May 2017

MCCARTHY QUARRY

Environmental Compliance Approval Quarterly Monitoring Report (February 2017 to May 2017)

Submitted to:
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MOECC, Barrie District Office
1203-54 Cedar Pointe Drive
Barrie ON L4N 5R7

REPORT

Report Number: 1407634

Distribution:

1 Copy - Ontario MOECC Barrie District Office
1 Copy - Coco Aggregates Inc.
1 Copy - Golder Associates Ltd.

Golder Associates

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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 (Site) 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.

The following report addresses the requirements described in Sections 7 and 8 of the ECA. 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 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 rated at 35 L/sec 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 m^3 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 ECA No. 4731-987KM8 issued on October 15, 2013. Under the current ECA Coco is permitted to pump water from the quarry sump at a rate of 4,545 L/min (76 L/sec).

3.0 EFFLUENT MONITORING PROGRAM

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 effluent 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.

As per Section 7(8) an inline flow meter is installed in the discharge line of the sump pump in order to measure continuous flow rates. The flow rates are recorded and provided to Golder by staff at McCarthy Quarry.

The weekly effluent samples (Section 7(2)) were collected by staff at the McCarthy Quarry. The weekly water quality samples were sent to Maxxam Analytics Laboratory for analysis. The semi-annual water quality samples (Section 7(3) and Section 7(7)) are collected by Golder; the next semi-annual monitoring round will occur in May of 2017. Additionally, the monthly lethality samples were collected by Golder and sent to AGAT Laboratories Ltd.

There was no discharge from the McCarthy Pond or the pond was frozen in February and March 2017 and therefore the weekly water quality sample was not collected. In addition, no weekly water quality sample was collected during the week of April 17 to 21, 2017. During the February monthly site visit, the McCarthy Pond was frozen and there was no discharge, therefore a lethality sample was not collected.

Results of the weekly effluent monitoring are presented in Table 1; the monthly averages for the effluent monitoring are presented in Table 2 and the acute lethality results are presented in Table 3. All laboratory certificates of analysis for the February to May 2017 monitoring period are included in Appendix B.

4.0 EFFLUENT MONITORING RESULTS

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

The effluent between February and May 2017 was found to be non-lethal to rainbow trout and Daphnia magna (Table 3). In the 3.5 years between October 2013 and May 2017, lethality testing has been conducted 29 times and the water passed the lethality test on all occasions. Table 4.1 summarizes the results of the testing:

Table 4.1: Results of Lethality Testing October 2013 to April 2017

Date	Rainbow Trout 96Hr LC50	Daphnia Magna 48Hr LC50
October 2013	Pass	Pass
November 2013	Pass	Pass
December 2013	Pass	Pass
January 2014	Frozen	Pass
February 2014	Frozen	Frozen
March 2014	Pass	Pass
April 2014	Pass	Pass
May 2014	Pass	Pass
June 2014	Pass	Pass
July 2014	No Flow	No Flow
August 2014	Pass	Pass
September 2014	Pass	Pass
October 2014	Pass	Pass
November 2014	Pass	Pass
December 2014	Pass	Pass
January 2015	Frozen	Frozen
February 2015	Frozen	Frozen
March 2015	Pass	10

Date	Rainbow Trout 96Hr LC50	Daphnia Magna 48Hr LC50
April 2015	Pass	Pass
May 2015	Pass	Pass
June 2015	Pass	Pass
July 2015	Pass	Pass
August 2015	Pass	Pass
September 2015	Pass	Pass
October 2015	Pass	Pass
November 2015	Pass	Pass
December 2015	Pass	Pass
January 2016	Frozen	Frozen
February 2016	Frozen	Frozen
March 2016	Pass	Pass
April 2016	Pass	Pass
May 2016	Pass	Pass
June 2016	Pass	Pass
July 2016	Pass	Pass
August 2016	Pass	Pass
September 2016	Pass	Pass
October 2016	Pass	Pass
November 2016	Pass	Pass
December 2016	Pass	Pass
January 2017	Pass	Pass
February 2017	Frozen	Frozen
March 2017	Pass	Pass
April 2017	Pass	Pass

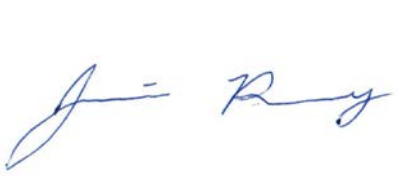
The discharge rate between February and May 2017 was below the permitted rate of 4,545 L/min (76 L/sec). The rate and volume of discharge from the quarry is measured on-Site by an inline flow meter in the discharge line from the quarry sump. The pump records are provided by McCarthy Quarry staff. The pump records for February to May 2017 are found in Table 4.

5.0 SUMMARY AND RECOMMENDATIONS

All samples met the daily concentration limits of the ECA No. 4731-987KM8. The pH of the effluent was maintained between 6.0 and 9.5 and the effluent was non-lethal to rainbow trout and Daphnia magna at all times.

Report Signature Page

GOLDER ASSOCIATES LTD.

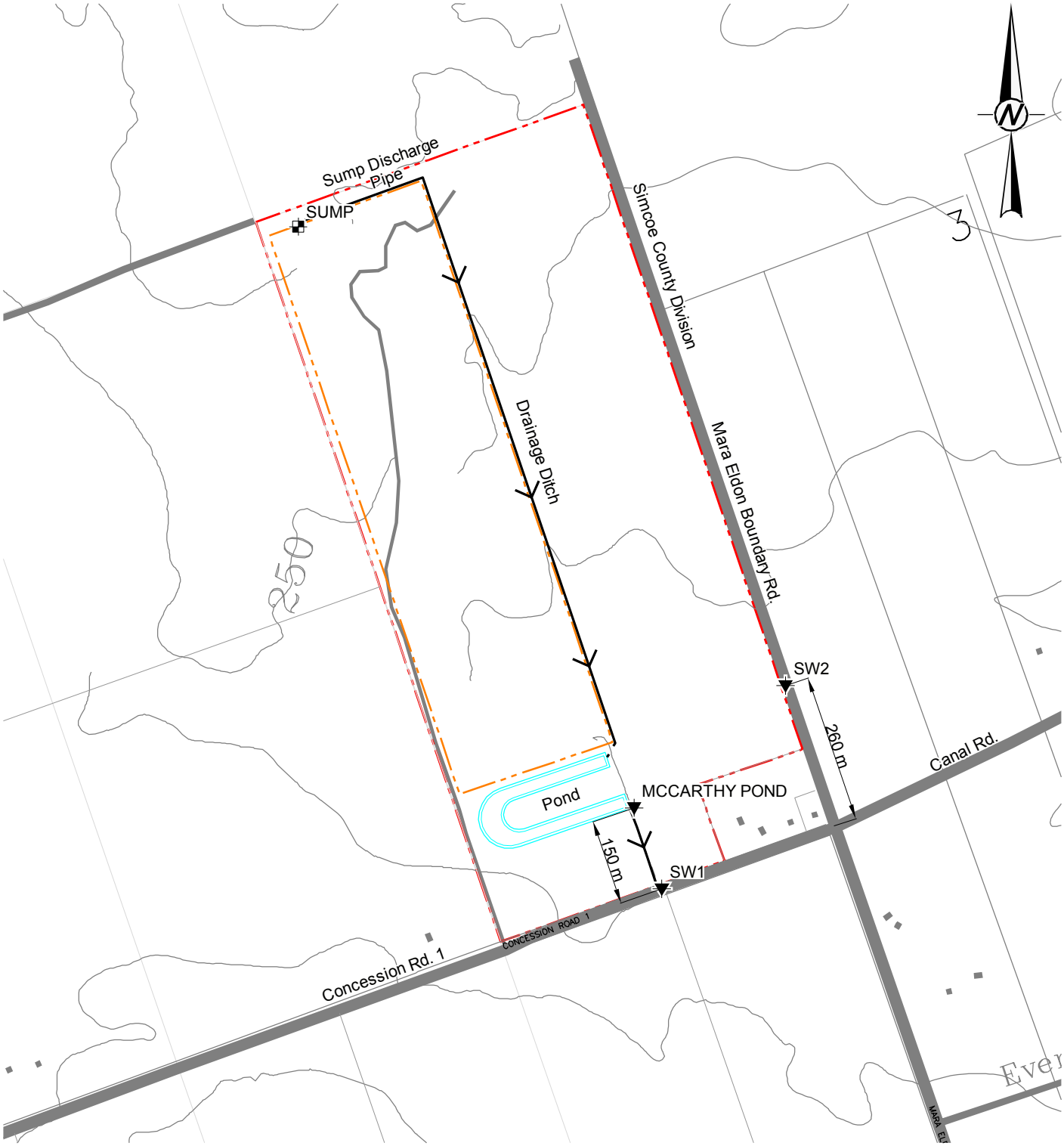


Jamie Bonany, M.A.Sc.
Project Scientist

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

JEB/JAE/plc

FIGURE



LEGEND

- Approximate Property Boundary
- Approximate Licenced Boundary
- 5 m Contour Line
- Surface Water Sampling Location

REFERENCES AND NOTES

1. Projection UTM NAD83 Zone 17
2. Mapping based on ESRI Geography Network OBM Features and Bing Orthophotos

0 200 400 600 m

1:10000

CLIENT
COCO / QBJR AGGREGATES INC.

PROJECT
STAN MCCARTHY QUARRY

TITLE
LOCATION MAP

CONSULTANT
Golder Associates

YYYY-MM-DD	2014-09-02
PREPARED	STB
DESIGN	
REVIEW	
APPROVED	

PROJECT No.	SCALE	Rev.	Figure
14-07634	AS SHOWN	AB	1

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TABLES

Table 1: McCarthy Pond Weekly Water Quality Results (February 2017 to May 2017)

	Unit	Reportable Detection Limit (RDL)	PWQO [1]	Daily Concentration Limit[2]	McCarthy Quarry Pond		
Sample ID							
Date					6-Apr-17	13-Apr-17	28-Apr-16
pH	pH	n/a		6.0-9.5	8.06	8.16	8.13
Total Suspended Solids	mg/L	1		30	14	7	5
Total Oil and Grease	mg/L	0.5	Note 3	30	1.8	<0.5	1.1
Phenols (4AAP)	mg/L	<0.0010		0.04	<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 discolouration on the surface, can be detected by odour, can cause tainting of edible organisms, can form detectable deposits on shorelines and bottom sediments.
4. Results that are preceeded by "<" denote concentrations that are below the laboratory Reportable Detection Limit (RDL).

Table 2: McCarthy Pond Monthly Water Quality Results (February 2017 to May 2017)

	Unit	Reportable Detection Limit (RDL)	PWQO [1]	Monthly Concentration Limit[2]	McCarthy Quarry		
Sample ID					**Pond**		
Date					February	March	April
Total Suspended Solids	mg/L	1		15	-	-	8.7
Total Oil and Grease	mg/L	0.5	Note 3	15	-	-	1.1
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. Monthyl 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 discolouration on the surface, can be detected by odour, can cause tainting of edible organisms, can form detectable deposits on shorelines and bottom sediments.
4. Results that are preceeded by "<" denote concentrations that are below the laboratory Reportable Detection Limit (RDL).

Table 3: Lethality Monitoring at McCarthy Pond

	Unit	Mortality Limit	McCarthy Quarry	
Sample ID			**Pond**	
Date			**17-Mar-17**	**26-Apr-17**
Daphnia Magna	% Mortality Rate*	<50%	0	0
Rainbow Trout	% Mortality Rate*	<50%	0	0

* Test results represent accute lethality (100% effluent) of toxicants to Daphnia Magna and Rainbow Trout

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-Feb-17	NO PUMP		0	0	-	-	-
2-Feb-17	NO PUMP		0	0	-	-	-
3-Feb-17	NO PUMP		0	0	-	-	-
4-Feb-17	NO PUMP		0	0	-	-	-
5-Feb-17	NO PUMP		0	0	-	-	-
6-Feb-17	7AM	5PM	36000	600	1,260,000	35	2,100
7-Feb-17	7AM	5PM	36000	600	1,260,000	35	2,100
8-Feb-17	NO PUMP		0	0	-	-	-
9-Feb-17	7AM	5PM	36000	600	1,260,000	35	2,100
10-Feb-17	NO PUMP		0	0	-	-	-
11-Feb-17	NO PUMP		0	0	-	-	-
12-Feb-17	NO PUMP		0	0	-	-	-
13-Feb-17	NO PUMP		0	0	-	-	-
14-Feb-17	NO PUMP		0	0	-	-	-
15-Feb-17	NO PUMP		0	0	-	-	-
16-Feb-17	NO PUMP		0	0	-	-	-
17-Feb-17	NO PUMP		0	0	-	-	-
18-Feb-17	NO PUMP		0	0	-	-	-
19-Feb-17	NO PUMP		0	0	-	-	-
20-Feb-17	NO PUMP		0	0	-	-	-
21-Feb-17	NO PUMP		0	0	-	-	-
22-Feb-17	NO PUMP		0	0	-	-	-
23-Feb-17	NO PUMP		0	0	-	-	-
24-Feb-17	NO PUMP		0	0	-	-	-
25-Feb-17	NO PUMP		0	0	-	-	-
26-Feb-17	NO PUMP		0	0	-	-	-
27-Feb-17	NO PUMP		0	0	-	-	-
28-Feb-17	NO PUMP		0	0	-	-	-
1-Mar-17	NO PUMP		0	0	-	-	-
2-Mar-17	NO PUMP		0	0	-	-	-
3-Mar-17	NO PUMP		0	0	-	-	-
4-Mar-17	NO PUMP		0	0	-	-	-
5-Mar-17	NO PUMP		0	0	-	-	-
6-Mar-17	NO PUMP		0	0	-	-	-
7-Mar-17	NO PUMP		0	0	-	-	-
8-Mar-17	NO PUMP		0	0	-	-	-
9-Mar-17	NO PUMP		0	0	-	-	-
10-Mar-17	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**
11-Mar-17	NO PUMP		0	0	-	-	-
12-Mar-17	NO PUMP		0	0	-	-	-
13-Mar-17	NO PUMP		0	0	-	-	-
14-Mar-17	NO PUMP		0	0	-	-	-
15-Mar-17	NO PUMP		0	0	-	-	-
16-Mar-17	NO PUMP		0	0	-	-	-
17-Mar-17	NO PUMP		0	0	-	-	-
18-Mar-17	NO PUMP		0	0	-	-	-
19-Mar-17	NO PUMP		0	0	-	-	-
20-Mar-17	NO PUMP		0	0	-	-	-
21-Mar-17	NO PUMP		0	0	-	-	-
22-Mar-17	NO PUMP		0	0	-	-	-
23-Mar-17	NO PUMP		0	0	-	-	-
24-Mar-17	NO PUMP		0	0	-	-	-
25-Mar-17	NO PUMP		0	0	-	-	-
26-Mar-17	NO PUMP		0	0	-	-	-
27-Mar-17	7AM	5PM	36000	600	1,260,000	35	2,100
28-Mar-17	NO PUMP		0	0	-	-	-
29-Mar-17	NO PUMP		0	0	-	-	-
30-Mar-17	7AM	5PM	36000	600	1,260,000	35	2,100
31-Mar-17	7AM	5PM	36000	600	1,260,000	35	2,100
1-Apr-17	NO PUMP		0	0	-	-	-
2-Apr-17	NO PUMP		0	0	-	-	-
3-Apr-17	7AM	6PM	39600	660	1,386,000	35	2,100
4-Apr-17	7AM	5PM	36000	600	1,260,000	35	2,100
5-Apr-17	6AM	6PM	43200	720	1,512,000	35	2,100
6-Apr-17	7AM	6PM	39600	660	1,386,000	35	2,100
7-Apr-17	7AM	6PM	39600	660	1,386,000	35	2,100
8-Apr-17	NO PUMP		0	0	-	-	-
9-Apr-17	NO PUMP		0	0	-	-	-
10-Apr-17	6AM	5PM	39600	660	1,386,000	35	2,100
11-Apr-17	6AM	6PM	43200	720	1,512,000	35	2,100
12-Apr-17	6AM	6PM	43200	720	1,512,000	35	2,100
13-Apr-17	6AM	5PM	39600	660	1,386,000	35	2,100
14-Apr-17	NO PUMP		0	0	-	-	-
15-Apr-17	NO PUMP		0	0	-	-	-
16-Apr-17	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**
17-Apr-17	6AM	6PM	43200	720	1,512,000	35	2,100
18-Apr-17	6AM	6PM	43200	720	1,512,000	35	2,100
19-Apr-17	6AM	6PM	43200	720	1,512,000	35	2,100
20-Apr-17	6AM	6PM	43200	720	1,512,000	35	2,100
21-Apr-17	6AM	5PM	39600	660	1,386,000	35	2,100
22-Apr-17	NO PUMP		0	0	-	-	-
23-Apr-17	NO PUMP		0	0	-	-	-
24-Apr-17	6AM	6PM	43200	720	1,512,000	35	2,100
25-Apr-17	NO PUMP		0	0	-	-	-
26-Apr-17	NO PUMP		0	0	-	-	-
27-Apr-17	6AM	6PM	43200	720	1,512,000	35	2,100
28-Apr-17	6AM	4PM	36000	600	1,260,000	35	2,100
29-Apr-17	NO PUMP		0	0	-	-	-
30-Apr-17	NO PUMP		0	0	-	-	-

APPENDIX A

Environmental Compliance Approval No. 4731-987KM8

- AKossi
- GQ.

Ontario

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* .

Table 1 - Effluent Limits

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:

Table 2 - Effluent Monitoring - (End of Pipe Discharge Point)

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 CaCO3), Alkalinity(as CaCO3), 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

APPENDIX B

Water Quality Results

Maxxam
A Bureau Veritas Group Company

Your Project #: 1407634
Site#: 1407634
Site Location: MCCARTHY
Your C.O.C. #: 590331-01-01

Attention:Dawn Hoyle/Jamie Bonany

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

Report Date: 2017/04/13
Report #: R4426262
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B769748
Received: 2017/04/07, 09:12

Sample Matrix: Water
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
Animal and Vegetable Oil & Grease	1	N/A	2017/04/11	CAM SOP-00326	EPA1664B m,SM5520B m
Total Oil and Grease	1	2017/04/11	2017/04/11	CAM SOP-00326	EPA1664B m,SM5520A m
pH	1	N/A	2017/04/11	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	1	N/A	2017/04/11	CAM SOP-00444	OMOE E3179 m
TPH (Heavy Oil) (1)	1	2017/04/11	2017/04/11	CAM SOP-00326	EPA1664B m,SM5520F m
Low Level Total Suspended Solids	1	2017/04/10	2017/04/11	CAM SOP-00428	SM 22 2540D m

Remarks:

Maxxam Analytics' laboratories are accredited to ISO/IEC 17025:2005 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Maxxam are based upon recognized Provincial, Federal or US method compendia such as CCME, MDDELCC, EPA, APHA.

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

Maxxam Analytics' liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Maxxam 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 Maxxam, unless otherwise agreed in writing.

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.

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

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Your Project #: 1407634
Site#: 1407634
Site Location: MCCARTHY
Your C.O.C. #: 590331-01-01

Attention:Dawn Hoyle/Jamie Bonany

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

Report Date: 2017/04/13
Report #: R4426262
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B769748
Received: 2017/04/07, 09:12

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Antonella Brasil, Senior Project Manager
Email: ABrasil@maxxam.ca
Phone# (905)817-5817

==========

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Job #: B769748
Report Date: 2017/04/13

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

RESULTS OF ANALYSES OF WATER

Maxxam ID		EEJ059		
Sampling Date		2017/04/06 12:00		
COC Number		590331-01-01		
	UNITS	**POND**	**RDL**	**QC Batch**
Calculated Parameters				
Total Animal/Vegetable Oil and Grease	mg/L	1.8	0.50	4931114
Inorganics				
pH	pH	8.06		4934144
Phenols-4AAP	mg/L	ND	0.0010	4936213
Total Suspended Solids	mg/L	14	1	4933864
Petroleum Hydrocarbons				
Total Oil & Grease	mg/L	1.8	0.50	4934711
Total Oil & Grease Mineral/Synthetic	mg/L	ND	0.50	4934712

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
ND = Not detected

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Maxxam Job #: B769748
Report Date: 2017/04/13

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

GENERAL COMMENTS

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

Package 1	11.0°C

Sample received with average temp of 11 C and analyses conducted with client's consent.

Results relate only to the items tested.

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Job #: B769748
Report Date: 2017/04/13

QUALITY ASSURANCE REPORT

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

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
4933864	Total Suspended Solids	2017/04/11					ND,RDL=1	mg/L	15	25	96	85 - 115
4934144	pH	2017/04/11			101	98 - 103			0.36	N/A		
4934711	Total Oil & Grease	2017/04/11			95	85 - 115	ND, RDL=0.50	mg/L	4.4	25		
4934712	Total Oil & Grease Mineral/Synthetic	2017/04/11			96	85 - 115	ND, RDL=0.50	mg/L	1.6	25		
4936213	Phenols-4AAP	2017/04/11	102	80 - 120	102	85 - 115	ND, RDL=0.0010	mg/L	NC	20		

N/A = Not Applicable

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

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

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

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

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

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

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Maxxam Job #: B769748
Report Date: 2017/04/13

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

VALIDATION SIGNATURE PAGE

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

Cristina Carriere

Cristina Carriere, Scientific Services

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

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Maxxam Analytics International Corporation o/a Maxxam Analytics
6740 Campobello Road, Mississauga, Ontario Canada L5N 2L8 Tel (905) 817-5700 Toll-free 800-563-6266 Fax (905) 817-5777 www.maxxam.ca

IMMEDIATE

CHAIN OF CUSTODY RECORD

INVOICE TO:		REPORT TO:		PROJECT INFORMATION:		Laboratory Use Only:	
Company Name:	#26238 Coco Paving Inc	Company Name:	#17930 Golder Associates Ltd	Quotation #:	B47292	Maxxam Job #:	Bottle Order #: 590331
Attention:	Teresa Cronk	Attention:	Dawn Hoyle/Jamie Bonany	P.O. #:			
Address:	949 Wilson Ave Toronto ON M3K 1G2	Address:	121 Commerce Park Drive Unit L Barrie ON L4N 8X1	Project:	1407634	COC #:	Project Manager:
Tel:	(416) 633-9670 Fax:	Tel:	(705) 722-4492 Fax:	Project Name:	MCCARTHY	C#590331-01-01	Antonella Brasil
Email:	TCronk@cocogroup.com	Email:	Dawn_Hoyle@golder.com;Jamie_Bonany@golder.com	Site #:			
				Sampled By:			

MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE MAXXAM DRINKING WATER CHAIN OF CUSTODY

Regulation 153 (2011)	Other Regulations	Special Instructions
☐ Table 1 ☐ Res/Park ☐ Medium/Fine ☐ Table 2 ☐ Ind/Comm ☐ Coarse ☐ Table 3 ☐ Agri/Other ☐ For RSC ☐ Table ___	☐ CCME ☐ Sanitary Sewer Bylaw ☐ Reg 558 ☐ Storm Sewer Bylaw ☐ MISA Municipality ___ ☐ PWQO ☐ Other ___	

Include Criteria on Certificate of Analysis (Y/N)? ___

Turnaround Time (TAT) Required:

Please provide advance notice for rush projects

Regular (Standard) TAT: ☐
(will be applied if Rush TAT is not specified)
Standard TAT = 5-7 Working days for most tests.
Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

Job Specific Rush TAT (if applies to entire submission)
Date Required: ___ Time Required: ___ ☐
Rush Confirmation Number: ___ *(call lab for #)*

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Field Filtered (please circle): Metals / Hg / Cr VI	Low Level Total Suspended Solids	Oil & Grease - A/V/M/T	Phenols (4AAP)	pH	# of Bottles	Comments
1	590331	POND	Apr 6/17	1200 NOON	SW	✓	✓	✓	✓	✓	5	First sample of Year
2		POND										
3		POND										
4		POND										
5		POND										
6		POND										
7												
8												
9												
10												

07-Apr-17 09:12
Antonella Brasil
B769748
SEL ENV-622

* RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted
Teresa Mount	17/04/06	2:00pm	[signature], TRAFFIC MANAGER	2017/04/07	09:12	
Teresa Mount						

Laboratory Use Only				
Time Sensitive	Temperature (°C) on Receipt	Custody Seal	Yes	No
	12/10/11	Present	✓	
		Intact		

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

SAMPLES MUST BE KEPT COOL (< 10° C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

White: Maxxam Yellow: Client

NOICE

Maxxam
A Bureau Veritas Group Company

Your Project #: 1407634
Site#: 1407634
Site Location: MCCARTHY
Your C.O.C. #: 590331-02-01

Attention:Dawn Hoyle/Jamie Bonany

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

Report Date: 2017/04/24
Report #: R4436265
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B775115
Received: 2017/04/17, 09:48

Sample Matrix: Water
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
Animal and Vegetable Oil & Grease	1	N/A	2017/04/19	CAM SOP-00326	EPA1664B m,SM5520B m
Total Oil and Grease	1	2017/04/19	2017/04/19	CAM SOP-00326	EPA1664B m,SM5520A m
pH	1	N/A	2017/04/19	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	1	N/A	2017/04/21	CAM SOP-00444	OMOE E3179 m
TPH (Heavy Oil) (1)	1	2017/04/19	2017/04/19	CAM SOP-00326	EPA1664B m,SM5520F m
Low Level Total Suspended Solids	1	2017/04/19	2017/04/19	CAM SOP-00428	SM 22 2540D m

Remarks:

Maxxam Analytics' laboratories are accredited to ISO/IEC 17025:2005 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Maxxam are based upon recognized Provincial, Federal or US method compendia such as CCME, MDDELCC, EPA, APHA.

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

Maxxam Analytics' liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Maxxam 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 Maxxam, unless otherwise agreed in writing.

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.

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

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Your Project #: 1407634
Site#: 1407634
Site Location: MCCARTHY
Your C.O.C. #: 590331-02-01

Attention:Dawn Hoyle/Jamie Bonany

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

Report Date: 2017/04/24
Report #: R4436265
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B775115
Received: 2017/04/17, 09:48

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Antonella Brasil, Senior Project Manager
Email: ABrasil@maxxam.ca
Phone# (905)817-5817

==========

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

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Maxxam Job #: B775115
Report Date: 2017/04/24

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

RESULTS OF ANALYSES OF WATER

Maxxam ID		EFI105		
Sampling Date		2017/04/13 10:00		
COC Number		590331-02-01		
	UNITS	**POND-MCCARTHY QUARRY**	**RDL**	**QC Batch**
Calculated Parameters				
Total Animal/Vegetable Oil and Grease	mg/L	ND	0.50	4941413
Inorganics				
pH	pH	8.16		4943919
Phenols-4AAP	mg/L	ND	0.0010	4950183
Total Suspended Solids	mg/L	7	1	4945269
Petroleum Hydrocarbons				
Total Oil & Grease	mg/L	ND	0.50	4944784
Total Oil & Grease Mineral/Synthetic	mg/L	ND	0.50	4944795

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
ND = Not detected

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Job #: B775115
Report Date: 2017/04/24

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

GENERAL COMMENTS

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

Package 1	15.0°C

Sample received with temp > 10 C and analyses conducted with client's consent.

Results relate only to the items tested.

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Job #: B775115
Report Date: 2017/04/24

QUALITY ASSURANCE REPORT

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

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
4943919	pH	2017/04/19			102	98 - 103			0.79	N/A		
4944784	Total Oil & Grease	2017/04/19			99	85 - 115	ND, RDL=0.50	mg/L	3.1	25		
4944795	Total Oil & Grease Mineral/Synthetic	2017/04/19			96	85 - 115	ND, RDL=0.50	mg/L	4.2	25		
4945269	Total Suspended Solids	2017/04/19					ND,RDL=1	mg/L	NC	25	96	85 - 115
4950183	Phenols-4AAP	2017/04/21	104	80 - 120	101	85 - 115	ND, RDL=0.0010	mg/L	NC	20		

N/A = Not Applicable

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

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

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

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

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

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

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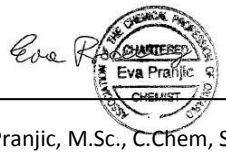
Maxxam Job #: B775115
Report Date: 2017/04/24

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

VALIDATION SIGNATURE PAGE

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



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

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CHAIN OF CUSTODY RECORD

Page of

INVOICE TO:		REPORT TO:		PROJECT INFORMATION:		Laboratory Use Only:	
Company Name:	#26238 Coco Paving Inc	Company Name:	#17930 Golder Associates Ltd	Quotation #:	B47292	Maxxam Job #:	Bottle Order #:
Attention:	Teresa Cronk	Attention:	Dawn Hoyle/Jamie Bonany	P.O. #:			590331
Address:	949 Wilson Ave Toronto ON M3K 1G2	Address:	121 Commerce Park Drive Unit L Barrie ON L4N 8X1	Project:	1407634	COC #:	Project Manager:
Tel:	(416) 633-9670 Fax:	Tel:	(705) 722-4492 Fax:	Project Name:		C#590331-02-01	Antonella Brasil
Email:	TCronk@cocogroup.com	Email:	Dawn_Hoyle@golder.com;Jamie_Bonany@golder.com	Site #:	MCCARTHY		
				Sampled By:			

MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE MAXXAM DRINKING WATER CHAIN OF CUSTODY

Regulation 153 (2011)	Other Regulations	Special Instructions
☐ Table 1 ☐ Res/Park ☐ Medium/Fine ☐ Table 2 ☐ Ind/Comm ☐ Coarse ☐ Table 3 ☐ Agri/Other ☐ For RSC ☐ Table ___	☐ CCME ☐ Sanitary Sewer Bylaw ☐ Reg 558 ☐ Storm Sewer Bylaw ☐ MISA Municipality ___ ☐ PWQO ☐ Other ___	

Include Criteria on Certificate of Analysis (Y/N)? ___

ANALYSIS REQUESTED (PLEASE BE SPECIFIC)

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Field Filtered (please circle): Metals / Hg / Cr VI	Low Level Total Suspended Solids	Oil & Grease - AN/M/T	Phenols (4AAP)	pH						# of Bottles	Comments
1	590331	McCarthy Quarry	Apr 13/17	10:00am	SW	✓	✓	✓	✓	✓						5	
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Turnaround Time (TAT) Required:

Please provide advance notice for rush projects

Regular (Standard) TAT: ☐
(will be applied if Rush TAT is not specified)
Standard TAT = 5-7 Working days for most tests.
Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

Job Specific Rush TAT (if applies to entire submission)
Date Required: ___ Time Required: ___ ☐
Rush Confirmation Number: ___ *(call lab for #)*

17-Apr-17 09:48
Antonella Brasil
B775115
SEL ENV-691

HT

* RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted
Teresa Mount	17/04/13	2:00pm	[signature] MAXXAM ANALYTICS	2017/04/17	09:48	
Teresa Mount						

Laboratory Use Only				
Time Sensitive	Temperature (°C) on Receipt	Custody Seal	Yes	No
	15/15/15	Present	✓	
		Intact	✓	

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

SAMPLES MUST BE KEPT COOL (< 10° C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

White: Maxxam Yellow: Client

Maxxam Analytics International Corporation o/a Maxxam Analytics

Maxxam
A Bureau Veritas Group Company

Your Project #: 1407634
Site#: 1407634
Site Location: MCCARTHY
Your C.O.C. #: 577938-05-01

Attention:Dawn Hoyle/Jamie Bonany

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

Report Date: 2017/05/05
Report #: R4449956
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B786116
Received: 2017/04/28, 10:34

Sample Matrix: Water
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
Animal and Vegetable Oil & Grease	1	N/A	2017/05/03	CAM SOP-00326	EPA1664B m,SM5520B m
Total Oil and Grease	1	2017/05/03	2017/05/03	CAM SOP-00326	EPA1664B m,SM5520A m
pH	1	N/A	2017/05/02	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	1	N/A	2017/05/03	CAM SOP-00444	OMOE E3179 m
TPH (Heavy Oil) (1)	1	2017/05/03	2017/05/03	CAM SOP-00326	EPA1664B m,SM5520F m
Low Level Total Suspended Solids	1	2017/05/01	2017/05/01	CAM SOP-00428	SM 22 2540D m

Remarks:

Maxxam Analytics' laboratories are accredited to ISO/IEC 17025:2005 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Maxxam are based upon recognized Provincial, Federal or US method compendia such as CCME, MDDELCC, EPA, APHA.

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

Maxxam Analytics' liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Maxxam 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 Maxxam, unless otherwise agreed in writing.

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.

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

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Your Project #: 1407634
Site#: 1407634
Site Location: MCCARTHY
Your C.O.C. #: 577938-05-01

Attention:Dawn Hoyle/Jamie Bonany

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

Report Date: 2017/05/05
Report #: R4449956
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B786116
Received: 2017/04/28, 10:34

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Antonella Brasil, Senior Project Manager
Email: ABrasil@maxxam.ca
Phone# (905)817-5817

==========

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Maxxam Job #: B786116
Report Date: 2017/05/05

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

RESULTS OF ANALYSES OF WATER

Maxxam ID		EHK058	EHK058		
Sampling Date		2017/04/27 12:00	2017/04/27 12:00		
COC Number		577938-05-01	577938-05-01		
	UNITS	590331 POND	590331 POND Lab-Dup	RDL	QC Batch
Calculated Parameters					
Total Animal/Vegetable Oil and Grease	mg/L	1.1	N/A	0.50	4961360
Inorganics					
pH	pH	8.13	N/A	N/A	4963118
Phenols-4AAP	mg/L	<0.0010	<0.0010	0.0010	4966373
Total Suspended Solids	mg/L	5	5	1	4962278
Petroleum Hydrocarbons					
Total Oil & Grease	mg/L	1.1	N/A	0.50	4966070
Total Oil & Grease Mineral/Synthetic	mg/L	<0.50	N/A	0.50	4966076

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

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Maxxam Job #: B786116
Report Date: 2017/05/05

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

GENERAL COMMENTS

Results relate only to the items tested.

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Maxxam Job #: B786116
Report Date: 2017/05/05

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

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
4962278	LWA	QC Standard	Total Suspended Solids	2017/05/01		97	%	85 - 115
4962278	LWA	Method Blank	Total Suspended Solids	2017/05/01	<1		mg/L	
4962278	LWA	RPD [EHK058-03]	Total Suspended Solids	2017/05/01	3.9		%	25
4963118	SAU	Spiked Blank	pH	2017/05/02		102	%	98 - 103
4963118	SAU	RPD	pH	2017/05/02	0.017		%	N/A
4966070	FA	Spiked Blank	Total Oil & Grease	2017/05/03		96	%	85 - 115
4966070	FA	RPD	Total Oil & Grease	2017/05/03	2.6		%	25
4966070	FA	Method Blank	Total Oil & Grease	2017/05/03	<0.50		mg/L	
4966076	FA	Spiked Blank	Total Oil & Grease Mineral/Synthetic	2017/05/03		93	%	85 - 115
4966076	FA	RPD	Total Oil & Grease Mineral/Synthetic	2017/05/03	2.4		%	25
4966076	FA	Method Blank	Total Oil & Grease Mineral/Synthetic	2017/05/03	<0.50		mg/L	
4966373	ZSK	Matrix Spike [EHK058-04]	Phenols-4AAP	2017/05/03		104	%	80 - 120
4966373	ZSK	Spiked Blank	Phenols-4AAP	2017/05/03		102	%	85 - 115
4966373	ZSK	Method Blank	Phenols-4AAP	2017/05/03	<0.0010		mg/L	
4966373	ZSK	RPD [EHK058-04]	Phenols-4AAP	2017/05/03	NC		%	20

N/A = Not Applicable

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

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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.

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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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Maxxam Job #: B786116
Report Date: 2017/05/05

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

VALIDATION SIGNATURE PAGE

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

Cristina Carriere

Cristina Carriere, Scientific Services

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AGAT Laboratories

9770 ROUTE TRANSCANADIENNE
ST. LAURENT, QUEBEC
CANADA H4S 1V9
TEL (514)337-1000
FAX (514)333-3046
http://www.agatlabs.com

CLIENT NAME: **GOLDER ASSOCIATES LTD.**
121 COMMERCE PARK DRIVE, UNIT L
BARRIE, ON L4N8X1
(705) 722-4492

ATTENTION TO: **Ryan Abrams**

PROJECT: **1407634 (Mc Carthy)**

AGAT WORK ORDER: **17M197724**

ECOTOX ANALYSIS REVIEWED BY: **Virginie Bérubé, biologiste**

DATE REPORTED: **2017-04-10**

VERSION*: **1**

PAGES (INCLUDING COVER): **4**

Should you require any information regarding this analysis please contact your client services representative at (514) 337-1000

*NOTES

All samples will be disposed of within 30 days following analysis. Please contact the lab if you require additional sample storage time.

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Certificate of Analysis

AGAT WORK ORDER: 17M197724

PROJECT: 1407634 (Mc Carthy)

CLIENT NAME: GOLDER ASSOCIATES LTD.

ATTENTION TO: Ryan Abrams

SAMPLED BY:

SAMPLING SITE:

Daphnia Lethality (D. magna) single concentration-48h

DATE RECEIVED: 2017-03-20

DATE REPORTED: 2017-04-10

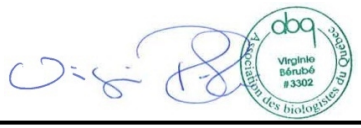
				SAMPLE DESCRIPTION:	POND
				SAMPLE TYPE:	Water
				DATE SAMPLED:	2017-03-17
Parameter	**Unit**	**G / S**	**RDL**	**8263342**	
Mortality 100% v/v	% mortality-48h			0	
Acute Lethality				NO	

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

8263342 REFER TO THE ANNEX FOR ANALYSIS DETAILS

Conclusion Legend:
Non lethal: mortality: 10% or less
Acceptable: mortality: between 10% and 50%
Acute lethality: mortality: more than 50%

Certified By:



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Certificate of Analysis

AGAT WORK ORDER: 17M197724

PROJECT: 1407634 (Mc Carthy)

CLIENT NAME: GOLDER ASSOCIATES LTD.

ATTENTION TO: Ryan Abrams

SAMPLED BY:

SAMPLING SITE:

Rainbow Trout Lethality (O. mykiss) single concentration-96h

DATE RECEIVED: 2017-03-20

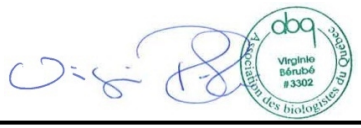
DATE REPORTED: 2017-04-10

				SAMPLE DESCRIPTION:	POND
				SAMPLE TYPE:	Water
				DATE SAMPLED:	2017-03-17
Parameter	**Unit**	**G / S**	**RDL**	**8263342**	
Mortality 100% v/v	% mortality-96h			0	
Acute Lethality				NO	

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

8263342 Refer to the annex for analysis details.
Conclusion legend:
Acute lethality: NO (mortality: 50% or less)
Acute lethality: YES (mortality: more than 50%)

Certified By:



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CANADA H4S 1V9
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FAX (514)333-3046
http://www.agatlabs.com

Method Summary

CLIENT NAME: GOLDER ASSOCIATES LTD.

AGAT WORK ORDER: 17M197724

PROJECT: 1407634 (Mc Carthy)

ATTENTION TO: Ryan Abrams

SAMPLED BY:

SAMPLING SITE:

PARAMETER	DATE PREPARED	DATE ANALYZED	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
ECOTOX Analysis					
Mortality 100% v/v					
Acute Lethality					
Mortality 100% v/v			ECO-152-20000F	EPS1/RM/13	
Acute Lethality					

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http://www.agatlabs.com

CLIENT NAME: **GOLDER ASSOCIATES LTD.**
121 COMMERCE PARK DRIVE, UNIT L
BARRIE, ON L4N8X1
(705) 722-4492

ATTENTION TO: **Ryan Abrams**

PROJECT: **1407634**

AGAT WORK ORDER: **17M209605**

ECOTOX ANALYSIS REVIEWED BY: **Virginie Bérubé, biologiste**

DATE REPORTED: **2017-05-24**

VERSION*: **1**

PAGES (INCLUDING COVER): **4**

Should you require any information regarding this analysis please contact your client services representative at (514) 337-1000

*NOTES

All samples will be disposed of within 30 days following analysis. Please contact the lab if you require additional sample storage time.

AGAT Laboratories

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http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 17M209605

PROJECT: 1407634

CLIENT NAME: GOLDER ASSOCIATES LTD.

ATTENTION TO: Ryan Abrams

SAMPLED BY:Ryan Abrams

SAMPLING SITE:McCartny

Daphnia Lethality (D.magna) single concentration-48h

DATE RECEIVED: 2017-04-28

DATE REPORTED: 2017-05-24

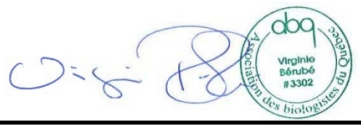
		SAMPLE DESCRIPTION:		**POND**
		SAMPLE TYPE:		**SW**
		DATE SAMPLED:		**2017-04-26**
Parameter	**Unit**	**G / S**	**RDL**	**8345381**
Mortality 100% v/v	% mortality-48h			0
Acute Lethality				NO

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

8345381 REFER TO THE ANNEX FOR ANALYSIS DETAILS

Conclusion Legend:
Non lethal: mortality: 10% or less
Acceptable: mortality: between 10% and 50%
Acute lethality: mortality: more than 50%

Certified By:



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FAX (514)333-3046
http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 17M209605

PROJECT: 1407634

CLIENT NAME: GOLDER ASSOCIATES LTD.

ATTENTION TO: Ryan Abrams

SAMPLED BY:Ryan Abrams

SAMPLING SITE:McCartny

Rainbow Trout Lethality (O. mykiss) single concentration-96h

DATE RECEIVED: 2017-04-28

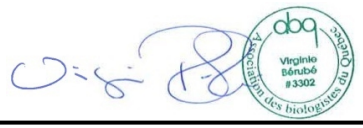
DATE REPORTED: 2017-05-24

				SAMPLE DESCRIPTION:	POND
				SAMPLE TYPE:	SW
				DATE SAMPLED:	2017-04-26
Parameter	**Unit**	**G / S**	**RDL**	**8345381**	
Mortality 100% v/v	% mortality-96h			0	
Acute Lethality				NO	

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

8345381 Refer to the annex for analysis details.
Conclusion legend:
Acute lethality: NO (mortality: 50% or less)
Acute lethality: YES (mortality: more than 50%)

Certified By:



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CANADA H4S 1V9
TEL (514)337-1000
FAX (514)333-3046
http://www.agatlabs.com

Method Summary

CLIENT NAME: GOLDER ASSOCIATES LTD.

AGAT WORK ORDER: 17M209605

PROJECT: 1407634

ATTENTION TO: Ryan Abrams

SAMPLED BY:Ryan Abrams

SAMPLING SITE:McCartny

PARAMETER	DATE PREPARED	DATE ANALYZED	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
ECOTOX Analysis					
Mortality 100% v/v					
Acute Lethality					
Mortality 100% v/v			ECO-152-20000F	EPS1/RM/13	
Acute Lethality					

As a global, employee-owned organisation with over 50 years of experience, Golder Associates is driven by our purpose to engineer earth's development while preserving earth's integrity. We deliver solutions that help our clients achieve their sustainable development goals by providing a wide range of independent consulting, design and construction services in our specialist areas of earth, environment and energy.

For more information, visit golder.com

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Golder Associates