	1	N/A	2019/10/08	CAM SOP-00464	EPA 375.4 m
Total Dissolved Solids	1	2019/10/09	2019/10/10	CAM SOP-00428	SM 23 2540C m
Total Kjeldahl Nitrogen in Water	1	2019/10/08	2019/10/09	CAM SOP-00938	OMOE E3516 m
Total Phosphorus (Colourimetric)	1	2019/10/09	2019/10/09	CAM SOP-00407	SM 23 4500 P B H m
Total Suspended Solids	1	2019/10/09	2019/10/10	CAM SOP-00428	SM 23 2540D m

Remarks:

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Your Project #: 1407634
Your C.O.C. #: 740179-01-01

Attention: Jamie Bonany

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

Report Date: 2019/10/15
Report #: R5920821
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: B9S0294

Received: 2019/10/05, 10:15

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) 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@bvlab.com

Phone# (905)817-5829

=====

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RESULTS OF ANALYSES OF WATER

BV Labs ID			KYV058			KYV058		
Sampling Date			2019/10/04 11:30			2019/10/04 11:30		
COC Number			740179-01-01			740179-01-01		
	UNITS	Criteria	SW2	RDL	QC Batch	SW2 Lab-Dup	RDL	QC Batch
Calculated Parameters								
Anion Sum	me/L	-	31.6	N/A	6371870			
Cation Sum	me/L	-	32.7	N/A	6371870			
Hardness (CaCO3)	mg/L	-	1400	1.0	6371868			
Inorganics								
Total Ammonia-N	mg/L	-	<0.050	0.050	6375987			
Conductivity	mS/cm	-	2.63	0.001	6373841	2.60	0.001	6373841
Total Dissolved Solids	mg/L	-	2060	10	6378913			
Fluoride (F-)	mg/L	-	0.10	0.10	6373833	<0.10	0.10	6373833
Total Kjeldahl Nitrogen (TKN)	mg/L	-	0.74	0.10	6376036			
Dissolved Organic Carbon	mg/L	-	11	0.50	6373258			
pH	pH	6.5:8.5	7.48		6373836	7.46		6373836
Phenols-4AAP	mg/L	0.001	0.0039	0.0010	6375129			
Total Phosphorus	mg/L	0.01	0.066	0.020	6377546			
Total Suspended Solids	mg/L	-	22	10	6377929			
Dissolved Sulphate (SO4)	mg/L	-	940	5.0	6375077			
Alkalinity (Total as CaCO3)	mg/L	-	330	1.0	6373827	330	1.0	6373827
Dissolved Chloride (Cl-)	mg/L	-	200	2.0	6375075			
Nitrite (N)	mg/L	-	<0.010	0.010	6372394			
Nitrate (N)	mg/L	-	<0.10	0.10	6372394			
Nitrate + Nitrite (N)	mg/L	-	<0.10	0.10	6372394			
Petroleum Hydrocarbons								
Total Oil & Grease	mg/L	-	<0.50	0.50	6385066			
No Fill	No Exceedance							
Grey	Exceeds 1 criteria policy/level							
Black	Exceeds both criteria/levels							
RDL = Reportable Detection Limit								
QC Batch = Quality Control Batch								
Lab-Dup = Laboratory Initiated Duplicate								
Criteria: Ontario Provincial Water Quality Objectives								
Ref. to MOEE Water Management document dated Feb.1999								
N/A = Not Applicable								



BUREAU
VERITAS

BV Labs Job #: B9S0294
Report Date: 2019/10/15

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

ELEMENTS BY ICP/MS (WATER)

BV Labs ID		KYV058		
Sampling Date		2019/10/04 11:30		
COC Number		740179-01-01		
	UNITS	SW2	RDL	QC Batch
Metals				
Dissolved Calcium (Ca)	ug/L	480000	200	6373868
Dissolved Magnesium (Mg)	ug/L	46000	50	6373868
Dissolved Potassium (K)	ug/L	9100	200	6373868
Dissolved Sodium (Na)	ug/L	110000	100	6373868
RDL = Reportable Detection Limit				
QC Batch = Quality Control Batch				



ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

BV Labs ID			KYV058		
Sampling Date			2019/10/04 11:30		
COC Number			740179-01-01		
	UNITS	Criteria	SW2	RDL	QC Batch
Metals					
Total Arsenic (As)	ug/L	100	<1.0	1.0	6376096
Total Cadmium (Cd)	ug/L	0.2	0.11	0.10	6376096
Total Calcium (Ca)	ug/L	-	480000	200	6376096
Total Chromium (Cr)	ug/L	-	<5.0	5.0	6376096
Total Copper (Cu)	ug/L	5	2.1	1.0	6376096
Total Iron (Fe)	ug/L	300	1400	100	6376096
Total Lead (Pb)	ug/L	5	<0.50	0.50	6376096
Total Magnesium (Mg)	ug/L	-	43000	50	6376096
Total Manganese (Mn)	ug/L	-	1000	2.0	6376096
Total Nickel (Ni)	ug/L	25	1.2	1.0	6376096
Total Potassium (K)	ug/L	-	8500	200	6376096
Total Sodium (Na)	ug/L	-	110000	100	6376096
Total Zinc (Zn)	ug/L	30	13	5.0	6376096
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					



BUREAU
VERITAS

BV Labs Job #: B9S0294
Report Date: 2019/10/15

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

TEST SUMMARY

BV Labs ID: KYV058
Sample ID: SW2
Matrix: Water

Collected: 2019/10/04
Shipped:
Received: 2019/10/05

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	6373827	N/A	2019/10/08	Surinder Rai
Chloride by Automated Colourimetry	KONE	6375075	N/A	2019/10/08	Deonarine Ramnarine
Conductivity	AT	6373841	N/A	2019/10/08	Surinder Rai
Dissolved Organic Carbon (DOC)	TOCV/NDIR	6373258	N/A	2019/10/08	Mandeep Kaur
Fluoride	ISE	6373833	2019/10/07	2019/10/08	Surinder Rai
Hardness (calculated as CaCO3)		6371868	N/A	2019/10/10	Automated Statchk
Lab Filtered Metals by ICPMS	ICP/MS	6373868	2019/10/07	2019/10/09	Prempal Bhatti
Total Metals Analysis by ICPMS	ICP/MS	6376096	N/A	2019/10/10	Arefa Dabhad
Anion and Cation Sum	CALC	6371870	N/A	2019/10/10	Automated Statchk
Total Ammonia-N	LACH/NH4	6375987	N/A	2019/10/09	Mazin Wakai
Nitrate (NO3) and Nitrite (NO2) in Water	LACH	6372394	N/A	2019/10/08	Chandra Nandlal
Total Oil and Grease	BAL	6385066	2019/10/12	2019/10/12	Sukhardey Pal Singh Khangura
pH	AT	6373836	2019/10/07	2019/10/08	Surinder Rai
Phenols (4AAP)	TECH/PHEN	6375129	N/A	2019/10/09	Bramdeo Motiram
Sulphate by Automated Colourimetry	KONE	6375077	N/A	2019/10/08	Alina Dobreanu
Total Dissolved Solids	BAL	6378913	2019/10/09	2019/10/10	Shivani Desai
Total Kjeldahl Nitrogen in Water	SKAL	6376036	2019/10/08	2019/10/09	Rajni Tyagi
Total Phosphorus (Colourimetric)	LACH/P	6377546	2019/10/09	2019/10/09	Shivani Shivani
Total Suspended Solids	BAL	6377929	2019/10/09	2019/10/10	Mandeep Kaur

BV Labs ID: KYV058 Dup
Sample ID: SW2
Matrix: Water

Collected: 2019/10/04
Shipped:
Received: 2019/10/05

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	6373827	N/A	2019/10/08	Surinder Rai
Conductivity	AT	6373841	N/A	2019/10/08	Surinder Rai
Fluoride	ISE	6373833	2019/10/07	2019/10/08	Surinder Rai
pH	AT	6373836	2019/10/07	2019/10/08	Surinder Rai



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GENERAL COMMENTS

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

Package 1	6.7°C
Package 2	7.3°C

Results relate only to the items tested.



BUREAU
VERITAS

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QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
6372394	C_N	Matrix Spike	Nitrite (N)	2019/10/08		104	%	80 - 120
			Nitrate (N)	2019/10/08		95	%	80 - 120
6372394	C_N	Spiked Blank	Nitrite (N)	2019/10/08		107	%	80 - 120
			Nitrate (N)	2019/10/08		95	%	80 - 120
6372394	C_N	Method Blank	Nitrite (N)	2019/10/08	<0.010		mg/L	
			Nitrate (N)	2019/10/08	<0.10		mg/L	
6372394	C_N	RPD	Nitrite (N)	2019/10/08	1.6		%	20
			Nitrate (N)	2019/10/08	NC		%	20
6373258	KRM	Matrix Spike	Dissolved Organic Carbon	2019/10/08		93	%	80 - 120
6373258	KRM	Spiked Blank	Dissolved Organic Carbon	2019/10/08		98	%	80 - 120
6373258	KRM	Method Blank	Dissolved Organic Carbon	2019/10/08	<0.50		mg/L	
6373258	KRM	RPD	Dissolved Organic Carbon	2019/10/08	3.5		%	20
6373827	SAU	Spiked Blank	Alkalinity (Total as CaCO3)	2019/10/08		94	%	85 - 115
6373827	SAU	Method Blank	Alkalinity (Total as CaCO3)	2019/10/08	<1.0		mg/L	
6373827	SAU	RPD [KYV058-03]	Alkalinity (Total as CaCO3)	2019/10/08	0.83		%	20
6373833	SAU	Matrix Spike [KYV058-03]	Fluoride (F-)	2019/10/08		93	%	80 - 120
6373833	SAU	Spiked Blank	Fluoride (F-)	2019/10/08		100	%	80 - 120
6373833	SAU	Method Blank	Fluoride (F-)	2019/10/08	<0.10		mg/L	
6373833	SAU	RPD [KYV058-03]	Fluoride (F-)	2019/10/08	3.5		%	20
6373836	SAU	Spiked Blank	pH	2019/10/08		102	%	98 - 103
6373836	SAU	RPD [KYV058-03]	pH	2019/10/08	0.33		%	N/A
6373841	SAU	Spiked Blank	Conductivity	2019/10/08		100	%	85 - 115
6373841	SAU	Method Blank	Conductivity	2019/10/08	<0.001		mS/cm	
6373841	SAU	RPD [KYV058-03]	Conductivity	2019/10/08	1.2		%	25
6373868	PBA	Matrix Spike	Dissolved Calcium (Ca)	2019/10/09		102	%	80 - 120
			Dissolved Magnesium (Mg)	2019/10/09		103	%	80 - 120
			Dissolved Potassium (K)	2019/10/09		101	%	80 - 120
			Dissolved Sodium (Na)	2019/10/09		100	%	80 - 120
6373868	PBA	Spiked Blank	Dissolved Calcium (Ca)	2019/10/09		98	%	80 - 120
			Dissolved Magnesium (Mg)	2019/10/09		100	%	80 - 120
			Dissolved Potassium (K)	2019/10/09		98	%	80 - 120
			Dissolved Sodium (Na)	2019/10/09		96	%	80 - 120
6373868	PBA	Method Blank	Dissolved Calcium (Ca)	2019/10/09	<200		ug/L	
			Dissolved Magnesium (Mg)	2019/10/09	<50		ug/L	
			Dissolved Potassium (K)	2019/10/09	<200		ug/L	
			Dissolved Sodium (Na)	2019/10/09	<100		ug/L	
6373868	PBA	RPD	Dissolved Calcium (Ca)	2019/10/09	1.3		%	20
			Dissolved Magnesium (Mg)	2019/10/09	0.55		%	20
			Dissolved Potassium (K)	2019/10/09	NC		%	20
			Dissolved Sodium (Na)	2019/10/09	0.0095		%	20
6375075	DRM	Matrix Spike	Dissolved Chloride (Cl-)	2019/10/08		113	%	80 - 120
6375075	DRM	Spiked Blank	Dissolved Chloride (Cl-)	2019/10/08		102	%	80 - 120
6375075	DRM	Method Blank	Dissolved Chloride (Cl-)	2019/10/08	<1.0		mg/L	
6375075	DRM	RPD	Dissolved Chloride (Cl-)	2019/10/08	NC		%	20
6375077	ADB	Matrix Spike	Dissolved Sulphate (SO4)	2019/10/08		111	%	75 - 125
6375077	ADB	Spiked Blank	Dissolved Sulphate (SO4)	2019/10/08		105	%	80 - 120
6375077	ADB	Method Blank	Dissolved Sulphate (SO4)	2019/10/08	<1.0		mg/L	
6375077	ADB	RPD	Dissolved Sulphate (SO4)	2019/10/08	0.19		%	20
6375129	BMO	Matrix Spike	Phenols-4AAP	2019/10/09		93	%	80 - 120
6375129	BMO	Spiked Blank	Phenols-4AAP	2019/10/08		91	%	80 - 120
6375129	BMO	Method Blank	Phenols-4AAP	2019/10/08	<0.0010		mg/L	
6375129	BMO	RPD	Phenols-4AAP	2019/10/09	NC		%	20



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Golder Associates Ltd
Client Project #: 1407634
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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC	Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
	6375987	MT4	Matrix Spike	Total Ammonia-N	2019/10/09		100	%	75 - 125
	6375987	MT4	Spiked Blank	Total Ammonia-N	2019/10/09		101	%	80 - 120
	6375987	MT4	Method Blank	Total Ammonia-N	2019/10/09	<0.050		mg/L	
	6375987	MT4	RPD	Total Ammonia-N	2019/10/09	7.3		%	20
	6376036	RTY	Matrix Spike	Total Kjeldahl Nitrogen (TKN)	2019/10/09		103	%	80 - 120
	6376036	RTY	QC Standard	Total Kjeldahl Nitrogen (TKN)	2019/10/09		100	%	80 - 120
	6376036	RTY	Spiked Blank	Total Kjeldahl Nitrogen (TKN)	2019/10/09		100	%	80 - 120
	6376036	RTY	Method Blank	Total Kjeldahl Nitrogen (TKN)	2019/10/09	<0.10		mg/L	
	6376036	RTY	RPD	Total Kjeldahl Nitrogen (TKN)	2019/10/09	0.44		%	20
	6376096	ADA	Matrix Spike	Total Arsenic (As)	2019/10/10		98	%	80 - 120
				Total Cadmium (Cd)	2019/10/10		97	%	80 - 120
				Total Calcium (Ca)	2019/10/10		NC	%	80 - 120
				Total Chromium (Cr)	2019/10/10		94	%	80 - 120
				Total Copper (Cu)	2019/10/10		94	%	80 - 120
				Total Iron (Fe)	2019/10/10		91	%	80 - 120
				Total Lead (Pb)	2019/10/10		91	%	80 - 120
				Total Magnesium (Mg)	2019/10/10		87	%	80 - 120
				Total Manganese (Mn)	2019/10/10		NC	%	80 - 120
				Total Nickel (Ni)	2019/10/10		92	%	80 - 120
				Total Potassium (K)	2019/10/10		97	%	80 - 120
				Total Sodium (Na)	2019/10/10		NC	%	80 - 120
				Total Zinc (Zn)	2019/10/10		94	%	80 - 120
	6376096	ADA	Spiked Blank	Total Arsenic (As)	2019/10/10		96	%	80 - 120
				Total Cadmium (Cd)	2019/10/10		97	%	80 - 120
				Total Calcium (Ca)	2019/10/10		99	%	80 - 120
				Total Chromium (Cr)	2019/10/10		95	%	80 - 120
				Total Copper (Cu)	2019/10/10		96	%	80 - 120
				Total Iron (Fe)	2019/10/10		93	%	80 - 120
				Total Lead (Pb)	2019/10/10		93	%	80 - 120
				Total Magnesium (Mg)	2019/10/10		95	%	80 - 120
				Total Manganese (Mn)	2019/10/10		95	%	80 - 120
				Total Nickel (Ni)	2019/10/10		95	%	80 - 120
				Total Potassium (K)	2019/10/10		95	%	80 - 120
				Total Sodium (Na)	2019/10/10		95	%	80 - 120
				Total Zinc (Zn)	2019/10/10		96	%	80 - 120
	6376096	ADA	Method Blank	Total Arsenic (As)	2019/10/10	<1.0		ug/L	
				Total Cadmium (Cd)	2019/10/10	<0.10		ug/L	
				Total Calcium (Ca)	2019/10/10	<200		ug/L	
				Total Chromium (Cr)	2019/10/10	<5.0		ug/L	
				Total Copper (Cu)	2019/10/10	<1.0		ug/L	
				Total Iron (Fe)	2019/10/10	<100		ug/L	
				Total Lead (Pb)	2019/10/10	<0.50		ug/L	
				Total Magnesium (Mg)	2019/10/10	<50		ug/L	
				Total Manganese (Mn)	2019/10/10	<2.0		ug/L	
				Total Nickel (Ni)	2019/10/10	<1.0		ug/L	
				Total Potassium (K)	2019/10/10	<200		ug/L	
				Total Sodium (Na)	2019/10/10	<100		ug/L	
				Total Zinc (Zn)	2019/10/10	<5.0		ug/L	
	6376096	ADA	RPD	Total Calcium (Ca)	2019/10/10	2.0		%	20
				Total Iron (Fe)	2019/10/10	0.59		%	20
				Total Magnesium (Mg)	2019/10/10	1.2		%	20
	6377546	SSV	Matrix Spike	Total Phosphorus	2019/10/09		99	%	80 - 120



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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
6377546	SSV	QC Standard	Total Phosphorus	2019/10/09		99	%	80 - 120
6377546	SSV	Spiked Blank	Total Phosphorus	2019/10/09		100	%	80 - 120
6377546	SSV	Method Blank	Total Phosphorus	2019/10/09	<0.020		mg/L	
6377546	SSV	RPD	Total Phosphorus	2019/10/09	NC		%	20
6377929	MKX	QC Standard	Total Suspended Solids	2019/10/10		99	%	85 - 115
6377929	MKX	Method Blank	Total Suspended Solids	2019/10/10	<10		mg/L	
6377929	MKX	RPD	Total Suspended Solids	2019/10/10	0		%	25
6378913	SDE	QC Standard	Total Dissolved Solids	2019/10/10		100	%	90 - 110
6378913	SDE	Method Blank	Total Dissolved Solids	2019/10/10	<10		mg/L	
6378913	SDE	RPD	Total Dissolved Solids	2019/10/10	1.6		%	25
6385066	SPK	Spiked Blank	Total Oil & Grease	2019/10/12		98	%	85 - 115
6385066	SPK	RPD	Total Oil & Grease	2019/10/12	1.8		%	25
6385066	SPK	Method Blank	Total Oil & Grease	2019/10/12	<0.50		mg/L	

N/A = Not Applicable

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

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

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

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

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

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

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



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VALIDATION SIGNATURE PAGE

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

Anastassia Hamanov, Scientific Specialist

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

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



BUREAU
VERITAS

BV Labs Job #: B9S0294
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**Exceedence Summary Table – Prov. Water Quality Obj.
Result Exceedences**

Sample ID	BV Labs ID	Parameter	Criteria	Result	DL	Units
SW2	KYV058-06	Total Iron (Fe)	300	1400	100	ug/L
SW2	KYV058-07	Phenols-4AAP	0.001	0.0039	0.0010	mg/L
SW2	KYV058-04	Total Phosphorus	0.01	0.066	0.020	mg/L

The exceedence 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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