



**January 2018**

## **MCCARTHY QUARRY**

# **Environmental Compliance Approval Annual Report**

**Submitted to:**

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REPORT



**Report Number: 1407634**

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Environmental Compliance Approval No. 4731-987KM8

### APPENDIX B

Permit To Take Water No. 7818-9QJNL4

### APPENDIX C (on CD)

Water Quality Results



### 1.0 INTRODUCTION

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

The following report includes a summary of the requirements listed in Section 10(5) of the ECA for the period from November 1, 2016 to October 31, 2017. Included herein are a summary of:

- Effluent monitoring data including the water quality results and flow measurements;
- Any operation problems encountered;
- Maintenance work completed on any part of the sewage works;
- Effluent quality assurance or control measures undertaken; and,
- Calibration and maintenance carried out on the effluent monitoring equipment.

### 2.0 BACKGROUND

The McCarthy Quarry dewatering system consists of the collection of groundwater and surface water at the base of the quarry floor to a settling pond to the south of the active quarry area (Figure 1). Groundwater and precipitation that enters the quarry is collected in a sump at the base of the quarry floor. The sump is equipped with a 4-inch Grindex pump which is rated at 35 L/sec and is attached to a 4-inch discharge line. Water is pumped from the quarry floor up the quarry face to a 101 mm diameter pipeline that directs the water to the 14,000 m<sup>3</sup> 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 (Appendix B) 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.

### 3.0 EFFLUENT MONITORING

#### 3.1 Effluent Monitoring Requirements

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

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

#### Condition 7(2)

Weekly effluent monitoring is required at the McCarthy Pond for Total Suspended Solids (TSS), Oil and Grease and Phenols (4AAP). These results are summarized in Table 1 and the monthly averages are summarized in Table 2.



The weekly effluent samples (Section 7(2)) were collected by staff at the McCarthy Quarry. The weekly quality samples were sent to Maxxam Analytics Laboratory for analysis; laboratory analysis results are included in Appendix C.

### Condition 7(3) and Condition 7(7)

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.

The semi-annual water quality samples (Section 7(3) and Section 7(7)) were collected by Golder. The semi-annual water quality samples were sent to Maxxam Analytics Laboratory for analysis. The laboratory analysis results are included in Appendix C.

### Condition 7(8)

An inline flow meter was 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 the McCarthy Quarry. These results are summarized in Table 7.

### Condition 8

Monthly lethality monitoring for Rainbow Trout and *Daphna magna* is also required and these results are summarized in Table 6.

The monthly lethality testing was carried out by Golder and sent to AGAT Laboratories Ltd. The laboratory analysis results are included in Appendix C.

## 4.0 EFFLUENT MONITORING RESULTS

### Condition 7(2)

No exceedances occurred during this monitoring period; the TSS, pH, Oil and Grease, Phenols (4AAP) concentrations were all below the daily (Table 1) and monthly (Table 2) concentration limits of the ECA.

The TSS exceedances observed historically at the site are considered to be the result of the small quarry footprint. When the quarry was in its initial stages and the area in which the work was being completed is relatively small, the dust that was generated from the quarry activities settled on the quarry floor which was then repeatedly disturbed by the quarry traffic. In addition to this, the sump is located within this work area which does not allow the rock dust to settle out before it reaches the sump. As the quarry has started to expand and working space increased, the amount of dust entering the sump has decreased. With less dust entering the sump the TSS concentrations seen at the McCarthy Pond were lower in 2017 in comparison to previous years.

### Condition 7(3)

At the McCarthy Pond, all of the parameters tested are below the Provincial Water Quality Objectives (PWQO); results are provided in Table 3.

At SW1, all of the parameters tested are below the PWQO (Table 4).



At SW2, all of the parameters tested are below the PWQO with the exception of phosphorous and iron on May 23, 2017 and phosphorus on October 26, 2017 (Table 5).

Elevated phosphorous concentrations are observed upstream, on-Site, and at downstream ditch locations. The presence of elevated phosphorus at all three locations indicates that the phosphorous is most likely the result of farming activities in the area. There are a number of cattle farms in the area which could be attributing to the high phosphorous concentrations at SW1, SW2, and the McCarthy Pond.

### Condition 8

The effluent was found to be non-lethal to Rainbow Trout and *Daphnia magna* between November 2016 and October 2017 (Table 6). For both *Daphnia magna* and Rainbow Trout there has been 0% mortality between November 2016 and October 2017, with the exception of a 10% mortality of *Daphnia magna* in November 2016 and a 3% mortality of Rainbow Trout in December 2016. In February 2017, no acute lethality sample could be taken as the pond was frozen.

## 5.0 MEASURED DISCHARGE FROM QUARRY SUMP

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 November 1, 2016 to October 31, 2017 are found in Table 7. The discharge rates were below the permitted rate of 4,545 L/min (76 L/sec).

Additionally, there has been no indication of erosion and/or flooding of the downstream ditches.

## 6.0 OPERATIONAL PROBLEMS AND CORRECTIVE ACTIONS TAKEN

No operational problems were encountered with the dewatering system during the monitoring period of November 2016 to October 2017. Additionally, no spills occurred during the November 2016 to October 2017 monitoring period.

## 7.0 MAINTENANCE OF SEWAGE WORKS

No upgrades or maintenance works were carried out on any part of the sewage works during the November 2016 to October 2017 monitoring period.

## 8.0 EFFLUENT QUALITY ASSURANCE OR CONTROL MEASURES

The shoreline of the settling pond was reseeded during this monitoring period in order to prevent erosion. No other effluent quality assurance or control measures were put in place during this monitoring period.

## 9.0 CALIBRATION AND MAINTENANCE OF THE EFFLUENT MONITORING EQUIPMENT

No calibration or maintenance of the effluent monitoring equipment was completed between November 2016 and October 2017.



### 10.0 SUMMARY

- Condition 7(2):
  - All of the weekly effluent monitoring samples from the McCarthy Pond were below the daily concentration limits; and,
  - All of the monthly effluent concentrations for the McCarthy Pond were below the monthly concentration limits.
- Condition 7(3):
  - At the McCarthy Pond, all parameters were below the PWQO;
  - At SW1, all parameters were below the PWQO; and,
  - At SW2 all parameters were below the PWQO with the exception of phosphorus and iron on May 23, 2017 and phosphorus on October 26, 2017.
- Condition 8:
  - The effluent has been non-lethal to Rainbow Trout and *Daphnia magna* throughout the monitoring period (November 2016 to October 2017).
- Condition 7(8):
  - A continuous record of flow rates has been maintained throughout this monitoring period and all water takings were below the permitted rate of 4,545 L/min.



## Report Signature Page

### GOLDER ASSOCIATES LTD.

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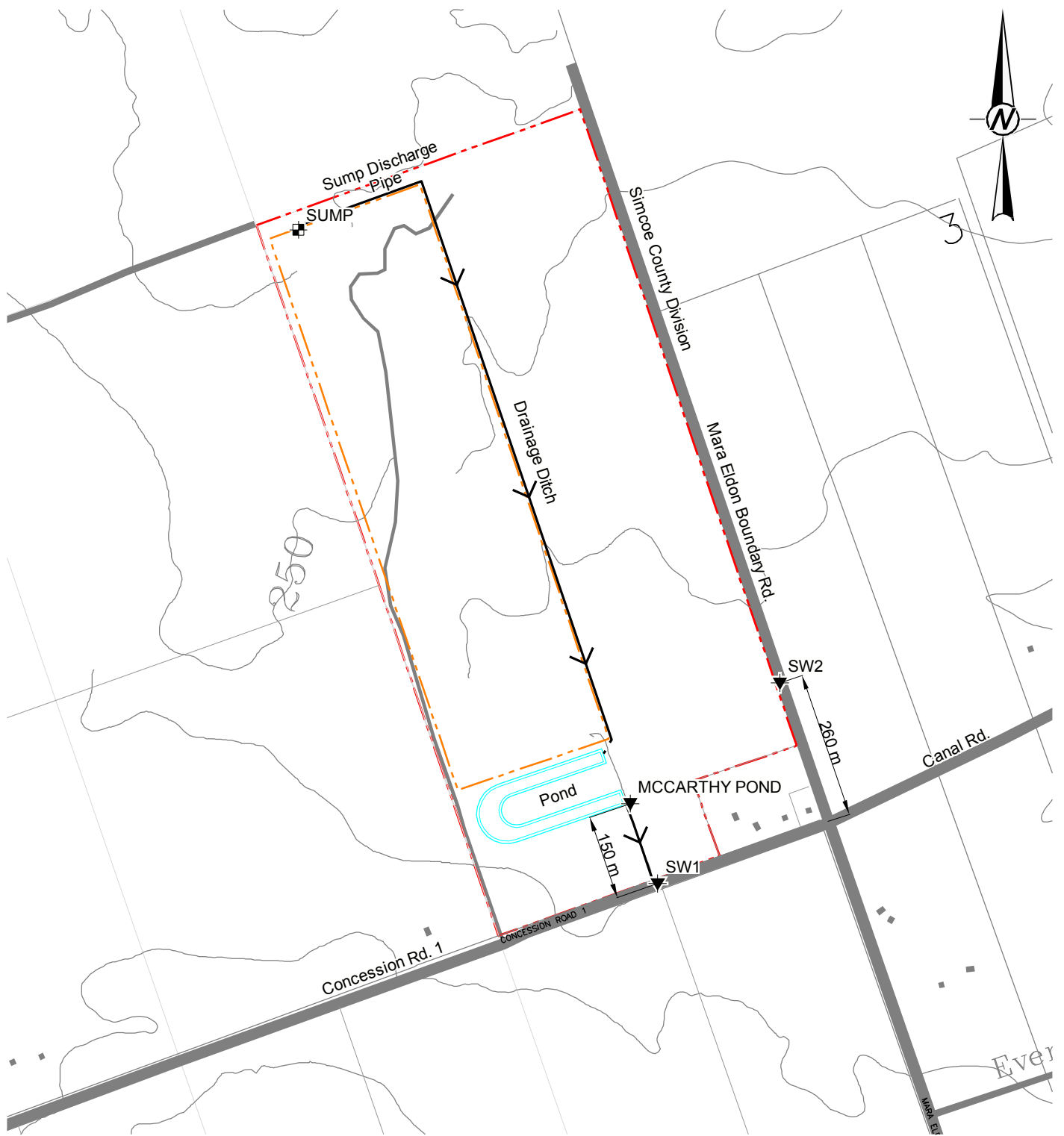
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# FIGURES



Path: \\golder-gd\gait\starr\CAD\Projects\2014\14-07634 (Barrin, Coco Enviro and Hydro)\ABA - File Name: 1407634\SITE.dwg



#### 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



CLIENT  
COCO / QBJR AGGREGATES INC.

PROJECT  
STAN MCCARTHY QUARRY

TITLE  
**LOCATION MAP**

CONSULTANT



PROJECT No.  
14-07634

SCALE  
AS SHOWN

Rev.  
AB

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

Figure  
1

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM ANSI A

25 mm



# TABLES

**Table 1: Condition 7(2) McCarthy Pond Weekly Water Quality Results**

|                        | Unit | RDL     | PWQO <sup>1</sup> | Daily Limit <sup>2</sup> | McCarthy Quarry |           |           |           |           |           |           |           |           |           |           |           |           |
|------------------------|------|---------|-------------------|--------------------------|-----------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Sample ID              |      |         |                   |                          | Pond            |           |           |           |           |           |           |           |           |           |           |           |           |
| Date                   |      |         |                   |                          | 03-Nov-16       | 10-Nov-16 | 17-Nov-16 | 24-Nov-16 | 01-Dec-16 | 08-Dec-16 | 06-Apr-17 | 13-Apr-17 | 28-Apr-17 | 04-May-17 | 11-May-17 | 17-May-17 | 25-May-17 |
| pH                     | pH   | n/a     |                   | 6.0-9.5                  | 8.12            | 8.21      | 8.20      | 8.06      | 8.13      | 8.06      | 8.06      | 8.16      | 8.13      | 7.77      | 8.43      | 8.26      | 8.2       |
| Total Suspended Solids | mg/L | 1       |                   | 30                       | 3               | 4         | 2         | 4         | 3         | 9         | 14        | 7         | 5         | 3         | 5         | 7         | 5         |
| Total Oil and Grease   | mg/L | 0.5     | Note 3            | 30                       | 2.9             | <0.5      | <0.5      | 1.1       | 1.3       | 2.8       | 1.8       | <0.5      | 1.1       | <0.5      | 1.3       | 4.0       | <0.5      |
| Phenols (4AAP)         | mg/L | <0.0010 |                   | 0.04                     | <0.001          | <0.001    | <0.001    | <0.001    | <0.001    | <0.001    | <0.001    | <0.001    | <0.001    | <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 discolouration on the surface, can be detected by odour, can cause tainting of edible organisms, can form detectable deposits on shorelines and bottom sediments. |
| 4. Results that are preceded by "<" denote concentrations that are below the laboratory Reportable Detection Limit (RDL).                                                                                                                                                                                                       |

**Table 1: Condition 7(2) McCarthy Pond Weekly Water Quality Results**

|                        | Unit | RDL     | PWQO <sup>1</sup> | Daily Limit <sup>2</sup> | McCarthy Quarry |           |           |           |           |           |           |           |           |           |           |           |           |
|------------------------|------|---------|-------------------|--------------------------|-----------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Sample ID              |      |         |                   |                          | Pond            |           |           |           |           |           |           |           |           |           |           |           |           |
| Date                   |      |         |                   |                          | 01-Jun-17       | 08-Jun-17 | 22-Jun-17 | 29-Jun-17 | 06-Jul-17 | 13-Jul-17 | 20-Jul-17 | 27-Jul-17 | 03-Aug-17 | 10-Aug-17 | 17-Aug-17 | 24-Aug-17 | 31-Aug-17 |
| pH                     | pH   | n/a     |                   | 6.0-9.5                  | 8.38            | 8.41      | 9.11      | 8.68      | 8.36      | 8.47      | 7.96      | 8.46      | 8.56      | 8.69      | 8.21      | 8.24      | 8.48      |
| Total Suspended Solids | mg/L | 1       |                   | 30                       | 6               | 5         | 5         | 2         | 3         | 6         | 4         | 3         | 3         | 4         | 5         | 4         | 6         |
| Total Oil and Grease   | mg/L | 0.5     | Note 3            | 30                       | 2.8             | 1.9       | 2.0       | <0.5      | <0.5      | 4.1       | 1.6       | 0.9       | 3.7       | 1.3       | <0.5      | 1.1       | 1.8       |
| Phenols (4AAP)         | mg/L | <0.0010 |                   | 0.04                     | <0.001          | <0.001    | <0.001    | <0.001    | <0.001    | <0.001    | <0.001    | <0.001    | <0.001    | <0.002    | <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 1: Condition 7(2) McCarthy Pond Weekly Water Quality Results**

|                        | Unit | RDL     | PWQO <sup>1</sup> | Daily Limit <sup>2</sup> | McCarthy Quarry |           |           |           |           |           |           |           |
|------------------------|------|---------|-------------------|--------------------------|-----------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Sample ID              |      |         |                   |                          | Pond            |           |           |           |           |           |           |           |
| Date                   |      |         |                   |                          | 07-Sep-17       | 14-Sep-17 | 21-Sep-17 | 28-Sep-17 | 05-Oct-17 | 12-Oct-17 | 19-Oct-17 | 26-Oct-17 |
| pH                     | pH   | n/a     |                   | 6.0-9.5                  | 8.40            | 8.21      | 8.19      | 8.08      | 8.15      | 8.15      | 8.07      | 8.22      |
| Total Suspended Solids | mg/L | 1       |                   | 30                       | 5               | 4         | 5         | 5         | 5         | 4         | 4         | 2         |
| Total Oil and Grease   | mg/L | 0.5     | Note 3            | 30                       | 1.6             | 1.7       | 1.7       | <0.5      | 2.1       | 1.9       | 2.9       | <0.5      |
| Phenols (4AAP)         | mg/L | <0.0010 |                   | 0.04                     | 0.0054          | 0.0013    | 0.0042    | 0.0045    | <0.002    | 0.002     | 0.0013    | 0.0026    |

**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 preceded by "<" denote concentrations that are below the laboratory Reportable Detection Limit (RDL).

**Table 2: Condition 7(2) McCarthy Pond Monthly Water Quality Results**

|                        | Unit | RDL     | PWQO <sup>1</sup> | Monthly Concentration Limit <sup>2</sup> | McCarthy Quarry |          |         |          |       |        |        |        |        |        |           |         |
|------------------------|------|---------|-------------------|------------------------------------------|-----------------|----------|---------|----------|-------|--------|--------|--------|--------|--------|-----------|---------|
| Sample ID              |      |         |                   |                                          | Pond            |          |         |          |       |        |        |        |        |        |           |         |
| Date                   |      |         |                   |                                          | November        | December | January | February | March | April  | May    | June   | July   | August | September | October |
| Total Suspended Solids | mg/L | 1       |                   | 15                                       | 3.3             | 6.0      | -       | -        | -     | 8.7    | 5.0    | 4.5    | 4.0    | 4.4    | 4.8       | 3.8     |
| Total Oil and Grease   | mg/L | 0.5     | Note 3            | 15                                       | 1.3             | 2.1      | -       | -        | -     | 1.1    | 1.8    | 1.6    | 1.8    | 1.7    | 1.4       | 1.9     |
| Phenols (4AAP)         | mg/L | <0.0010 |                   | 0.02                                     | <0.001          | <0.001   | -       | -        | -     | <0.001 | <0.001 | <0.001 | <0.001 | 0.001  | 0.004     | 0.002   |

**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: Condition 7(3) McCarthy Pond Water Quality Results

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Unit    | Reportable<br>Detection Limit<br>(RDL) | PWQO <sup>1</sup>  | Interim<br>PWQO <sup>2</sup> | PTTW Effluent<br>Limits | McCarthy Quarry                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |           |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|----------------------------------------|--------------------|------------------------------|-------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| Sample ID                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |         |                                        |                    |                              |                         | Pond                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Pond      |
| Date                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |         |                                        |                    |                              |                         | 23-May-17                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 26-Oct-17 |
| Field Measured Parameters                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |         |                                        |                    |                              |                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |           |
| Conductivity                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | mS/cm   |                                        |                    |                              |                         | 916                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 2035      |
| pH                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | pH      | n/a                                    | 6.5-8.5            |                              | 6.0-9.5                 | 8.45                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 8.47      |
| Temperature                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | °C      | n/a                                    |                    |                              |                         | 16.8                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 10.6      |
| Calculated Parameters                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |         |                                        |                    |                              |                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |           |
| Anion Sum                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | me/L    | N/A                                    |                    |                              |                         | 10.1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 20.2      |
| Cation Sum                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | me/L    | N/A                                    |                    |                              |                         | 10.3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 19        |
| Hardness (CaCO3)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | mg/L    | 1.0                                    |                    |                              |                         | 300                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 400       |
| Inorganics                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |         |                                        |                    |                              |                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |           |
| Total Ammonia-N                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | mg/L    | 0.050                                  |                    |                              |                         | <0.050                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 0.37      |
| Conductivity                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | umho/cm | 1.0                                    |                    |                              |                         | 1.01                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 2.12      |
| Total Dissolved Solids                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | mg/L    | 10                                     |                    |                              |                         | 638                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 1300      |
| Fluoride (F-)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | mg/L    | 0.10                                   |                    |                              |                         | 0.58                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 0.8       |
| Total Kjeldahl Nitrogen (TKN)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | mg/L    | 0.10                                   |                    |                              |                         | 0.26                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 1.1       |
| Dissolved Organic Carbon                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | mg/L    | 0.20                                   |                    |                              |                         | 3.8                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 4.8       |
| pH                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | pH      | N/A                                    | 6.5-8.5            |                              | 6.0-9.5                 | 8.10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 8.18      |
| Phenols-4AAP                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | mg/L    | 0.0010                                 |                    |                              | 0.04                    | <0.0010                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | <0.0010   |
| Total Phosphorus                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | mg/L    | 0.002                                  |                    | 0.02 <sup>5b</sup>           |                         | 0.012                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <0.020    |
| Total Suspended Solids                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | mg/L    | 10                                     |                    |                              | 30                      | <10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <10       |
| Dissolved Sulphate (SO4)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | mg/L    | 1                                      |                    |                              |                         | 260                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 360       |
| Alkalinity (Total as CaCO3)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | mg/L    | 1.0                                    |                    |                              |                         | 110                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 140       |
| Dissolved Chloride (Cl)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | mg/L    | 1                                      |                    |                              |                         | 84                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 340       |
| Nitrite (N)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | mg/L    | 0.010                                  |                    |                              |                         | 0.119                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 0.054     |
| Nitrate (N)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | mg/L    | 0.10                                   |                    |                              |                         | 2.91                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 0.87      |
| Petroleum Hydrocarbons                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |         |                                        |                    |                              |                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |           |
| Total Oil & Grease                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | mg/L    | 0.50                                   | Note 3             |                              | 30                      | <0.50                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <0.50     |
| Metals                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |         |                                        |                    |                              |                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |           |
| Total Arsenic (As)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | ug/L    | 1                                      | 100                | 5                            |                         | <1.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <1.0      |
| Total Cadmium (Cd)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | ug/L    | 0.1                                    | 0.2                | 0.1-0.5 <sup>5d</sup>        |                         | <0.10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <0.10     |
| Total Calcium (Ca)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | ug/L    | 200                                    |                    |                              |                         | 64000                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 99000     |
| Total Chromium (Cr)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | ug/L    | 5                                      | 1-89 <sup>5e</sup> |                              |                         | <5.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <5.0      |
| Total Copper (Cu)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | ug/L    | 1                                      | 5                  | 1-5 <sup>5f</sup>            |                         | <1.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <1.0      |
| Total Iron (Fe)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | ug/L    | 100                                    | 300                |                              |                         | <100                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <100      |
| Total Lead (Pb)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | ug/L    | 0.5                                    | 5-25 <sup>5g</sup> | 1-5 <sup>5h</sup>            |                         | <0.50                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <0.50     |
| Total Magnesium (Mg)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | ug/L    | 50                                     |                    |                              |                         | 29000                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 54000     |
| Total Manganese (Mn)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | ug/L    | 2                                      |                    |                              |                         | 10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 21        |
| Total Nickel (Ni)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | ug/L    | 1                                      | 25                 |                              |                         | 1.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 1.3       |
| Total Potassium (K)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | ug/L    | 200                                    |                    |                              |                         | 11000                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 21000     |
| Total Sodium (Na)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | ug/L    | 100                                    |                    |                              |                         | 85000                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 280000    |
| Total Zinc (Zn)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | ug/L    | 5                                      | 30                 | 20                           |                         | <5.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <5.0      |
| <div>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.</div> <div>2. Interim Provincial Water Quality Objectives (Interim PWQO); <i>shaded cells and italics denote Interim PWQO exceedance</i> ; some PWQOs are dependent on other water quality parameters hence the range in guideline values, refer to PQWO notes.</div> <div>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.</div> <div>4. Results that are preceeded by "&lt;" denote concentrations that are below the laboratory Reportable Detection Limit (RDL).</div> |         |                                        |                    |                              |                         | <div>5b. Phosphorus (Interim):</div> <div>- Current scientific evidence is insufficient to develop a firm Objective at this time.</div> <div>- Accordingly, the following phosphorus concentrations should be considered as general guidelines which should be supplemented by site-specific studies:</div> <div>(a) To avoid nuisance concentrations of algae in lakes, average total phosphorus concentrations for the ice-free period should not exceed 20 ug/L;</div> <div>(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;</div> <div>(c) Excessive plant growth in rivers and streams should be eliminated at a total phosphorus concentration below 30 ug/L.</div>                                                                                                                                                                                                                                                                                                 |           |
| <div>5a. Aluminum (Interim):</div> <div>- At pH 4.5 to 5.5 the Interim PWQO is 15 ug/L based on inorganic monomeric aluminum measured in clay-free samples.</div> <div>- At pH &gt;5.5 to 6.5, no condition should be permitted which would increase the acid soluble inorganic aluminum concentration in clay-free samples to more than 10% above natural background concentrations for waters representative of that geological area of the Province that are unaffected by man-made inputs.</div> <div>- At pH &gt;6.5 to 9.0, the Interim PWQO is 75 ug/L based on total aluminum measured in clay-free samples.</div> <div>- 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.</div>                                 |         |                                        |                    |                              |                         | <div>5c. Beryllium :</div> <div>If Hardness &lt;75 mg/L (CaCO3), use 11 ug/L</div> <div>If Hardness &gt;75 mg/L (CaCO3), use 1100 ug/L</div> <div>5d. Cadmium: (Interim)</div> <div>If Hardness 0-100 mg/L (CaCO3), then use 0.1 ug/L</div> <div>If Hardness &gt;100 mg/L (CaCO3), then use 0.5 ug/L</div> <div>5e. Chromium :</div> <div>1 ug/L for hexavalent chromium (Cr VI)</div> <div>8.9 ug/L for trivalent chromium (Cr III)</div> <div>5f. Copper: (Interim)</div> <div>If Hardness as CaCO3 (mg/L) is 0 - 20, then use 1 ug/L</div> <div>If Hardness as CaCO3 (mg/L) is &gt;20, then use 5 ug/L</div> <div>5g. Lead :</div> <div>If Alkalinity as CaCO3 (mg/L) is &lt; 20, use 5 ug/L</div> <div>If Alkalinity as CaCO3 (mg/L) is 20 to 40, use 10 ug/L</div> <div>If Alkalinity as CaCO3 (mg/L) is 40 to 80, use 20 ug/L</div> <div>If Alkalinity as CaCO3 (mg/L) is &gt; 80, use 25 ug/L</div> <div>5h. Lead: (Interim)</div> <div>If Hardness as CaCO3 (mg/L) is &lt; 30, then use 1 ug/L</div> <div>If Hardness as CaCO3 (mg/L) is 30 to 80, then use 3 ug/L</div> <div>If Hardness as CaCO3 (mg/L) is &gt; 80, then use 5 ug/L</div> |           |

Table 4: Condition 7(3) SW1 Water Quality Results

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Unit    | Reportable<br>Detection Limit<br>(RDL) | PWQO <sup>1</sup>  | Interim<br>PWQO <sup>2</sup> | PTTW Effluent<br>Limits                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | McCarthy Quarry |           |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|----------------------------------------|--------------------|------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|-----------|
| Sample ID                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |         |                                        |                    |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | SW1             | SW1       |
| Date                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |         |                                        |                    |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 23-May-17       | 26-Oct-17 |
| Field Measured Parameters                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |         |                                        |                    |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                 |           |
| Conductivity                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | mS/cm   |                                        |                    |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 884             | 2020      |
| pH                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | pH      | n/a                                    | 6.5-8.5            |                              | 6.0-9.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 8.5             | 8.35      |
| Temperature                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | °C      | n/a                                    |                    |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 15.4            | 11.6      |
| Calculated Parameters                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |         |                                        |                    |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                 |           |
| Anion Sum                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | me/L    | N/A                                    |                    |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 9.82            | 20.1      |
| Cation Sum                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | me/L    | N/A                                    |                    |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 10.3            | 19.1      |
| Hardness (CaCO3)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | mg/L    | 1.0                                    |                    |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 300             | 400       |
| Inorganics                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |         |                                        |                    |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                 |           |
| Total Ammonia-N                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | mg/L    | 0.050                                  |                    |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <0.050          | 0.35      |
| Conductivity                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | umho/cm | 1.0                                    |                    |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 0.988           | 2.11      |
| Total Dissolved Solids                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | mg/L    | 10                                     |                    |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 622             | 1180      |
| Fluoride (F-)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | mg/L    | 0.10                                   |                    |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 0.55            | 0.8       |
| Total Kjeldahl Nitrogen (TKN)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | mg/L    | 0.10                                   |                    |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 0.51            | 1         |
| Dissolved Organic Carbon                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | mg/L    | 0.20                                   |                    |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 3.7             | 4.8       |
| pH                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | pH      | N/A                                    | 6.5-8.5            |                              | 6.0-9.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 8.01            | 8.22      |
| Phenols-4AAP                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | mg/L    | 0.0010                                 |                    |                              | 0.04                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | <0.0010         | <0.0010   |
| Total Phosphorus                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | mg/L    | 0.002                                  |                    | 0.02 <sup>5b</sup>           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 0.016           | <0.020    |
| Total Suspended Solids                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | mg/L    | 10                                     |                    |                              | 30                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | <10             | <10       |
| Dissolved Sulphate (SO4)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | mg/L    | 1                                      |                    |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 240             | 360       |
| Alkalinity (Total as CaCO3)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | mg/L    | 1.0                                    |                    |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 120             | 140       |
| Dissolved Chloride (Cl)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | mg/L    | 1                                      |                    |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 79              | 340       |
| Nitrite (N)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | mg/L    | 0.010                                  |                    |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 0.109           | 0.05      |
| Nitrate (N)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | mg/L    | 0.10                                   |                    |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 2.80            | 0.87      |
| Petroleum Hydrocarbons                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |         |                                        |                    |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                 |           |
| Total Oil & Grease                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | mg/L    | 0.50                                   | Note 3             |                              | 30                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | <0.50           | <0.50     |
| Metals                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |         |                                        |                    |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                 |           |
| Total Arsenic (As)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | ug/L    | 1                                      | 100                | 5                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <1.0            | <1.0      |
| Total Cadmium (Cd)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | ug/L    | 0.1                                    | 0.2                | 0.1-0.5 <sup>5d</sup>        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <0.10           | <0.10     |
| Total Calcium (Ca)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | ug/L    | 200                                    |                    |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 68000           | 88000     |
| Total Chromium (Cr)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | ug/L    | 5                                      | 1-89 <sup>5e</sup> |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <5.0            | <5.0      |
| Total Copper (Cu)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | ug/L    | 1                                      | 5                  | 1-5 <sup>5f</sup>            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <1.0            | <1.0      |
| Total Iron (Fe)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | ug/L    | 100                                    | 300                |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <100            | <100      |
| Total Lead (Pb)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | ug/L    | 0.5                                    | 5-25 <sup>5g</sup> | 1-5 <sup>5h</sup>            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <0.50           | <0.50     |
| Total Magnesium (Mg)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | ug/L    | 50                                     |                    |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 28000           | 50000     |
| Total Manganese (Mn)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | ug/L    | 2                                      |                    |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 14              | 14        |
| Total Nickel (Ni)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | ug/L    | 1                                      | 25                 |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 1.3             | 1.3       |
| Total Potassium (K)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | ug/L    | 200                                    |                    |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 11000           | 19000     |
| Total Sodium (Na)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | ug/L    | 100                                    |                    |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 83000           | 260000    |
| Total Zinc (Zn)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | ug/L    | 5                                      | 30                 | 20                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <5.0            | 5.3       |
| <div>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.</div> <div>2. Interim Provincial Water Quality Objectives (Interim PWQO); <i>shaded cells and italics denote Interim PWQO exceedance</i> ; some PWQOs are dependent on other water quality parameters hence the range in guideline values, refer to PQWO notes.</div> <div>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.</div> <div>4. Results that are preceeded by "&lt;" denote concentrations that are below the laboratory Reportable Detection Limit (RDL).</div> |         |                                        |                    |                              | <div>5b. <i>Phosphorus (Interim)</i>:</div> <div>- Current scientific evidence is insufficient to develop a firm Objective at this time.</div> <div>- Accordingly, the following phosphorus concentrations should be considered as general guidelines which should be supplemented by site-specific studies:</div> <div>(a) To avoid nuisance concentrations of algae in lakes, average total phosphorus concentrations for the ice-free period should not exceed 20 ug/L;</div> <div>(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;</div> <div>(c) Excessive plant growth in rivers and streams should be eliminated at a total phosphorus concentration below 30 ug/L.</div>                                                                                                                                                                                                                                                               |                 |           |
| <div>5a. <i>Aluminum (Interim)</i>:</div> <div>- At pH 4.5 to 5.5 the Interim PWQO is 15 ug/L based on inorganic monomeric aluminum measured in clay-free samples.</div> <div>- At pH &gt;5.5 to 6.5, no condition should be permitted which would increase the acid soluble inorganic aluminum concentration in clay-free samples to more than 10% above natural background concentrations for waters representative of that geological area of the Province that are unaffected by man-made inputs.</div> <div>- At pH &gt;6.5 to 9.0, the Interim PWQO is 75 ug/L based on total aluminum measured in clay-free samples.</div> <div>- 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.</div>                          |         |                                        |                    |                              | <div>5c. <i>Beryllium</i>: If Hardness &lt;75 mg/L (CaCO3), use 11 ug/L</div> <div>If Hardness &gt;75 mg/L (CaCO3), use 1100 ug/L</div> <div>5d. <i>Cadmium: (Interim)</i> If Hardness 0-100 mg/L (CaCO3), then use 0.1 ug/L</div> <div>If Hardness &gt;100 mg/L (CaCO3), then use 0.5 ug/L</div> <div>5e. <i>Chromium</i>: 1 ug/L for hexavalent chromium (Cr VI)</div> <div>8.9 ug/L for trivalent chromium (Cr III)</div> <div>5f. <i>Copper: (Interim)</i> If Hardness as CaCO3 (mg/L) is 0 - 20, then use 1 ug/L</div> <div>If Hardness as CaCO3 (mg/L) is &gt;20, then use 5 ug/L</div> <div>5g. <i>Lead</i>: If Alkalinity as CaCO3 (mg/L) is &lt; 20, use 5 ug/L</div> <div>If Alkalinity as CaCO3 (mg/L) is 20 to 40, use 10 ug/L</div> <div>If Alkalinity as CaCO3 (mg/L) is 40 to 80, use 20 ug/L</div> <div>If Alkalinity as CaCO3 (mg/L) is &gt; 80, use 25 ug/L</div> <div>5h. <i>Lead: (Interim)</i> If Hardness as CaCO3 (mg/L) is &lt; 30, then use 1 ug/L</div> <div>If Hardness as CaCO3 (mg/L) is 30 to 80, then use 3 ug/L</div> <div>If Hardness as CaCO3 (mg/L) is &gt; 80, then use 5 ug/L</div> |                 |           |



Table 5: Condition 7(3) SW2 Water Quality Results

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Unit    | Reportable<br>Detection Limit<br>(RDL) | PWQO <sup>1</sup>  | Interim<br>PWQO <sup>2</sup> | PTTW Effluent<br>Limits                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | McCarthy Quarry |           |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|----------------------------------------|--------------------|------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|-----------|
| Sample ID                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |         |                                        |                    |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | SW2             | SW2       |
| Date                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |         |                                        |                    |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 23-May-17       | 26-Oct-17 |
| Field Measured Parameters                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |         |                                        |                    |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                 |           |
| Conductivity                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | mS/cm   |                                        |                    |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 520             | 980       |
| pH                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | pH      | n/a                                    | 6.5-8.5            |                              | 6.0-9.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 7.68            | 6.75      |
| Temperature                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | °C      | n/a                                    |                    |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 13.3            | 8.5       |
| Calculated Parameters                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |         |                                        |                    |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                 |           |
| Anion Sum                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | me/L    | N/A                                    |                    |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 6.31            | 10.2      |
| Cation Sum                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | me/L    | N/A                                    |                    |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 6.52            | 9.4       |
| Hardness (CaCO3)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | mg/L    | 1.0                                    |                    |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 310             | 440       |
| Inorganics                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |         |                                        |                    |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                 |           |
| Total Ammonia-N                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | mg/L    | 0.050                                  |                    |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <0.050          | <0.050    |
| Conductivity                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | umho/cm | 1.0                                    |                    |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 0.570           | 0.903     |
| Total Dissolved Solids                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | mg/L    | 10                                     |                    |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 362             | 580       |
| Fluoride (F-)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | mg/L    | 0.10                                   |                    |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 0.10            | <0.10     |
| Total Kjeldahl Nitrogen (TKN)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | mg/L    | 0.10                                   |                    |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 0.62            | 0.51      |
| Dissolved Organic Carbon                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | mg/L    | 0.20                                   |                    |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 13              | 11        |
| pH                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | pH      | N/A                                    | 6.5-8.5            |                              | 6.0-9.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 8.04            | 8.03      |
| Phenols-4AAP                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | mg/L    | 0.0010                                 |                    |                              | 0.04                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <0.0010         | 0.0024    |
| Total Phosphorus                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | mg/L    | 0.002                                  |                    | 0.02 <sup>5b</sup>           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 0.035           | 0.028     |
| Total Suspended Solids                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | mg/L    | 10                                     |                    |                              | 30                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 12              | <10       |
| Dissolved Sulphate (SO4)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | mg/L    | 1                                      |                    |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 22              | 150       |
| Alkalinity (Total as CaCO3)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | mg/L    | 1.0                                    |                    |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 280             | 330       |
| Dissolved Chloride (Cl)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | mg/L    | 1                                      |                    |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 7.7             | 16        |
| Nitrite (N)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | mg/L    | 0.010                                  |                    |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <0.010          | <0.010    |
| Nitrate (N)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | mg/L    | 0.10                                   |                    |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <0.10           | <0.10     |
| Petroleum Hydrocarbons                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |         |                                        |                    |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                 |           |
| Total Oil & Grease                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | mg/L    | 0.50                                   | Note 3             |                              | 30                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <0.50           | <0.50     |
| Metals                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |         |                                        |                    |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                 |           |
| Total Arsenic (As)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | ug/L    | 1                                      | 100                | 5                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <1.0            | <1.0      |
| Total Cadmium (Cd)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | ug/L    | 0.1                                    | 0.2                | 0.1-0.5 <sup>5d</sup>        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <0.10           | <0.10     |
| Total Calcium (Ca)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | ug/L    | 200                                    |                    |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 110000          | 170000    |
| Total Chromium (Cr)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | ug/L    | 5                                      | 1-89 <sup>5e</sup> |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <5.0            | <5.0      |
| Total Copper (Cu)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | ug/L    | 1                                      | 5                  | 1-5 <sup>5f</sup>            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <1.0            | <1.0      |
| Total Iron (Fe)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | ug/L    | 100                                    | 300                |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 310             | 280       |
| Total Lead (Pb)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | ug/L    | 0.5                                    | 5-25 <sup>5g</sup> | 1-5 <sup>5h</sup>            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <0.50           | <0.50     |
| Total Magnesium (Mg)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | ug/L    | 50                                     |                    |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 6400            | 16000     |
| Total Manganese (Mn)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | ug/L    | 2                                      |                    |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 62              | 26        |
| Total Nickel (Ni)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | ug/L    | 1                                      | 25                 |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <1.0            | <1.0      |
| Total Potassium (K)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | ug/L    | 200                                    |                    |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 2200            | 6200      |
| Total Sodium (Na)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | ug/L    | 100                                    |                    |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 6200            | 11000     |
| Total Zinc (Zn)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | ug/L    | 5                                      | 30                 | 20                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 5.0             | <5.0      |
| 1. Provincial Water Quality Objectives (PWQO); shaded cells denote PWQO exceedance; some PWQOs are dependent on other water quality parameters hence the range in guideline values, refer to PWQO notes.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |         |                                        |                    |                              | 5b. Phosphorus (Interim):<br>- Current scientific evidence is insufficient to develop a firm Objective at this time.<br><br>- Accordingly, the following phosphorus concentrations should be considered as general guidelines which should be supplemented by site-specific studies:<br>(a) To avoid nuisance concentrations of algae in lakes, average total phosphorus concentrations for the ice-free period should not exceed 20 ug/L;<br>(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;<br>(c) Excessive plant growth in rivers and streams should be eliminated at a total phosphorus concentration below 30 ug/L. |                 |           |
| 2. Interim Provincial Water Quality Objectives (Interim PWQO); shaded cells and italics denote Interim PWQO exceedance ; some PWQOs are dependent on other water quality parameters hence the range in guideline values, refer to PQWO notes.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |         |                                        |                    |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                 |           |
| 3. The PWQO for Oil and Grease indicates that oil or petrochemicals should not be present in concentrations that: can be detected as a visible film, sheen or discolouration on the surface, can be detected by odour, can cause tainting of edible organisms, can form detectable deposits on shorelines and bottom sediments.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |         |                                        |                    |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                 |           |
| 4. Results that are preceeded by "<" denote concentrations that are below the laboratory Reportable Detection Limit (RDL).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |         |                                        |                    |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                 |           |
| 5a. Aluminum (Interim):<br><br>- At pH 4.5 to 5.5 the Interim PWQO is 15 ug/L based on inorganic monomeric aluminum measured in clay-free samples.<br>- 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.<br>- At pH >6.5 to 9.0, the Interim PWQO is 75 ug/L based on total aluminum measured in clay-free samples.<br>- If natural background aluminum concentrations in water bodies unaffected by manmade inputs are greater than the numerical Interim PWQO (above), no condition is permitted that would increase the aluminum concentration in clay-free samples by more than 10% of the natural background level. |         |                                        |                    |                              | 5c. Beryllium: If Hardness <75 mg/L (CaCO3), use 11 ug/L<br>If Hardness >75 mg/L (CaCO3), use 1100 ug/L                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                 |           |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |         |                                        |                    |                              | 5d. Cadmium: (Interim)<br>If Hardness 0-100 mg/L (CaCO3), then use 0.1 ug/L<br>If Hardness >100 mg/L (CaCO3), then use 0.5 ug/L                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                 |           |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |         |                                        |                    |                              | 5e. Chromium: 1 ug/L for hexavalent chromium (Cr VI)<br>8.9 ug/L for trivalent chromium (Cr III)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                 |           |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |         |                                        |                    |                              | 5f. Copper: (Interim)<br>If Hardness as CaCO3 (mg/L) is 0 - 20, then use 1 ug/L<br>If Hardness as CaCO3 (mg/L) is > 20, then use 5 ug/L                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                 |           |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |         |                                        |                    |                              | 5g. Lead: If Alkalinity as CaCO3 (mg/L) is < 20, use 5 ug/L<br>If Alkalinity as CaCO3 (mg/L) is 20 to 40, use 10 ug/L<br>If Alkalinity as CaCO3 (mg/L) is 40 to 80, use 20 ug/L<br>If Alkalinity as CaCO3 (mg/L) is > 80, use 25 ug/L                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                 |           |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |         |                                        |                    |                              | 5h. Lead: (Interim)<br>If Hardness as CaCO3 (mg/L) is < 30, then use 1 ug/L<br>If Hardness as CaCO3 (mg/L) is 30 to 80, then use 3 ug/L<br>If Hardness as CaCO3 (mg/L) is > 80, then use 5 ug/L                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                 |           |

**Table 6: Lethality Monitoring at McCarthy Pond**

|               | Unit              | Mortality Limit | McCarthy Quarry |           |           |           |           |           |           |           |           |           |
|---------------|-------------------|-----------------|-----------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Sample ID     |                   |                 | Pond            |           |           |           |           |           |           |           |           |           |
| Date          |                   |                 | 16-Nov-16       | 06-Dec-16 | 18-Jan-17 | 17-Mar-17 | 26-Apr-17 | 23-May-17 | 11-Jul-17 | 24-Aug-17 | 28-Sep-17 | 26-Oct-17 |
| Rainbow Trout | % Mortality Rate* | <50%            | 0               | 3.3       | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0         |
| Daphnia Magna | % Mortality Rate* | <50%            | 10              | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0         |

**Notes**

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

Table 7: Measured Water Volume and Rate of Discharge from Quarry Sump

| Date                      | Start   | Stop    | Total Sec. | Total Min. | Total Litres     | Rate of Taking (L/sec) | Rate of Taking (L/min) |
|---------------------------|---------|---------|------------|------------|------------------|------------------------|------------------------|
| <b>ECA Permitted Rate</b> |         |         |            |            | <b>6,550,000</b> | <b>76</b>              | <b>4,545</b>           |
| 1-Nov-16                  | 10AM    | 12PM    | 7200       | 120        | 252,000          | 35                     | 2,100                  |
| 2-Nov-16                  | 6:30AM  | 11AM    | 16200      | 270        | 567,000          | 35                     | 2,100                  |
| 3-Nov-16                  | 8:15AM  | 10AM    | 6300       | 105        | 220,500          | 35                     | 2,100                  |
| 4-Nov-16                  | NO PUMP |         | 0          | 0          | -                | -                      | -                      |
| 5-Nov-16                  | NO PUMP |         | 0          | 0          | -                | -                      | -                      |
| 6-Nov-16                  | NO PUMP |         | 0          | 0          | -                | -                      | -                      |
| 7-Nov-16                  | NO PUMP |         | 0          | 0          | -                | -                      | -                      |
| 8-Nov-16                  | NO PUMP |         | 0          | 0          | -                | -                      | -                      |
| 9-Nov-16                  | 6:30AM  | 12PM    | 19800      | 330        | 693,000          | 35                     | 2,100                  |
| 10-Nov-16                 | 7:30AM  | 12PM    | 16200      | 270        | 567,000          | 35                     | 2,100                  |
| 11-Nov-16                 | 6:30AM  | 12:30PM | 21600      | 360        | 756,000          | 35                     | 2,100                  |
| 12-Nov-16                 | NO PUMP |         | 0          | 0          | -                | -                      | -                      |
| 13-Nov-16                 | NO PUMP |         | 0          | 0          | -                | -                      | -                      |
| 14-Nov-16                 | 6:30AM  | 12PM    | 19800      | 330        | 693,000          | 35                     | 2,100                  |
| 15-Nov-16                 | 6:30AM  | 12PM    | 19800      | 330        | 693,000          | 35                     | 2,100                  |
| 16-Nov-16                 | NO PUMP |         | 0          | 0          | -                | -                      | -                      |
| 17-Nov-16                 | 6:30AM  | 12PM    | 19800      | 330        | 693,000          | 35                     | 2,100                  |
| 18-Nov-16                 | NO PUMP |         | 0          | 0          | -                | -                      | -                      |
| 19-Nov-16                 | NO PUMP |         | 0          | 0          | -                | -                      | -                      |
| 20-Nov-16                 | NO PUMP |         | 0          | 0          | -                | -                      | -                      |
| 21-Nov-16                 | NO PUMP |         | 0          | 0          | -                | -                      | -                      |
| 22-Nov-16                 | NO PUMP |         | 0          | 0          | -                | -                      | -                      |
| 23-Nov-16                 | NO PUMP |         | 0          | 0          | -                | -                      | -                      |
| 24-Nov-16                 | NO PUMP |         | 0          | 0          | -                | -                      | -                      |
| 25-Nov-16                 | 6:30AM  | 1:30PM  | 25200      | 420        | 882,000          | 35                     | 2,100                  |
| 26-Nov-16                 | NO PUMP |         | 0          | 0          | -                | -                      | -                      |
| 27-Nov-16                 | NO PUMP |         | 0          | 0          | -                | -                      | -                      |
| 28-Nov-16                 | 10AM    | 6PM     | 28800      | 480        | 1,008,000        | 35                     | 2,100                  |
| 29-Nov-16                 | 6:30AM  | 12:30PM | 21600      | 360        | 756,000          | 35                     | 2,100                  |
| 30-Nov-16                 | 6:30AM  | 4PM     | 34200      | 570        | 1,197,000        | 35                     | 2,100                  |
| 1-Dec-16                  | 7AM     | 1PM     | 21600      | 360        | 756,000          | 35                     | 2,100                  |
| 2-Dec-16                  | NO PUMP |         | 0          | 0          | -                | -                      | -                      |
| 3-Dec-16                  | NO PUMP |         | 0          | 0          | -                | -                      | -                      |
| 4-Dec-16                  | NO PUMP |         | 0          | 0          | -                | -                      | -                      |
| 5-Dec-16                  | 7AM     | 3PM     | 28800      | 480        | 1,008,000        | 35                     | 2,100                  |
| 6-Dec-16                  | 7AM     | 10AM    | 10800      | 180        | 378,000          | 35                     | 2,100                  |
| 7-Dec-16                  | 7AM     | 9AM     | 7200       | 120        | 252,000          | 35                     | 2,100                  |
| 8-Dec-16                  | NO PUMP |         | 0          | 0          | -                | -                      | -                      |
| 9-Dec-16                  | NO PUMP |         | 0          | 0          | -                | -                      | -                      |
| 10-Dec-16                 | NO PUMP |         | 0          | 0          | -                | -                      | -                      |

Table 7: Measured Water Volume and Rate of Discharge from Quarry Sump

| Date                      | Start   | Stop   | Total Sec. | Total Min. | Total Litres     | Rate of Taking (L/sec) | Rate of Taking (L/min) |
|---------------------------|---------|--------|------------|------------|------------------|------------------------|------------------------|
| <b>ECA Permitted Rate</b> |         |        |            |            | <b>6,550,000</b> | <b>76</b>              | <b>4,545</b>           |
| 11-Dec-16                 | NO PUMP |        | 0          | 0          | -                | -                      | -                      |
| 12-Dec-16                 | 7AM     | 3:30PM | 30600      | 510        | 1,071,000        | 35                     | 2,100                  |
| 13-Dec-16                 | 7AM     | 12PM   | 18000      | 300        | 630,000          | 35                     | 2,100                  |
| 14-Dec-16                 | NO PUMP |        | 0          | 0          | -                | -                      | -                      |
| 15-Dec-16                 | 7AM     | 2PM    | 25200      | 420        | 882,000          | 35                     | 2,100                  |
| 16-Dec-16                 | NO PUMP |        | 0          | 0          | -                | -                      | -                      |
| 17-Dec-16                 | NO PUMP |        | 0          | 0          | -                | -                      | -                      |
| 18-Dec-16                 | NO PUMP |        | 0          | 0          | -                | -                      | -                      |
| 19-Dec-16                 | 7AM     | 3PM    | 28800      | 480        | 1,008,000        | 35                     | 2,100                  |
| 20-Dec-16                 | 7AM     | 1PM    | 21600      | 360        | 756,000          | 35                     | 2,100                  |
| 21-Dec-16                 | NO PUMP |        | 0          | 0          | -                | -                      | -                      |
| 22-Dec-16                 | 7AM     | 7PM    | 43200      | 720        | 1,512,000        | 35                     | 2,100                  |
| 23-Dec-16                 | NO PUMP |        | 0          | 0          | -                | -                      | -                      |
| 24-Dec-16                 | NO PUMP |        | 0          | 0          | -                | -                      | -                      |
| 25-Dec-16                 | NO PUMP |        | 0          | 0          | -                | -                      | -                      |
| 26-Dec-16                 | NO PUMP |        | 0          | 0          | -                | -                      | -                      |
| 27-Dec-16                 | 7AM     | 7PM    | 43200      | 720        | 1,512,000        | 35                     | 2,100                  |
| 28-Dec-16                 | 7AM     | 7PM    | 43200      | 720        | 1,512,000        | 35                     | 2,100                  |
| 29-Dec-16                 | 7AM     | 7PM    | 43200      | 720        | 1,512,000        | 35                     | 2,100                  |
| 30-Dec-16                 | 7AM     | 7PM    | 43200      | 720        | 1,512,000        | 35                     | 2,100                  |
| 31-Dec-16                 | NO PUMP |        | 0          | 0          | -                | -                      | -                      |
| 1-Jan-17                  | NO PUMP |        | 0          | 0          | -                | -                      | -                      |
| 2-Jan-17                  | 7AM     | 5PM    | 36000      | 600        | 1,260,000        | 35                     | 2,100                  |
| 3-Jan-17                  | 7AM     | 5PM    | 36000      | 600        | 1,260,000        | 35                     | 2,100                  |
| 4-Jan-17                  | 7AM     | 5PM    | 36000      | 600        | 1,260,000        | 35                     | 2,100                  |
| 5-Jan-17                  | 7AM     | 5PM    | 36000      | 600        | 1,260,000        | 35                     | 2,100                  |
| 6-Jan-17                  | NO PUMP |        | 0          | 0          | -                | -                      | -                      |
| 7-Jan-17                  | NO PUMP |        | 0          | 0          | -                | -                      | -                      |
| 8-Jan-17                  | NO PUMP |        | 0          | 0          | -                | -                      | -                      |
| 9-Jan-17                  | 7AM     | 5PM    | 36000      | 600        | 1,260,000        | 35                     | 2,100                  |
| 10-Jan-17                 | 7AM     | 5PM    | 36000      | 600        | 1,260,000        | 35                     | 2,100                  |
| 11-Jan-17                 | 7AM     | 5PM    | 36000      | 600        | 1,260,000        | 35                     | 2,100                  |
| 12-Jan-17                 | 7AM     | 5PM    | 36000      | 600        | 1,260,000        | 35                     | 2,100                  |
| 13-Jan-17                 | 7AM     | 5PM    | 36000      | 600        | 1,260,000        | 35                     | 2,100                  |
| 14-Jan-17                 | NO PUMP |        | 0          | 0          | -                | -                      | -                      |
| 15-Jan-17                 | NO PUMP |        | 0          | 0          | -                | -                      | -                      |
| 16-Jan-17                 | 7AM     | 5PM    | 36000      | 600        | 1,260,000        | 35                     | 2,100                  |
| 17-Jan-17                 | 7AM     | 5PM    | 36000      | 600        | 1,260,000        | 35                     | 2,100                  |
| 18-Jan-17                 | 7AM     | 5PM    | 36000      | 600        | 1,260,000        | 35                     | 2,100                  |
| 19-Jan-17                 | 7AM     | 5PM    | 36000      | 600        | 1,260,000        | 35                     | 2,100                  |

Table 7: Measured Water Volume and Rate of Discharge from Quarry Sump

| Date                      | Start   | Stop | Total Sec. | Total Min. | Total Litres     | Rate of Taking (L/sec) | Rate of Taking (L/min) |
|---------------------------|---------|------|------------|------------|------------------|------------------------|------------------------|
| <b>ECA Permitted Rate</b> |         |      |            |            | <b>6,550,000</b> | <b>76</b>              | <b>4,545</b>           |
| 20-Jan-17                 | 7AM     | 5PM  | 36000      | 600        | 1,260,000        | 35                     | 2,100                  |
| 21-Jan-17                 | NO PUMP |      | 0          | 0          | -                | -                      | -                      |
| 22-Jan-17                 | NO PUMP |      | 0          | 0          | -                | -                      | -                      |
| 23-Jan-17                 | 7AM     | 5PM  | 36000      | 600        | 1,260,000        | 35                     | 2,100                  |
| 24-Jan-17                 | 7AM     | 5PM  | 36000      | 600        | 1,260,000        | 35                     | 2,100                  |
| 25-Jan-17                 | 7AM     | 5PM  | 36000      | 600        | 1,260,000        | 35                     | 2,100                  |
| 26-Jan-17                 | 7AM     | 5PM  | 36000      | 600        | 1,260,000        | 35                     | 2,100                  |
| 27-Jan-17                 | 7AM     | 5PM  | 36000      | 600        | 1,260,000        | 35                     | 2,100                  |
| 28-Jan-17                 | NO PUMP |      | 0          | 0          | -                | -                      | -                      |
| 29-Jan-17                 | NO PUMP |      | 0          | 0          | -                | -                      | -                      |
| 30-Jan-17                 | NO PUMP |      | 0          | 0          | -                | -                      | -                      |
| 31-Jan-17                 | NO PUMP |      | 0          | 0          | -                | -                      | -                      |
| 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          | -                | -                      | -                      |

Table 7: Measured Water Volume and Rate of Discharge from Quarry Sump

| Date                      | Start   | Stop | Total Sec. | Total Min. | Total Litres     | Rate of Taking (L/sec) | Rate of Taking (L/min) |
|---------------------------|---------|------|------------|------------|------------------|------------------------|------------------------|
| <b>ECA Permitted Rate</b> |         |      |            |            | <b>6,550,000</b> | <b>76</b>              | <b>4,545</b>           |
| 1-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          | -                | -                      | -                      |
| 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          | -                | -                      | -                      |

Table 7: Measured Water Volume and Rate of Discharge from Quarry Sump

| Date                      | Start   | Stop | Total Sec. | Total Min. | Total Litres     | Rate of Taking (L/sec) | Rate of Taking (L/min) |
|---------------------------|---------|------|------------|------------|------------------|------------------------|------------------------|
| <b>ECA Permitted Rate</b> |         |      |            |            | <b>6,550,000</b> | <b>76</b>              | <b>4,545</b>           |
| 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          | -                | -                      | -                      |
| 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          | -                | -                      | -                      |
| 1-May-17                  | 6AM     | 6PM  | 43200      | 720        | 1,512,000        | 35                     | 2,100                  |
| 2-May-17                  | 6AM     | 7PM  | 46800      | 780        | 1,638,000        | 35                     | 2,100                  |
| 3-May-17                  | 6AM     | 6PM  | 43200      | 720        | 1,512,000        | 35                     | 2,100                  |
| 4-May-17                  | 6AM     | 6PM  | 43200      | 720        | 1,512,000        | 35                     | 2,100                  |
| 5-May-17                  | 6AM     | 6PM  | 43200      | 720        | 1,512,000        | 35                     | 2,100                  |
| 6-May-17                  | NO PUMP |      | 0          | 0          | -                | -                      | -                      |
| 7-May-17                  | NO PUMP |      | 0          | 0          | -                | -                      | -                      |
| 8-May-17                  | 6AM     | 6PM  | 43200      | 720        | 1,512,000        | 35                     | 2,100                  |
| 9-May-17                  | 6AM     | 6PM  | 43200      | 720        | 1,512,000        | 35                     | 2,100                  |
| 10-May-17                 | 6AM     | 6PM  | 43200      | 720        | 1,512,000        | 35                     | 2,100                  |
| 11-May-17                 | 6AM     | 6PM  | 43200      | 720        | 1,512,000        | 35                     | 2,100                  |
| 12-May-17                 | 6AM     | 6PM  | 43200      | 720        | 1,512,000        | 35                     | 2,100                  |
| 13-May-17                 | NO PUMP |      | 0          | 0          | -                | -                      | -                      |
| 14-May-17                 | NO PUMP |      | 0          | 0          | -                | -                      | -                      |
| 15-May-17                 | NO PUMP |      | 0          | 0          | -                | -                      | -                      |
| 16-May-17                 | 12PM    | 7PM  | 25200      | 420        | 882,000          | 35                     | 2,100                  |
| 17-May-17                 | NO PUMP |      | 0          | 0          | -                | -                      | -                      |
| 18-May-17                 | 9AM     | 6PM  | 32400      | 540        | 1,134,000        | 35                     | 2,100                  |
| 19-May-17                 | NO PUMP |      | 0          | 0          | -                | -                      | -                      |

Table 7: Measured Water Volume and Rate of Discharge from Quarry Sump

| Date                      | Start   | Stop | Total Sec. | Total Min. | Total Litres     | Rate of Taking (L/sec) | Rate of Taking (L/min) |
|---------------------------|---------|------|------------|------------|------------------|------------------------|------------------------|
| <b>ECA Permitted Rate</b> |         |      |            |            | <b>6,550,000</b> | <b>76</b>              | <b>4,545</b>           |
| 20-May-17                 | NO PUMP |      | 0          | 0          | -                | -                      | -                      |
| 21-May-17                 | NO PUMP |      | 0          | 0          | -                | -                      | -                      |
| 22-May-17                 | NO PUMP |      | 0          | 0          | -                | -                      | -                      |
| 23-May-17                 | 6AM     | 7PM  | 46800      | 780        | 1,638,000        | 35                     | 2,100                  |
| 24-May-17                 | 6AM     | 6PM  | 43200      | 720        | 1,512,000        | 35                     | 2,100                  |
| 25-May-17                 | 6AM     | 6PM  | 43200      | 720        | 1,512,000        | 35                     | 2,100                  |
| 26-May-17                 | 6AM     | 4PM  | 36000      | 600        | 1,260,000        | 35                     | 2,100                  |
| 27-May-17                 | NO PUMP |      | 0          | 0          | -                | -                      | -                      |
| 28-May-17                 | NO PUMP |      | 0          | 0          | -                | -                      | -                      |
| 29-May-17                 | NO PUMP |      | 0          | 0          | -                | -                      | -                      |
| 30-May-17                 | NO PUMP |      | 0          | 0          | -                | -                      | -                      |
| 31-May-17                 | NO PUMP |      | 0          | 0          | -                | -                      | -                      |
| 1-Jun-17                  | NO PUMP |      | 0          | 0          | -                | -                      | -                      |
| 2-Jun-17                  | 7AM     | 5PM  | 36000      | 600        | 1,260,000        | 35                     | 2,100                  |
| 3-Jun-17                  | NO PUMP |      | 0          | 0          | -                | -                      | -                      |
| 4-Jun-17                  | NO PUMP |      | 0          | 0          | -                | -                      | -                      |
| 5-Jun-17                  | 7AM     | 6PM  | 39600      | 660        | 1,386,000        | 35                     | 2,100                  |
| 6-Jun-17                  | 7AM     | 6PM  | 39600      | 660        | 1,386,000        | 35                     | 2,100                  |
| 7-Jun-17                  | 6AM     | 6PM  | 43200      | 720        | 1,512,000        | 35                     | 2,100                  |
| 8-Jun-17                  | 6AM     | 6PM  | 43200      | 720        | 1,512,000        | 35                     | 2,100                  |
| 9-Jun-17                  | 6AM     | 4PM  | 36000      | 600        | 1,260,000        | 35                     | 2,100                  |
| 10-Jun-17                 | NO PUMP |      | 0          | 0          | -                | -                      | -                      |
| 11-Jun-17                 | NO PUMP |      | 0          | 0          | -                | -                      | -                      |
| 12-Jun-17                 | NO PUMP |      | 0          | 0          | -                | -                      | -                      |
| 13-Jun-17                 | NO PUMP |      | 0          | 0          | -                | -                      | -                      |
| 14-Jun-17                 | NO PUMP |      | 0          | 0          | -                | -                      | -                      |
| 15-Jun-17                 | NO PUMP |      | 0          | 0          | -                | -                      | -                      |
| 16-Jun-17                 | NO PUMP |      | 0          | 0          | -                | -                      | -                      |
| 17-Jun-17                 | NO PUMP |      | 0          | 0          | -                | -                      | -                      |



Table 7: Measured Water Volume and Rate of Discharge from Quarry Sump

| Date                      | Start   | Stop | Total Sec. | Total Min. | Total Litres     | Rate of Taking (L/sec) | Rate of Taking (L/min) |
|---------------------------|---------|------|------------|------------|------------------|------------------------|------------------------|
| <b>ECA Permitted Rate</b> |         |      |            |            | <b>6,550,000</b> | <b>76</b>              | <b>4,545</b>           |
| 18-Jun-17                 | NO PUMP |      | 0          | 0          | -                | -                      | -                      |
| 19-Jun-17                 | 6AM     | 6PM  | 43200      | 720        | 1,512,000        | 35                     | 2,100                  |
| 20-Jun-17                 | 7AM     | 5PM  | 39600      | 660        | 1,386,000        | 35                     | 2,100                  |
| 21-Jun-17                 | 6AM     | 9AM  | 10800      | 180        | 378,000          | 35                     | 2,100                  |
| 22-Jun-17                 | 6AM     | 7PM  | 46800      | 780        | 1,638,000        | 35                     | 2,100                  |
| 23-Jun-17                 | 6AM     | 5PM  | 39600      | 660        | 1,386,000        | 35                     | 2,100                  |
| 24-Jun-17                 | NO PUMP |      | 0          | 0          | -                | -                      | -                      |
| 25-Jun-17                 | NO PUMP |      | 0          | 0          | -                | -                      | -                      |
| 26-Jun-17                 | 6AM     | 6PM  | 43200      | 720        | 1,512,000        | 35                     | 2,100                  |
| 27-Jun-17                 | 6AM     | 6PM  | 43200      | 720        | 1,512,000        | 35                     | 2,100                  |
| 28-Jun-17                 | 6AM     | 6PM  | 43200      | 720        | 1,512,000        | 35                     | 2,100                  |
| 29-Jun-17                 | 6AM     | 6PM  | 43200      | 720        | 1,512,000        | 35                     | 2,100                  |
| 30-Jun-17                 | 6AM     | 4PM  | 36000      | 600        | 1,260,000        | 35                     | 2,100                  |
| 1-Jul-17                  | NO PUMP |      | 0          | 0          | -                | -                      | -                      |
| 2-Jul-17                  | NO PUMP |      | 0          | 0          | -                | -                      | -                      |
| 3-Jul-17                  | NO PUMP |      | 0          | 0          | -                | -                      | -                      |
| 4-Jul-17                  | 7AM     | 5PM  | 36000      | 600        | 1,260,000        | 35                     | 2,100                  |
| 5-Jul-17                  | NO PUMP |      | 0          | 0          | -                | -                      | -                      |
| 6-Jul-17                  | NO PUMP |      | 0          | 0          | -                | -                      | -                      |
| 7-Jul-17                  | NO PUMP |      | 0          | 0          | -                | -                      | -                      |
| 8-Jul-17                  | NO PUMP |      | 0          | 0          | -                | -                      | -                      |
| 9-Jul-17                  | NO PUMP |      | 0          | 0          | -                | -                      | -                      |
| 10-Jul-17                 | 7AM     | 5PM  | 36000      | 600        | 1,260,000        | 35                     | 2,100                  |
| 11-Jul-17                 | 7AM     | 5PM  | 36000      | 600        | 1,260,000        | 35                     | 2,100                  |
| 12-Jul-17                 | NO PUMP |      | 0          | 0          | -                | -                      | -                      |
| 13-Jul-17                 | 6AM     | 7PM  | 46800      | 780        | 1,638,000        | 35                     | 2,100                  |
| 14-Jul-17                 | 6AM     | 7PM  | 46800      | 780        | 1,638,000        | 35                     | 2,100                  |
| 15-Jul-17                 | NO PUMP |      | 0          | 0          | -                | -                      | -                      |
| 16-Jul-17                 | NO PUMP |      | 0          | 0          | -                | -                      | -                      |
| 17-Jul-17                 | NO PUMP |      | 0          | 0          | -                | -                      | -                      |
| 18-Jul-17                 | NO PUMP |      | 0          | 0          | -                | -                      | -                      |
| 19-Jul-17                 | NO PUMP |      | 0          | 0          | -                | -                      | -                      |
| 20-Jul-17                 | NO PUMP |      | 0          | 0          | -                | -                      | -                      |
| 21-Jul-17                 | NO PUMP |      | 0          | 0          | -                | -                      | -                      |
| 22-Jul-17                 | NO PUMP |      | 0          | 0          | -                | -                      | -                      |
| 23-Jul-17                 | NO PUMP |      | 0          | 0          | -                | -                      | -                      |
| 24-Jul-17                 | NO PUMP |      | 0          | 0          | -                | -                      | -                      |
| 25-Jul-17                 | 6AM     | 6PM  | 43200      | 720        | 1,512,000        | 35                     | 2,100                  |

Table 7: Measured Water Volume and Rate of Discharge from Quarry Sump

| Date                      | Start   | Stop   | Total Sec. | Total Min. | Total Litres     | Rate of Taking (L/sec) | Rate of Taking (L/min) |
|---------------------------|---------|--------|------------|------------|------------------|------------------------|------------------------|
| <b>ECA Permitted Rate</b> |         |        |            |            | <b>6,550,000</b> | <b>76</b>              | <b>4,545</b>           |
| 26-Jul-17                 | NO PUMP |        | 0          | 0          | -                | -                      | -                      |
| 27-Jul-17                 | 7AM     | 5PM    | 36000      | 600        | 1,260,000        | 35                     | 2,100                  |
| 28-Jul-17                 | NO PUMP |        | 0          | 0          | -                | -                      | -                      |
| 29-Jul-17                 | NO PUMP |        | 0          | 0          | -                | -                      | -                      |
| 30-Jul-17                 | NO PUMP |        | 0          | 0          | -                | -                      | -                      |
| 31-Jul-17                 | NO PUMP |        | 0          | 0          | -                | -                      | -                      |
| 1-Aug-17                  | NO PUMP |        | 0          | 0          | -                | -                      | -                      |
| 2-Aug-17                  | NO PUMP |        | 0          | 0          | -                | -                      | -                      |
| 3-Aug-17                  | NO PUMP |        | 0          | 0          | -                | -                      | -                      |
| 4-Aug-17                  | NO PUMP |        | 0          | 0          | -                | -                      | -                      |
| 5-Aug-17                  | NO PUMP |        | 0          | 0          | -                | -                      | -                      |
| 6-Aug-17                  | NO PUMP |        | 0          | 0          | -                | -                      | -                      |
| 7-Aug-17                  | NO PUMP |        | 0          | 0          | -                | -                      | -                      |
| 8-Aug-17                  | 6AM     | 5PM    | 39600      | 660        | 1,386,000        | 35                     | 2,100                  |
| 9-Aug-17                  | NO PUMP |        | 0          | 0          | -                | -                      | -                      |
| 10-Aug-17                 | NO PUMP |        | 0          | 0          | -                | -                      | -                      |
| 11-Aug-17                 | NO PUMP |        | 0          | 0          | -                | -                      | -                      |
| 12-Aug-17                 | 6AM     | 7PM    | 46800      | 780        | 1,638,000        | 35                     | 2,100                  |
| 13-Aug-17                 | 6AM     | 4PM    | 36000      | 600        | -                | -                      | -                      |
| 14-Aug-17                 | NO PUMP |        | 0          | 0          | -                | -                      | -                      |
| 15-Aug-17                 | NO PUMP |        | 0          | 0          | -                | -                      | -                      |
| 16-Aug-17                 | 7AM     | 5PM    | 36000      | 600        | 1,260,000        | 35                     | 2,100                  |
| 17-Aug-17                 | 6AM     | 4PM    | 36000      | 600        | 1,260,000        | 35                     | 2,100                  |
| 18-Aug-17                 | NO PUMP |        | 0          | 0          | -                | -                      | -                      |
| 19-Aug-17                 | NO PUMP |        | 0          | 0          | -                | -                      | -                      |
| 20-Aug-17                 | NO PUMP |        | 0          | 0          | -                | -                      | -                      |
| 21-Aug-17                 | NO PUMP |        | 0          | 0          | -                | -                      | -                      |
| 22-Aug-17                 | NO PUMP |        | 0          | 0          | -                | -                      | -                      |
| 23-Aug-17                 | NO PUMP |        | 0          | 0          | -                | -                      | -                      |
| 24-Aug-17                 | NO PUMP |        | 0          | 0          | -                | -                      | -                      |
| 25-Aug-17                 | NO PUMP |        | 0          | 0          | -                | -                      | -                      |
| 26-Aug-17                 | NO PUMP |        | 0          | 0          | -                | -                      | -                      |
| 27-Aug-17                 | NO PUMP |        | 0          | 0          | -                | -                      | -                      |
| 28-Aug-17                 | NO PUMP |        | 0          | 0          | -                | -                      | -                      |
| 29-Aug-17                 | NO PUMP |        | 0          | 0          | -                | -                      | -                      |
| 30-Aug-17                 | 7AM     | 5:30PM | 37800      | 630        | 1,323,000        | 35                     | 2,100                  |
| 31-Aug-17                 | NO PUMP |        | 0          | 0          | -                | -                      | -                      |
| 1-Sep-17                  | NO PUMP |        | 0          | 0          | -                | -                      | -                      |
| 2-Sep-17                  | NO PUMP |        | 0          | 0          | -                | -                      | -                      |
| 3-Sep-17                  | NO PUMP |        | 0          | 0          | -                | -                      | -                      |

Table 7: Measured Water Volume and Rate of Discharge from Quarry Sump

| Date                      | Start   | Stop   | Total Sec. | Total Min. | Total Litres     | Rate of Taking (L/sec) | Rate of Taking (L/min) |
|---------------------------|---------|--------|------------|------------|------------------|------------------------|------------------------|
| <b>ECA Permitted Rate</b> |         |        |            |            | <b>6,550,000</b> | <b>76</b>              | <b>4,545</b>           |
| 4-Sep-17                  | NO PUMP |        | 0          | 0          | -                | -                      | -                      |
| 5-Sep-17                  | NO PUMP |        | 0          | 0          | -                | -                      | -                      |
| 6-Sep-17                  | NO PUMP |        | 0          | 0          | -                | -                      | -                      |
| 7-Sep-17                  | NO PUMP |        | 0          | 0          | -                | -                      | -                      |
| 8-Sep-17                  | NO PUMP |        | 0          | 0          | -                | -                      | -                      |
| 9-Sep-17                  | NO PUMP |        | 0          | 0          | -                | -                      | -                      |
| 10-Sep-17                 | NO PUMP |        | 0          | 0          | -                | -                      | -                      |
| 11-Sep-17                 | NO PUMP |        | 0          | 0          | -                | -                      | -                      |
| 12-Sep-17                 | NO PUMP |        | 0          | 0          | -                | -                      | -                      |
| 13-Sep-17                 | NO PUMP |        | 0          | 0          | -                | -                      | -                      |
| 14-Sep-17                 | 7AM     | 4PM    | 32400      | 540        | 1,134,000        | 35                     | 2,100                  |
| 15-Sep-17                 | NO PUMP |        | 0          | 0          | -                | -                      | -                      |
| 16-Sep-17                 | NO PUMP |        | 0          | 0          | -                | -                      | -                      |
| 17-Sep-17                 | NO PUMP |        | 0          | 0          | -                | -                      | -                      |
| 18-Sep-17                 | NO PUMP |        | 0          | 0          | -                | -                      | -                      |
| 19-Sep-17                 | NO PUMP |        | 0          | 0          | -                | -                      | -                      |
| 20-Sep-17                 | NO PUMP |        | 0          | 0          | -                | -                      | -                      |
| 21-Sep-17                 | NO PUMP |        | 0          | 0          | -                | -                      | -                      |
| 22-Sep-17                 | NO PUMP |        | 0          | 0          | -                | -                      | -                      |
| 23-Sep-17                 | NO PUMP |        | 0          | 0          | -                | -                      | -                      |
| 24-Sep-17                 | NO PUMP |        | 0          | 0          | -                | -                      | -                      |
| 25-Sep-17                 | NO PUMP |        | 0          | 0          | -                | -                      | -                      |
| 26-Sep-17                 | 7:30AM  | 5:30PM | 36000      | 600        | 1,260,000        | 35                     | 2,100                  |
| 27-Sep-17                 | NO PUMP |        | 0          | 0          | -                | -                      | -                      |
| 28-Sep-17                 | NO PUMP |        | 0          | 0          | -                | -                      | -                      |
| 29-Sep-17                 | NO PUMP |        | 0          | 0          | -                | -                      | -                      |
| 30-Sep-17                 | NO PUMP |        | 0          | 0          | -                | -                      | -                      |
| 1-Oct-17                  | NO PUMP |        | 0          | 0          | -                | -                      | -                      |
| 2-Oct-17                  | NO PUMP |        | 0          | 0          | -                | -                      | -                      |
| 3-Oct-17                  | NO PUMP |        | 0          | 0          | -                | -                      | -                      |
| 4-Oct-17                  | NO PUMP |        | 0          | 0          | -                | -                      | -                      |
| 5-Oct-17                  | NO PUMP |        | 0          | 0          | -                | -                      | -                      |
| 6-Oct-17                  | NO PUMP |        | 0          | 0          | -                | -                      | -                      |
| 7-Oct-17                  | NO PUMP |        | 0          | 0          | -                | -                      | -                      |
| 8-Oct-17                  | NO PUMP |        | 0          | 0          | -                | -                      | -                      |
| 9-Oct-17                  | NO PUMP |        | 0          | 0          | -                | -                      | -                      |
| 10-Oct-17                 | NO PUMP |        | 0          | 0          | -                | -                      | -                      |
| 11-Oct-17                 | NO PUMP |        | 0          | 0          | -                | -                      | -                      |
| 12-Oct-17                 | NO PUMP |        | 0          | 0          | -                | -                      | -                      |
| 13-Oct-17                 | NO PUMP |        | 0          | 0          | -                | -                      | -                      |

Table 7: Measured Water Volume and Rate of Discharge from Quarry Sump

| Date                      | Start   | Stop | Total Sec. | Total Min. | Total Litres     | Rate of Taking (L/sec) | Rate of Taking (L/min) |
|---------------------------|---------|------|------------|------------|------------------|------------------------|------------------------|
| <b>ECA Permitted Rate</b> |         |      |            |            | <b>6,550,000</b> | <b>76</b>              | <b>4,545</b>           |
| 14-Oct-17                 | NO PUMP |      | 0          | 0          | -                | -                      | -                      |
| 15-Oct-17                 | NO PUMP |      | 0          | 0          | -                | -                      | -                      |
| 16-Oct-17                 | 6AM     | 6PM  | 43200      | 720        | 1,512,000        | 35                     | 2,100                  |
| 17-Oct-17                 | 6AM     | 6PM  | 43200      | 720        | 1,512,000        | 35                     | 2,100                  |
| 18-Oct-17                 | 7AM     | 5PM  | 36000      | 600        | 1,260,000        | 35                     | 2,100                  |
| 19-Oct-17                 | 7AM     | 5PM  | 36000      | 600        | 1,260,000        | 35                     | 2,100                  |
| 20-Oct-17                 | 6AM     | 4PM  | 36000      | 600        | 1,260,000        | 35                     | 2,100                  |
| 21-Oct-17                 | NO PUMP |      | 0          | 0          | -                | -                      | -                      |
| 22-Oct-17                 | NO PUMP |      | 0          | 0          | -                | -                      | -                      |
| 23-Oct-17                 | 7AM     | 5PM  | 36000      | 600        | 1,260,000        | 35                     | 2,100                  |
| 24-Oct-17                 | NO PUMP |      | 0          | 0          | -                | -                      | -                      |
| 25-Oct-17                 | 7AM     | 5PM  | 36000      | 600        | 1,260,000        | 35                     | 2,100                  |
| 26-Oct-17                 | 7AM     | 5PM  | 36000      | 600        | 1,260,000        | 35                     | 2,100                  |
| 27-Oct-17                 | 7AM     | 5PM  | 36000      | 600        | 1,260,000        | 35                     | 2,100                  |
| 28-Oct-17                 | NO PUMP |      | 0          | 0          | -                | -                      | -                      |
| 29-Oct-17                 | NO PUMP |      | 0          | 0          | -                | -                      | -                      |
| 30-Oct-17                 | 7AM     | 5PM  | 36000      | 600        | 1,260,000        | 35                     | 2,100                  |
| 31-Oct-17                 | NO PUMP |      | 0          | 0          | -                | -                      | -                      |



# APPENDIX A

Environmental Compliance Approval No. 4731-987KM8





- AKossi  
- Ga.

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:

| <b>Table 2 - Effluent Monitoring - (End of Pipe Discharge Point)</b> |                  |                    |
|----------------------------------------------------------------------|------------------|--------------------|
| <b>Effluent Parameter</b>                                            | <b>Frequency</b> | <b>Sample Type</b> |
| 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 <sub>3</sub> ), Alkalinity(as CaCO <sub>3</sub> ), Conductivity, pH, Fluoride, Chloride, Nitrate (N), Nitrite (N), Sulphate, Calcium, Magnesium, Sodium, Potassium, Ammonia (N), Dissolved Organic Carbon, Iron, Total Kjeldahl Nitrogen, Phosphorus (Total), Cadmium, Chromium, Manganese, Anion (Sum), Cation (Sum) and Total Dissolved Solids |

- (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](http://www.ert.gov.on.ca)

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

DATED AT TORONTO this 15th day of October, 2013



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





# APPENDIX B

Permit To Take Water No. 7818-9QJNL4



**PERMIT TO TAKE WATER**  
Ground Water  
NUMBER 7818-9QJNL4

*Pursuant to Section 34 of the Ontario Water Resources Act, R.S.O. 1990 this Permit To Take Water is hereby issued to:*

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

*For the water  
taking from:* Quarry Sump, McCarthy Quarry

*Located at:* Lot 1, Concession 1, Geographic Township of Mara  
Ramara, County of Simcoe

*For the purposes of this Permit, and the terms and conditions specified below, the following definitions apply:*

**DEFINITIONS**

- (a) "Director" means any person appointed in writing as a Director pursuant to section 5 of the OWRA for the purposes of section 34, OWRA.
- (b) "Provincial Officer" means any person designated in writing by the Minister as a Provincial Officer pursuant to section 5 of the OWRA.
- (c) "Ministry" means Ontario Ministry of the Environment and Climate Change.
- (d) "District Office" means the Barrie District Office.
- (e) "Permit" means this Permit to Take Water No. 7818-9QJNL4 including its Schedules, if any, issued in accordance with Section 34 of the OWRA.
- (f) "Permit Holder" means QBJR Aggregates Inc..
- (g) "OWRA " means the *Ontario Water Resources Act*, R.S.O. 1990, c. O. 40, as amended.

*You are hereby notified that this Permit is issued subject to the terms and conditions outlined below:*

## **TERMS AND CONDITIONS**

### **1. Compliance with Permit**

- 1.1 Except where modified by this Permit, the water taking shall be in accordance with the application for this Permit To Take Water, dated October 7, 2014 and signed by Jenny Coco, and all Schedules included in this Permit.
- 1.2 The Permit Holder shall ensure that any person authorized by the Permit Holder to take water under this Permit is provided with a copy of this Permit and shall take all reasonable measures to ensure that any such person complies with the conditions of this Permit.
- 1.3 Any person authorized by the Permit Holder to take water under this Permit shall comply with the conditions of this Permit.
- 1.4 This Permit is not transferable to another person.
- 1.5 This Permit provides the Permit Holder with permission to take water in accordance with the conditions of this Permit, up to the date of the expiry of this Permit. This Permit does not constitute a legal right, vested or otherwise, to a water allocation, and the issuance of this Permit does not guarantee that, upon its expiry, it will be renewed.
- 1.6 The Permit Holder shall keep this Permit available at all times at or near the site of the taking, and shall produce this Permit immediately for inspection by a Provincial Officer upon his or her request.
- 1.7 The Permit Holder shall report any changes of address to the Director within thirty days of any such change. The Permit Holder shall report any change of ownership of the property for which this Permit is issued within thirty days of any such change. A change in ownership in the property shall cause this Permit to be cancelled.

### **2. General Conditions and Interpretation**

#### **2.1 Inspections**

The Permit Holder must forthwith, upon presentation of credentials, permit a Provincial Officer to carry out any and all inspections authorized by the OWRA, the *Environmental Protection Act*, R.S.O. 1990, the *Pesticides Act*, R.S.O. 1990, or the *Safe Drinking Water Act*, S. O. 2002.

#### **2.2 Other Approvals**

The issuance of, and compliance with this Permit, does not:

- (a) relieve the Permit Holder or any other person from any obligation to comply with any other applicable legal requirements, including the provisions of the *Ontario Water Resources Act*, and the *Environmental Protection Act*, and any regulations made thereunder; or

(b) limit in any way any authority of the Ministry, a Director, or a Provincial Officer, including the authority to require certain steps be taken or to require the Permit Holder to furnish any further information related to this Permit.

**2.3 Information**

The receipt of any information by the Ministry, the failure of the Ministry to take any action or require any person to take any action in relation to the information, or the failure of a Provincial Officer to prosecute any person in relation to the information, shall not be construed as:

(a) an approval, waiver or justification by the Ministry of any act or omission of any person that contravenes this Permit or other legal requirement; or

(b) acceptance by the Ministry of the information's completeness or accuracy.

**2.4 Rights of Action**

The issuance of, and compliance with this Permit shall not be construed as precluding or limiting any legal claims or rights of action that any person, including the Crown in right of Ontario or any agency thereof, has or may have against the Permit Holder, its officers, employees, agents, and contractors.

**2.5 Severability**

The requirements of this Permit are severable. If any requirements of this Permit, or the application of any requirements of this Permit to any circumstance, is held invalid or unenforceable, the application of such requirements to other circumstances and the remainder of this Permit shall not be affected thereby.

**2.6 Conflicts**

Where there is a conflict between a provision of any submitted document referred to in this Permit, including its Schedules, and the conditions of this Permit, the conditions in this Permit shall take precedence.

**3. Water Takings Authorized by This Permit**

**3.1 Expiry**

This Permit expires on **December 31, 2019**. No water shall be taken under authority of this Permit after the expiry date.

**3.2 Amounts of Taking Permitted**

The Permit Holder shall only take water from the source, during the periods and at the rates and amounts of taking specified in Table A. Water takings are authorized only for the purposes specified in Table A.

**Table A**

|   | Source Name / Description: | Source: Type:  | Taking Specific Purpose: | Taking Major Category: | Max. Taken per Minute (litres): | Max. Num. of Hrs Taken per Day: | Max. Taken per Day (litres): | Max. Num. of Days Taken per Year: | Zone/ Easting/ Northing: |
|---|----------------------------|----------------|--------------------------|------------------------|---------------------------------|---------------------------------|------------------------------|-----------------------------------|--------------------------|
| 1 | Quarry Sump                | Pond Connected | Pits and Quarries        | Dewatering             | 4,545                           | 24                              | 6,544,800                    | 150                               | 17<br>650950<br>4933500  |
|   |                            |                |                          |                        |                                 | Total Taking:                   | 6,544,800                    |                                   |                          |

3.3 There is an additional water taking limitation per year for Source 1 described as Quarry Sump within Table A. The maximum taking per year from the Quarry Sump is 196,500,000 litres.

#### 4. Monitoring

4.1 The Permit Holder shall not lower the water in the quarry below an elevation of 232.0 metres above sea level.

4.2 The Permit Holder shall establish and maintain a weather station within 1 km of the McCarthy Quarry property that collects and records, at a minimum, the following climatic data on a daily basis:

- a) Precipitation (rain and/or snow); and
- b) Temperature (maximum and minimum).

4.3 The Permit Holder shall conduct daily water level monitoring with the use of pressure transducers and data loggers at:

- a) The residential well known by the MOE Water Well Record Number 5727662 and identified as well DW3 on Figure 2 in Item 2 of Schedule A of this Permit, if granted permission by the property owner.
- b) The monitoring wells named OW4-1, OW4-2, OW5-1, OW6-1, OW6-2, OW9-1, OW9-2, and Bored Well (shown on Figure 2, in Item 2 of Schedule A of this Permit).
- c) The City of Kwartha Lakes monitoring well CKL-1, if granted permission by the property owner .

These pressure transducers and data loggers shall be inspected and downloaded at least every 6 months.

4.4 The Permit Holder shall conduct monthly water level monitoring with the use of a manual water level meter at:

- a) The residential well known by the MOE Water Well Record Number 5727662 and identified as well DW3 on Figure 2 in Item 2 of Schedule A of this Permit, if granted permission by the property owner.
- b) The residential wells named DW1, DW2, and DW4, if granted permission by the property owner (shown on Figure 2, in Item 2 of Schedule A of this Permit).

- c) The monitoring wells named AM1b, AMx, TW1-1, OW4-1, OW4-2, OW5-1, OW5-2, OW5-3, OW6-1, OW6-2, OW6-3, OW7-1, OW7-2, OW7-3, OW8-1, OW8-2, OW8-3, OW9-1, OW9-2, and Bored Well (shown on Figure 2 in Item 2 of Schedule A of this Permit).
- d) The City of Kwartha Lakes monitoring wells CKL-1 and CKL-2, if granted permission by the property owner .

The Permit Holder may suspend monthly water level monitoring under Condition 4.4 for the months of January and/or February if no water is taken from the quarry on those months.

- 4.5 The Permit Holder shall, if granted permission by the property owner, measure and record static water levels in the residential wells named DW5, DW6, DW7, and DW8, as shown on Figure 2 in Item 2 of Schedule A of this Permit, at least once in every two (2) month period during which water is taken from the quarry. The Permit Holder may suspend monthly water level monitoring under Condition 4.5 for the months of January and/or February if no water is taken from the quarry on those months.
- 4.6 The Permit Holder shall, if granted permission by the property owner, on a semi-annual basis collect raw water samples from the residential wells named DW1, DW2, and the well identified in condition 4.3(a). Each sample shall be tested, at a minimum, for the parameters listed in Table 1 below:

Table 1: Water Quality Parameters for Residential Wells

|                    |             |              |                      |
|--------------------|-------------|--------------|----------------------|
| pH                 | Sulphate    | DOC          | Copper               |
| Alkalinity (CaCO3) | Magnesium   | Colour       | Iron                 |
| Bicarbonate        | Calcium     | Turbidity    | Lead                 |
| Conductivity       | Sodium      | Aluminium    | Manganese            |
| Fluoride           | Potassium   | Arsenic      | Selenium             |
| Chloride           | Ammonia (N) | Barium       | Zinc                 |
| Nitrate            | Phosphate   | Boron        | Hardness (CaCO3)     |
| Nitrite            | Phosphorus  | Cadmium      | TDS (iron sum calc.) |
| Chromium           | Anion Sum   | Ion Ratio    | Langelier Index      |
| Tannins            | Cation Sum  | % Difference |                      |

The Permit Holder shall immediately report to the respective well owner, the Director, and District Office any sampling result that exceeds the Ontario Drinking Water Quality Standards as prescribed by O.Reg. 169/03, as amended.

- 4.7 The Permit Holder shall on a semi-annual basis conduct the groundwater quality monitoring from the on-site groundwater monitors listed in Table 2. Each sample shall be tested, at a minimum, for the parameters listed in Table 3.

Table 2: On-Site Groundwater Monitors for Water Quality Sampling

|            |        |         |        |
|------------|--------|---------|--------|
| AM1b       | OW4-I  | OW5-III | OW8-I  |
| AMx        | OW4-II | OW6-II  | OW8-II |
| TW1-1      | OW5-I  | OW7-I   | OW9-I  |
| Bored Well | OW5-II | OW7-II  | OW9-II |

Table 3: Water Quality Parameters for On-Site Groundwater Monitors

|             |           |            |              |
|-------------|-----------|------------|--------------|
| pH          | Magnesium | Sulphate   | Conductivity |
| Alkalinity  | Calcium   | Nitrate    | DOC          |
| Bicarbonate | Sodium    | Nitrite    | Colour       |
| Fluoride    | Potassium | Phosphate  | TDS          |
| Chloride    | Ammonia   | Phosphorus | Hardness     |

- 4.8 Monitoring well AMx is within the quarry extraction area and will be mined out as the quarry face advances to the south. The Permit Holder shall continue to monitor AMx as listed in Conditions 4.4 and 4.7 until such monitoring is either deemed unsafe or the monitoring is not possible due to damage to AMx. Once monitoring of AMx is not possible under Conditions 4.4 and/or 4.7, then a replacement monitoring well must be established along the western property boundary between the quarry face and OW4. This replacement well shall be monitored as per Conditions 4.4 and 4.7 instead of AMx.
- 4.9 The Permit Holder shall notify the Director, in writing, within 30 days if the groundwater level or groundwater quality monitoring of any well listed under conditions 4.3, 4.4, 4.5, 4.6, and 4.7 is not possible, including being denied access to a private well. In the event of damage or loss of any monitoring well, monitoring devices or related equipment, the Permit Holder shall be allowed 30 calendar days from the date of discovery of the occurrence to repair or replace equipment. If a well is too damaged to be repaired or monitored, or if the well is deemed unsafe to be monitored, then the Director will decide if a replacement well is required and will modify the appropriate monitoring conditions in a written letter to the Permit Holder.
- 4.10 The Permit Holder shall maintain a record of all water takings. This record shall include the dates and times of water takings, and the total measured or calculated amounts for water pumped per day for each day that water is taken under the authorization of this Permit.
- 4.11 The Permit Holder shall keep all required records up to date and available at or near the site of the taking and shall produce the records immediately for inspection by a Provincial Officer upon his or her request.
- 4.12 The Permit Holder shall provide to the Director an annual monitoring report no



later than March 1 each year during the life of this Permit. The annual monitoring report shall be prepared by an individual with P.Geo. or equivalent qualifications and shall include, at a minimum:

- a) The review and assessment of all monitoring data required by this Permit.
- b) An up-date of the quarry operations and predicted quarrying and dewatering for the next twelve (12) months.
- c) An assessment of the groundwater trends using the on-site on off-site monitoring data. This analysis should state the actual impact area of quarry dewatering and determine the potential for off-site impacts. If any impacts are predicted then a detailed mitigation plan shall be included within this report.
- d) Analysis that includes amount of water pumped, precipitation data, and an estimate of how much groundwater was pumped versus surface water.
- e) Figures that include site maps with current quarry depths, groundwater contour maps, impact area of quarry dewatering, groundwater elevation graphs, and geological cross-sections.
- f) Any groundwater interference complaints.
- g) Description of all communication with the public.
- h) Conclusions and recommendations, if any, to improve the monitoring and reporting at the site.

An electronic copy of the data collected must also accompany the report.

4.13 The Permit Holder shall make available on a publicly-accessible site on the internet the water quality and quantity data that it is required to monitor and record under this Permit and O.Reg. 387/04, as amended, and a copy of every report that is required to be prepared under this Permit. For greater clarity, the Permit Holder shall not publish any personal information as defined by the *Freedom of Information and Protection of Privacy Act*, R.S.O. 1990, c. F.31, as amended.

4.14 The Permit Holder shall maintain a Public Liaison Committee ("PLC") comprised of not more than seven (7) members that will meet at least once every four (4) months, unless the majority of the PLC decide that more or less frequent meetings are required. The PLC shall be comprised of: two (2) members appointed by the Permit Holder - one of whom shall act as Chairperson; one (1) member from each of the Township and the County, if they wish to have representatives; and three (3) members appointed by the public, if they wish to have representatives, who must be permanent residents within a 3 kilometre radius of the quarry property. The PLC shall serve in an advisory / community liaison role and shall have no powers to direct the Permit Holder or the Ministry.

4.15 Any request for an amendment or renewal of this Permit must be accompanied by a report prepared by an individual with P.Geo. or equivalent qualifications and shall include, at a minimum:

- a) The review and assessment of all monitoring data required by this Permit.
- b) An up-date of the quarry operations and predicted quarrying and dewatering for the duration of the requested permit.
- c) An assessment of the groundwater trends using the on-site on off-site monitoring

data. This analysis should state the actual impact area of quarry dewatering and determine the potential for off-site impacts. If any impacts are predicted then a detailed mitigation plan shall be included within this report.

- d) Analysis that includes amount of water pumped, precipitation data, and an estimate of how much groundwater was pumped versus surface water.
- e) Figures that include site maps with current quarry depths, groundwater contour maps, impact area of quarry dewatering, groundwater elevation graphs, and geological cross-sections.
- f) Any groundwater interference complaints.
- g) Description of all communication with the public.
- h) Conclusions and recommendations, if any, to improve the monitoring and reporting at the site.

An electronic copy of the data collected must also accompany the report. Any application for renewal of this Permit must be submitted to the Ministry at least ninety (90) days prior to the expiry of this Permit.

- 4.16 The Permit Holder shall, as directed by the Ministry, participate in a cumulative impact assessment for the Carden Plain Area with other quarry operators who have been issued a permit to take water in this area.

## **5. Impacts of the Water Taking**

### **5.1 Notification**

The Permit Holder shall immediately notify the local District Office of any complaint arising from the taking of water authorized under this Permit and shall report any action which has been taken or is proposed with regard to such complaint. The Permit Holder shall immediately notify the local District Office if the taking of water is observed to have any significant impact on the surrounding waters. After hours, calls shall be directed to the Ministry's Spills Action Centre at 1-800-268-6060.

### **5.2 For Groundwater Takings**

If the taking of water is observed to cause any negative impact to other water supplies obtained from any adequate sources that were in use prior to initial issuance of a Permit for this water taking, the Permit Holder shall take such action necessary to make available to those affected, a supply of water equivalent in quantity and quality to their normal takings, or shall compensate such persons for their reasonable costs of so doing, or shall reduce the rate and amount of taking to prevent or alleviate the observed negative impact. Pending permanent restoration of the affected supplies, the Permit Holder shall provide, to those affected, temporary water supplies adequate to meet their normal requirements, or shall compensate such persons for their reasonable costs of doing so.

If permanent interference is caused by the water taking, the Permit Holder shall restore the water supplies of those permanently affected.

- 5.2.1 Where the water supply provided by the well known by MOE Water Well Record Number 5727662 is restored in accordance with Condition 5.2, the Permit Holder shall

restore the supply in a manner satisfactory to the Director, taking into account the residential needs, requirements and preferences of the persons serviced by the well.

- 5.3 Upon the receipt of a groundwater interference complaint, the Permit Holder shall:
- a) Implement the McCarthy Quarry Complaint Resolution Process as described in Item 3 of Schedule A of this Permit.
  - b) In addition, appropriate notification and actions must be taken as described in conditions 5.1 and 5.2 of this Permit. The provisions of conditions 5.1 and 5.2 shall take precedence over the provisions of condition 5.3(a) if there is a conflict.

**6. Director May Amend Permit**

The Director may amend this Permit by letter requiring the Permit Holder to suspend or reduce the taking to an amount or threshold specified by the Director in the letter. The suspension or reduction in taking shall be effective immediately and may be revoked at any time upon notification by the Director. This condition does not affect your right to appeal the suspension or reduction in taking to the Environmental Review Tribunal under the *Ontario Water Resources Act*, Section 100 (4).

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

1. Condition 1 is included to ensure that the conditions in this Permit are complied with and can be enforced.
2. Condition 2 is included to clarify the legal interpretation of aspects of this Permit.
3. Conditions 3 through 6 are included to protect the quality of the natural environment so as to safeguard the ecosystem and human health and foster efficient use and conservation of waters. These conditions allow for the beneficial use of waters while ensuring the fair sharing, conservation and sustainable use of the waters of Ontario. The conditions also specify the water takings that are authorized by this Permit and the scope of this Permit.

*In accordance with Section 100 of the Ontario Water Resources Act, R.S.O. 1990, you may by written notice served upon me, the Environmental Review Tribunal and the Environmental Commissioner, **Environmental Bill of Rights**, R.S.O. 1993, Chapter 28, within 15 days after receipt of this Notice, require a hearing by the Tribunal. The Environmental Commissioner will place notice of your appeal on the Environmental Registry. Section 101 of the Ontario Water Resources Act, as amended provides that the Notice requiring a hearing shall state:*

1. The portions of the Permit or each term or condition in the Permit in respect of which the hearing is required, and;
2. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

*In addition to these legal requirements, the Notice should also include:*

3. The name of the appellant;
4. The address of the appellant;
5. The Permit to Take Water number;
6. The date of the Permit to Take Water;
7. The name of the Director;
8. The municipality within which the works are located;

*This notice must be served upon:*

*The Secretary  
Environmental Review Tribunal  
655 Bay Street, 15th Floor  
Toronto ON  
M5G 1E5  
Fax: (416) 314-4506  
Email:  
ERTTribunalsecretary@ontario.ca*

*AND*

*The Environmental Commissioner  
1075 Bay Street  
6th Floor, Suite 605  
Toronto, Ontario M5S 2W5*

*AND*

*The Director, Section 34,  
Ministry of the Environment and  
Climate Change  
8th Floor  
5775 Yonge St  
Toronto ON M2M 4J1  
Fax: (416) 325-6347*

**Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from the Tribunal:**

**by telephone at (416) 314-4600**

**by fax at (416) 314-4506**

**by e-mail at [www.ert.gov.on.ca](http://www.ert.gov.on.ca)**

*This instrument is subject to Section 38 of the **Environmental Bill of Rights** that allows residents of Ontario to seek leave to appeal the decision on this instrument. Residents of Ontario may seek to appeal for 15 days from the date this decision is placed on the Environmental Registry. By accessing the Environmental Registry, you can determine when the leave to appeal period ends.*

**This Permit cancels and replaces Permit Number 8271-8VQJGU, issued on 2012/07/11.**

**Dated at Toronto this 30th day of December, 2014.**



**Helen Zhang, P.Eng.**

**Director, Section 34**

**Ontario Water Resources Act , R.S.O. 1990**

### **Schedule A**

This Schedule "A" forms part of Permit To Take Water 7818-9QJNL4, dated December 30, 2014.

1. Permit To Take Water Application, signed by Jenny Coco, October 7, 2014.
2. Permit To Take Water Application - Renewal Application for McCarthy Quarry, Township of Ramara. Golder Associates Ltd. October 2014.
3. McCarthy Quarry Complaint Resolution Process, Golder Associates Ltd. November 2014.
4. Further Changes to PTTW No. 8271-8VQJGU. Golder Associates Ltd. November 11, 2014.



# APPENDIX C (ON CD)

## Water Quality Results

Your Project #: 1407634  
Site#: 1407634  
Site Location: MCCARTHY  
Your C.O.C. #: 583850-02-01

**Attention: Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2016/11/11**  
Report #: R4243704  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B6N9600**

**Received: 2016/11/04, 09:04**

Sample Matrix: Water  
# Samples Received: 1

| Analyses                          | Quantity | Date<br>Extracted | Date<br>Analyzed | Laboratory Method | Reference             |
|-----------------------------------|----------|-------------------|------------------|-------------------|-----------------------|
| Animal and Vegetable Oil & Grease | 1        | N/A               | 2016/11/10       | CAM SOP-00326     | EPA1664B m, SM5520B m |
| Total Oil and Grease              | 1        | 2016/11/09        | 2016/11/10       | CAM SOP-00326     | EPA1664B m, SM5520A m |
| pH                                | 1        | N/A               | 2016/11/08       | CAM SOP-00413     | SM 4500H+ B m         |
| Phenols (4AAP)                    | 1        | N/A               | 2016/11/10       | CAM SOP-00444     | OMOE E3179 m          |
| TPH (Heavy Oil) (1)               | 1        | 2016/11/09        | 2016/11/10       | CAM SOP-00326     | EPA1664B m, SM5520F m |
| Low Level Total Suspended Solids  | 1        | 2016/11/07        | 2016/11/09       | 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.

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

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

\* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) Note: TPH (Heavy Oil) is equivalent to Mineral / Synthetic Oil & Grease

Your Project #: 1407634  
Site#: 1407634  
Site Location: MCCARTHY  
Your C.O.C. #: 583850-02-01

**Attention:Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2016/11/11**  
Report #: R4243704  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B6N9600**  
**Received: 2016/11/04, 09:04**

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.



### RESULTS OF ANALYSES OF WATER

|                                                                                           |              |                     |            |                 |
|-------------------------------------------------------------------------------------------|--------------|---------------------|------------|-----------------|
| <b>Maxxam ID</b>                                                                          |              | DJS117              |            |                 |
| <b>Sampling Date</b>                                                                      |              | 2016/11/03<br>13:00 |            |                 |
| <b>COC Number</b>                                                                         |              | 583850-02-01        |            |                 |
|                                                                                           | <b>UNITS</b> | <b>577938 POND</b>  | <b>RDL</b> | <b>QC Batch</b> |
| <b>Calculated Parameters</b>                                                              |              |                     |            |                 |
| Total Animal/Vegetable Oil and Grease                                                     | mg/L         | 2.9                 | 0.50       | 4733608         |
| <b>Inorganics</b>                                                                         |              |                     |            |                 |
| pH                                                                                        | pH           | 8.12                |            | 4737341         |
| Phenols-4AAP                                                                              | mg/L         | ND                  | 0.0010     | 4736652         |
| Total Suspended Solids                                                                    | mg/L         | 3                   | 1          | 4736950         |
| <b>Petroleum Hydrocarbons</b>                                                             |              |                     |            |                 |
| Total Oil & Grease                                                                        | mg/L         | 2.9                 | 0.50       | 4740475         |
| Total Oil & Grease Mineral/Synthetic                                                      | mg/L         | ND                  | 0.50       | 4740484         |
| RDL = Reportable Detection Limit<br>QC Batch = Quality Control Batch<br>ND = Not detected |              |                     |            |                 |

### GENERAL COMMENTS

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

|           |        |
|-----------|--------|
| Package 1 | 13.0°C |
|-----------|--------|

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

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

## QUALITY ASSURANCE REPORT

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

| QC Batch | Parameter                            | Date       | Matrix Spike |           | SPIKED BLANK |           | Method Blank      |       | RPD       |           | QC Standard |           |
|----------|--------------------------------------|------------|--------------|-----------|--------------|-----------|-------------------|-------|-----------|-----------|-------------|-----------|
|          |                                      |            | % Recovery   | QC Limits | % Recovery   | QC Limits | Value             | UNITS | Value (%) | QC Limits | % Recovery  | QC Limits |
| 4736652  | Phenols-4AAP                         | 2016/11/10 | 90           | 80 - 120  | 97           | 85 - 115  | ND,<br>RDL=0.0010 | mg/L  | NC        | 20        |             |           |
| 4736950  | Total Suspended Solids               | 2016/11/09 |              |           |              |           | ND,RDL=1          | mg/L  | NC        | 25        | 96          | 85 - 115  |
| 4737341  | pH                                   | 2016/11/08 |              |           | 102          | 98 - 103  |                   |       | 0.19      | N/A       |             |           |
| 4740475  | Total Oil & Grease                   | 2016/11/10 |              |           | 96           | 85 - 115  | ND, RDL=0.50      | mg/L  | 2.6       | 25        |             |           |
| 4740484  | Total Oil & Grease Mineral/Synthetic | 2016/11/10 |              |           | 93           | 85 - 115  | ND, RDL=0.50      | mg/L  | 3.2       | 25        |             |           |

N/A = Not Applicable

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

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

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

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

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

NC (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 (one or both samples < 5x RDL).

### 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.

noice

Your Project #: 1407634  
Site#: 1407634  
Site Location: MCCARTHY  
Your C.O.C. #: 583850-01-01

**Attention: Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2016/11/16**  
Report #: R4249010  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B605863**

**Received: 2016/11/11, 09:53**

Sample Matrix: Water  
# Samples Received: 1

| Analyses                          | Date     |            | Date Analyzed | Laboratory Method | Reference             |
|-----------------------------------|----------|------------|---------------|-------------------|-----------------------|
|                                   | Quantity | Extracted  |               |                   |                       |
| Animal and Vegetable Oil & Grease | 1        | N/A        | 2016/11/15    | CAM SOP-00326     | EPA1664B m, SM5520B m |
| Total Oil and Grease              | 1        | 2016/11/15 | 2016/11/15    | CAM SOP-00326     | EPA1664B m, SM5520A m |
| pH                                | 1        | N/A        | 2016/11/15    | CAM SOP-00413     | SM 4500H+ B m         |
| Phenols (4AAP)                    | 1        | N/A        | 2016/11/16    | CAM SOP-00444     | OMOE E3179 m          |
| TPH (Heavy Oil) (1)               | 1        | 2016/11/15 | 2016/11/15    | CAM SOP-00326     | EPA1664B m, SM5520F m |
| Low Level Total Suspended Solids  | 1        | 2016/11/14 | 2016/11/14    | CAM SOP-00428     | SM 22 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 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.

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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.

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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. #: 583850-01-01

**Attention:Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2016/11/16**  
Report #: R4249010  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B605863**  
**Received: 2016/11/11, 09:53**

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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### RESULTS OF ANALYSES OF WATER

|                                                                                                                                       |              |                     |            |                                    |                 |
|---------------------------------------------------------------------------------------------------------------------------------------|--------------|---------------------|------------|------------------------------------|-----------------|
| <b>Maxxam ID</b>                                                                                                                      |              | DKY643              |            | DKY643                             |                 |
| <b>Sampling Date</b>                                                                                                                  |              | 2016/11/10<br>13:30 |            | 2016/11/10<br>13:30                |                 |
| <b>COC Number</b>                                                                                                                     |              | 583850-01-01        |            | 583850-01-01                       |                 |
|                                                                                                                                       | <b>UNITS</b> | <b>577938 POND</b>  | <b>RDL</b> | <b>577938<br/>POND<br/>Lab-Dup</b> | <b>QC Batch</b> |
| <b>Calculated Parameters</b>                                                                                                          |              |                     |            |                                    |                 |
| Total Animal/Vegetable Oil and Grease                                                                                                 | mg/L         | ND                  | 0.50       |                                    | 4744338         |
| <b>Inorganics</b>                                                                                                                     |              |                     |            |                                    |                 |
| pH                                                                                                                                    | pH           | 8.21                |            | 8.22                               | 4748314         |
| Phenols-4AAP                                                                                                                          | mg/L         | ND                  | 0.0010     |                                    | 4748146         |
| Total Suspended Solids                                                                                                                | mg/L         | 4                   | 1          |                                    | 4746799         |
| <b>Petroleum Hydrocarbons</b>                                                                                                         |              |                     |            |                                    |                 |
| Total Oil & Grease                                                                                                                    | mg/L         | ND                  | 0.50       |                                    | 4748757         |
| Total Oil & Grease Mineral/Synthetic                                                                                                  | mg/L         | ND                  | 0.50       |                                    | 4748766         |
| RDL = Reportable Detection Limit<br>QC Batch = Quality Control Batch<br>Lab-Dup = Laboratory Initiated Duplicate<br>ND = Not detected |              |                     |            |                                    |                 |



Maxxam Job #: B605863  
Report Date: 2016/11/16

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

### GENERAL COMMENTS

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

|           |        |
|-----------|--------|
| Package 1 | 15.7°C |
|-----------|--------|

Samples received at a temperature above 10 C. Analysis performed with client's consent.

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

## QUALITY ASSURANCE REPORT

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

| QC Batch | Parameter                            | Date       | Matrix Spike |           | SPIKED BLANK |           | Method Blank      |       | RPD       |           | QC Standard |           |
|----------|--------------------------------------|------------|--------------|-----------|--------------|-----------|-------------------|-------|-----------|-----------|-------------|-----------|
|          |                                      |            | % Recovery   | QC Limits | % Recovery   | QC Limits | Value             | UNITS | Value (%) | QC Limits | % Recovery  | QC Limits |
| 4746799  | Total Suspended Solids               | 2016/11/14 |              |           |              |           | ND,RDL=1          | mg/L  | NC        | 25        | 97          | 85 - 115  |
| 4748146  | Phenols-4AAP                         | 2016/11/16 | 97           | 80 - 120  | 101          | 85 - 115  | ND,<br>RDL=0.0010 | mg/L  | NC        | 20        |             |           |
| 4748314  | pH                                   | 2016/11/15 |              |           | 102          | 98 - 103  |                   |       | 0.11      | N/A       |             |           |
| 4748757  | Total Oil & Grease                   | 2016/11/15 |              |           | 95           | 85 - 115  | ND, RDL=0.50      | mg/L  | 2.1       | 25        |             |           |
| 4748766  | Total Oil & Grease Mineral/Synthetic | 2016/11/15 |              |           | 94           | 85 - 115  | ND, RDL=0.50      | mg/L  | 1.6       | 25        |             |           |

N/A = Not Applicable

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

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

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

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

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

NC (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 (one or both samples < 5x RDL).

### 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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## CHAIN OF CUSTODY RECORD

Page 1 of 1

|                                                                                                                                                                                                                                                                                                                                                            |  |                                  |                                                                                                                                     |              |         |                        |                                |        |                                                                                                                                                                                                                                                             |                                                      |       |  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|--------------|---------|------------------------|--------------------------------|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------|-------|--|
| 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 #:                                                                                                                                                                                                                                               |                                                      |       |  |
| Attention: Teresa Cronk                                                                                                                                                                                                                                                                                                                                    |  |                                  | Attention: Dawn Hoyle/Jamie Bonany                                                                                                  |              |         | P.O. #:                |                                |        | Bottle Order #:                                                                                                                                                                                                                                             |                                                      |       |  |
| Address: 949 Wilson Ave                                                                                                                                                                                                                                                                                                                                    |  |                                  | Address: 121 Commerce Park Drive Unit L                                                                                             |              |         | Project: 1407634       |                                |        | Barcode: 583850                                                                                                                                                                                                                                             |                                                      |       |  |
| Toronto ON M3K 1G2                                                                                                                                                                                                                                                                                                                                         |  |                                  | Barrie ON L4N 8X1                                                                                                                   |              |         | Project Name:          |                                |        | COC #:                                                                                                                                                                                                                                                      |                                                      |       |  |
| (416) 633-9670                                                                                                                                                                                                                                                                                                                                             |  |                                  | (705) 722-4492                                                                                                                      |              |         | Site #:                |                                |        | Project Manager:                                                                                                                                                                                                                                            |                                                      |       |  |
| Tel: T.Cronk@cocogroup.com                                                                                                                                                                                                                                                                                                                                 |  |                                  | Tel: Dawn_Hoyle@golder.com, Jamie_Bonany@golder.com                                                                                 |              |         | Sampled By: DARCULAWAY |                                |        | Barcode: C6583850-01-01                                                                                                                                                                                                                                     |                                                      |       |  |
| Fax:                                                                                                                                                                                                                                                                                                                                                       |  |                                  | Fax:                                                                                                                                |              |         | MCCARTHY               |                                |        | Antonnella Brasil                                                                                                                                                                                                                                           |                                                      |       |  |
| 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   |                                |        | Analysis Requested (Please be specific)                                                                                                                                                                                                                     |                                                      |       |  |
| <input type="checkbox"/> Table 1 <input type="checkbox"/> Res/Park <input type="checkbox"/> Medium/Fine <input type="checkbox"/> CCME <input type="checkbox"/> Sanitary Sewer Bylaw <input type="checkbox"/> Reg 558 <input type="checkbox"/> Storm Sewer Bylaw <input type="checkbox"/> MISA <input type="checkbox"/> PWQO <input type="checkbox"/> Other |  |                                  | <input type="checkbox"/> Table 2 <input type="checkbox"/> Ind/Comm <input type="checkbox"/> Coarse <input type="checkbox"/> For RSC |              |         |                        |                                |        | Turnaround Time (TAT) Required: Please provide advance notice for rush projects                                                                                                                                                                             |                                                      |       |  |
| <input type="checkbox"/> Table 3 <input type="checkbox"/> Agri/Other                                                                                                                                                                                                                                                                                       |  |                                  |                                                                                                                                     |              |         |                        |                                |        | 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. |                                                      |       |  |
| <input type="checkbox"/> Table                                                                                                                                                                                                                                                                                                                             |  |                                  |                                                                                                                                     |              |         |                        |                                |        | Job Specific Rush TAT (if applies to entire submission) Date Required: Time Required: Rush Confirmation Number: (call lab for #)                                                                                                                            |                                                      |       |  |
| Include Criteria on Certificate of Analysis (Y/N)?                                                                                                                                                                                                                                                                                                         |  |                                  |                                                                                                                                     |              |         |                        |                                |        |                                                                                                                                                                                                                                                             |                                                      |       |  |
| Sample Barcode Label                                                                                                                                                                                                                                                                                                                                       |  | Sample (Location) Identification |                                                                                                                                     | Date Sampled |         | Time Sampled           |                                | Matrix |                                                                                                                                                                                                                                                             | Field Filtered (please circle): Metals / Hg / Cr / V |       |  |
| 1 577938                                                                                                                                                                                                                                                                                                                                                   |  | POND                             |                                                                                                                                     | 1300 10th    |         | 1:30 PM                |                                | S/W    |                                                                                                                                                                                                                                                             | ✓                                                    |       |  |
| 2                                                                                                                                                                                                                                                                                                                                                          |  | POND                             |                                                                                                                                     |              |         |                        |                                |        |                                                                                                                                                                                                                                                             | ✓                                                    |       |  |
| 3                                                                                                                                                                                                                                                                                                                                                          |  | POND                             |                                                                                                                                     |              |         |                        |                                |        |                                                                                                                                                                                                                                                             | ✓                                                    |       |  |
| 4                                                                                                                                                                                                                                                                                                                                                          |  | POND                             |                                                                                                                                     |              |         |                        |                                |        |                                                                                                                                                                                                                                                             | ✓                                                    |       |  |
| 5                                                                                                                                                                                                                                                                                                                                                          |  | POND                             |                                                                                                                                     |              |         |                        |                                |        |                                                                                                                                                                                                                                                             | ✓                                                    |       |  |
| 6                                                                                                                                                                                                                                                                                                                                                          |  | POND                             |                                                                                                                                     |              |         |                        |                                |        |                                                                                                                                                                                                                                                             | ✓                                                    |       |  |
| 7                                                                                                                                                                                                                                                                                                                                                          |  |                                  |                                                                                                                                     |              |         |                        |                                |        |                                                                                                                                                                                                                                                             |                                                      |       |  |
| 8                                                                                                                                                                                                                                                                                                                                                          |  |                                  |                                                                                                                                     |              |         |                        |                                |        |                                                                                                                                                                                                                                                             |                                                      |       |  |
| 9                                                                                                                                                                                                                                                                                                                                                          |  |                                  |                                                                                                                                     |              |         |                        |                                |        |                                                                                                                                                                                                                                                             |                                                      |       |  |
| 10                                                                                                                                                                                                                                                                                                                                                         |  |                                  |                                                                                                                                     |              |         |                        |                                |        |                                                                                                                                                                                                                                                             |                                                      |       |  |
| 11-Nov-16 09:53<br>Antonnella Brasil<br>Barcode: B605863<br>PS4 ENV-1292                                                                                                                                                                                                                                                                                   |  |                                  |                                                                                                                                     |              |         |                        |                                |        |                                                                                                                                                                                                                                                             |                                                      |       |  |
| * RELINQUISHED BY: (Signature/Print)                                                                                                                                                                                                                                                                                                                       |  |                                  | Date: (YY/MM/DD)                                                                                                                    |              | Time    |                        | RECEIVED BY: (Signature/Print) |        | Date: (YY/MM/DD)                                                                                                                                                                                                                                            |                                                      | Time  |  |
| Jodi Pascoe                                                                                                                                                                                                                                                                                                                                                |  |                                  | 16/11/10                                                                                                                            |              | 1:30 PM |                        | Dawn                           |        | 2016/11/10                                                                                                                                                                                                                                                  |                                                      | 09:53 |  |
| Jodi Pascoe                                                                                                                                                                                                                                                                                                                                                |  |                                  | 16/11/10                                                                                                                            |              | 1:30 PM |                        | Dawn AND BARRY                 |        | 2016/11/11                                                                                                                                                                                                                                                  |                                                      | 09:53 |  |
| * 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                                                                                                                                                                                                                                            |  |                                  |                                                                                                                                     |              |         |                        |                                |        |                                                                                                                                                                                                                                                             |                                                      |       |  |

Your Project #: 1407634  
Site Location: MCCARTHY  
Your C.O.C. #: 573853-02-01

**Attention: Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2016/11/25**  
Report #: R4261537  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B6P1513**

**Received: 2016/11/18, 11:02**

Sample Matrix: Water  
# Samples Received: 1

| Analyses                          | Quantity | Date<br>Extracted | Date<br>Analyzed | Laboratory Method | Reference             |
|-----------------------------------|----------|-------------------|------------------|-------------------|-----------------------|
| Animal and Vegetable Oil & Grease | 1        | N/A               | 2016/11/22       | CAM SOP-00326     | EPA1664B m, SM5520B m |
| Total Oil and Grease              | 1        | 2016/11/22        | 2016/11/22       | CAM SOP-00326     | EPA1664B m, SM5520A m |
| pH                                | 1        | N/A               | 2016/11/21       | CAM SOP-00413     | SM 4500H+ B m         |
| Phenols (4AAP)                    | 1        | N/A               | 2016/11/23       | CAM SOP-00444     | OMOE E3179 m          |
| TPH (Heavy Oil) (1)               | 1        | 2016/11/22        | 2016/11/22       | CAM SOP-00326     | EPA1664B m, SM5520F m |
| Low Level Total Suspended Solids  | 1        | 2016/11/21        | 2016/11/21       | 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.

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. #: 573853-02-01

**Attention:Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2016/11/25**  
Report #: R4261537  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B6P1513**  
**Received: 2016/11/18, 11:02**

Encryption Key

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

=====

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.

### RESULTS OF ANALYSES OF WATER

|                                                                                                                                       |              |                     |                         |            |                 |
|---------------------------------------------------------------------------------------------------------------------------------------|--------------|---------------------|-------------------------|------------|-----------------|
| <b>Maxxam ID</b>                                                                                                                      |              | DMA904              | DMA904                  |            |                 |
| <b>Sampling Date</b>                                                                                                                  |              | 2016/11/17<br>12:30 | 2016/11/17<br>12:30     |            |                 |
| <b>COC Number</b>                                                                                                                     |              | 573853-02-01        | 573853-02-01            |            |                 |
|                                                                                                                                       | <b>UNITS</b> | <b>POND</b>         | <b>POND<br/>Lab-Dup</b> | <b>RDL</b> | <b>QC Batch</b> |
| <b>Calculated Parameters</b>                                                                                                          |              |                     |                         |            |                 |
| Total Animal/Vegetable Oil and Grease                                                                                                 | mg/L         | ND                  |                         | 0.50       | 4754418         |
| <b>Inorganics</b>                                                                                                                     |              |                     |                         |            |                 |
| pH                                                                                                                                    | pH           | 8.20                |                         |            | 4756741         |
| Phenols-4AAP                                                                                                                          | mg/L         | ND                  | ND                      | 0.0010     | 4759566         |
| Total Suspended Solids                                                                                                                | mg/L         | 2                   | 2                       | 1          | 4757692         |
| <b>Petroleum Hydrocarbons</b>                                                                                                         |              |                     |                         |            |                 |
| Total Oil & Grease                                                                                                                    | mg/L         | ND                  |                         | 0.50       | 4759516         |
| Total Oil & Grease Mineral/Synthetic                                                                                                  | mg/L         | ND                  |                         | 0.50       | 4759523         |
| RDL = Reportable Detection Limit<br>QC Batch = Quality Control Batch<br>Lab-Dup = Laboratory Initiated Duplicate<br>ND = Not detected |              |                     |                         |            |                 |

Maxxam Job #: B6P1513  
Report Date: 2016/11/25

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

#### GENERAL COMMENTS

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

|           |        |
|-----------|--------|
| Package 1 | 13.0°C |
|-----------|--------|

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



## QUALITY ASSURANCE REPORT

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

| QC Batch | Parameter                            | Date       | Matrix Spike |           | SPIKED BLANK |           | Method Blank      |       | RPD       |           | QC Standard |           |
|----------|--------------------------------------|------------|--------------|-----------|--------------|-----------|-------------------|-------|-----------|-----------|-------------|-----------|
|          |                                      |            | % Recovery   | QC Limits | % Recovery   | QC Limits | Value             | UNITS | Value (%) | QC Limits | % Recovery  | QC Limits |
| 4756741  | pH                                   | 2016/11/21 |              |           | 102          | 98 - 103  |                   |       | 0.23      | N/A       |             |           |
| 4757692  | Total Suspended Solids               | 2016/11/21 |              |           |              |           | ND,RDL=1          | mg/L  | NC        | 25        | 98          | 85 - 115  |
| 4759516  | Total Oil & Grease                   | 2016/11/22 |              |           | 95           | 85 - 115  | ND, RDL=0.50      | mg/L  | 2.6       | 25        |             |           |
| 4759523  | Total Oil & Grease Mineral/Synthetic | 2016/11/22 |              |           | 92           | 85 - 115  | ND, RDL=0.50      | mg/L  | 2.2       | 25        |             |           |
| 4759566  | Phenols-4AAP                         | 2016/11/23 | 100          | 80 - 120  | 101          | 85 - 115  | ND,<br>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 (one or both samples < 5x RDL).

### 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.

| <div style="display: flex; justify-content: space-between;"> <div> <b>Maxxam</b><br/> <small>Maxxam Analytics International Corporation o/a Maxxam Analytics</small><br/> <small>15740 Sheppard Ave. E. Unit 101, Richmond Hill, Ontario Canada L5N 2L8 Tel: (905) 817-5700 Toll-free 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca</small> </div> <div> <b>CHAIN OF CUSTODY RECORD</b><br/> <small>Page of</small> </div> </div> |        |                                  |                                                                                                                                                                                                                                                                                                                     |                  |                                                                                                                                                              |                                                                                                                                                   |                                                                                                                                                                                                                                                                                                     |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |   |  |                  |  |       |  |                               |  |                     |  |                             |  |              |  |     |  |    |  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|--|------------------|--|-------|--|-------------------------------|--|---------------------|--|-----------------------------|--|--------------|--|-----|--|----|--|
| <b>IMMEDIATE TEST</b>                                                                                                                                                                                                                                                                                                                                                                                                              |        |                                  | INVOICE TO:                                                                                                                                                                                                                                                                                                         |                  | REPORT TO:                                                                                                                                                   |                                                                                                                                                   | PROJECT INFORMATION:                                                                                                                                                                                                                                                                                |                                | Laboratory Use Only:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |   |  |                  |  |       |  |                               |  |                     |  |                             |  |              |  |     |  |    |  |
| Company Name: <b>#26238 Coco Paving Inc</b><br>Attention: <b>Teresa Cronk</b><br>Address: <b>949 Wilson Ave</b><br><b>Toronto ON M3K 1G2</b><br>Tel: <b>(416) 633-9670</b> Fax: _____<br>Email: <b>TCronk@cocogroup.com</b>                                                                                                                                                                                                        |        |                                  | Company Name: <b>#17930 Golder Associates Ltd</b><br>Attention: <b>Dawn Hoyle/Jamie Bonany</b><br>Address: <b>121 Commerce Park Drive Unit L</b><br><b>Barrie ON L4N 8X1</b><br>Tel: <b>(705) 722-4492</b> Fax: _____<br>Email: <b>Dawn_Hoyle@golder.com; Jamie_Bonany@golder.com</b>                               |                  | Quotation #: <b>B47292</b><br>P.O. #: _____<br>Project: <b>1407634</b><br>Project Name: _____<br>Site #: <b>MCCARTHY</b><br>Sampled By: <b>DAPHNE LANDRY</b> |                                                                                                                                                   | Maxxam Job #: _____<br>Bottle Order #: <br>573853<br>COC #: _____<br><br>C#573853-02-01<br>Project Manager: <b>Erna Gitej</b> |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |   |  |                  |  |       |  |                               |  |                     |  |                             |  |              |  |     |  |    |  |
| <b>MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE MAXXAM DRINKING WATER CHAIN OF CUSTODY</b>                                                                                                                                                                                                                                                                                        |        |                                  |                                                                                                                                                                                                                                                                                                                     |                  |                                                                                                                                                              | <b>ANALYSIS REQUESTED (PLEASE BE SPECIFIC)</b>                                                                                                    |                                                                                                                                                                                                                                                                                                     |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |   |  |                  |  |       |  |                               |  |                     |  |                             |  |              |  |     |  |    |  |
| <b>Regulation 153 (2011)</b><br><input type="checkbox"/> Table 1 <input type="checkbox"/> Res/Park <input type="checkbox"/> Medium/Fine<br><input type="checkbox"/> Table 2 <input type="checkbox"/> Ind/Comm <input type="checkbox"/> Coarse<br><input type="checkbox"/> Table 3 <input type="checkbox"/> Agri/Other <input type="checkbox"/> For RSC<br><input type="checkbox"/> Table _____                                     |        |                                  | <b>Other Regulations</b><br><input type="checkbox"/> CCME <input type="checkbox"/> Sanitary Sewer Bylaw<br><input type="checkbox"/> Reg 558 <input type="checkbox"/> Storm Sewer Bylaw<br><input type="checkbox"/> MISA Municipality _____<br><input type="checkbox"/> PWQO<br><input type="checkbox"/> Other _____ |                  |                                                                                                                                                              | <b>Special Instructions</b><br><br>                                                                                                               |                                                                                                                                                                                                                                                                                                     |                                | <b>Turnaround Time (TAT) Required</b><br><b>Please provide advance notice for rush projects</b><br><b>Regular (Standard) TAT:</b><br><small>(will be applied if Rush TAT is not specified)</small><br><b>Standard TAT = 5-7 Working days for most tests.</b><br><small>Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are &gt; 5 days - contact your Project Manager for details</small><br><b>Job Specific Rush TAT (if applies to entire submission)</b><br>Date Required: _____ Time Required: _____<br>Rush Confirmation Number: _____ <small>(call lab for #)</small> |   |  |                  |  |       |  |                               |  |                     |  |                             |  |              |  |     |  |    |  |
| <b>Include Criteria on Certificate of Analysis (Y/N)?</b>                                                                                                                                                                                                                                                                                                                                                                          |        |                                  |                                                                                                                                                                                                                                                                                                                     |                  |                                                                                                                                                              | <b>Field Filtered (please circle):</b><br>Metals / Hg / Cr / VI<br>Low Level Total Suspended Solids<br>Oil & Grease - AVMT<br>Phenols (AAP)<br>pH |                                                                                                                                                                                                                                                                                                     |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |   |  |                  |  |       |  |                               |  |                     |  |                             |  |              |  |     |  |    |  |
| Sample Barcode Label                                                                                                                                                                                                                                                                                                                                                                                                               |        | Sample (Location) Identification |                                                                                                                                                                                                                                                                                                                     | Date Sampled     | Time Sampled                                                                                                                                                 | Matrix                                                                                                                                            |                                                                                                                                                                                                                                                                                                     |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |   |  |                  |  |       |  |                               |  |                     |  |                             |  |              |  |     |  |    |  |
| 1                                                                                                                                                                                                                                                                                                                                                                                                                                  | 561479 | POUD                             | 100<br>17th                                                                                                                                                                                                                                                                                                         | 12:30<br>PM      | S/W                                                                                                                                                          | ✓                                                                                                                                                 | ✓                                                                                                                                                                                                                                                                                                   | ✓                              | ✓                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | ✓ |  |                  |  |       |  |                               |  |                     |  |                             |  |              |  |     |  |    |  |
| 2                                                                                                                                                                                                                                                                                                                                                                                                                                  |        |                                  |                                                                                                                                                                                                                                                                                                                     |                  |                                                                                                                                                              |                                                                                                                                                   |                                                                                                                                                                                                                                                                                                     |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |   |  |                  |  |       |  |                               |  |                     |  |                             |  |              |  |     |  |    |  |
| 3                                                                                                                                                                                                                                                                                                                                                                                                                                  |        |                                  |                                                                                                                                                                                                                                                                                                                     |                  |                                                                                                                                                              |                                                                                                                                                   |                                                                                                                                                                                                                                                                                                     |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |   |  |                  |  |       |  |                               |  |                     |  |                             |  |              |  |     |  |    |  |
| 4                                                                                                                                                                                                                                                                                                                                                                                                                                  |        |                                  |                                                                                                                                                                                                                                                                                                                     |                  |                                                                                                                                                              |                                                                                                                                                   |                                                                                                                                                                                                                                                                                                     |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |   |  |                  |  |       |  |                               |  |                     |  |                             |  |              |  |     |  |    |  |
| 5                                                                                                                                                                                                                                                                                                                                                                                                                                  |        |                                  |                                                                                                                                                                                                                                                                                                                     |                  |                                                                                                                                                              |                                                                                                                                                   |                                                                                                                                                                                                                                                                                                     |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |   |  |                  |  |       |  |                               |  |                     |  |                             |  |              |  |     |  |    |  |
| 6                                                                                                                                                                                                                                                                                                                                                                                                                                  |        |                                  |                                                                                                                                                                                                                                                                                                                     |                  |                                                                                                                                                              |                                                                                                                                                   |                                                                                                                                                                                                                                                                                                     |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |   |  |                  |  |       |  |                               |  |                     |  |                             |  |              |  |     |  |    |  |
| 7                                                                                                                                                                                                                                                                                                                                                                                                                                  |        |                                  |                                                                                                                                                                                                                                                                                                                     |                  |                                                                                                                                                              |                                                                                                                                                   |                                                                                                                                                                                                                                                                                                     |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |   |  |                  |  |       |  |                               |  |                     |  |                             |  |              |  |     |  |    |  |
| 8                                                                                                                                                                                                                                                                                                                                                                                                                                  |        |                                  |                                                                                                                                                                                                                                                                                                                     |                  |                                                                                                                                                              |                                                                                                                                                   |                                                                                                                                                                                                                                                                                                     |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |   |  |                  |  |       |  |                               |  |                     |  |                             |  |              |  |     |  |    |  |
| 9                                                                                                                                                                                                                                                                                                                                                                                                                                  |        |                                  |                                                                                                                                                                                                                                                                                                                     |                  |                                                                                                                                                              |                                                                                                                                                   |                                                                                                                                                                                                                                                                                                     |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |   |  |                  |  |       |  |                               |  |                     |  |                             |  |              |  |     |  |    |  |
| 10                                                                                                                                                                                                                                                                                                                                                                                                                                 |        |                                  |                                                                                                                                                                                                                                                                                                                     |                  |                                                                                                                                                              |                                                                                                                                                   |                                                                                                                                                                                                                                                                                                     |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |   |  |                  |  |       |  |                               |  |                     |  |                             |  |              |  |     |  |    |  |
| * RELINQUISHED BY: (Signature/Print)                                                                                                                                                                                                                                                                                                                                                                                               |        |                                  |                                                                                                                                                                                                                                                                                                                     | Date: (YY/MM/DD) |                                                                                                                                                              | Time                                                                                                                                              |                                                                                                                                                                                                                                                                                                     | RECEIVED BY: (Signature/Print) |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |   |  | Date: (YY/MM/DD) |  | Time  |  | # Jars used and not submitted |  | Laboratory Use Only |  |                             |  |              |  |     |  |    |  |
| JODI PASCOE                                                                                                                                                                                                                                                                                                                                                                                                                        |        |                                  |                                                                                                                                                                                                                                                                                                                     | 16/11/17         |                                                                                                                                                              | 12:30                                                                                                                                             |                                                                                                                                                                                                                                                                                                     | Dawn Hoyle                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |   |  | 20/11/18         |  |       |  |                               |  | Time Sensitive      |  | Temperature (°C) on Receipt |  | Custody Seal |  | Yes |  | No |  |
| JODI PASCOE                                                                                                                                                                                                                                                                                                                                                                                                                        |        |                                  |                                                                                                                                                                                                                                                                                                                     | 16/11/17         |                                                                                                                                                              | 12:30                                                                                                                                             |                                                                                                                                                                                                                                                                                                     | Dawn Hoyle                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |   |  | 20/11/18         |  | 11:02 |  |                               |  |                     |  | 13/13/13                    |  | Present      |  | ✓   |  | ✓  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                    |        |                                  |                                                                                                                                                                                                                                                                                                                     |                  |                                                                                                                                                              |                                                                                                                                                   |                                                                                                                                                                                                                                                                                                     |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |   |  |                  |  |       |  |                               |  |                     |  | Intact                      |  |              |  |     |  |    |  |

18-Nov-16 11:02  
 Erna Gitej  
  
 B6P1513  
 GK1  
 ENV-1137

\* 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

Your Project #: 1407634  
Site#: 1407634  
Site Location: MCCARTHY  
Your C.O.C. #: 587674-01-01

**Attention: Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2016/12/01**  
Report #: R4270878  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B6P7367**

**Received: 2016/11/25, 09:25**

Sample Matrix: Water  
# Samples Received: 1

| Analyses                          | Quantity | Date<br>Extracted | Date<br>Analyzed | Laboratory Method | Reference             |
|-----------------------------------|----------|-------------------|------------------|-------------------|-----------------------|
| Animal and Vegetable Oil & Grease | 1        | N/A               | 2016/11/29       | CAM SOP-00326     | EPA1664B m, SM5520B m |
| Total Oil and Grease              | 1        | 2016/11/29        | 2016/11/29       | CAM SOP-00326     | EPA1664B m, SM5520A m |
| pH                                | 1        | N/A               | 2016/11/29       | CAM SOP-00413     | SM 4500H+ B m         |
| Phenols (4AAP)                    | 1        | N/A               | 2016/11/30       | CAM SOP-00444     | OMOE E3179 m          |
| TPH (Heavy Oil) (1)               | 1        | 2016/11/29        | 2016/11/29       | CAM SOP-00326     | EPA1664B m, SM5520F m |
| Low Level Total Suspended Solids  | 1        | 2016/11/28        | 2016/11/28       | CAM SOP-00428     | SM 22 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 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.

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

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

\* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) Note: TPH (Heavy Oil) is equivalent to Mineral / Synthetic Oil & Grease

Your Project #: 1407634  
Site#: 1407634  
Site Location: MCCARTHY  
Your C.O.C. #: 587674-01-01

**Attention:Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2016/12/01**  
Report #: R4270878  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B6P7367**  
**Received: 2016/11/25, 09:25**

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.

### RESULTS OF ANALYSES OF WATER

|                                                                                                                                       |              |                     |                         |            |                 |
|---------------------------------------------------------------------------------------------------------------------------------------|--------------|---------------------|-------------------------|------------|-----------------|
| <b>Maxxam ID</b>                                                                                                                      |              | DND018              | DND018                  |            |                 |
| <b>Sampling Date</b>                                                                                                                  |              | 2016/11/24<br>14:00 | 2016/11/24<br>14:00     |            |                 |
| <b>COC Number</b>                                                                                                                     |              | 587674-01-01        | 587674-01-01            |            |                 |
|                                                                                                                                       | <b>UNITS</b> | <b>POND</b>         | <b>POND<br/>Lab-Dup</b> | <b>RDL</b> | <b>QC Batch</b> |
| <b>Calculated Parameters</b>                                                                                                          |              |                     |                         |            |                 |
| Total Animal/Vegetable Oil and Grease                                                                                                 | mg/L         | 1.1                 |                         | 0.50       | 4767090         |
| <b>Inorganics</b>                                                                                                                     |              |                     |                         |            |                 |
| pH                                                                                                                                    | pH           | 8.06                |                         |            | 4768844         |
| Phenols-4AAP                                                                                                                          | mg/L         | ND                  |                         | 0.0010     | 4771494         |
| Total Suspended Solids                                                                                                                | mg/L         | 4                   | 4                       | 1          | 4768536         |
| <b>Petroleum Hydrocarbons</b>                                                                                                         |              |                     |                         |            |                 |
| Total Oil & Grease                                                                                                                    | mg/L         | 1.1                 |                         | 0.50       | 4769406         |
| Total Oil & Grease Mineral/Synthetic                                                                                                  | mg/L         | ND                  |                         | 0.50       | 4769411         |
| RDL = Reportable Detection Limit<br>QC Batch = Quality Control Batch<br>Lab-Dup = Laboratory Initiated Duplicate<br>ND = Not detected |              |                     |                         |            |                 |

### GENERAL COMMENTS

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

|           |        |
|-----------|--------|
| Package 1 | 12.0°C |
|-----------|--------|

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

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

## QUALITY ASSURANCE REPORT

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

| QC Batch | Parameter                            | Date       | Matrix Spike |           | SPIKED BLANK |           | Method Blank      |       | RPD       |           | QC Standard |           |
|----------|--------------------------------------|------------|--------------|-----------|--------------|-----------|-------------------|-------|-----------|-----------|-------------|-----------|
|          |                                      |            | % Recovery   | QC Limits | % Recovery   | QC Limits | Value             | UNITS | Value (%) | QC Limits | % Recovery  | QC Limits |
| 4768536  | Total Suspended Solids               | 2016/11/28 |              |           |              |           | ND,RDL=1          | mg/L  | NC        | 25        | 100         | 85 - 115  |
| 4768844  | pH                                   | 2016/11/29 |              |           | 102          | 98 - 103  |                   |       | 0.023     | N/A       |             |           |
| 4769406  | Total Oil & Grease                   | 2016/11/29 |              |           | 97           | 85 - 115  | ND, RDL=0.50      | mg/L  | 3.1       | 25        |             |           |
| 4769411  | Total Oil & Grease Mineral/Synthetic | 2016/11/29 |              |           | 96           | 85 - 115  | ND, RDL=0.50      | mg/L  | 2.7       | 25        |             |           |
| 4771494  | Phenols-4AAP                         | 2016/11/30 | 97           | 80 - 120  | 102          | 85 - 115  | ND,<br>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 (one or both samples < 5x RDL).



### VALIDATION SIGNATURE PAGE

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



Brad Newman, Scientific Specialist

---

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 Campbell Road, Mississauga, Ontario Canada L5N 2L8 Tel: (905) 817-5700 Toll-free 800-593-6266 Fax: (905) 817-5777 www.maxxam.ca

# CHAIN OF CUSTODY RECORD

Page 1 of 1

|                                      |  |                                                       |  |                        |  |                      |  |
|--------------------------------------|--|-------------------------------------------------------|--|------------------------|--|----------------------|--|
| 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 #:        |  |
| Attention: Teresa Cronk              |  | Attention: Dawn Hoyle/Jamie Bonany                    |  | P.O. #:                |  | Bottle Order #:      |  |
| Address: 949 Wilson Ave              |  | Address: 121 Commerce Park Drive Unit L               |  | Project: 1407634       |  | COC #:               |  |
| Toronto ON M3K 1G2                   |  | Barrie ON L4N 8X1                                     |  | Project Name: MCCARTHY |  | Project Manager:     |  |
| Tel: (416) 633-9670                  |  | Tel: (705) 722-4492                                   |  | Site #:                |  | Antonella Brasil     |  |
| Email: TCronk@cocogroup.com          |  | Email: Dawn_Hoyle@golder.com; Jamie_Bonany@golder.com |  | Sampled By: BOB TOORE  |  | C#587674-01-01       |  |

## 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                    |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |  |  |  |  |
| <input type="checkbox"/> Table 1                   | <input type="checkbox"/> Res/Park   | <input type="checkbox"/> Medium/Fine | <input type="checkbox"/> CCME    | <input type="checkbox"/> Sanitary Sewer Bylaw |                                                          |                                  |                     |                                         |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |  |  |  |  |
| <input type="checkbox"/> Table 2                   | <input type="checkbox"/> Ind/Comm   | <input type="checkbox"/> Coarse      | <input type="checkbox"/> Reg-558 | <input type="checkbox"/> Storm Sewer Bylaw    |                                                          |                                  |                     |                                         |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |  |  |  |  |
| <input type="checkbox"/> Table 3                   | <input type="checkbox"/> Agri/Other | <input type="checkbox"/> For RSC     | <input type="checkbox"/> MISA    | Municipality                                  |                                                          |                                  |                     |                                         |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |  |  |  |  |
| <input type="checkbox"/> Table                     |                                     |                                      | <input type="checkbox"/> PWOO    |                                               |                                                          |                                  |                     |                                         |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |  |  |  |  |
| <input type="checkbox"/> 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):<br>Metals / Hg / Cr / VI | Low Level Total Suspended Solids | Oil & Grease - AVMT | Phosphorus (AAFP)                       | pH | Turnaround Time (TAT) Required:<br>Please provide advance notice for rush projects.<br><b>Regular (Standard) TAT:</b><br>(will be applied if Rush TAT is not specified).<br>Standard TAT = 5-7 Working days for most tests.<br>Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.<br><b>Job Specific Rush TAT (if applies to entire submission)</b><br>Date Required: Time Required:<br>Rush Confirmation Number: (call lab for #) |  |  |  |  |  |
| 1 587674                                           | POND                                | 16/11/24                             | 2:00 PM                          | MW                                            | ✓                                                        | ✓                                | ✓                   | ✓                                       | ✓  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |  |  |  |  |
| 2                                                  | POND                                |                                      |                                  |                                               |                                                          |                                  |                     |                                         |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |  |  |  |  |
| 3                                                  | POND                                |                                      |                                  |                                               |                                                          |                                  |                     |                                         |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |  |  |  |  |
| 4                                                  | POND                                |                                      |                                  |                                               |                                                          |                                  |                     |                                         |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |  |  |  |  |
| 5                                                  | POND                                |                                      |                                  |                                               |                                                          |                                  |                     |                                         |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |  |  |  |  |
| 6                                                  | POND                                |                                      |                                  |                                               |                                                          |                                  |                     |                                         |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |  |  |  |  |
| 7                                                  |                                     |                                      |                                  |                                               |                                                          |                                  |                     |                                         |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |  |  |  |  |
| 8                                                  |                                     |                                      |                                  |                                               |                                                          |                                  |                     |                                         |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |  |  |  |  |
| 9                                                  |                                     |                                      |                                  |                                               |                                                          |                                  |                     |                                         |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |  |  |  |  |
| 10                                                 |                                     |                                      |                                  |                                               |                                                          |                                  |                     |                                         |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |  |  |  |  |

25-Nov-16 09:25  
Antonella Brasil  
B6P7367  
RK6 ENV-970

|                                      |  |                  |          |                                |  |                  |       |                               |                     |                             |              |     |    |
|--------------------------------------|--|------------------|----------|--------------------------------|--|------------------|-------|-------------------------------|---------------------|-----------------------------|--------------|-----|----|
| * RELINQUISHED BY: (Signature/Print) |  | Date: (YY/MM/DD) | Time     | RECEIVED BY: (Signature/Print) |  | Date: (YY/MM/DD) | Time  | # jars used and not submitted | Laboratory Use Only |                             |              |     |    |
| Jodi Pascoe                          |  | 16/11/24         | 2:00 PM  | Ashli Sankhania                |  | 2016/11/25       | 09:25 |                               | Time Sensitive      | Temperature (°C) on Receipt | Custody Seal | Yes | No |
| Jodi Pascoe                          |  | 16/11/24         | 12:00 PM | ASH/SM Sankhania               |  |                  |       |                               |                     | 12/12/12                    | Present      |     | 4  |
|                                      |  |                  |          |                                |  |                  |       |                               |                     |                             | 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

no ke

Your Project #: 1407634  
Site#: 1407634  
Site Location: MCCARTHY  
Your C.O.C. #: 583850-06-01

**Attention: Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2016/12/07**  
Report #: R4278161  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B6Q2914**

**Received: 2016/12/02, 10:36**

Sample Matrix: Water  
# Samples Received: 1

| Analyses                          | Quantity | Date<br>Extracted | Date<br>Analyzed | Laboratory Method | Reference             |
|-----------------------------------|----------|-------------------|------------------|-------------------|-----------------------|
| Animal and Vegetable Oil & Grease | 1        | N/A               | 2016/12/07       | CAM SOP-00326     | EPA1664B m, SM5520B m |
| Total Oil and Grease              | 1        | 2016/12/06        | 2016/12/07       | CAM SOP-00326     | EPA1664B m, SM5520A m |
| pH                                | 1        | N/A               | 2016/12/05       | CAM SOP-00413     | SM 4500H+ B m         |
| Phenols (4AAP)                    | 1        | N/A               | 2016/12/07       | CAM SOP-00444     | OMOE E3179 m          |
| TPH (Heavy Oil) (1)               | 1        | 2016/12/06        | 2016/12/07       | CAM SOP-00326     | EPA1664B m, SM5520F m |
| Low Level Total Suspended Solids  | 1        | 2016/12/05        | 2016/12/06       | CAM SOP-00428     | SM 22 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.

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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. #: 583850-06-01

**Attention:Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2016/12/07**  
Report #: R4278161  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B6Q2914**  
**Received: 2016/12/02, 10:36**

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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### RESULTS OF ANALYSES OF WATER

|                                                                                                                                       |              |                     |                         |            |                 |
|---------------------------------------------------------------------------------------------------------------------------------------|--------------|---------------------|-------------------------|------------|-----------------|
| <b>Maxxam ID</b>                                                                                                                      |              | DOG488              | DOG488                  |            |                 |
| <b>Sampling Date</b>                                                                                                                  |              | 2016/12/01<br>13:00 | 2016/12/01<br>13:00     |            |                 |
| <b>COC Number</b>                                                                                                                     |              | 583850-06-01        | 583850-06-01            |            |                 |
|                                                                                                                                       | <b>UNITS</b> | <b>POND</b>         | <b>POND<br/>Lab-Dup</b> | <b>RDL</b> | <b>QC Batch</b> |
| <b>Calculated Parameters</b>                                                                                                          |              |                     |                         |            |                 |
| Total Animal/Vegetable Oil and Grease                                                                                                 | mg/L         | 1.3                 |                         | 0.50       | 4775956         |
| <b>Inorganics</b>                                                                                                                     |              |                     |                         |            |                 |
| pH                                                                                                                                    | pH           | 8.13                |                         |            | 4777825         |
| Phenols-4AAP                                                                                                                          | mg/L         | ND                  |                         | 0.0010     | 4779994         |
| Total Suspended Solids                                                                                                                | mg/L         | 3                   | 2                       | 1          | 4778506         |
| <b>Petroleum Hydrocarbons</b>                                                                                                         |              |                     |                         |            |                 |
| Total Oil & Grease                                                                                                                    | mg/L         | 1.3                 |                         | 0.50       | 4780036         |
| Total Oil & Grease Mineral/Synthetic                                                                                                  | mg/L         | ND                  |                         | 0.50       | 4780041         |
| RDL = Reportable Detection Limit<br>QC Batch = Quality Control Batch<br>Lab-Dup = Laboratory Initiated Duplicate<br>ND = Not detected |              |                     |                         |            |                 |

### GENERAL COMMENTS

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

|           |        |
|-----------|--------|
| Package 1 | 13.3°C |
|-----------|--------|

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

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

## QUALITY ASSURANCE REPORT

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

| QC Batch | Parameter                            | Date       | Matrix Spike |           | SPIKED BLANK |           | Method Blank      |       | RPD       |           | QC Standard |           |
|----------|--------------------------------------|------------|--------------|-----------|--------------|-----------|-------------------|-------|-----------|-----------|-------------|-----------|
|          |                                      |            | % Recovery   | QC Limits | % Recovery   | QC Limits | Value             | UNITS | Value (%) | QC Limits | % Recovery  | QC Limits |
| 4777825  | pH                                   | 2016/12/05 |              |           | 102          | 98 - 103  |                   |       | 1.1       | N/A       |             |           |
| 4778506  | Total Suspended Solids               | 2016/12/06 |              |           |              |           | ND,RDL=1          | mg/L  | NC        | 25        | 95          | 85 - 115  |
| 4779994  | Phenols-4AAP                         | 2016/12/07 | 100          | 80 - 120  | 100          | 85 - 115  | ND,<br>RDL=0.0010 | mg/L  | NC        | 20        |             |           |
| 4780036  | Total Oil & Grease                   | 2016/12/07 |              |           | 99           | 85 - 115  | ND, RDL=0.50      | mg/L  | 1.8       | 25        |             |           |
| 4780041  | Total Oil & Grease Mineral/Synthetic | 2016/12/07 |              |           | 95           | 85 - 115  | ND, RDL=0.50      | mg/L  | 1.6       | 25        |             |           |

N/A = Not Applicable

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

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

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

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

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

NC (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 (one or both samples < 5x RDL).

### VALIDATION SIGNATURE PAGE

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

*Cristina Carriere*

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Cristina Carriere, Scientific Services

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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.



NO ICE

Your Project #: 1407634  
Site#: 1407634  
Site Location: MCCARTHY  
Your C.O.C. #: 587674-06-01

**Attention: Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2016/12/14**  
Report #: R4286595  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B6Q8527**

**Received: 2016/12/09, 09:25**

Sample Matrix: Water  
# Samples Received: 1

| Analyses                          | Quantity | Date<br>Extracted | Date<br>Analyzed | Laboratory Method | Reference             |
|-----------------------------------|----------|-------------------|------------------|-------------------|-----------------------|
| Animal and Vegetable Oil & Grease | 1        | N/A               | 2016/12/13       | CAM SOP-00326     | EPA1664B m, SM5520B m |
| Total Oil and Grease              | 1        | 2016/12/13        | 2016/12/13       | CAM SOP-00326     | EPA1664B m, SM5520A m |
| pH                                | 1        | N/A               | 2016/12/12       | CAM SOP-00413     | SM 4500H+ B m         |
| Phenols (4AAP)                    | 1        | N/A               | 2016/12/13       | CAM SOP-00444     | OMOE E3179 m          |
| TPH (Heavy Oil) (1)               | 1        | 2016/12/13        | 2016/12/13       | CAM SOP-00326     | EPA1664B m, SM5520F m |
| Low Level Total Suspended Solids  | 1        | 2016/12/13        | 2016/12/13       | 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.

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

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

\* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) Note: TPH (Heavy Oil) is equivalent to Mineral / Synthetic Oil & Grease

Your Project #: 1407634  
Site#: 1407634  
Site Location: MCCARTHY  
Your C.O.C. #: 587674-06-01

**Attention: Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2016/12/14**  
Report #: R4286595  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B6Q8527**  
**Received: 2016/12/09, 09:25**

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.

### RESULTS OF ANALYSES OF WATER

|                                                                                                                                       |              |                     |                         |            |                 |
|---------------------------------------------------------------------------------------------------------------------------------------|--------------|---------------------|-------------------------|------------|-----------------|
| <b>Maxxam ID</b>                                                                                                                      |              | DPG625              | DPG625                  |            |                 |
| <b>Sampling Date</b>                                                                                                                  |              | 2016/12/08<br>14:00 | 2016/12/08<br>14:00     |            |                 |
| <b>COC Number</b>                                                                                                                     |              | 587674-06-01        | 587674-06-01            |            |                 |
|                                                                                                                                       | <b>UNITS</b> | <b>POND</b>         | <b>POND<br/>Lab-Dup</b> | <b>RDL</b> | <b>QC Batch</b> |
| <b>Calculated Parameters</b>                                                                                                          |              |                     |                         |            |                 |
| Total Animal/Vegetable Oil and Grease                                                                                                 | mg/L         | 2.8                 |                         | 0.50       | 4786013         |
| <b>Inorganics</b>                                                                                                                     |              |                     |                         |            |                 |
| pH                                                                                                                                    | pH           | 8.06                |                         |            | 4787893         |
| Phenols-4AAP                                                                                                                          | mg/L         | ND                  |                         | 0.0010     | 4789980         |
| Total Suspended Solids                                                                                                                | mg/L         | 9                   | 8                       | 1          | 4790318         |
| <b>Petroleum Hydrocarbons</b>                                                                                                         |              |                     |                         |            |                 |
| Total Oil & Grease                                                                                                                    | mg/L         | 2.8                 |                         | 0.50       | 4790499         |
| Total Oil & Grease Mineral/Synthetic                                                                                                  | mg/L         | ND                  |                         | 0.50       | 4790508         |
| RDL = Reportable Detection Limit<br>QC Batch = Quality Control Batch<br>Lab-Dup = Laboratory Initiated Duplicate<br>ND = Not detected |              |                     |                         |            |                 |

### GENERAL COMMENTS

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

|           |       |
|-----------|-------|
| Package 1 | 7.0°C |
|-----------|-------|

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

## QUALITY ASSURANCE REPORT

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

| QC Batch | Parameter                            | Date       | Matrix Spike |           | SPIKED BLANK |           | Method Blank      |       | RPD       |           | QC Standard |           |
|----------|--------------------------------------|------------|--------------|-----------|--------------|-----------|-------------------|-------|-----------|-----------|-------------|-----------|
|          |                                      |            | % Recovery   | QC Limits | % Recovery   | QC Limits | Value             | UNITS | Value (%) | QC Limits | % Recovery  | QC Limits |
| 4787893  | pH                                   | 2016/12/12 |              |           | 102          | 98 - 103  |                   |       | 0.48      | N/A       |             |           |
| 4789980  | Phenols-4AAP                         | 2016/12/13 | 100          | 80 - 120  | 97           | 85 - 115  | ND,<br>RDL=0.0010 | mg/L  | NC        | 20        |             |           |
| 4790318  | Total Suspended Solids               | 2016/12/13 |              |           |              |           | ND,RDL=1          | mg/L  | 2.4       | 25        | 96          | 85 - 115  |
| 4790499  | Total Oil & Grease                   | 2016/12/13 |              |           | 95           | 85 - 115  | ND, RDL=0.50      | mg/L  | 2.1       | 25        |             |           |
| 4790508  | Total Oil & Grease Mineral/Synthetic | 2016/12/13 |              |           | 93           | 85 - 115  | ND, RDL=0.50      | mg/L  | 2.1       | 25        |             |           |

N/A = Not Applicable

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

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

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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 (one or both samples < 5x RDL).

### VALIDATION SIGNATURE PAGE

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

*Cristina Carriere*

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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.

| Maxxam Analytics International Corporation o/a Maxxam Analytics<br>6740 Campbell Road, Mississauga, Ontario Canada L5N 2L8 Tel: (905) 817-5700 Toll-free 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca                                                                                                                                                                                         |  |                                  |  |                  |                                                                                                                                                                                                                                                                                                                       |         |   |                                |   | <b>CHAIN OF CUSTODY RECORD</b>                                                                                                                                |   |                  |  |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                               |  |                                                                                                                                                                                                                            |  |  |  |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|----------------------------------|--|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|---|--------------------------------|---|---------------------------------------------------------------------------------------------------------------------------------------------------------------|---|------------------|--|-------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|
| INVOICE TO:                                                                                                                                                                                                                                                                                                                                                                                     |  |                                  |  |                  | REPORT TO:                                                                                                                                                                                                                                                                                                            |         |   |                                |   | PROJECT INFORMATION:                                                                                                                                          |   |                  |  |       | Laboratory Use Only:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                               |  |                                                                                                                                                                                                                            |  |  |  |
| Company Name: <b>#26238 Coco Paving Inc</b><br>Attention: <b>Teresa Cronk</b><br>Address: <b>949 Wilson Ave</b><br><b>Toronto ON M3K 1G2</b><br>Tel: <b>(416) 633-9670</b> Fax: _____<br>Email: <b>TCronk@cocogroup.com</b>                                                                                                                                                                     |  |                                  |  |                  | Company Name: <b>#17930 Golder Associates Ltd</b><br>Attention: <b>Dawn Hoyle/Jamie Bonany</b><br>Address: <b>121 Commerce Park Drive Unit L</b><br><b>Barrie ON L4N 8X1</b><br>Tel: <b>(705) 722-4492</b> Fax: _____<br>Email: <b>Dawn_Hoyle@golder.com; Jamie_Bonany@golder.com</b>                                 |         |   |                                |   | Quotation #: <b>B47292</b><br>P.O. #: _____<br>Project: <b>1407634</b><br>Project Name: _____<br>Site #: <b>MCCARTHY</b><br>Sampled By: <b>DARRELL ANDREY</b> |   |                  |  |       | Maxxam Job #: _____<br>Bottle Order #: <b>587674</b><br>C.O.C. #: _____<br>Project Manager: <b>Antonella Brasil</b><br>C#587674-05-01                                                                                                                                                                                                                                                                                                                                                                                                                                     |                               |  |                                                                                                                                                                                                                            |  |  |  |
| <b>MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE MAXXAM DRINKING WATER CHAIN OF CUSTODY</b>                                                                                                                                                                                                                                                     |  |                                  |  |                  |                                                                                                                                                                                                                                                                                                                       |         |   |                                |   | <b>ANALYSIS REQUESTED (PLEASE BE SPECIFIC)</b>                                                                                                                |   |                  |  |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                               |  |                                                                                                                                                                                                                            |  |  |  |
| <b>Regulation 153 (2011)</b><br><input type="checkbox"/> Table 1 <input type="checkbox"/> Res/Park <input type="checkbox"/> Medium/Fine<br><input type="checkbox"/> Table 2 <input type="checkbox"/> Ind/Comm <input type="checkbox"/> Coarse<br><input type="checkbox"/> Table 3 <input type="checkbox"/> Agri/Other <input type="checkbox"/> For RSC<br><input type="checkbox"/> Table: _____ |  |                                  |  |                  | <b>Other Regulations</b><br><input type="checkbox"/> CCME <input type="checkbox"/> Sanitary Sewer Bylaw<br><input type="checkbox"/> Reg 558 <input type="checkbox"/> Storm Sewer Bylaw<br><input type="checkbox"/> MISA Municipality: _____<br><input type="checkbox"/> PWQO<br><input type="checkbox"/> Other: _____ |         |   |                                |   | <b>Special Instructions</b><br>_____                                                                                                                          |   |                  |  |       | <b>Turnaround Time (TAT) Required</b><br><b>Please provide advance notice for rush projects</b><br><b>Regular (Standard) TAT:</b><br>(will be applied if Rush TAT is not specified) <input type="checkbox"/><br>Standard TAT = 5-7 Working days for most tests.<br>Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.<br><b>Job Specific Rush TAT (if applies to entire submission)</b><br>Date Required: _____ Time Required: _____<br>Rush Confirmation Number: _____ (call lab for #) |                               |  |                                                                                                                                                                                                                            |  |  |  |
| <b>Include Criteria on Certificate of Analysis (Y/N)?</b>                                                                                                                                                                                                                                                                                                                                       |  |                                  |  |                  |                                                                                                                                                                                                                                                                                                                       |         |   |                                |   | <b>Field Filtered (please circle):</b><br>Metals / Hg / Cr / VI<br>Low Level Total Suspended Solids<br>Oil & Grease - AV/MT<br>Phenols (44AP)<br>pH           |   |                  |  |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                               |  |                                                                                                                                                                                                                            |  |  |  |
| Sample Barcode Label                                                                                                                                                                                                                                                                                                                                                                            |  | Sample (Location) Identification |  | Date Sampled     | Time Sampled                                                                                                                                                                                                                                                                                                          | Matrix  |   |                                |   |                                                                                                                                                               |   |                  |  |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                               |  |                                                                                                                                                                                                                            |  |  |  |
| 1 587674                                                                                                                                                                                                                                                                                                                                                                                        |  | POUD                             |  | DEC 8th          | 2:00 PM                                                                                                                                                                                                                                                                                                               | SLW     | ✓ | ✓                              | ✓ | ✓                                                                                                                                                             | ✓ |                  |  |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                               |  |                                                                                                                                                                                                                            |  |  |  |
| 2                                                                                                                                                                                                                                                                                                                                                                                               |  |                                  |  |                  |                                                                                                                                                                                                                                                                                                                       |         |   |                                |   |                                                                                                                                                               |   |                  |  |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                               |  |                                                                                                                                                                                                                            |  |  |  |
| 3                                                                                                                                                                                                                                                                                                                                                                                               |  |                                  |  |                  |                                                                                                                                                                                                                                                                                                                       |         |   |                                |   |                                                                                                                                                               |   |                  |  |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                               |  |                                                                                                                                                                                                                            |  |  |  |
| 4                                                                                                                                                                                                                                                                                                                                                                                               |  |                                  |  |                  |                                                                                                                                                                                                                                                                                                                       |         |   |                                |   |                                                                                                                                                               |   |                  |  |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                               |  |                                                                                                                                                                                                                            |  |  |  |
| 5                                                                                                                                                                                                                                                                                                                                                                                               |  |                                  |  |                  |                                                                                                                                                                                                                                                                                                                       |         |   |                                |   |                                                                                                                                                               |   |                  |  |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                               |  |                                                                                                                                                                                                                            |  |  |  |
| 6                                                                                                                                                                                                                                                                                                                                                                                               |  |                                  |  |                  |                                                                                                                                                                                                                                                                                                                       |         |   |                                |   |                                                                                                                                                               |   |                  |  |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                               |  |                                                                                                                                                                                                                            |  |  |  |
| 7                                                                                                                                                                                                                                                                                                                                                                                               |  |                                  |  |                  |                                                                                                                                                                                                                                                                                                                       |         |   |                                |   |                                                                                                                                                               |   |                  |  |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                               |  |                                                                                                                                                                                                                            |  |  |  |
| 8                                                                                                                                                                                                                                                                                                                                                                                               |  |                                  |  |                  |                                                                                                                                                                                                                                                                                                                       |         |   |                                |   |                                                                                                                                                               |   |                  |  |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                               |  |                                                                                                                                                                                                                            |  |  |  |
| 9                                                                                                                                                                                                                                                                                                                                                                                               |  |                                  |  |                  |                                                                                                                                                                                                                                                                                                                       |         |   |                                |   |                                                                                                                                                               |   |                  |  |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                               |  |                                                                                                                                                                                                                            |  |  |  |
| 10                                                                                                                                                                                                                                                                                                                                                                                              |  |                                  |  |                  |                                                                                                                                                                                                                                                                                                                       |         |   |                                |   |                                                                                                                                                               |   |                  |  |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                               |  |                                                                                                                                                                                                                            |  |  |  |
| * RELINQUISHED BY: (Signature/Print)                                                                                                                                                                                                                                                                                                                                                            |  |                                  |  | Date: (YY/MM/DD) |                                                                                                                                                                                                                                                                                                                       | Time    |   | RECEIVED BY: (Signature/Print) |   |                                                                                                                                                               |   | Date: (YY/MM/DD) |  | Time  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | # jars used and not submitted |  | <b>Laboratory Use Only</b><br>Time Sensitive: _____ Temperature (°C) on Receipt: <b>7/7/7</b><br>Custody Seal: Present <input checked="" type="checkbox"/> Intact <input type="checkbox"/><br>White: Maxxam Yellow: Client |  |  |  |
| JODI PASCOE<br>Jodi Pascoe                                                                                                                                                                                                                                                                                                                                                                      |  |                                  |  | 16/12/08         |                                                                                                                                                                                                                                                                                                                       | 2:00 PM |   | Jodi Pascoe<br>Jodi Pascoe     |   |                                                                                                                                                               |   | 20/12/07         |  | 09:36 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                               |  |                                                                                                                                                                                                                            |  |  |  |
| * 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.                                                                                                                                                                                                                       |  |                                  |  |                  |                                                                                                                                                                                                                                                                                                                       |         |   |                                |   |                                                                                                                                                               |   |                  |  |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                               |  |                                                                                                                                                                                                                            |  |  |  |



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<br>Extracted | Date<br>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:**

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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.

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

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

\* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) Note: TPH (Heavy Oil) is equivalent to Mineral / Synthetic Oil & Grease

Your Project #: 1407634  
Site#: 1407634  
Site Location: MCCARTHY  
Your C.O.C. #: 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.

### RESULTS OF ANALYSES OF WATER

|                                                                                           |              |                     |            |                 |
|-------------------------------------------------------------------------------------------|--------------|---------------------|------------|-----------------|
| <b>Maxxam ID</b>                                                                          |              | EEJ059              |            |                 |
| <b>Sampling Date</b>                                                                      |              | 2017/04/06<br>12:00 |            |                 |
| <b>COC Number</b>                                                                         |              | 590331-01-01        |            |                 |
|                                                                                           | <b>UNITS</b> | <b>POND</b>         | <b>RDL</b> | <b>QC Batch</b> |
| <b>Calculated Parameters</b>                                                              |              |                     |            |                 |
| Total Animal/Vegetable Oil and Grease                                                     | mg/L         | 1.8                 | 0.50       | 4931114         |
| <b>Inorganics</b>                                                                         |              |                     |            |                 |
| pH                                                                                        | pH           | 8.06                |            | 4934144         |
| Phenols-4AAP                                                                              | mg/L         | ND                  | 0.0010     | 4936213         |
| Total Suspended Solids                                                                    | mg/L         | 14                  | 1          | 4933864         |
| <b>Petroleum Hydrocarbons</b>                                                             |              |                     |            |                 |
| 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<br>QC Batch = Quality Control Batch<br>ND = Not detected |              |                     |            |                 |

### 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.**

## QUALITY ASSURANCE REPORT

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

| QC Batch | Parameter                            | Date       | Matrix Spike |           | SPIKED BLANK |           | Method Blank      |       | RPD       |           | QC Standard |           |
|----------|--------------------------------------|------------|--------------|-----------|--------------|-----------|-------------------|-------|-----------|-----------|-------------|-----------|
|          |                                      |            | % 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,<br>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  $\leq 2 \times$  RDL).

### 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

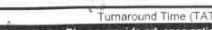
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~~IMMEDIATE~~

## CHAIN OF CUSTODY RECORD

Page 1 of 1

|                                                                                                                                                                                                                                                                                                                                                                                               |        |                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                         |              |                                                                                                                                                                                                                                                                                                                         |                                                         |                                  |                       |               |    |                                         |              |                      |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------|----------------------------------|-----------------------|---------------|----|-----------------------------------------|--------------|----------------------|
| <b>INVOICE TO:</b><br>Company Name: #26238 Coco Paving Inc<br>Attention: Teresa Cronk<br>Address: 949 Wilson Ave<br>Toronto ON M3K 1G2<br>Tel: (416) 633-9670 Fax: _____<br>Email: TCronk@cocogroup.com                                                                                                                                                                                       |        | <b>REPORT TO:</b><br>Company Name: #17930 Golder Associates Ltd.<br>Attention: Dawn Hoyle/Jamie Bonany<br>Address: 121 Commerce Park Drive Unit L<br>Barrie ON L4N 8X1<br>Tel: (705) 722-4492 Fax: _____<br>Email: Dawn_Hoyle@golder.com/Jamie_Bonany@golder.com |                                                                                                                                                                                                                                                                                                                     | <b>PROJECT INFORMATION:</b><br>Quotation #: B47292<br>P.O. #: _____<br>Project: 1407634<br>Project Name: _____<br>Site #: MCCARTHY<br>Sampled By: _____ |              | <b>Laboratory Use Only:</b><br>Maxxam Job #: _____<br>Bottle Order #: <br>COC #: _____<br><br>C#590331-01-01<br>Project Manager: Antonella Brasil |                                                         |                                  |                       |               |    |                                         |              |                      |
| <b>MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE MAXXAM DRINKING WATER CHAIN OF CUSTODY</b>                                                                                                                                                                                                                                                   |        |                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                         |              | Turnaround Time (TAT) Required:<br>Please provide advance notice for rush projects                                                                                                                                                                                                                                      |                                                         |                                  |                       |               |    |                                         |              |                      |
| <b>Regulation 153 (2011)</b><br><input type="checkbox"/> Table 1 <input type="checkbox"/> Res/Park <input type="checkbox"/> Medium/Fine<br><input type="checkbox"/> Table 2 <input type="checkbox"/> Ind/Comm <input type="checkbox"/> Coarse<br><input type="checkbox"/> Table 3 <input type="checkbox"/> Agr/Other <input type="checkbox"/> For RSC<br><input type="checkbox"/> Table _____ |        |                                                                                                                                                                                                                                                                  | <b>Other Regulations</b><br><input type="checkbox"/> CCME <input type="checkbox"/> Sanitary Sewer Bylaw<br><input type="checkbox"/> Reg 558 <input type="checkbox"/> Storm Sewer Bylaw<br><input type="checkbox"/> MISA Municipality _____<br><input type="checkbox"/> PWQO<br><input type="checkbox"/> Other _____ |                                                                                                                                                         |              | <b>Special Instructions</b><br>_____                                                                                                                                                                                                                                                                                    |                                                         |                                  |                       |               |    |                                         |              |                      |
| Include Criteria on Certificate of Analysis (Y/N)? _____                                                                                                                                                                                                                                                                                                                                      |        |                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                         |              | Job Specific Rush TAT (if applies to entire submission)<br>Date Required: _____ Time Required: _____<br>Rush Confirmation Number: _____ (call lab for #)                                                                                                                                                                |                                                         |                                  |                       |               |    |                                         |              |                      |
| Sample Barcode Label                                                                                                                                                                                                                                                                                                                                                                          |        | Sample (Location) Identification                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                     | Date Sampled                                                                                                                                            | Time Sampled | Matrix                                                                                                                                                                                                                                                                                                                  | Field Filtered (please circle):<br>Metals / Hg / Cr / V | Low Level Total Suspended Solids | Oil & Grease - AOX/MT | Phenols (AAP) | pH | ANALYSIS REQUESTED (PLEASE BE SPECIFIC) | # 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 | Laboratory Use Only |                             |                                                                                                           |
| Teresa Mount<br>Teresa Mount         |  | 17/04/06         | 2:00pm |  |  | 2017/04/07       | 09:12 |                               | Time Sensitive      | Temperature (°C) on Receipt | Custody Seal<br>Present <input checked="" type="checkbox"/><br>Intact <input checked="" type="checkbox"/> |

\* 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

NOICE

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<br>Extracted | Date<br>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.

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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.

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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. #: 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

=====

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### RESULTS OF ANALYSES OF WATER

|                                                                                           |              |                                 |            |                 |
|-------------------------------------------------------------------------------------------|--------------|---------------------------------|------------|-----------------|
| <b>Maxxam ID</b>                                                                          |              | EF1105                          |            |                 |
| <b>Sampling Date</b>                                                                      |              | 2017/04/13<br>10:00             |            |                 |
| <b>COC Number</b>                                                                         |              | 590331-02-01                    |            |                 |
|                                                                                           | <b>UNITS</b> | <b>POND-MCCARTHY<br/>QUARRY</b> | <b>RDL</b> | <b>QC Batch</b> |
| <b>Calculated Parameters</b>                                                              |              |                                 |            |                 |
| Total Animal/Vegetable Oil and Grease                                                     | mg/L         | ND                              | 0.50       | 4941413         |
| <b>Inorganics</b>                                                                         |              |                                 |            |                 |
| pH                                                                                        | pH           | 8.16                            |            | 4943919         |
| Phenols-4AAP                                                                              | mg/L         | ND                              | 0.0010     | 4950183         |
| Total Suspended Solids                                                                    | mg/L         | 7                               | 1          | 4945269         |
| <b>Petroleum Hydrocarbons</b>                                                             |              |                                 |            |                 |
| Total Oil & Grease                                                                        | mg/L         | ND                              | 0.50       | 4944784         |
| Total Oil & Grease Mineral/Synthetic                                                      | mg/L         | ND                              | 0.50       | 4944795         |
| RDL = Reportable Detection Limit<br>QC Batch = Quality Control Batch<br>ND = Not detected |              |                                 |            |                 |

### 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.**

## QUALITY ASSURANCE REPORT

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

| QC Batch | Parameter                            | Date       | Matrix Spike |           | SPIKED BLANK |           | Method Blank      |       | RPD       |           | QC Standard |           |
|----------|--------------------------------------|------------|--------------|-----------|--------------|-----------|-------------------|-------|-----------|-----------|-------------|-----------|
|          |                                      |            | % 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,<br>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.

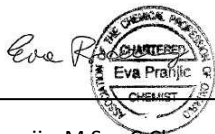
Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

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  $\leq 2 \times$  RDL).

### VALIDATION SIGNATURE PAGE

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

  
The seal is circular with the text "CANADIAN CHEMICAL PROFESSION" around the top edge and "1903" at the bottom. In the center, it reads "CHARTERED", "Eva Pranjić", and "CHEMIST".

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

---

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## CHAIN OF CUSTODY RECORD

Page of

[illegible]

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<br>Extracted | Date<br>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:**

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(1) Note: TPH (Heavy Oil) is equivalent to Mineral / Synthetic Oil & Grease

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

=====

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.



### RESULTS OF ANALYSES OF WATER

|                                                                                                                                          |              |                     |                            |            |                 |
|------------------------------------------------------------------------------------------------------------------------------------------|--------------|---------------------|----------------------------|------------|-----------------|
| <b>Maxxam ID</b>                                                                                                                         |              | EHK058              | EHK058                     |            |                 |
| <b>Sampling Date</b>                                                                                                                     |              | 2017/04/27<br>12:00 | 2017/04/27<br>12:00        |            |                 |
| <b>COC Number</b>                                                                                                                        |              | 577938-05-01        | 577938-05-01               |            |                 |
|                                                                                                                                          | <b>UNITS</b> | <b>590331 POND</b>  | <b>590331 POND Lab-Dup</b> | <b>RDL</b> | <b>QC Batch</b> |
| <b>Calculated Parameters</b>                                                                                                             |              |                     |                            |            |                 |
| Total Animal/Vegetable Oil and Grease                                                                                                    | mg/L         | 1.1                 | N/A                        | 0.50       | 4961360         |
| <b>Inorganics</b>                                                                                                                        |              |                     |                            |            |                 |
| 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         |
| <b>Petroleum Hydrocarbons</b>                                                                                                            |              |                     |                            |            |                 |
| 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<br>QC Batch = Quality Control Batch<br>Lab-Dup = Laboratory Initiated Duplicate<br>N/A = Not Applicable |              |                     |                            |            |                 |

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.

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  |           |
| 4966070     | 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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Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

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

### 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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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.

Your Project #: 1407634  
Site#: 1407634  
Site Location: MCCARTHY  
Your C.O.C. #: 590331-03-01

**Attention: Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2017/05/12**  
Report #: R4457732  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B791836**

**Received: 2017/05/05, 09:05**

Sample Matrix: Water  
# Samples Received: 1

| Analyses                          | Quantity | Date<br>Extracted | Date<br>Analyzed | Laboratory Method | Reference             |
|-----------------------------------|----------|-------------------|------------------|-------------------|-----------------------|
| Animal and Vegetable Oil & Grease | 1        | N/A               | 2017/05/11       | CAM SOP-00326     | EPA1664B m, SM5520B m |
| Total Oil and Grease              | 1        | 2017/05/11        | 2017/05/11       | CAM SOP-00326     | EPA1664B m, SM5520A m |
| pH                                | 1        | N/A               | 2017/05/10       | CAM SOP-00413     | SM 4500H+ B m         |
| Phenols (4AAP)                    | 1        | N/A               | 2017/05/09       | CAM SOP-00444     | OMOE E3179 m          |
| TPH (Heavy Oil) (1)               | 1        | 2017/05/11        | 2017/05/11       | CAM SOP-00326     | EPA1664B m, SM5520F m |
| Low Level Total Suspended Solids  | 1        | 2017/05/08        | 2017/05/09       | 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.

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

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

\* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) Note: TPH (Heavy Oil) is equivalent to Mineral / Synthetic Oil & Grease

Your Project #: 1407634  
Site#: 1407634  
Site Location: MCCARTHY  
Your C.O.C. #: 590331-03-01

**Attention:Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2017/05/12**  
Report #: R4457732  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B791836**  
**Received: 2017/05/05, 09:05**

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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### RESULTS OF ANALYSES OF WATER

|                                                                                              |              |                     |            |                 |
|----------------------------------------------------------------------------------------------|--------------|---------------------|------------|-----------------|
| <b>Maxxam ID</b>                                                                             |              | EII944              |            |                 |
| <b>Sampling Date</b>                                                                         |              | 2017/05/04<br>12:00 |            |                 |
| <b>COC Number</b>                                                                            |              | 590331-03-01        |            |                 |
|                                                                                              | <b>UNITS</b> | <b>590331 POND</b>  | <b>RDL</b> | <b>QC Batch</b> |
| <b>Calculated Parameters</b>                                                                 |              |                     |            |                 |
| Total Animal/Vegetable Oil and Grease                                                        | mg/L         | <0.50               | 0.50       | 4970025         |
| <b>Inorganics</b>                                                                            |              |                     |            |                 |
| pH                                                                                           | pH           | 7.77                | N/A        | 4976646         |
| Phenols-4AAP                                                                                 | mg/L         | <0.0010             | 0.0010     | 4975482         |
| Total Suspended Solids                                                                       | mg/L         | 3                   | 1          | 4973210         |
| <b>Petroleum Hydrocarbons</b>                                                                |              |                     |            |                 |
| Total Oil & Grease                                                                           | mg/L         | <0.50               | 0.50       | 4978822         |
| Total Oil & Grease Mineral/Synthetic                                                         | mg/L         | <0.50               | 0.50       | 4978832         |
| RDL = Reportable Detection Limit<br>QC Batch = Quality Control Batch<br>N/A = Not Applicable |              |                     |            |                 |

## GENERAL COMMENTS

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



### QUALITY ASSURANCE REPORT

| QA/QC Batch | Init | QC Type      | Parameter                            | Date Analyzed | Value   | Recovery | UNITS | QC Limits |
|-------------|------|--------------|--------------------------------------|---------------|---------|----------|-------|-----------|
| 4973210     | AS6  | QC Standard  | Total Suspended Solids               | 2017/05/09    |         | 100      | %     | 85 - 115  |
| 4973210     | AS6  | Method Blank | Total Suspended Solids               | 2017/05/09    | <1      |          | mg/L  |           |
| 4973210     | AS6  | RPD          | Total Suspended Solids               | 2017/05/09    | 5.4     |          | %     | 25        |
| 4975482     | ZSK  | Matrix Spike | Phenols-4AAP                         | 2017/05/09    |         | 104      | %     | 80 - 120  |
| 4975482     | ZSK  | Spiked Blank | Phenols-4AAP                         | 2017/05/09    |         | 101      | %     | 85 - 115  |
| 4975482     | ZSK  | Method Blank | Phenols-4AAP                         | 2017/05/09    | <0.0010 |          | mg/L  |           |
| 4975482     | ZSK  | RPD          | Phenols-4AAP                         | 2017/05/09    | NC      |          | %     | 20        |
| 4976646     | SAU  | Spiked Blank | pH                                   | 2017/05/10    |         | 102      | %     | 98 - 103  |
| 4976646     | SAU  | RPD          | pH                                   | 2017/05/10    | 0.16    |          | %     | N/A       |
| 4978822     | AMJ  | Spiked Blank | Total Oil & Grease                   | 2017/05/11    |         | 96       | %     | 85 - 115  |
| 4978822     | AMJ  | RPD          | Total Oil & Grease                   | 2017/05/11    | 1.1     |          | %     | 25        |
| 4978822     | AMJ  | Method Blank | Total Oil & Grease                   | 2017/05/11    | <0.50   |          | mg/L  |           |
| 4978832     | AMJ  | Spiked Blank | Total Oil & Grease Mineral/Synthetic | 2017/05/11    |         | 94       | %     | 85 - 115  |
| 4978832     | AMJ  | RPD          | Total Oil & Grease Mineral/Synthetic | 2017/05/11    | 1.2     |          | %     | 25        |
| 4978832     | AMJ  | Method Blank | Total Oil & Grease Mineral/Synthetic | 2017/05/11    | <0.50   |          | mg/L  |           |

N/A = Not Applicable

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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).



Brad Newman, Scientific Specialist

---

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Your Project #: 1407634  
Site Location: MCCARTHY  
Your C.O.C. #: 554700-04-01

**Attention: Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2017/05/23**  
Report #: R4477265  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B797815**

**Received: 2017/05/13, 09:15**

Sample Matrix: Water  
# Samples Received: 1

| Analyses                          | Quantity | Date<br>Extracted | Date<br>Analyzed | Laboratory Method | Reference             |
|-----------------------------------|----------|-------------------|------------------|-------------------|-----------------------|
| Animal and Vegetable Oil & Grease | 1        | N/A               | 2017/05/20       | CAM SOP-00326     | EPA1664B m, SM5520B m |
| Total Oil and Grease              | 1        | 2017/05/17        | 2017/05/18       | CAM SOP-00326     | EPA1664B m, SM5520A m |
| pH                                | 1        | N/A               | 2017/05/17       | CAM SOP-00413     | SM 4500H+ B m         |
| Phenols (4AAP)                    | 1        | N/A               | 2017/05/17       | CAM SOP-00444     | OMOE E3179 m          |
| TPH (Heavy Oil) (1)               | 1        | 2017/05/20        | 2017/05/20       | CAM SOP-00326     | EPA1664B m, SM5520F m |
| Low Level Total Suspended Solids  | 1        | 2017/05/20        | 2017/05/20       | CAM SOP-00428     | SM 22 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.

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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. #: 554700-04-01

**Attention:Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2017/05/23**  
Report #: R4477265  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B797815**  
**Received: 2017/05/13, 09:15**

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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### RESULTS OF ANALYSES OF WATER

|                                                                                                                                          |              |                     |            |                         |                 |
|------------------------------------------------------------------------------------------------------------------------------------------|--------------|---------------------|------------|-------------------------|-----------------|
| <b>Maxxam ID</b>                                                                                                                         |              | EJL023              |            | EJL023                  |                 |
| <b>Sampling Date</b>                                                                                                                     |              | 2017/05/11<br>12:30 |            | 2017/05/11<br>12:30     |                 |
| <b>COC Number</b>                                                                                                                        |              | 554700-04-01        |            | 554700-04-01            |                 |
|                                                                                                                                          | <b>UNITS</b> | <b>POND</b>         | <b>RDL</b> | <b>POND<br/>Lab-Dup</b> | <b>QC Batch</b> |
| <b>Calculated Parameters</b>                                                                                                             |              |                     |            |                         |                 |
| Total Animal/Vegetable Oil and Grease                                                                                                    | mg/L         | 1.3                 | 0.50       | N/A                     | 4990979         |
| <b>Inorganics</b>                                                                                                                        |              |                     |            |                         |                 |
| pH                                                                                                                                       | pH           | 8.43                | N/A        | 8.25                    | 4986179         |
| Phenols-4AAP                                                                                                                             | mg/L         | <0.0010             | 0.0010     | N/A                     | 4985391         |
| Total Suspended Solids                                                                                                                   | mg/L         | 5                   | 1          | N/A                     | 4992030         |
| <b>Petroleum Hydrocarbons</b>                                                                                                            |              |                     |            |                         |                 |
| Total Oil & Grease                                                                                                                       | mg/L         | 1.3                 | 0.50       | N/A                     | 4987006         |
| Total Oil & Grease Mineral/Synthetic                                                                                                     | mg/L         | <0.50               | 0.50       | N/A                     | 4992847         |
| RDL = Reportable Detection Limit<br>QC Batch = Quality Control Batch<br>Lab-Dup = Laboratory Initiated Duplicate<br>N/A = Not Applicable |              |                     |            |                         |                 |

Maxxam Job #: B797815  
Report Date: 2017/05/23

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

#### GENERAL COMMENTS

Results relate only to the items tested.

### QUALITY ASSURANCE REPORT

| QA/QC Batch | Init | QC Type         | Parameter                            | Date Analyzed | Value   | Recovery | UNITS | QC Limits |
|-------------|------|-----------------|--------------------------------------|---------------|---------|----------|-------|-----------|
| 4985391     | ZSK  | Matrix Spike    | Phenols-4AAP                         | 2017/05/17    |         | 101      | %     | 80 - 120  |
| 4985391     | ZSK  | Spiked Blank    | Phenols-4AAP                         | 2017/05/17    |         | 102      | %     | 85 - 115  |
| 4985391     | ZSK  | Method Blank    | Phenols-4AAP                         | 2017/05/17    | <0.0010 |          | mg/L  |           |
| 4985391     | ZSK  | RPD             | Phenols-4AAP                         | 2017/05/17    | NC      |          | %     | 20        |
| 4986179     | SAU  | Spiked Blank    | pH                                   | 2017/05/17    |         | 103      | %     | 98 - 103  |
| 4986179     | SAU  | RPD [EJL023-02] | pH                                   | 2017/05/17    | 2.1     |          | %     | N/A       |
| 4987006     | FA   | Matrix Spike    | Total Oil & Grease                   | 2017/05/18    |         | 90       | %     | 75 - 125  |
| 4987006     | FA   | Spiked Blank    | Total Oil & Grease                   | 2017/05/18    |         | 101      | %     | 85 - 115  |
| 4987006     | FA   | RPD             | Total Oil & Grease                   | 2017/05/18    | 2.8     |          | %     | 25        |
| 4987006     | FA   | Method Blank    | Total Oil & Grease                   | 2017/05/18    | <0.50   |          | mg/L  |           |
| 4992030     | AS6  | QC Standard     | Total Suspended Solids               | 2017/05/20    |         | 98       | %     | 85 - 115  |
| 4992030     | AS6  | Method Blank    | Total Suspended Solids               | 2017/05/20    | <1      |          | mg/L  |           |
| 4992030     | AS6  | RPD             | Total Suspended Solids               | 2017/05/20    | 6.5     |          | %     | 25        |
| 4992847     | FA   | Spiked Blank    | Total Oil & Grease Mineral/Synthetic | 2017/05/20    |         | 93       | %     | 85 - 115  |
| 4992847     | FA   | RPD             | Total Oil & Grease Mineral/Synthetic | 2017/05/20    | 3.0     |          | %     | 25        |
| 4992847     | FA   | Method Blank    | Total Oil & Grease Mineral/Synthetic | 2017/05/20    | <0.50   |          | mg/L  |           |

N/A = Not Applicable

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

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

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

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

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

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

### 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

*Ewa Pranjić*



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

---

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Your Project #: 1407634  
Site#: 1407634  
Site Location: MCCARTHY  
Your C.O.C. #: 583850-04-01

**Attention: Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2017/05/29**  
Report #: R4490399  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B7A3593**

**Received: 2017/05/20, 10:04**

Sample Matrix: Water  
# Samples Received: 1

| Analyses                          | Quantity | Date<br>Extracted | Date<br>Analyzed | Laboratory Method | Reference             |
|-----------------------------------|----------|-------------------|------------------|-------------------|-----------------------|
| Animal and Vegetable Oil & Grease | 1        | N/A               | 2017/05/25       | CAM SOP-00326     | EPA1664B m, SM5520B m |
| Total Oil and Grease              | 1        | 2017/05/25        | 2017/05/25       | CAM SOP-00326     | EPA1664B m, SM5520A m |
| pH                                | 1        | N/A               | 2017/05/25       | CAM SOP-00413     | SM 4500H+ B m         |
| Phenols (4AAP)                    | 1        | N/A               | 2017/05/26       | CAM SOP-00444     | OMOE E3179 m          |
| TPH (Heavy Oil) (1)               | 1        | 2017/05/25        | 2017/05/25       | CAM SOP-00326     | EPA1664B m, SM5520F m |
| Low Level Total Suspended Solids  | 1        | 2017/05/24        | 2017/05/24       | CAM SOP-00428     | SM 22 2540D m         |

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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.

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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. #: 583850-04-01

**Attention: Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2017/05/29**  
Report #: R4490399  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B7A3593**  
**Received: 2017/05/20, 10:04**

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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### RESULTS OF ANALYSES OF WATER

|                                                                                              |              |                     |            |                 |
|----------------------------------------------------------------------------------------------|--------------|---------------------|------------|-----------------|
| <b>Maxxam ID</b>                                                                             |              | EKM276              |            |                 |
| <b>Sampling Date</b>                                                                         |              | 2017/05/17<br>12:30 |            |                 |
| <b>COC Number</b>                                                                            |              | 583850-04-01        |            |                 |
|                                                                                              | <b>UNITS</b> | <b>5090331 POND</b> | <b>RDL</b> | <b>QC Batch</b> |
| <b>Calculated Parameters</b>                                                                 |              |                     |            |                 |
| Total Animal/Vegetable Oil and Grease                                                        | mg/L         | 3.5                 | 0.50       | 4993031         |
| <b>Inorganics</b>                                                                            |              |                     |            |                 |
| pH                                                                                           | pH           | 8.26                | N/A        | 4997509         |
| Phenols-4AAP                                                                                 | mg/L         | <0.0010             | 0.0010     | 5000981         |
| Total Suspended Solids                                                                       | mg/L         | 7                   | 1          | 4996274         |
| <b>Petroleum Hydrocarbons</b>                                                                |              |                     |            |                 |
| Total Oil & Grease                                                                           | mg/L         | 4.0                 | 0.50       | 4997802         |
| Total Oil & Grease Mineral/Synthetic                                                         | mg/L         | 0.50                | 0.50       | 4997806         |
| RDL = Reportable Detection Limit<br>QC Batch = Quality Control Batch<br>N/A = Not Applicable |              |                     |            |                 |

## GENERAL COMMENTS

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

### QUALITY ASSURANCE REPORT

| QA/QC Batch | Init | QC Type      | Parameter                            | Date Analyzed | Value   | Recovery | UNITS | QC Limits |
|-------------|------|--------------|--------------------------------------|---------------|---------|----------|-------|-----------|
| 4996274     | LWA  | QC Standard  | Total Suspended Solids               | 2017/05/24    |         | 95       | %     | 85 - 115  |
| 4996274     | LWA  | Method Blank | Total Suspended Solids               | 2017/05/24    | <1      |          | mg/L  |           |
| 4996274     | LWA  | RPD          | Total Suspended Solids               | 2017/05/24    | 16      |          | %     | 25        |
| 4997509     | SAU  | Spiked Blank | pH                                   | 2017/05/25    |         | 102      | %     | 98 - 103  |
| 4997509     | SAU  | RPD          | pH                                   | 2017/05/25    | 0.18    |          | %     | N/A       |
| 4997802     | FA   | Spiked Blank | Total Oil & Grease                   | 2017/05/25    |         | 101      | %     | 85 - 115  |
| 4997802     | FA   | RPD          | Total Oil & Grease                   | 2017/05/25    | 4.8     |          | %     | 25        |
| 4997802     | FA   | Method Blank | Total Oil & Grease                   | 2017/05/25    | <0.50   |          | mg/L  |           |
| 4997806     | FA   | Spiked Blank | Total Oil & Grease Mineral/Synthetic | 2017/05/25    |         | 96       | %     | 85 - 115  |
| 4997806     | FA   | RPD          | Total Oil & Grease Mineral/Synthetic | 2017/05/25    | 4.2     |          | %     | 25        |
| 4997806     | FA   | Method Blank | Total Oil & Grease Mineral/Synthetic | 2017/05/25    | <0.50   |          | mg/L  |           |
| 5000981     | ZSK  | Matrix Spike | Phenols-4AAP                         | 2017/05/26    |         | 100      | %     | 80 - 120  |
| 5000981     | ZSK  | Spiked Blank | Phenols-4AAP                         | 2017/05/26    |         | 99       | %     | 85 - 115  |
| 5000981     | ZSK  | Method Blank | Phenols-4AAP                         | 2017/05/26    | <0.0010 |          | mg/L  |           |
| 5000981     | ZSK  | RPD          | Phenols-4AAP                         | 2017/05/26    | 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.

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

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

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

### 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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Your Project #: 1407634  
Site#: MCCARTHY  
Site Location: MCCARTHY  
Your C.O.C. #: 577938-04-01

**Attention: Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2017/06/02**  
Report #: R4496897  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B7A7907**

**Received: 2017/05/26, 09:10**

Sample Matrix: Water  
# Samples Received: 1

| Analyses                          | Quantity | Date<br>Extracted | Date<br>Analyzed | Laboratory Method | Reference             |
|-----------------------------------|----------|-------------------|------------------|-------------------|-----------------------|
| Animal and Vegetable Oil & Grease | 1        | N/A               | 2017/05/31       | CAM SOP-00326     | EPA1664B m, SM5520B m |
| Total Oil and Grease              | 1        | 2017/05/31        | 2017/05/31       | CAM SOP-00326     | EPA1664B m, SM5520A m |
| pH                                | 1        | N/A               | 2017/05/31       | CAM SOP-00413     | SM 4500H+ B m         |
| Phenols (4AAP)                    | 1        | N/A               | 2017/06/01       | CAM SOP-00444     | OMOE E3179 m          |
| TPH (Heavy Oil) (1)               | 1        | 2017/05/31        | 2017/05/31       | CAM SOP-00326     | EPA1664B m, SM5520F m |
| Low Level Total Suspended Solids  | 1        | 2017/05/30        | 2017/05/30       | CAM SOP-00428     | SM 22 2540D m         |

**Remarks:**

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Your Project #: 1407634  
Site#: MCCARTHY  
Site Location: MCCARTHY  
Your C.O.C. #: 577938-04-01

**Attention:Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2017/06/02**  
Report #: R4496897  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B7A7907**  
**Received: 2017/05/26, 09:10**

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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### RESULTS OF ANALYSES OF WATER

|                                                                                              |              |                     |            |                 |
|----------------------------------------------------------------------------------------------|--------------|---------------------|------------|-----------------|
| <b>Maxxam ID</b>                                                                             |              | ELH195              |            |                 |
| <b>Sampling Date</b>                                                                         |              | 2017/05/25<br>12:30 |            |                 |
| <b>COC Number</b>                                                                            |              | 577938-04-01        |            |                 |
|                                                                                              | <b>UNITS</b> | <b>590331-POND</b>  | <b>RDL</b> | <b>QC Batch</b> |
| <b>Calculated Parameters</b>                                                                 |              |                     |            |                 |
| Total Animal/Vegetable Oil and Grease                                                        | mg/L         | <0.50               | 0.50       | 5002679         |
| <b>Inorganics</b>                                                                            |              |                     |            |                 |
| pH                                                                                           | pH           | 8.20                | N/A        | 5005928         |
| Phenols-4AAP                                                                                 | mg/L         | <0.0010             | 0.0010     | 5008751         |
| Total Suspended Solids                                                                       | mg/L         | 5                   | 2          | 5005326         |
| <b>Petroleum Hydrocarbons</b>                                                                |              |                     |            |                 |
| Total Oil & Grease                                                                           | mg/L         | <0.50               | 0.50       | 5006325         |
| Total Oil & Grease Mineral/Synthetic                                                         | mg/L         | <0.50               | 0.50       | 5006339         |
| RDL = Reportable Detection Limit<br>QC Batch = Quality Control Batch<br>N/A = Not Applicable |              |                     |            |                 |

## GENERAL COMMENTS

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

### QUALITY ASSURANCE REPORT

| QA/QC Batch | Init | QC Type      | Parameter                            | Date Analyzed | Value   | Recovery | UNITS | QC Limits |
|-------------|------|--------------|--------------------------------------|---------------|---------|----------|-------|-----------|
| 5005326     | LWA  | QC Standard  | Total Suspended Solids               | 2017/05/30    |         | 98       | %     | 85 - 115  |
| 5005326     | LWA  | Method Blank | Total Suspended Solids               | 2017/05/30    | <1      |          | mg/L  |           |
| 5005326     | LWA  | RPD          | Total Suspended Solids               | 2017/05/30    | NC      |          | %     | 25        |
| 5005928     | TA1  | Spiked Blank | pH                                   | 2017/05/31    |         | 101      | %     | 98 - 103  |
| 5005928     | TA1  | RPD          | pH                                   | 2017/05/31    | 0.37    |          | %     | N/A       |
| 5006325     | MA4  | Spiked Blank | Total Oil & Grease                   | 2017/05/31    |         | 95       | %     | 85 - 115  |
| 5006325     | MA4  | RPD          | Total Oil & Grease                   | 2017/05/31    | 2.9     |          | %     | 25        |
| 5006325     | MA4  | Method Blank | Total Oil & Grease                   | 2017/05/31    | <0.50   |          | mg/L  |           |
| 5006339     | MA4  | Spiked Blank | Total Oil & Grease Mineral/Synthetic | 2017/05/31    |         | 94       | %     | 85 - 115  |
| 5006339     | MA4  | RPD          | Total Oil & Grease Mineral/Synthetic | 2017/05/31    | 2.9     |          | %     | 25        |
| 5006339     | MA4  | Method Blank | Total Oil & Grease Mineral/Synthetic | 2017/05/31    | <0.50   |          | mg/L  |           |
| 5008751     | ZSK  | Matrix Spike | Phenols-4AAP                         | 2017/06/01    |         | 100      | %     | 80 - 120  |
| 5008751     | ZSK  | Spiked Blank | Phenols-4AAP                         | 2017/06/01    |         | 101      | %     | 85 - 115  |
| 5008751     | ZSK  | Method Blank | Phenols-4AAP                         | 2017/06/01    | <0.0010 |          | mg/L  |           |
| 5008751     | ZSK  | RPD          | Phenols-4AAP                         | 2017/06/01    | NC      |          | %     | 20        |

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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).

*Cristina Carriere*

---

Cristina Carriere, Scientific Services

---

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Your Project #: 1407634  
Site#: 1407634  
Site Location: MCCARTHY  
Your C.O.C. #: 583850-03-01

**Attention: Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2017/06/09**  
Report #: R4505729  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B7B4147**

**Received: 2017/06/02, 09:22**

Sample Matrix: Water  
# Samples Received: 1

| Analyses                          | Quantity | Date<br>Extracted | Date<br>Analyzed | Laboratory Method | Reference             |
|-----------------------------------|----------|-------------------|------------------|-------------------|-----------------------|
| Animal and Vegetable Oil & Grease | 1        | N/A               | 2017/06/08       | CAM SOP-00326     | EPA1664B m, SM5520B m |
| Total Oil and Grease              | 1        | 2017/06/08        | 2017/06/08       | CAM SOP-00326     | EPA1664B m, SM5520A m |
| pH                                | 1        | N/A               | 2017/06/06       | CAM SOP-00413     | SM 4500H+ B m         |
| Phenols (4AAP)                    | 1        | N/A               | 2017/06/05       | CAM SOP-00444     | OMOE E3179 m          |
| TPH (Heavy Oil) (1)               | 1        | 2017/06/08        | 2017/06/08       | CAM SOP-00326     | EPA1664B m, SM5520F m |
| Low Level Total Suspended Solids  | 1        | 2017/06/05        | 2017/06/06       | CAM SOP-00428     | SM 22 2540D m         |

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\* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) Note: TPH (Heavy Oil) is equivalent to Mineral / Synthetic Oil & Grease

Your Project #: 1407634  
Site#: 1407634  
Site Location: MCCARTHY  
Your C.O.C. #: 583850-03-01

**Attention:Dawn Hoyle/Jamie Bonany**

Golder Associates Ltd  
121 Commerce Park Drive  
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**Report Date: 2017/06/09**  
Report #: R4505729  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B7B4147**

**Received: 2017/06/02, 09:22**

**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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### RESULTS OF ANALYSES OF WATER

|                                       |              |                     |            |                 |
|---------------------------------------|--------------|---------------------|------------|-----------------|
| <b>Maxxam ID</b>                      |              | EMM203              |            |                 |
| <b>Sampling Date</b>                  |              | 2017/06/01<br>12:30 |            |                 |
| <b>COC Number</b>                     |              | 583850-03-01        |            |                 |
|                                       | <b>UNITS</b> | <b>POND</b>         | <b>RDL</b> | <b>QC Batch</b> |
| <b>Calculated Parameters</b>          |              |                     |            |                 |
| Total Animal/Vegetable Oil and Grease | mg/L         | 2.8                 | 0.50       | 5012029         |
| <b>Inorganics</b>                     |              |                     |            |                 |
| pH                                    | pH           | 8.38                | N/A        | 5013763         |
| Phenols-4AAP                          | mg/L         | 0.0010              | 0.0010     | 5013509         |
| Total Suspended Solids                | mg/L         | 6                   | 1          | 5013242         |
| <b>Petroleum Hydrocarbons</b>         |              |                     |            |                 |
| Total Oil & Grease                    | mg/L         | 2.8                 | 0.50       | 5018546         |
| Total Oil & Grease Mineral/Synthetic  | mg/L         | <0.50               | 0.50       | 5018547         |
| RDL = Reportable Detection Limit      |              |                     |            |                 |
| QC Batch = Quality Control Batch      |              |                     |            |                 |
| N/A = Not Applicable                  |              |                     |            |                 |

## GENERAL COMMENTS

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



### QUALITY ASSURANCE REPORT

| QA/QC Batch | Init | QC Type      | Parameter                            | Date Analyzed | Value   | Recovery | UNITS | QC Limits |
|-------------|------|--------------|--------------------------------------|---------------|---------|----------|-------|-----------|
| 5013242     | GKR  | QC Standard  | Total Suspended Solids               | 2017/06/06    |         | 99       | %     | 85 - 115  |
| 5013242     | GKR  | Method Blank | Total Suspended Solids               | 2017/06/06    | <1      |          | mg/L  |           |
| 5013242     | GKR  | RPD          | Total Suspended Solids               | 2017/06/06    | 18      |          | %     | 25        |
| 5013509     | ZSK  | Matrix Spike | Phenols-4AAP                         | 2017/06/05    |         | 102      | %     | 80 - 120  |
| 5013509     | ZSK  | Spiked Blank | Phenols-4AAP                         | 2017/06/05    |         | 102      | %     | 85 - 115  |
| 5013509     | ZSK  | Method Blank | Phenols-4AAP                         | 2017/06/05    | <0.0010 |          | mg/L  |           |
| 5013509     | ZSK  | RPD          | Phenols-4AAP                         | 2017/06/05    | NC      |          | %     | 20        |
| 5013763     | TA1  | Spiked Blank | pH                                   | 2017/06/06    |         | 102      | %     | 98 - 103  |
| 5013763     | TA1  | RPD          | pH                                   | 2017/06/06    | 0.27    |          | %     | N/A       |
| 5018546     | FA   | Spiked Blank | Total Oil & Grease                   | 2017/06/08    |         | 98       | %     | 85 - 115  |
| 5018546     | FA   | RPD          | Total Oil & Grease                   | 2017/06/08    | 4.7     |          | %     | 25        |
| 5018546     | FA   | Method Blank | Total Oil & Grease                   | 2017/06/08    | <0.50   |          | mg/L  |           |
| 5018547     | FA   | Spiked Blank | Total Oil & Grease Mineral/Synthetic | 2017/06/08    |         | 93       | %     | 85 - 115  |
| 5018547     | FA   | RPD          | Total Oil & Grease Mineral/Synthetic | 2017/06/08    | 1.8     |          | %     | 25        |
| 5018547     | FA   | Method Blank | Total Oil & Grease Mineral/Synthetic | 2017/06/08    | <0.50   |          | mg/L  |           |

N/A = Not Applicable

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

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

### VALIDATION SIGNATURE PAGE

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



Brad Newman, Scientific Specialist

---

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Your Project #: 1407634  
Site#: 1407634  
Site Location: MCCARTHY  
Your C.O.C. #: 587674-02-01

**Attention: Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2017/06/16**  
Report #: R4532920  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B7B9678**

**Received: 2017/06/09, 09:12**

Sample Matrix: Water  
# Samples Received: 1

| Analyses                          | Quantity | Date<br>Extracted | Date<br>Analyzed | Laboratory Method | Reference             |
|-----------------------------------|----------|-------------------|------------------|-------------------|-----------------------|
| Animal and Vegetable Oil & Grease | 1        | N/A               | 2017/06/15       | CAM SOP-00326     | EPA1664B m, SM5520B m |
| Total Oil and Grease              | 1        | 2017/06/14        | 2017/06/15       | CAM SOP-00326     | EPA1664B m, SM5520A m |
| pH                                | 1        | N/A               | 2017/06/13       | CAM SOP-00413     | SM 4500H+ B m         |
| Phenols (4AAP)                    | 1        | N/A               | 2017/06/14       | CAM SOP-00444     | OMOE E3179 m          |
| TPH (Heavy Oil) (1)               | 1        | 2017/06/14        | 2017/06/15       | CAM SOP-00326     | EPA1664B m, SM5520F m |
| Low Level Total Suspended Solids  | 1        | 2017/06/12        | 2017/06/12       | CAM SOP-00428     | SM 22 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.

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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. #: 587674-02-01

**Attention:Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2017/06/16**  
Report #: R4532920  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B7B9678**  
**Received: 2017/06/09, 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

=====

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### RESULTS OF ANALYSES OF WATER

|                                                                                              |              |                     |            |                 |
|----------------------------------------------------------------------------------------------|--------------|---------------------|------------|-----------------|
| <b>Maxxam ID</b>                                                                             |              | ENM780              |            |                 |
| <b>Sampling Date</b>                                                                         |              | 2017/06/08<br>12:30 |            |                 |
| <b>COC Number</b>                                                                            |              | 587674-02-01        |            |                 |
|                                                                                              | <b>UNITS</b> | <b>POND</b>         | <b>RDL</b> | <b>QC Batch</b> |
| <b>Calculated Parameters</b>                                                                 |              |                     |            |                 |
| Total Animal/Vegetable Oil and Grease                                                        | mg/L         | 1.9                 | 0.50       | 5020985         |
| <b>Inorganics</b>                                                                            |              |                     |            |                 |
| pH                                                                                           | pH           | 8.41                | N/A        | 5025661         |
| Phenols-4AAP                                                                                 | mg/L         | <0.0010             | 0.0010     | 5028076         |
| Total Suspended Solids                                                                       | mg/L         | 5                   | 1          | 5023322         |
| <b>Petroleum Hydrocarbons</b>                                                                |              |                     |            |                 |
| Total Oil & Grease                                                                           | mg/L         | 1.9                 | 0.50       | 5027289         |
| Total Oil & Grease Mineral/Synthetic                                                         | mg/L         | <0.50               | 0.50       | 5027294         |
| RDL = Reportable Detection Limit<br>QC Batch = Quality Control Batch<br>N/A = Not Applicable |              |                     |            |                 |

## GENERAL COMMENTS

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

### QUALITY ASSURANCE REPORT

| QA/QC Batch | Init | QC Type      | Parameter                            | Date Analyzed | Value   | Recovery | UNITS | QC Limits |
|-------------|------|--------------|--------------------------------------|---------------|---------|----------|-------|-----------|
| 5023322     | RAY  | QC Standard  | Total Suspended Solids               | 2017/06/12    |         | 96       | %     | 85 - 115  |
| 5023322     | RAY  | Method Blank | Total Suspended Solids               | 2017/06/12    | <1      |          | mg/L  |           |
| 5023322     | RAY  | RPD          | Total Suspended Solids               | 2017/06/12    | NC      |          | %     | 25        |
| 5025661     | TA1  | Spiked Blank | pH                                   | 2017/06/13    |         | 102      | %     | 98 - 103  |
| 5025661     | TA1  | RPD          | pH                                   | 2017/06/13    | 0.22    |          | %     | N/A       |
| 5027289     | FA   | Spiked Blank | Total Oil & Grease                   | 2017/06/15    |         | 99       | %     | 85 - 115  |
| 5027289     | FA   | RPD          | Total Oil & Grease                   | 2017/06/15    | 4.0     |          | %     | 25        |
| 5027289     | FA   | Method Blank | Total Oil & Grease                   | 2017/06/15    | <0.50   |          | mg/L  |           |
| 5027294     | FA   | Spiked Blank | Total Oil & Grease Mineral/Synthetic | 2017/06/15    |         | 91       | %     | 85 - 115  |
| 5027294     | FA   | RPD          | Total Oil & Grease Mineral/Synthetic | 2017/06/15    | 4.2     |          | %     | 25        |
| 5027294     | FA   | Method Blank | Total Oil & Grease Mineral/Synthetic | 2017/06/15    | <0.50   |          | mg/L  |           |
| 5028076     | ZSK  | Matrix Spike | Phenols-4AAP                         | 2017/06/14    |         | 98       | %     | 80 - 120  |
| 5028076     | ZSK  | Spiked Blank | Phenols-4AAP                         | 2017/06/14    |         | 98       | %     | 85 - 115  |
| 5028076     | ZSK  | Method Blank | Phenols-4AAP                         | 2017/06/14    | <0.0010 |          | mg/L  |           |
| 5028076     | ZSK  | RPD          | Phenols-4AAP                         | 2017/06/14    | NC      |          | %     | 20        |

N/A = Not Applicable

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

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

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

### VALIDATION SIGNATURE PAGE

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

*Cristina Carriere*

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Cristina Carriere, Scientific Services

---

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Your Project #: 1407634  
Site#: 1407634  
Site Location: MCCARTHY  
Your C.O.C. #: 587674-03-01

**Attention: Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2017/06/29**  
Report #: R4565812  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B7D1805**

**Received: 2017/06/23, 09:25**

Sample Matrix: Water  
# Samples Received: 1

| Analyses                          | Quantity | Date<br>Extracted | Date<br>Analyzed | Laboratory Method | Reference             |
|-----------------------------------|----------|-------------------|------------------|-------------------|-----------------------|
| Animal and Vegetable Oil & Grease | 1        | N/A               | 2017/06/28       | CAM SOP-00326     | EPA1664B m, SM5520B m |
| Total Oil and Grease              | 1        | 2017/06/28        | 2017/06/28       | CAM SOP-00326     | EPA1664B m, SM5520A m |
| pH                                | 1        | N/A               | 2017/06/26       | CAM SOP-00413     | SM 4500H+ B m         |
| Phenols (4AAP)                    | 1        | N/A               | 2017/06/26       | CAM SOP-00444     | OMOE E3179 m          |
| TPH (Heavy Oil) (1)               | 1        | 2017/06/28        | 2017/06/28       | CAM SOP-00326     | EPA1664B m, SM5520F m |
| Low Level Total Suspended Solids  | 1        | 2017/06/24        | 2017/06/24       | CAM SOP-00428     | SM 22 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.

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(1) Note: TPH (Heavy Oil) is equivalent to Mineral / Synthetic Oil & Grease

Your Project #: 1407634  
Site#: 1407634  
Site Location: MCCARTHY  
Your C.O.C. #: 587674-03-01

**Attention:Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2017/06/29**  
Report #: R4565812  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B7D1805**  
**Received: 2017/06/23, 09:25**

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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### RESULTS OF ANALYSES OF WATER

|                                                                                              |              |                     |            |                 |
|----------------------------------------------------------------------------------------------|--------------|---------------------|------------|-----------------|
| <b>Maxxam ID</b>                                                                             |              | EPT328              |            |                 |
| <b>Sampling Date</b>                                                                         |              | 2017/06/22<br>12:30 |            |                 |
| <b>COC Number</b>                                                                            |              | 587674-03-01        |            |                 |
|                                                                                              | <b>UNITS</b> | <b>590331 POND</b>  | <b>RDL</b> | <b>QC Batch</b> |
| <b>Calculated Parameters</b>                                                                 |              |                     |            |                 |
| Total Animal/Vegetable Oil and Grease                                                        | mg/L         | 2.0                 | 0.50       | 5042685         |
| <b>Inorganics</b>                                                                            |              |                     |            |                 |
| pH                                                                                           | pH           | 9.11                | N/A        | 5044696         |
| Phenols-4AAP                                                                                 | mg/L         | <0.0010             | 0.0010     | 5046029         |
| Total Suspended Solids                                                                       | mg/L         | 5                   | 1          | 5044539         |
| <b>Petroleum Hydrocarbons</b>                                                                |              |                     |            |                 |
| Total Oil & Grease                                                                           | mg/L         | 2.0                 | 0.50       | 5049421         |
| Total Oil & Grease Mineral/Synthetic                                                         | mg/L         | <0.50               | 0.50       | 5049426         |
| RDL = Reportable Detection Limit<br>QC Batch = Quality Control Batch<br>N/A = Not Applicable |              |                     |            |                 |

## GENERAL COMMENTS

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

### QUALITY ASSURANCE REPORT

| QA/QC Batch | Init | QC Type      | Parameter                            | Date Analyzed | Value   | Recovery | UNITS | QC Limits |
|-------------|------|--------------|--------------------------------------|---------------|---------|----------|-------|-----------|
| 5044539     | XZH  | QC Standard  | Total Suspended Solids               | 2017/06/24    |         | 99       | %     | 85 - 115  |
| 5044539     | XZH  | Method Blank | Total Suspended Solids               | 2017/06/24    | <1      |          | mg/L  |           |
| 5044539     | XZH  | RPD          | Total Suspended Solids               | 2017/06/24    | 15      |          | %     | 25        |
| 5044696     | TA1  | Spiked Blank | pH                                   | 2017/06/26    |         | 102      | %     | 98 - 103  |
| 5044696     | TA1  | RPD          | pH                                   | 2017/06/26    | 1.8     |          | %     | N/A       |
| 5046029     | ZSK  | Matrix Spike | Phenols-4AAP                         | 2017/06/26    |         | 106      | %     | 80 - 120  |
| 5046029     | ZSK  | Spiked Blank | Phenols-4AAP                         | 2017/06/26    |         | 98       | %     | 85 - 115  |
| 5046029     | ZSK  | Method Blank | Phenols-4AAP                         | 2017/06/26    | <0.0010 |          | mg/L  |           |
| 5046029     | ZSK  | RPD          | Phenols-4AAP                         | 2017/06/26    | 5.0     |          | %     | 20        |
| 5049421     | MA4  | Spiked Blank | Total Oil & Grease                   | 2017/06/28    |         | 97       | %     | 85 - 115  |
| 5049421     | MA4  | RPD          | Total Oil & Grease                   | 2017/06/28    | 2.9     |          | %     | 25        |
| 5049421     | MA4  | Method Blank | Total Oil & Grease                   | 2017/06/28    | <0.50   |          | mg/L  |           |
| 5049426     | MA4  | Spiked Blank | Total Oil & Grease Mineral/Synthetic | 2017/06/28    |         | 94       | %     | 85 - 115  |
| 5049426     | MA4  | RPD          | Total Oil & Grease Mineral/Synthetic | 2017/06/28    | 0.58    |          | %     | 25        |
| 5049426     | MA4  | Method Blank | Total Oil & Grease Mineral/Synthetic | 2017/06/28    | <0.50   |          | mg/L  |           |

N/A = Not Applicable

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

### VALIDATION SIGNATURE PAGE

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



Brad Newman, Scientific Specialist

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Your Project #: 1407634  
Site#: 1407634  
Site Location: MCCARTHY  
Your C.O.C. #: 587674-05-01

**Attention: Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2017/07/06**  
Report #: R4579638  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B7D8015**

**Received: 2017/06/30, 09:01**

Sample Matrix: Water  
# Samples Received: 1

| Analyses                          | Quantity | Date<br>Extracted | Date<br>Analyzed | Laboratory Method | Reference             |
|-----------------------------------|----------|-------------------|------------------|-------------------|-----------------------|
| Animal and Vegetable Oil & Grease | 1        | N/A               | 2017/07/06       | CAM SOP-00326     | EPA1664B m, SM5520B m |
| Total Oil and Grease              | 1        | 2017/07/06        | 2017/07/06       | CAM SOP-00326     | EPA1664B m, SM5520A m |
| pH                                | 1        | N/A               | 2017/07/04       | CAM SOP-00413     | SM 4500H+ B m         |
| Phenols (4AAP)                    | 1        | N/A               | 2017/07/05       | CAM SOP-00444     | OMOE E3179 m          |
| TPH (Heavy Oil) (1)               | 1        | 2017/07/06        | 2017/07/06       | CAM SOP-00326     | EPA1664B m, SM5520F m |
| Low Level Total Suspended Solids  | 1        | 2017/07/01        | 2017/07/01       | CAM SOP-00428     | SM 22 2540D m         |

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Results relate to samples tested.

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(1) Note: TPH (Heavy Oil) is equivalent to Mineral / Synthetic Oil & Grease

Your Project #: 1407634  
Site#: 1407634  
Site Location: MCCARTHY  
Your C.O.C. #: 587674-05-01

**Attention:Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2017/07/06**  
Report #: R4579638  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B7D8015**  
**Received: 2017/06/30, 09:01**

Encryption Key

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Email: ABrasil@maxxam.ca  
Phone# (905)817-5817

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### RESULTS OF ANALYSES OF WATER

|                                                                                                                                          |              |                     |                            |            |                 |
|------------------------------------------------------------------------------------------------------------------------------------------|--------------|---------------------|----------------------------|------------|-----------------|
| <b>Maxxam ID</b>                                                                                                                         |              | EQY663              | EQY663                     |            |                 |
| <b>Sampling Date</b>                                                                                                                     |              | 2017/06/29<br>12:30 | 2017/06/29<br>12:30        |            |                 |
| <b>COC Number</b>                                                                                                                        |              | 587674-05-01        | 587674-05-01               |            |                 |
|                                                                                                                                          | <b>UNITS</b> | <b>590331 POND</b>  | <b>590331 POND Lab-Dup</b> | <b>RDL</b> | <b>QC Batch</b> |
| <b>Calculated Parameters</b>                                                                                                             |              |                     |                            |            |                 |
| Total Animal/Vegetable Oil and Grease                                                                                                    | mg/L         | <0.50               | N/A                        | 0.50       | 5053394         |
| <b>Inorganics</b>                                                                                                                        |              |                     |                            |            |                 |
| pH                                                                                                                                       | pH           | 8.68                | N/A                        | N/A        | 5056437         |
| Phenols-4AAP                                                                                                                             | mg/L         | <0.0010             | N/A                        | 0.0010     | 5058568         |
| Total Suspended Solids                                                                                                                   | mg/L         | 2                   | 2                          | 1          | 5055261         |
| <b>Petroleum Hydrocarbons</b>                                                                                                            |              |                     |                            |            |                 |
| Total Oil & Grease                                                                                                                       | mg/L         | <0.50               | N/A                        | 0.50       | 5060199         |
| Total Oil & Grease Mineral/Synthetic                                                                                                     | mg/L         | <0.50               | N/A                        | 0.50       | 5060201         |
| RDL = Reportable Detection Limit<br>QC Batch = Quality Control Batch<br>Lab-Dup = Laboratory Initiated Duplicate<br>N/A = Not Applicable |              |                     |                            |            |                 |

## GENERAL COMMENTS

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

### QUALITY ASSURANCE REPORT

| QA/QC Batch | Init | QC Type         | Parameter                            | Date Analyzed | Value   | Recovery | UNITS | QC Limits |
|-------------|------|-----------------|--------------------------------------|---------------|---------|----------|-------|-----------|
| 5055261     | XZH  | QC Standard     | Total Suspended Solids               | 2017/07/01    |         | 97       | %     | 85 - 115  |
| 5055261     | XZH  | Method Blank    | Total Suspended Solids               | 2017/07/01    | <1      |          | mg/L  |           |
| 5055261     | XZH  | RPD [EQY663-03] | Total Suspended Solids               | 2017/07/01    | 8.7     |          | %     | 25        |
| 5056437     | TA1  | Spiked Blank    | pH                                   | 2017/07/04    |         | 102      | %     | 98 - 103  |
| 5056437     | TA1  | RPD             | pH                                   | 2017/07/04    | 0.38    |          | %     | N/A       |
| 5058568     | ZSK  | Matrix Spike    | Phenols-4AAP                         | 2017/07/05    |         | 100      | %     | 80 - 120  |
| 5058568     | ZSK  | Spiked Blank    | Phenols-4AAP                         | 2017/07/05    |         | 97       | %     | 85 - 115  |
| 5058568     | ZSK  | Method Blank    | Phenols-4AAP                         | 2017/07/05    | <0.0010 |          | mg/L  |           |
| 5058568     | ZSK  | RPD             | Phenols-4AAP                         | 2017/07/05    | NC      |          | %     | 20        |
| 5060199     | MA4  | Spiked Blank    | Total Oil & Grease                   | 2017/07/06    |         | 97       | %     | 85 - 115  |
| 5060199     | MA4  | RPD             | Total Oil & Grease                   | 2017/07/06    | 0.87    |          | %     | 25        |
| 5060199     | MA4  | Method Blank    | Total Oil & Grease                   | 2017/07/06    | <0.50   |          | mg/L  |           |
| 5060201     | MA4  | Spiked Blank    | Total Oil & Grease Mineral/Synthetic | 2017/07/06    |         | 94       | %     | 85 - 115  |
| 5060201     | MA4  | RPD             | Total Oil & Grease Mineral/Synthetic | 2017/07/06    | 0.58    |          | %     | 25        |
| 5060201     | MA4  | Method Blank    | Total Oil & Grease Mineral/Synthetic | 2017/07/06    | <0.50   |          | mg/L  |           |

N/A = Not Applicable

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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).

*Cristina Carriere*

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Cristina Carriere, Scientific Services

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Your Project #: 1407634  
Site#: 1407634  
Site Location: MCCARTHY  
Your C.O.C. #: 533889-01-01

**Attention: Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2017/07/13**  
Report #: R4595658  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B7E3144**

**Received: 2017/07/07, 09:26**

Sample Matrix: Water  
# Samples Received: 1

| Analyses                          | Quantity | Date<br>Extracted | Date<br>Analyzed | Laboratory Method | Reference             |
|-----------------------------------|----------|-------------------|------------------|-------------------|-----------------------|
| Animal and Vegetable Oil & Grease | 1        | N/A               | 2017/07/12       | CAM SOP-00326     | EPA1664B m, SM5520B m |
| Total Oil and Grease              | 1        | 2017/07/11        | 2017/07/12       | CAM SOP-00326     | EPA1664B m, SM5520A m |
| pH                                | 1        | N/A               | 2017/07/10       | CAM SOP-00413     | SM 4500H+ B m         |
| Phenols (4AAP)                    | 1        | N/A               | 2017/07/10       | CAM SOP-00444     | OMOE E3179 m          |
| TPH (Heavy Oil) (1)               | 1        | 2017/07/11        | 2017/07/12       | CAM SOP-00326     | EPA1664B m, SM5520F m |
| Low Level Total Suspended Solids  | 1        | 2017/07/10        | 2017/07/10       | CAM SOP-00428     | SM 22 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.

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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. #: 533889-01-01

**Attention:Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2017/07/13**  
Report #: R4595658  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B7E3144**  
**Received: 2017/07/07, 09:26**

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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### RESULTS OF ANALYSES OF WATER

|                                                                                              |              |                     |            |                 |
|----------------------------------------------------------------------------------------------|--------------|---------------------|------------|-----------------|
| <b>Maxxam ID</b>                                                                             |              | ERY093              |            |                 |
| <b>Sampling Date</b>                                                                         |              | 2017/07/06<br>12:30 |            |                 |
| <b>COC Number</b>                                                                            |              | 533889-01-01        |            |                 |
|                                                                                              | <b>UNITS</b> | <b>590331 POND</b>  | <b>RDL</b> | <b>QC Batch</b> |
| <b>Calculated Parameters</b>                                                                 |              |                     |            |                 |
| Total Animal/Vegetable Oil and Grease                                                        | mg/L         | <0.50               | 0.50       | 5062294         |
| <b>Inorganics</b>                                                                            |              |                     |            |                 |
| pH                                                                                           | pH           | 8.36                | N/A        | 5064392         |
| Phenols-4AAP                                                                                 | mg/L         | <0.0010             | 0.0010     | 5065820         |
| Total Suspended Solids                                                                       | mg/L         | 3                   | 1          | 5065445         |
| <b>Petroleum Hydrocarbons</b>                                                                |              |                     |            |                 |
| Total Oil & Grease                                                                           | mg/L         | <0.50               | 0.50       | 5067982         |
| Total Oil & Grease Mineral/Synthetic                                                         | mg/L         | <0.50               | 0.50       | 5067989         |
| RDL = Reportable Detection Limit<br>QC Batch = Quality Control Batch<br>N/A = Not Applicable |              |                     |            |                 |

Maxxam Job #: B7E3144  
Report Date: 2017/07/13

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

#### GENERAL COMMENTS

Results relate only to the items tested.



### QUALITY ASSURANCE REPORT

| QA/QC Batch | Init | QC Type      | Parameter                            | Date Analyzed | Value   | Recovery | UNITS | QC Limits |
|-------------|------|--------------|--------------------------------------|---------------|---------|----------|-------|-----------|
| 5064392     | TA1  | Spiked Blank | pH                                   | 2017/07/10    |         | 101      | %     | 98 - 103  |
| 5064392     | TA1  | RPD          | pH                                   | 2017/07/10    | 0.64    |          | %     | N/A       |
| 5065445     | RAY  | QC Standard  | Total Suspended Solids               | 2017/07/10    |         | 100      | %     | 85 - 115  |
| 5065445     | RAY  | Method Blank | Total Suspended Solids               | 2017/07/10    | <1      |          | mg/L  |           |
| 5065445     | RAY  | RPD          | Total Suspended Solids               | 2017/07/10    | 20      |          | %     | 25        |
| 5065820     | ZSK  | Matrix Spike | Phenols-4AAP                         | 2017/07/10    |         | 109      | %     | 80 - 120  |
| 5065820     | ZSK  | Spiked Blank | Phenols-4AAP                         | 2017/07/10    |         | 103      | %     | 85 - 115  |
| 5065820     | ZSK  | Method Blank | Phenols-4AAP                         | 2017/07/10    | <0.0010 |          | mg/L  |           |
| 5065820     | ZSK  | RPD          | Phenols-4AAP                         | 2017/07/10    | NC      |          | %     | 20        |
| 5067982     | AMJ  | Matrix Spike | Total Oil & Grease                   | 2017/07/12    |         | 98       | %     | 75 - 125  |
| 5067982     | AMJ  | Spiked Blank | Total Oil & Grease                   | 2017/07/12    |         | 102      | %     | 85 - 115  |
| 5067982     | AMJ  | RPD          | Total Oil & Grease                   | 2017/07/12    | 5.0     |          | %     | 25        |
| 5067982     | AMJ  | Method Blank | Total Oil & Grease                   | 2017/07/12    | <0.50   |          | mg/L  |           |
| 5067989     | AMJ  | Matrix Spike | Total Oil & Grease Mineral/Synthetic | 2017/07/12    |         | 93       | %     | 75 - 125  |
| 5067989     | AMJ  | Spiked Blank | Total Oil & Grease Mineral/Synthetic | 2017/07/12    |         | 97       | %     | 85 - 115  |
| 5067989     | AMJ  | RPD          | Total Oil & Grease Mineral/Synthetic | 2017/07/12    | 4.1     |          | %     | 25        |
| 5067989     | AMJ  | Method Blank | Total Oil & Grease Mineral/Synthetic | 2017/07/12    | <0.50   |          | mg/L  |           |

N/A = Not Applicable

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

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

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

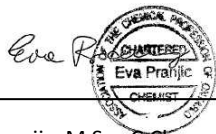
Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

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

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

### VALIDATION SIGNATURE PAGE

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

  
The image shows a handwritten signature 'Eva P.' in cursive. To the right of the signature is a circular professional seal. The seal contains the text 'THE CHEMICAL PROFESSION', 'CHARTERED', 'Eva Pranjić', and 'CHEMIST'.

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

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Your Project #: 1407634  
Site#: 1407634  
Site Location: McCarthy  
Your C.O.C. #: 618755-01-01

**Attention: Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2017/07/21**  
Report #: R4607058  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B7E9003**

**Received: 2017/07/14, 08:48**

Sample Matrix: Water  
# Samples Received: 1

| Analyses                          | Quantity | Date<br>Extracted | Date<br>Analyzed | Laboratory Method | Reference             |
|-----------------------------------|----------|-------------------|------------------|-------------------|-----------------------|
| Animal and Vegetable Oil & Grease | 1        | N/A               | 2017/07/19       | CAM SOP-00326     | EPA1664B m, SM5520B m |
| Total Oil and Grease              | 1        | 2017/07/19        | 2017/07/19       | CAM SOP-00326     | EPA1664B m, SM5520A m |
| pH                                | 1        | N/A               | 2017/07/19       | CAM SOP-00413     | SM 4500H+ B m         |
| Phenols (4AAP)                    | 1        | N/A               | 2017/07/18       | CAM SOP-00444     | OMOE E3179 m          |
| TPH (Heavy Oil) (1)               | 1        | 2017/07/19        | 2017/07/19       | CAM SOP-00326     | EPA1664B m, SM5520F m |
| Low Level Total Suspended Solids  | 1        | 2017/07/15        | 2017/07/15       | CAM SOP-00428     | SM 22 2540D m         |

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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.

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\* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) Note: TPH (Heavy Oil) is equivalent to Mineral / Synthetic Oil & Grease

Your Project #: 1407634  
Site#: 1407634  
Site Location: McCarthy  
Your C.O.C. #: 618755-01-01

**Attention: Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2017/07/21**  
Report #: R4607058  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B7E9003**  
**Received: 2017/07/14, 08:48**

Encryption Key

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Antonella Brasil, Senior Project Manager  
Email: ABrasil@maxxam.ca  
Phone# (905)817-5817

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### RESULTS OF ANALYSES OF WATER

|                                                                                                                                          |              |                     |                           |            |                 |
|------------------------------------------------------------------------------------------------------------------------------------------|--------------|---------------------|---------------------------|------------|-----------------|
| <b>Maxxam ID</b>                                                                                                                         |              | ETB388              | ETB388                    |            |                 |
| <b>Sampling Date</b>                                                                                                                     |              | 2017/07/13<br>12:00 | 2017/07/13<br>12:00       |            |                 |
| <b>COC Number</b>                                                                                                                        |              | 618755-01-01        | 618755-01-01              |            |                 |
|                                                                                                                                          | <b>UNITS</b> | <b>590331</b>       | <b>590331<br/>Lab-Dup</b> | <b>RDL</b> | <b>QC Batch</b> |
| <b>Calculated Parameters</b>                                                                                                             |              |                     |                           |            |                 |
| Total Animal/Vegetable Oil and Grease                                                                                                    | mg/L         | 4.1                 | N/A                       | 0.50       | 5073253         |
| <b>Inorganics</b>                                                                                                                        |              |                     |                           |            |                 |
| pH                                                                                                                                       | pH           | 8.47                | N/A                       | N/A        | 5078236         |
| Phenols-4AAP                                                                                                                             | mg/L         | <0.0010             | <0.0010                   | 0.0010     | 5078127         |
| Total Suspended Solids                                                                                                                   | mg/L         | 6                   | N/A                       | 1          | 5075127         |
| <b>Petroleum Hydrocarbons</b>                                                                                                            |              |                     |                           |            |                 |
| Total Oil & Grease                                                                                                                       | mg/L         | 4.1                 | N/A                       | 0.50       | 5079826         |
| Total Oil & Grease Mineral/Synthetic                                                                                                     | mg/L         | <0.50               | N/A                       | 0.50       | 5079833         |
| RDL = Reportable Detection Limit<br>QC Batch = Quality Control Batch<br>Lab-Dup = Laboratory Initiated Duplicate<br>N/A = Not Applicable |              |                     |                           |            |                 |

Maxxam Job #: B7E9003  
Report Date: 2017/07/21

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

#### GENERAL COMMENTS

Results relate only to the items tested.

### QUALITY ASSURANCE REPORT

| QA/QC Batch | Init | QC Type                  | Parameter                            | Date Analyzed | Value   | Recovery | UNITS | QC Limits |
|-------------|------|--------------------------|--------------------------------------|---------------|---------|----------|-------|-----------|
| 5075127     | XZH  | QC Standard              | Total Suspended Solids               | 2017/07/15    |         | 97       | %     | 85 - 115  |
| 5075127     | XZH  | Method Blank             | Total Suspended Solids               | 2017/07/15    | <1      |          | mg/L  |           |
| 5075127     | XZH  | RPD                      | Total Suspended Solids               | 2017/07/15    | 16      |          | %     | 25        |
| 5078127     | ZSK  | Matrix Spike [ETB388-04] | Phenols-4AAP                         | 2017/07/18    |         | 100      | %     | 80 - 120  |
| 5078127     | ZSK  | Spiked Blank             | Phenols-4AAP                         | 2017/07/18    |         | 100      | %     | 85 - 115  |
| 5078127     | ZSK  | Method Blank             | Phenols-4AAP                         | 2017/07/18    | <0.0010 |          | mg/L  |           |
| 5078127     | ZSK  | RPD [ETB388-04]          | Phenols-4AAP                         | 2017/07/18    | NC      |          | %     | 20        |
| 5078236     | TA1  | Spiked Blank             | pH                                   | 2017/07/19    |         | 102      | %     | 98 - 103  |
| 5078236     | TA1  | RPD                      | pH                                   | 2017/07/19    | 0.84    |          | %     | N/A       |
| 5079826     | FA   | Spiked Blank             | Total Oil & Grease                   | 2017/07/19    |         | 98       | %     | 85 - 115  |
| 5079826     | FA   | RPD                      | Total Oil & Grease                   | 2017/07/19    | 4.0     |          | %     | 25        |
| 5079826     | FA   | Method Blank             | Total Oil & Grease                   | 2017/07/19    | <0.50   |          | mg/L  |           |
| 5079833     | FA   | Spiked Blank             | Total Oil & Grease Mineral/Synthetic | 2017/07/19    |         | 96       | %     | 85 - 115  |
| 5079833     | FA   | RPD                      | Total Oil & Grease Mineral/Synthetic | 2017/07/19    | 2.3     |          | %     | 25        |
| 5079833     | FA   | Method Blank             | Total Oil & Grease Mineral/Synthetic | 2017/07/19    | <0.50   |          | mg/L  |           |

N/A = Not Applicable

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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).

*Cristina Carriere*

---

Cristina Carriere, Scientific Services

---

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Your Project #: 1407634  
Site#: McCarthy  
Site Location: McCarthy  
Your C.O.C. #: 618758-01-01

**Attention: Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2017/07/26**  
Report #: R4615868  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B7F5351**

**Received: 2017/07/21, 09:32**

Sample Matrix: Water  
# Samples Received: 1

| Analyses                          | Quantity | Date<br>Extracted | Date<br>Analyzed | Laboratory Method | Reference             |
|-----------------------------------|----------|-------------------|------------------|-------------------|-----------------------|
| Animal and Vegetable Oil & Grease | 1        | N/A               | 2017/07/25       | CAM SOP-00326     | EPA1664B m, SM5520B m |
| Total Oil and Grease              | 1        | 2017/07/25        | 2017/07/25       | CAM SOP-00326     | EPA1664B m, SM5520A m |
| pH                                | 1        | N/A               | 2017/07/24       | CAM SOP-00413     | SM 4500H+ B m         |
| Phenols (4AAP)                    | 1        | N/A               | 2017/07/24       | CAM SOP-00444     | OMOE E3179 m          |
| TPH (Heavy Oil) (1)               | 1        | 2017/07/25        | 2017/07/25       | CAM SOP-00326     | EPA1664B m, SM5520F m |
| Low Level Total Suspended Solids  | 1        | 2017/07/22        | 2017/07/22       | CAM SOP-00428     | SM 22 2540D m         |

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Your Project #: 1407634  
Site#: McCarthy  
Site Location: McCarthy  
Your C.O.C. #: 618758-01-01

**Attention: Dawn Hoyle/Jamie Bonany**

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Unit L  
Barrie, ON  
L4N 8X1

**Report Date: 2017/07/26**  
Report #: R4615868  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B7F5351**  
**Received: 2017/07/21, 09:32**

Encryption Key

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Antonella Brasil, Senior Project Manager  
Email: ABrasil@maxxam.ca  
Phone# (905)817-5817

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### RESULTS OF ANALYSES OF WATER

|                                       |              |                     |            |                 |
|---------------------------------------|--------------|---------------------|------------|-----------------|
| <b>Maxxam ID</b>                      |              | EUG308              |            |                 |
| <b>Sampling Date</b>                  |              | 2017/07/20<br>12:00 |            |                 |
| <b>COC Number</b>                     |              | 618758-01-01        |            |                 |
|                                       | <b>UNITS</b> | <b>POND</b>         | <b>RDL</b> | <b>QC Batch</b> |
| <b>Calculated Parameters</b>          |              |                     |            |                 |
| Total Animal/Vegetable Oil and Grease | mg/L         | 1.6                 | 0.50       | 5084414         |
| <b>Inorganics</b>                     |              |                     |            |                 |
| pH                                    | pH           | 7.96                | N/A        | 5086473         |
| Phenols-4AAP                          | mg/L         | <0.0010             | 0.0010     | 5087618         |
| Total Suspended Solids                | mg/L         | 4                   | 1          | 5086334         |
| <b>Petroleum Hydrocarbons</b>         |              |                     |            |                 |
| Total Oil & Grease                    | mg/L         | 1.6                 | 0.50       | 5088604         |
| Total Oil & Grease Mineral/Synthetic  | mg/L         | <0.50               | 0.50       | 5088606         |
| RDL = Reportable Detection Limit      |              |                     |            |                 |
| QC Batch = Quality Control Batch      |              |                     |            |                 |
| N/A = Not Applicable                  |              |                     |            |                 |

## GENERAL COMMENTS

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

### QUALITY ASSURANCE REPORT

| QA/QC Batch | Init | QC Type      | Parameter                            | Date Analyzed | Value   | Recovery | UNITS | QC Limits |
|-------------|------|--------------|--------------------------------------|---------------|---------|----------|-------|-----------|
| 5086334     | XZH  | QC Standard  | Total Suspended Solids               | 2017/07/22    |         | 95       | %     | 85 - 115  |
| 5086334     | XZH  | Method Blank | Total Suspended Solids               | 2017/07/22    | <1      |          | mg/L  |           |
| 5086334     | XZH  | RPD          | Total Suspended Solids               | 2017/07/22    | 4.9     |          | %     | 25        |
| 5086473     | TA1  | Spiked Blank | pH                                   | 2017/07/24    |         | 102      | %     | 98 - 103  |
| 5086473     | TA1  | RPD          | pH                                   | 2017/07/24    | 0.11    |          | %     | N/A       |
| 5087618     | ZSK  | Matrix Spike | Phenols-4AAP                         | 2017/07/24    |         | 100      | %     | 80 - 120  |
| 5087618     | ZSK  | Spiked Blank | Phenols-4AAP                         | 2017/07/24    |         | 97       | %     | 85 - 115  |
| 5087618     | ZSK  | Method Blank | Phenols-4AAP                         | 2017/07/24    | <0.0010 |          | mg/L  |           |
| 5087618     | ZSK  | RPD          | Phenols-4AAP                         | 2017/07/24    | NC      |          | %     | 20        |
| 5088604     | FA   | Spiked Blank | Total Oil & Grease                   | 2017/07/25    |         | 98       | %     | 85 - 115  |
| 5088604     | FA   | RPD          | Total Oil & Grease                   | 2017/07/25    | 4.4     |          | %     | 25        |
| 5088604     | FA   | Method Blank | Total Oil & Grease                   | 2017/07/25    | <0.50   |          | mg/L  |           |
| 5088606     | FA   | Spiked Blank | Total Oil & Grease Mineral/Synthetic | 2017/07/25    |         | 94       | %     | 85 - 115  |
| 5088606     | FA   | RPD          | Total Oil & Grease Mineral/Synthetic | 2017/07/25    | 4.2     |          | %     | 25        |
| 5088606     | FA   | Method Blank | Total Oil & Grease Mineral/Synthetic | 2017/07/25    | <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.

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

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

### VALIDATION SIGNATURE PAGE

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

*Cristina Carriere*

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Cristina Carriere, Scientific Services

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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.

Your Project #: 1407634  
Site#: 1407634  
Site Location: McCarthy  
Your C.O.C. #: 618759-01-01

**Attention: Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2017/08/04**  
Report #: R4632704  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B7G1318**

**Received: 2017/07/28, 09:52**

Sample Matrix: Water  
# Samples Received: 1

| Analyses                          | Quantity | Date<br>Extracted | Date<br>Analyzed | Laboratory Method | Reference             |
|-----------------------------------|----------|-------------------|------------------|-------------------|-----------------------|
| Animal and Vegetable Oil & Grease | 1        | N/A               | 2017/07/31       | CAM SOP-00326     | EPA1664B m, SM5520B m |
| Total Oil and Grease              | 1        | 2017/07/31        | 2017/07/31       | CAM SOP-00326     | EPA1664B m, SM5520A m |
| pH                                | 1        | N/A               | 2017/07/31       | CAM SOP-00413     | SM 4500H+ B m         |
| Phenols (4AAP)                    | 1        | N/A               | 2017/08/02       | CAM SOP-00444     | OMOE E3179 m          |
| TPH (Heavy Oil) (1)               | 1        | 2017/07/31        | 2017/07/31       | CAM SOP-00326     | EPA1664B m, SM5520F m |
| Low Level Total Suspended Solids  | 1        | 2017/07/29        | 2017/07/31       | CAM SOP-00428     | SM 22 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.

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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. #: 618759-01-01

**Attention: Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2017/08/04**  
Report #: R4632704  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B7G1318**  
**Received: 2017/07/28, 09:52**

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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### RESULTS OF ANALYSES OF WATER

|                                                                                                                                          |              |                     |                            |            |                 |
|------------------------------------------------------------------------------------------------------------------------------------------|--------------|---------------------|----------------------------|------------|-----------------|
| <b>Maxxam ID</b>                                                                                                                         |              | EVL627              | EVL627                     |            |                 |
| <b>Sampling Date</b>                                                                                                                     |              | 2017/07/27<br>12:00 | 2017/07/27<br>12:00        |            |                 |
| <b>COC Number</b>                                                                                                                        |              | 618759-01-01        | 618759-01-01               |            |                 |
|                                                                                                                                          | <b>UNITS</b> | <b>590331 POND</b>  | <b>590331 POND Lab-Dup</b> | <b>RDL</b> | <b>QC Batch</b> |
| <b>Calculated Parameters</b>                                                                                                             |              |                     |                            |            |                 |
| Total Animal/Vegetable Oil and Grease                                                                                                    | mg/L         | 0.90                | N/A                        | 0.50       | 5095138         |
| <b>Inorganics</b>                                                                                                                        |              |                     |                            |            |                 |
| pH                                                                                                                                       | pH           | 8.46                | N/A                        | N/A        | 5097260         |
| Phenols-4AAP                                                                                                                             | mg/L         | <0.0010             | N/A                        | 0.0010     | 5102160         |
| Total Suspended Solids                                                                                                                   | mg/L         | 3                   | 2                          | 1          | 5097100         |
| <b>Petroleum Hydrocarbons</b>                                                                                                            |              |                     |                            |            |                 |
| Total Oil & Grease                                                                                                                       | mg/L         | 0.90                | N/A                        | 0.50       | 5098578         |
| Total Oil & Grease Mineral/Synthetic                                                                                                     | mg/L         | <0.50               | N/A                        | 0.50       | 5098591         |
| RDL = Reportable Detection Limit<br>QC Batch = Quality Control Batch<br>Lab-Dup = Laboratory Initiated Duplicate<br>N/A = Not Applicable |              |                     |                            |            |                 |

### GENERAL COMMENTS

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

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

Maxxam Job #: B7G1318  
Report Date: 2017/08/04

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

### QUALITY ASSURANCE REPORT

| QA/QC Batch | Init | QC Type         | Parameter                            | Date Analyzed | Value   | Recovery | UNITS | QC Limits |
|-------------|------|-----------------|--------------------------------------|---------------|---------|----------|-------|-----------|
| 5097100     | RAY  | QC Standard     | Total Suspended Solids               | 2017/07/31    |         | 101      | %     | 85 - 115  |
| 5097100     | RAY  | Method Blank    | Total Suspended Solids               | 2017/07/31    | <1      |          | mg/L  |           |
| 5097100     | RAY  | RPD [EVL627-03] | Total Suspended Solids               | 2017/07/31    | 8.0     |          | %     | 25        |
| 5097260     | TA1  | Spiked Blank    | pH                                   | 2017/07/31    |         | 102      | %     | 98 - 103  |
| 5097260     | TA1  | RPD             | pH                                   | 2017/07/31    | 0.060   |          | %     | N/A       |
| 5098578     | FA   | Spiked Blank    | Total Oil & Grease                   | 2017/07/31    |         | 100      | %     | 85 - 115  |
| 5098578     | FA   | RPD             | Total Oil & Grease                   | 2017/07/31    | 4.0     |          | %     | 25        |
| 5098578     | FA   | Method Blank    | Total Oil & Grease                   | 2017/07/31    | <0.50   |          | mg/L  |           |
| 5098591     | FA   | Spiked Blank    | Total Oil & Grease Mineral/Synthetic | 2017/07/31    |         | 92       | %     | 85 - 115  |
| 5098591     | FA   | RPD             | Total Oil & Grease Mineral/Synthetic | 2017/07/31    | 1.8     |          | %     | 25        |
| 5098591     | FA   | Method Blank    | Total Oil & Grease Mineral/Synthetic | 2017/07/31    | <0.50   |          | mg/L  |           |
| 5102160     | ZSK  | Matrix Spike    | Phenols-4AAP                         | 2017/08/02    |         | 99       | %     | 80 - 120  |
| 5102160     | ZSK  | Spiked Blank    | Phenols-4AAP                         | 2017/08/02    |         | 102      | %     | 85 - 115  |
| 5102160     | ZSK  | Method Blank    | Phenols-4AAP                         | 2017/08/02    | <0.0010 |          | mg/L  |           |
| 5102160     | ZSK  | RPD             | Phenols-4AAP                         | 2017/08/02    | NC      |          | %     | 20        |

N/A = Not Applicable

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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).



Brad Newman, Scientific Specialist

---

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Your Project #: 1407634  
Site#: McCarthy  
Site Location: McCarthy  
Your C.O.C. #: 618756-01-01

**Attention: Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2017/08/11**  
Report #: R4644400  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B7G7333**

**Received: 2017/08/04, 09:25**

Sample Matrix: Water  
# Samples Received: 1

| Analyses                          | Quantity | Date<br>Extracted | Date<br>Analyzed | Laboratory Method | Reference             |
|-----------------------------------|----------|-------------------|------------------|-------------------|-----------------------|
| Animal and Vegetable Oil & Grease | 1        | N/A               | 2017/08/08       | CAM SOP-00326     | EPA1664B m, SM5520B m |
| Total Oil and Grease              | 1        | 2017/08/08        | 2017/08/08       | CAM SOP-00326     | EPA1664B m, SM5520A m |
| pH                                | 1        | N/A               | 2017/08/08       | CAM SOP-00413     | SM 4500H+ B m         |
| Phenols (4AAP)                    | 1        | N/A               | 2017/08/10       | CAM SOP-00444     | OMOE E3179 m          |
| TPH (Heavy Oil) (1)               | 1        | 2017/08/08        | 2017/08/08       | CAM SOP-00326     | EPA1664B m, SM5520F m |
| Low Level Total Suspended Solids  | 1        | 2017/08/05        | 2017/08/05       | CAM SOP-00428     | SM 22 2540D m         |

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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.

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\* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) Note: TPH (Heavy Oil) is equivalent to Mineral / Synthetic Oil & Grease

Your Project #: 1407634  
Site#: McCarthy  
Site Location: McCarthy  
Your C.O.C. #: 618756-01-01

**Attention: Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2017/08/11**  
Report #: R4644400  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B7G7333**  
**Received: 2017/08/04, 09:25**

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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### RESULTS OF ANALYSES OF WATER

|                                       |              |                     |            |                 |
|---------------------------------------|--------------|---------------------|------------|-----------------|
| <b>Maxxam ID</b>                      |              | EWP729              |            |                 |
| <b>Sampling Date</b>                  |              | 2017/08/03<br>12:00 |            |                 |
| <b>COC Number</b>                     |              | 618756-01-01        |            |                 |
|                                       | <b>UNITS</b> | <b>POND</b>         | <b>RDL</b> | <b>QC Batch</b> |
| <b>Calculated Parameters</b>          |              |                     |            |                 |
| Total Animal/Vegetable Oil and Grease | mg/L         | 3.7                 | 0.50       | 5105610         |
| <b>Inorganics</b>                     |              |                     |            |                 |
| pH                                    | pH           | 8.56                | N/A        | 5107706         |
| Phenols-4AAP                          | mg/L         | <0.0010             | 0.0010     | 5113243         |
| Total Suspended Solids                | mg/L         | 3                   | 1          | 5107618         |
| <b>Petroleum Hydrocarbons</b>         |              |                     |            |                 |
| Total Oil & Grease                    | mg/L         | 3.7                 | 0.50       | 5108262         |
| Total Oil & Grease Mineral/Synthetic  | mg/L         | <0.50               | 0.50       | 5108266         |
| RDL = Reportable Detection Limit      |              |                     |            |                 |
| QC Batch = Quality Control Batch      |              |                     |            |                 |
| N/A = Not Applicable                  |              |                     |            |                 |

## GENERAL COMMENTS

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



### QUALITY ASSURANCE REPORT

| QA/QC Batch | Init | QC Type      | Parameter                            | Date Analyzed | Value   | Recovery | UNITS | QC Limits |
|-------------|------|--------------|--------------------------------------|---------------|---------|----------|-------|-----------|
| 5107618     | XZH  | QC Standard  | Total Suspended Solids               | 2017/08/05    |         | 100      | %     | 85 - 115  |
| 5107618     | XZH  | Method Blank | Total Suspended Solids               | 2017/08/05    | <1      |          | mg/L  |           |
| 5107618     | XZH  | RPD          | Total Suspended Solids               | 2017/08/05    | 8.0     |          | %     | 25        |
| 5107706     | TA1  | Spiked Blank | pH                                   | 2017/08/08    |         | 102      | %     | 98 - 103  |
| 5107706     | TA1  | RPD          | pH                                   | 2017/08/08    | 0.43    |          | %     | N/A       |
| 5108262     | FA   | Spiked Blank | Total Oil & Grease                   | 2017/08/08    |         | 101      | %     | 85 - 115  |
| 5108262     | FA   | RPD          | Total Oil & Grease                   | 2017/08/08    |         |          | %     | 25        |
| 5108262     | FA   | Method Blank | Total Oil & Grease                   | 2017/08/08    | <0.50   |          | mg/L  |           |
| 5108266     | FA   | Spiked Blank | Total Oil & Grease Mineral/Synthetic | 2017/08/08    |         | 91       | %     | 85 - 115  |
| 5108266     | FA   | RPD          | Total Oil & Grease Mineral/Synthetic | 2017/08/08    |         |          | %     | 25        |
| 5108266     | FA   | Method Blank | Total Oil & Grease Mineral/Synthetic | 2017/08/08    | <0.50   |          | mg/L  |           |
| 5113243     | ZSK  | Matrix Spike | Phenols-4AAP                         | 2017/08/10    |         | 108      | %     | 80 - 120  |
| 5113243     | ZSK  | Spiked Blank | Phenols-4AAP                         | 2017/08/10    |         | 100      | %     | 85 - 115  |
| 5113243     | ZSK  | Method Blank | Phenols-4AAP                         | 2017/08/10    | <0.0010 |          | mg/L  |           |
| 5113243     | ZSK  | RPD          | Phenols-4AAP                         | 2017/08/10    | NC      |          | %     | 20        |

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### VALIDATION SIGNATURE PAGE

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*Cristina Carriere*

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Cristina Carriere, Scientific Service Specialist

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Your Project #: 1407634  
Site#: McCarthy  
Site Location: McCarthy  
Your C.O.C. #: 618752-01-01

**Attention: Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2017/08/17**  
Report #: R4657359  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B7H2470**

**Received: 2017/08/11, 08:51**

Sample Matrix: Water  
# Samples Received: 1

| Analyses                          | Date     |            | Date Analyzed | Laboratory Method | Reference             |
|-----------------------------------|----------|------------|---------------|-------------------|-----------------------|
|                                   | Quantity | Extracted  |               |                   |                       |
| Animal and Vegetable Oil & Grease | 1        | N/A        | 2017/08/16    | CAM SOP-00326     | EPA1664B m, SM5520B m |
| Total Oil and Grease              | 1        | 2017/08/15 | 2017/08/16    | CAM SOP-00326     | EPA1664B m, SM5520A m |
| pH                                | 1        | N/A        | 2017/08/14    | CAM SOP-00413     | SM 4500H+ B m         |
| Phenols (4AAP)                    | 1        | N/A        | 2017/08/14    | CAM SOP-00444     | OMOE E3179 m          |
| TPH (Heavy Oil) (1)               | 1        | 2017/08/15 | 2017/08/16    | CAM SOP-00326     | EPA1664B m, SM5520F m |
| Low Level Total Suspended Solids  | 1        | 2017/08/12 | 2017/08/14    | CAM SOP-00428     | SM 22 2540D m         |

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\* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) Note: TPH (Heavy Oil) is equivalent to Mineral / Synthetic Oil & Grease

Your Project #: 1407634  
Site#: McCarthy  
Site Location: McCarthy  
Your C.O.C. #: 618752-01-01

**Attention: Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2017/08/17**  
Report #: R4657359  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B7H2470**  
**Received: 2017/08/11, 08:51**

Encryption Key

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Antonella Brasil, Senior Project Manager  
Email: ABrasil@maxxam.ca  
Phone# (905)817-5817

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### RESULTS OF ANALYSES OF WATER

|                                                                                                                                                             |              |                     |            |                 |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|---------------------|------------|-----------------|
| <b>Maxxam ID</b>                                                                                                                                            |              | EXQ315              |            |                 |
| <b>Sampling Date</b>                                                                                                                                        |              | 2017/08/10<br>12:00 |            |                 |
| <b>COC Number</b>                                                                                                                                           |              | 618752-01-01        |            |                 |
|                                                                                                                                                             | <b>UNITS</b> | <b>POND</b>         | <b>RDL</b> | <b>QC Batch</b> |
| <b>Calculated Parameters</b>                                                                                                                                |              |                     |            |                 |
| Total Animal/Vegetable Oil and Grease                                                                                                                       | mg/L         | 1.3                 | 0.50       | 5114768         |
| <b>Inorganics</b>                                                                                                                                           |              |                     |            |                 |
| pH                                                                                                                                                          | pH           | 8.69                | N/A        | 5117680         |
| Phenols-4AAP                                                                                                                                                | mg/L         | <0.0020 (1)         | 0.0020     | 5117742         |
| Total Suspended Solids                                                                                                                                      | mg/L         | 4                   | 1          | 5116726         |
| <b>Petroleum Hydrocarbons</b>                                                                                                                               |              |                     |            |                 |
| Total Oil & Grease                                                                                                                                          | mg/L         | 1.3                 | 0.50       | 5119243         |
| Total Oil & Grease Mineral/Synthetic                                                                                                                        | mg/L         | <0.50               | 0.50       | 5119246         |
| RDL = Reportable Detection Limit<br>QC Batch = Quality Control Batch<br>N/A = Not Applicable<br>(1) Detection limit was raised due to matrix interferences. |              |                     |            |                 |

### GENERAL COMMENTS

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

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

### QUALITY ASSURANCE REPORT

| QA/QC Batch | Init | QC Type      | Parameter                            | Date Analyzed | Value                 | Recovery | UNITS | QC Limits |
|-------------|------|--------------|--------------------------------------|---------------|-----------------------|----------|-------|-----------|
| 5116726     | FW   | QC Standard  | Total Suspended Solids               | 2017/08/14    |                       | 97       | %     | 85 - 115  |
| 5116726     | FW   | Method Blank | Total Suspended Solids               | 2017/08/14    | <1                    |          | mg/L  |           |
| 5116726     | FW   | RPD          | Total Suspended Solids               | 2017/08/14    | 14                    |          | %     | 25        |
| 5117680     | TA1  | Spiked Blank | pH                                   | 2017/08/14    |                       | 102      | %     | 98 - 103  |
| 5117680     | TA1  | RPD          | pH                                   | 2017/08/14    | 0.49                  |          | %     | N/A       |
| 5117742     | ZSK  | Matrix Spike | Phenols-4AAP                         | 2017/08/14    |                       | 103      | %     | 80 - 120  |
| 5117742     | ZSK  | Spiked Blank | Phenols-4AAP                         | 2017/08/14    |                       | 100      | %     | 85 - 115  |
| 5117742     | ZSK  | Method Blank | Phenols-4AAP                         | 2017/08/14    | 0.0010,<br>RDL=0.0010 |          | mg/L  |           |
| 5117742     | ZSK  | RPD          | Phenols-4AAP                         | 2017/08/14    | NC                    |          | %     | 20        |
| 5119243     | FA   | Spiked Blank | Total Oil & Grease                   | 2017/08/16    |                       | 96       | %     | 85 - 115  |
| 5119243     | FA   | RPD          | Total Oil & Grease                   | 2017/08/16    | 4.0                   |          | %     | 25        |
| 5119243     | FA   | Method Blank | Total Oil & Grease                   | 2017/08/16    | <0.50                 |          | mg/L  |           |
| 5119246     | FA   | Spiked Blank | Total Oil & Grease Mineral/Synthetic | 2017/08/16    |                       | 91       | %     | 85 - 115  |
| 5119246     | FA   | RPD          | Total Oil & Grease Mineral/Synthetic | 2017/08/16    | 3.6                   |          | %     | 25        |
| 5119246     | FA   | Method Blank | Total Oil & Grease Mineral/Synthetic | 2017/08/16    | <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.

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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).

*Cristina Carriere*

---

Cristina Carriere, Scientific Service Specialist

---

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Your Project #: 1407634  
Site#: 1407634  
Site Location: McCarthy  
Your C.O.C. #: 618757-01-01

**Attention: Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2017/08/24**  
Report #: R4672631  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B7H8539**

**Received: 2017/08/18, 08:48**

Sample Matrix: Water  
# Samples Received: 1

| Analyses                          | Quantity | Date<br>Extracted | Date<br>Analyzed | Laboratory Method | Reference             |
|-----------------------------------|----------|-------------------|------------------|-------------------|-----------------------|
| Animal and Vegetable Oil & Grease | 1        | N/A               | 2017/08/22       | CAM SOP-00326     | EPA1664B m, SM5520B m |
| Total Oil and Grease              | 1        | 2017/08/21        | 2017/08/22       | CAM SOP-00326     | EPA1664B m, SM5520A m |
| pH                                | 1        | N/A               | 2017/08/21       | CAM SOP-00413     | SM 4500H+ B m         |
| Phenols (4AAP)                    | 1        | N/A               | 2017/08/22       | CAM SOP-00444     | OMOE E3179 m          |
| TPH (Heavy Oil) (1)               | 1        | 2017/08/21        | 2017/08/22       | CAM SOP-00326     | EPA1664B m, SM5520F m |
| Low Level Total Suspended Solids  | 1        | 2017/08/21        | 2017/08/21       | CAM SOP-00428     | SM 22 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.

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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. #: 618757-01-01

**Attention: Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2017/08/24**  
Report #: R4672631  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B7H8539**  
**Received: 2017/08/18, 08:48**

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

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### RESULTS OF ANALYSES OF WATER

|                                       |              |                     |            |                 |
|---------------------------------------|--------------|---------------------|------------|-----------------|
| <b>Maxxam ID</b>                      |              | EYU517              |            |                 |
| <b>Sampling Date</b>                  |              | 2017/08/17<br>12:30 |            |                 |
| <b>COC Number</b>                     |              | 618757-01-01        |            |                 |
|                                       | <b>UNITS</b> | <b>POND</b>         | <b>RDL</b> | <b>QC Batch</b> |
| <b>Calculated Parameters</b>          |              |                     |            |                 |
| Total Animal/Vegetable Oil and Grease | mg/L         | <0.50               | 0.50       | 5125187         |
| <b>Inorganics</b>                     |              |                     |            |                 |
| pH                                    | pH           | 8.21                | N/A        | 5127434         |
| Phenols-4AAP                          | mg/L         | <0.0010             | 0.0010     | 5130435         |
| Total Suspended Solids                | mg/L         | 5                   | 1          | 5128776         |
| <b>Petroleum Hydrocarbons</b>         |              |                     |            |                 |
| Total Oil & Grease                    | mg/L         | <0.50               | 0.50       | 5128704         |
| Total Oil & Grease Mineral/Synthetic  | mg/L         | <0.50               | 0.50       | 5128714         |
| RDL = Reportable Detection Limit      |              |                     |            |                 |
| QC Batch = Quality Control Batch      |              |                     |            |                 |
| N/A = Not Applicable                  |              |                     |            |                 |

### GENERAL COMMENTS

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

|           |        |
|-----------|--------|
| Package 1 | 21.0°C |
|-----------|--------|

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

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

### QUALITY ASSURANCE REPORT

| QA/QC Batch | Init | QC Type      | Parameter                            | Date Analyzed | Value   | Recovery | UNITS | QC Limits |
|-------------|------|--------------|--------------------------------------|---------------|---------|----------|-------|-----------|
| 5127434     | TA1  | Spiked Blank | pH                                   | 2017/08/21    |         | 101      | %     | 98 - 103  |
| 5127434     | TA1  | RPD          | pH                                   | 2017/08/21    | 0.028   |          | %     | N/A       |
| 5128704     | AMJ  | Spiked Blank | Total Oil & Grease                   | 2017/08/22    |         | 98       | %     | 85 - 115  |
| 5128704     | AMJ  | RPD          | Total Oil & Grease                   | 2017/08/22    | 0.86    |          | %     | 25        |
| 5128704     | AMJ  | Method Blank | Total Oil & Grease                   | 2017/08/22    | <0.50   |          | mg/L  |           |
| 5128714     | AMJ  | Spiked Blank | Total Oil & Grease Mineral/Synthetic | 2017/08/22    |         | 94       | %     | 85 - 115  |
| 5128714     | AMJ  | RPD          | Total Oil & Grease Mineral/Synthetic | 2017/08/22    | 1.2     |          | %     | 25        |
| 5128714     | AMJ  | Method Blank | Total Oil & Grease Mineral/Synthetic | 2017/08/22    | <0.50   |          | mg/L  |           |
| 5128776     | XZH  | QC Standard  | Total Suspended Solids               | 2017/08/21    |         | 99       | %     | 85 - 115  |
| 5128776     | XZH  | Method Blank | Total Suspended Solids               | 2017/08/21    | <1      |          | mg/L  |           |
| 5128776     | XZH  | RPD          | Total Suspended Solids               | 2017/08/21    | 2.7     |          | %     | 25        |
| 5130435     | ZSK  | Matrix Spike | Phenols-4AAP                         | 2017/08/22    |         | 106      | %     | 80 - 120  |
| 5130435     | ZSK  | Spiked Blank | Phenols-4AAP                         | 2017/08/22    |         | 101      | %     | 85 - 115  |
| 5130435     | ZSK  | Method Blank | Phenols-4AAP                         | 2017/08/22    | <0.0010 |          | mg/L  |           |
| 5130435     | ZSK  | RPD          | Phenols-4AAP                         | 2017/08/22    | 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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NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference  $\leq 2 \times \text{RDL}$ ).

### VALIDATION SIGNATURE PAGE

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*Cristina Carriere*

---

Cristina Carriere, Scientific Service Specialist

---

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Your Project #: 1407634  
Site#: 1407634  
Site Location: BRECHIN, ON  
Your C.O.C. #: 56454

**Attention: Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2017/08/31**  
Report #: R4683406  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B7I4911**

**Received: 2017/08/25, 08:51**

Sample Matrix: Water  
# Samples Received: 1

| Analyses                          | Quantity | Date<br>Extracted | Date<br>Analyzed | Laboratory Method | Reference             |
|-----------------------------------|----------|-------------------|------------------|-------------------|-----------------------|
| Animal and Vegetable Oil & Grease | 1        | N/A               | 2017/08/28       | CAM SOP-00326     | EPA1664B m, SM5520B m |
| Total Oil and Grease              | 1        | 2017/08/28        | 2017/08/28       | CAM SOP-00326     | EPA1664B m, SM5520A m |
| pH                                | 1        | N/A               | 2017/08/29       | CAM SOP-00413     | SM 4500H+ B m         |
| Phenols (4AAP)                    | 1        | N/A               | 2017/08/30       | CAM SOP-00444     | OMOE E3179 m          |
| TPH (Heavy Oil) (1)               | 1        | 2017/08/28        | 2017/08/28       | CAM SOP-00326     | EPA1664B m, SM5520F m |
| Low Level Total Suspended Solids  | 1        | 2017/08/26        | 2017/08/26       | CAM SOP-00428     | SM 22 2540D m         |

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Results relate to samples tested.

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\* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) Note: TPH (Heavy Oil) is equivalent to Mineral / Synthetic Oil & Grease

Your Project #: 1407634  
Site#: 1407634  
Site Location: BRECHIN, ON  
Your C.O.C. #: 56454

**Attention: Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2017/08/31**  
Report #: R4683406  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B7I4911**  
**Received: 2017/08/25, 08:51**

Encryption Key

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Antonella Brasil, Senior Project Manager  
Email: ABrasil@maxxam.ca  
Phone# (905)817-5817

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### RESULTS OF ANALYSES OF WATER

|                                                                                                                                                                                                                |              |                 |                     |            |                 |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|-----------------|---------------------|------------|-----------------|
| <b>Maxxam ID</b>                                                                                                                                                                                               |              |                 | EZY169              |            |                 |
| <b>Sampling Date</b>                                                                                                                                                                                           |              |                 | 2017/08/24<br>11:00 |            |                 |
| <b>COC Number</b>                                                                                                                                                                                              |              |                 | 56454               |            |                 |
|                                                                                                                                                                                                                | <b>UNITS</b> | <b>Criteria</b> | <b>POND</b>         | <b>RDL</b> | <b>QC Batch</b> |
| <b>Calculated Parameters</b>                                                                                                                                                                                   |              |                 |                     |            |                 |
| Total Animal/Vegetable Oil and Grease                                                                                                                                                                          | mg/L         | -               | 1.1                 | 0.50       | 5136001         |
| <b>Inorganics</b>                                                                                                                                                                                              |              |                 |                     |            |                 |
| pH                                                                                                                                                                                                             | pH           | <b>6.5:8.5</b>  | 8.24                | N/A        | 5137953         |
| Phenols-4AAP                                                                                                                                                                                                   | mg/L         | <b>0.001</b>    | <0.0010             | 0.0010     | 5142845         |
| Total Suspended Solids                                                                                                                                                                                         | mg/L         | -               | 4                   | 1          | 5138185         |
| <b>Petroleum Hydrocarbons</b>                                                                                                                                                                                  |              |                 |                     |            |                 |
| Total Oil & Grease                                                                                                                                                                                             | mg/L         | -               | 1.1                 | 0.50       | 5139050         |
| Total Oil & Grease Mineral/Synthetic                                                                                                                                                                           | mg/L         | <b>0.5</b>      | <0.50               | 0.50       | 5139057         |
| RDL = Reportable Detection Limit<br>QC Batch = Quality Control Batch<br>Criteria: Ontario Provincial Water Quality Objectives<br>Ref. to MOEE Water Management document dated Feb.1999<br>N/A = Not Applicable |              |                 |                     |            |                 |

### GENERAL COMMENTS

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

|           |       |
|-----------|-------|
| Package 1 | 4.3°C |
|-----------|-------|

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

### QUALITY ASSURANCE REPORT

| QA/QC Batch | Init | QC Type      | Parameter                            | Date Analyzed | Value   | Recovery | UNITS | QC Limits |
|-------------|------|--------------|--------------------------------------|---------------|---------|----------|-------|-----------|
| 5137953     | TA1  | Spiked Blank | pH                                   | 2017/08/29    |         | 101      | %     | 98 - 103  |
| 5137953     | TA1  | RPD          | pH                                   | 2017/08/29    | 0.11    |          | %     | N/A       |
| 5138185     | AS6  | QC Standard  | Total Suspended Solids               | 2017/08/26    |         | 97       | %     | 85 - 115  |
| 5138185     | AS6  | Method Blank | Total Suspended Solids               | 2017/08/26    | <1      |          | mg/L  |           |
| 5138185     | AS6  | RPD          | Total Suspended Solids               | 2017/08/26    | NC      |          | %     | 25        |
| 5139050     | FA   | Spiked Blank | Total Oil & Grease                   | 2017/08/28    |         | 98       | %     | 85 - 115  |
| 5139050     | FA   | RPD          | Total Oil & Grease                   | 2017/08/28    | 4.1     |          | %     | 25        |
| 5139050     | FA   | Method Blank | Total Oil & Grease                   | 2017/08/28    | <0.50   |          | mg/L  |           |
| 5139057     | FA   | Spiked Blank | Total Oil & Grease Mineral/Synthetic | 2017/08/28    |         | 95       | %     | 85 - 115  |
| 5139057     | FA   | RPD          | Total Oil & Grease Mineral/Synthetic | 2017/08/28    | 4.2     |          | %     | 25        |
| 5139057     | FA   | Method Blank | Total Oil & Grease Mineral/Synthetic | 2017/08/28    | <0.50   |          | mg/L  |           |
| 5142845     | ZSK  | Matrix Spike | Phenols-4AAP                         | 2017/08/30    |         | 103      | %     | 80 - 120  |
| 5142845     | ZSK  | Spiked Blank | Phenols-4AAP                         | 2017/08/30    |         | 98       | %     | 85 - 115  |
| 5142845     | ZSK  | Method Blank | Phenols-4AAP                         | 2017/08/30    | <0.0010 |          | mg/L  |           |
| 5142845     | ZSK  | RPD          | Phenols-4AAP                         | 2017/08/30    | NC      |          | %     | 20        |

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*Cristina Carriere*

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Cristina Carriere, Scientific Service Specialist

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Your Project #: 1407634  
Site#: 1407634  
Site Location: MCCARTHY  
Your C.O.C. #: 627121-01-01

**Attention: Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2017/09/08**  
Report #: R4691781  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B7J0444**

**Received: 2017/09/01, 08:55**

Sample Matrix: Water  
# Samples Received: 1

| Analyses                          | Quantity | Date<br>Extracted | Date<br>Analyzed | Laboratory Method | Reference             |
|-----------------------------------|----------|-------------------|------------------|-------------------|-----------------------|
| Animal and Vegetable Oil & Grease | 1        | N/A               | 2017/09/06       | CAM SOP-00326     | EPA1664B m, SM5520B m |
| Total Oil and Grease              | 1        | 2017/09/05        | 2017/09/06       | CAM SOP-00326     | EPA1664B m, SM5520A m |
| pH                                | 1        | N/A               | 2017/09/05       | CAM SOP-00413     | SM 4500H+ B m         |
| Phenols (4AAP)                    | 1        | N/A               | 2017/09/07       | CAM SOP-00444     | OMOE E3179 m          |
| TPH (Heavy Oil) (1)               | 1        | 2017/09/05        | 2017/09/06       | CAM SOP-00326     | EPA1664B m, SM5520F m |
| Low Level Total Suspended Solids  | 1        | 2017/09/05        | 2017/09/06       | CAM SOP-00428     | SM 22 2540D m         |

**Remarks:**

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\* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) Note: TPH (Heavy Oil) is equivalent to Mineral / Synthetic Oil & Grease

Your Project #: 1407634  
Site#: 1407634  
Site Location: MCCARTHY  
Your C.O.C. #: 627121-01-01

**Attention: Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2017/09/08**  
Report #: R4691781  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B7J0444**  
**Received: 2017/09/01, 08:55**

Encryption Key

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Antonella Brasil, Senior Project Manager  
Email: ABrasil@maxxam.ca  
Phone# (905)817-5817

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### RESULTS OF ANALYSES OF WATER

|                                       |              |              |            |                 |
|---------------------------------------|--------------|--------------|------------|-----------------|
| <b>Maxxam ID</b>                      |              | FAZ974       |            |                 |
| <b>Sampling Date</b>                  |              | 2017/08/31   |            |                 |
| <b>COC Number</b>                     |              | 627121-01-01 |            |                 |
|                                       | <b>UNITS</b> | <b>POND</b>  | <b>RDL</b> | <b>QC Batch</b> |
| <b>Calculated Parameters</b>          |              |              |            |                 |
| Total Animal/Vegetable Oil and Grease | mg/L         | 1.8          | 0.50       | 5146424         |
| <b>Inorganics</b>                     |              |              |            |                 |
| pH                                    | pH           | 8.48         | N/A        | 5148638         |
| Phenols-4AAP                          | mg/L         | 0.0010       | 0.0010     | 5153962         |
| Total Suspended Solids                | mg/L         | 6            | 1          | 5150093         |
| <b>Petroleum Hydrocarbons</b>         |              |              |            |                 |
| Total Oil & Grease                    | mg/L         | 1.8          | 0.50       | 5149032         |
| Total Oil & Grease Mineral/Synthetic  | mg/L         | <0.50        | 0.50       | 5149033         |
| RDL = Reportable Detection Limit      |              |              |            |                 |
| QC Batch = Quality Control Batch      |              |              |            |                 |
| N/A = Not Applicable                  |              |              |            |                 |

### GENERAL COMMENTS

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

|           |        |
|-----------|--------|
| Package 1 | 19.0°C |
|-----------|--------|

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

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



Maxxam Job #: B7J0444  
Report Date: 2017/09/08

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

### QUALITY ASSURANCE REPORT

| QA/QC<br>Batch | Init | QC Type      | Parameter                            | Date Analyzed | Value   | Recovery | UNITS | QC Limits |
|----------------|------|--------------|--------------------------------------|---------------|---------|----------|-------|-----------|
| 5148638        | TA1  | Spiked Blank | pH                                   | 2017/09/05    |         | 101      | %     | 98 - 103  |
| 5148638        | TA1  | RPD          | pH                                   | 2017/09/05    | 0.48    |          | %     | N/A       |
| 5149032        | FA   | Spiked Blank | Total Oil & Grease                   | 2017/09/06    |         | 102      | %     | 85 - 115  |
| 5149032        | FA   | RPD          | Total Oil & Grease                   | 2017/09/06    | 4.5     |          | %     | 25        |
| 5149032        | FA   | Method Blank | Total Oil & Grease                   | 2017/09/06    | <0.50   |          | mg/L  |           |
| 5149033        | FA   | Spiked Blank | Total Oil & Grease Mineral/Synthetic | 2017/09/06    |         | 93       | %     | 85 - 115  |
| 5149033        | FA   | RPD          | Total Oil & Grease Mineral/Synthetic | 2017/09/06    | 2.4     |          | %     | 25        |
| 5149033        | FA   | Method Blank | Total Oil & Grease Mineral/Synthetic | 2017/09/06    | <0.50   |          | mg/L  |           |
| 5150093        | RAY  | QC Standard  | Total Suspended Solids               | 2017/09/06    |         | 97       | %     | 85 - 115  |
| 5150093        | RAY  | Method Blank | Total Suspended Solids               | 2017/09/06    | <1      |          | mg/L  |           |
| 5150093        | RAY  | RPD          | Total Suspended Solids               | 2017/09/06    | 6.9     |          | %     | 25        |
| 5153962        | ZSK  | Matrix Spike | Phenols-4AAP                         | 2017/09/07    |         | 100      | %     | 80 - 120  |
| 5153962        | ZSK  | Spiked Blank | Phenols-4AAP                         | 2017/09/07    |         | 99       | %     | 85 - 115  |
| 5153962        | ZSK  | Method Blank | Phenols-4AAP                         | 2017/09/07    | <0.0010 |          | mg/L  |           |
| 5153962        | ZSK  | RPD          | Phenols-4AAP                         | 2017/09/07    | 9.5     |          | %     | 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.

### 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 Service Specialist

---

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.

Your Project #: 1407634  
Site#: 1407634  
Site Location: MCCARTHY  
Your C.O.C. #: NA

**Attention: Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2017/09/14**  
Report #: R4701008  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B7J6076**

**Received: 2017/09/08, 09:29**

Sample Matrix: Water  
# Samples Received: 1

| Analyses                          | Quantity | Date<br>Extracted | Date<br>Analyzed | Laboratory Method | Reference             |
|-----------------------------------|----------|-------------------|------------------|-------------------|-----------------------|
| Animal and Vegetable Oil & Grease | 1        | N/A               | 2017/09/13       | CAM SOP-00326     | EPA1664B m, SM5520B m |
| Total Oil and Grease              | 1        | 2017/09/13        | 2017/09/13       | CAM SOP-00326     | EPA1664B m, SM5520A m |
| pH                                | 1        | N/A               | 2017/09/13       | CAM SOP-00413     | SM 4500H+ B m         |
| Phenols (4AAP)                    | 1        | N/A               | 2017/09/13       | CAM SOP-00444     | OMOE E3179 m          |
| TPH (Heavy Oil) (1)               | 1        | 2017/09/13        | 2017/09/13       | CAM SOP-00326     | EPA1664B m, SM5520F m |
| Low Level Total Suspended Solids  | 1        | 2017/09/12        | 2017/09/12       | CAM SOP-00428     | SM 22 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.

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

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

\* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) Note: TPH (Heavy Oil) is equivalent to Mineral / Synthetic Oil & Grease

Your Project #: 1407634  
Site#: 1407634  
Site Location: MCCARTHY  
Your C.O.C. #: NA

**Attention:Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2017/09/14**  
Report #: R4701008  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B7J6076**  
**Received: 2017/09/08, 09:29**

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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### RESULTS OF ANALYSES OF WATER

|                                                                                                                                          |              |                     |                         |            |                 |
|------------------------------------------------------------------------------------------------------------------------------------------|--------------|---------------------|-------------------------|------------|-----------------|
| <b>Maxxam ID</b>                                                                                                                         |              | FCA452              | FCA452                  |            |                 |
| <b>Sampling Date</b>                                                                                                                     |              | 2017/09/07<br>11:45 | 2017/09/07<br>11:45     |            |                 |
| <b>COC Number</b>                                                                                                                        |              | NA                  | NA                      |            |                 |
|                                                                                                                                          | <b>UNITS</b> | <b>POND</b>         | <b>POND<br/>Lab-Dup</b> | <b>RDL</b> | <b>QC Batch</b> |
| <b>Calculated Parameters</b>                                                                                                             |              |                     |                         |            |                 |
| Total Animal/Vegetable Oil and Grease                                                                                                    | mg/L         | 1.6                 | N/A                     | 0.50       | 5159633         |
| <b>Inorganics</b>                                                                                                                        |              |                     |                         |            |                 |
| pH                                                                                                                                       | pH           | 8.40                | N/A                     | N/A        | 5160772         |
| Phenols-4AAP                                                                                                                             | mg/L         | 0.0054              | N/A                     | 0.0010     | 5162143         |
| Total Suspended Solids                                                                                                                   | mg/L         | 5                   | 5                       | 1          | 5161119         |
| <b>Petroleum Hydrocarbons</b>                                                                                                            |              |                     |                         |            |                 |
| Total Oil & Grease                                                                                                                       | mg/L         | 1.6                 | N/A                     | 0.50       | 5161674         |
| Total Oil & Grease Mineral/Synthetic                                                                                                     | mg/L         | <0.50               | N/A                     | 0.50       | 5161685         |
| RDL = Reportable Detection Limit<br>QC Batch = Quality Control Batch<br>Lab-Dup = Laboratory Initiated Duplicate<br>N/A = Not Applicable |              |                     |                         |            |                 |

### GENERAL COMMENTS

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

|           |       |
|-----------|-------|
| Package 1 | 5.3°C |
|-----------|-------|

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

### QUALITY ASSURANCE REPORT

| QA/QC Batch | Init | QC Type         | Parameter                            | Date Analyzed | Value   | Recovery | UNITS | QC Limits |
|-------------|------|-----------------|--------------------------------------|---------------|---------|----------|-------|-----------|
| 5160772     | TA1  | Spiked Blank    | pH                                   | 2017/09/13    |         | 102      | %     | 98 - 103  |
| 5160772     | TA1  | RPD             | pH                                   | 2017/09/13    | 0.51    |          | %     | N/A       |
| 5161119     | AS6  | QC Standard     | Total Suspended Solids               | 2017/09/12    |         | 98       | %     | 85 - 115  |
| 5161119     | AS6  | Method Blank    | Total Suspended Solids               | 2017/09/12    | <1      |          | mg/L  |           |
| 5161119     | AS6  | RPD [FCA452-03] | Total Suspended Solids               | 2017/09/12    | 0       |          | %     | 25        |
| 5161119     | AS6  | RPD             | Total Suspended Solids               | 2017/09/12    | 100 (1) |          | %     | 25        |
| 5161674     | AMJ  | Spiked Blank    | Total Oil & Grease                   | 2017/09/13    |         | 98       | %     | 85 - 115  |
| 5161674     | AMJ  | RPD             | Total Oil & Grease                   | 2017/09/13    | 2.6     |          | %     | 25        |
| 5161674     | AMJ  | Method Blank    | Total Oil & Grease                   | 2017/09/13    | <0.50   |          | mg/L  |           |
| 5161685     | AMJ  | Spiked Blank    | Total Oil & Grease Mineral/Synthetic | 2017/09/13    |         | 95       | %     | 85 - 115  |
| 5161685     | AMJ  | RPD             | Total Oil & Grease Mineral/Synthetic | 2017/09/13    | 1.2     |          | %     | 25        |
| 5161685     | AMJ  | Method Blank    | Total Oil & Grease Mineral/Synthetic | 2017/09/13    | <0.50   |          | mg/L  |           |
| 5162143     | ZSK  | Matrix Spike    | Phenols-4AAP                         | 2017/09/13    |         | 94       | %     | 80 - 120  |
| 5162143     | ZSK  | Spiked Blank    | Phenols-4AAP                         | 2017/09/13    |         | 100      | %     | 85 - 115  |
| 5162143     | ZSK  | Method Blank    | Phenols-4AAP                         | 2017/09/13    | <0.0010 |          | mg/L  |           |
| 5162143     | ZSK  | RPD             | Phenols-4AAP                         | 2017/09/13    | 3.2     |          | %     | 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.

(1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

### VALIDATION SIGNATURE PAGE

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



Brad Newman, Scientific Service Specialist

---

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Your Project #: 1407634  
Site#: 1407634  
Site Location: MCCARTHY  
Your C.O.C. #: 571437-03-01

**Attention: Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2017/09/21**  
Report #: R4725478  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B7K2210**

**Received: 2017/09/15, 09:14**

Sample Matrix: Water  
# Samples Received: 1

| Analyses                          | Quantity | Date<br>Extracted | Date<br>Analyzed | Laboratory Method | Reference             |
|-----------------------------------|----------|-------------------|------------------|-------------------|-----------------------|
| Animal and Vegetable Oil & Grease | 1        | N/A               | 2017/09/19       | CAM SOP-00326     | EPA1664B m, SM5520B m |
| Total Oil and Grease              | 1        | 2017/09/19        | 2017/09/19       | CAM SOP-00326     | EPA1664B m, SM5520A m |
| pH                                | 1        | N/A               | 2017/09/18       | CAM SOP-00413     | SM 4500H+ B m         |
| Phenols (4AAP)                    | 1        | N/A               | 2017/09/20       | CAM SOP-00444     | OMOE E3179 m          |
| TPH (Heavy Oil) (1)               | 1        | 2017/09/19        | 2017/09/19       | CAM SOP-00326     | EPA1664B m, SM5520F m |
| Low Level Total Suspended Solids  | 1        | 2017/09/18        | 2017/09/18       | CAM SOP-00428     | SM 22 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.

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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. #: 571437-03-01

**Attention: Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2017/09/21**  
Report #: R4725478  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B7K2210**  
**Received: 2017/09/15, 09:14**

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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### RESULTS OF ANALYSES OF WATER

|                                                                                              |              |                     |            |                 |
|----------------------------------------------------------------------------------------------|--------------|---------------------|------------|-----------------|
| <b>Maxxam ID</b>                                                                             |              | FDD985              |            |                 |
| <b>Sampling Date</b>                                                                         |              | 2017/09/14<br>11:15 |            |                 |
| <b>COC Number</b>                                                                            |              | 571437-03-01        |            |                 |
|                                                                                              | <b>UNITS</b> | <b>POND</b>         | <b>RDL</b> | <b>QC Batch</b> |
| <b>Calculated Parameters</b>                                                                 |              |                     |            |                 |
| Total Animal/Vegetable Oil and Grease                                                        | mg/L         | 1.7                 | 0.50       | 5167323         |
| <b>Inorganics</b>                                                                            |              |                     |            |                 |
| pH                                                                                           | pH           | 8.21                | N/A        | 5168000         |
| Phenols-4AAP                                                                                 | mg/L         | 0.0013              | 0.0010     | 5173825         |
| Total Suspended Solids                                                                       | mg/L         | 4                   | 1          | 5168980         |
| <b>Petroleum Hydrocarbons</b>                                                                |              |                     |            |                 |
| Total Oil & Grease                                                                           | mg/L         | 1.7                 | 0.50       | 5170318         |
| Total Oil & Grease Mineral/Synthetic                                                         | mg/L         | <0.50               | 0.50       | 5170323         |
| RDL = Reportable Detection Limit<br>QC Batch = Quality Control Batch<br>N/A = Not Applicable |              |                     |            |                 |

### GENERAL COMMENTS

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

|           |       |
|-----------|-------|
| Package 1 | 5.7°C |
|-----------|-------|

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

Maxxam Job #: B7K2210  
Report Date: 2017/09/21

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

### QUALITY ASSURANCE REPORT

| QA/QC Batch | Init | QC Type      | Parameter                            | Date Analyzed | Value   | Recovery | UNITS | QC Limits |
|-------------|------|--------------|--------------------------------------|---------------|---------|----------|-------|-----------|
| 5168000     | TA1  | Spiked Blank | pH                                   | 2017/09/18    |         | 102      | %     | 98 - 103  |
| 5168000     | TA1  | RPD          | pH                                   | 2017/09/18    | 0.25    |          | %     | N/A       |
| 5168980     | XZH  | QC Standard  | Total Suspended Solids               | 2017/09/18    |         | 95       | %     | 85 - 115  |
| 5168980     | XZH  | Method Blank | Total Suspended Solids               | 2017/09/18    | <1      |          | mg/L  |           |
| 5168980     | XZH  | RPD          | Total Suspended Solids               | 2017/09/18    | 5.3     |          | %     | 25        |
| 5170318     | FA   | Spiked Blank | Total Oil & Grease                   | 2017/09/19    |         | 99       | %     | 85 - 115  |
| 5170318     | FA   | RPD          | Total Oil & Grease                   | 2017/09/19    | 1.4     |          | %     | 25        |
| 5170318     | FA   | Method Blank | Total Oil & Grease                   | 2017/09/19    | <0.50   |          | mg/L  |           |
| 5170323     | FA   | Spiked Blank | Total Oil & Grease Mineral/Synthetic | 2017/09/19    |         | 91       | %     | 85 - 115  |
| 5170323     | FA   | RPD          | Total Oil & Grease Mineral/Synthetic | 2017/09/19    | 5.4     |          | %     | 25        |
| 5170323     | FA   | Method Blank | Total Oil & Grease Mineral/Synthetic | 2017/09/19    | <0.50   |          | mg/L  |           |
| 5173825     | ZSK  | Matrix Spike | Phenols-4AAP                         | 2017/09/20    |         | 96       | %     | 80 - 120  |
| 5173825     | ZSK  | Spiked Blank | Phenols-4AAP                         | 2017/09/20    |         | 99       | %     | 85 - 115  |
| 5173825     | ZSK  | Method Blank | Phenols-4AAP                         | 2017/09/20    | <0.0010 |          | mg/L  |           |
| 5173825     | ZSK  | RPD          | Phenols-4AAP                         | 2017/09/20    | 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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Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

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

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

### 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 Service Specialist

---

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Your Project #: 1407634  
Site#: 1407634  
Site Location: MCCARTHY  
Your C.O.C. #: 571437-05-01

**Attention: Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2017/09/29**  
Report #: R4745122  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B7K7724**

**Received: 2017/09/22, 09:30**

Sample Matrix: Water  
# Samples Received: 1

| Analyses                          | Quantity | Date<br>Extracted | Date<br>Analyzed | Laboratory Method | Reference             |
|-----------------------------------|----------|-------------------|------------------|-------------------|-----------------------|
| Animal and Vegetable Oil & Grease | 1        | N/A               | 2017/09/26       | CAM SOP-00326     | EPA1664B m, SM5520B m |
| Total Oil and Grease              | 1        | 2017/09/25        | 2017/09/26       | CAM SOP-00326     | EPA1664B m, SM5520A m |
| pH                                | 1        | N/A               | 2017/09/25       | CAM SOP-00413     | SM 4500H+ B m         |
| Phenols (4AAP)                    | 1        | N/A               | 2017/09/26       | CAM SOP-00444     | OMOE E3179 m          |
| TPH (Heavy Oil) (1)               | 1        | 2017/09/25        | 2017/09/25       | CAM SOP-00326     | EPA1664B m, SM5520F m |
| Low Level Total Suspended Solids  | 1        | 2017/09/23        | 2017/09/23       | CAM SOP-00428     | SM 22 2540D m         |

**Remarks:**

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Results relate to samples tested.

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\* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) Note: TPH (Heavy Oil) is equivalent to Mineral / Synthetic Oil & Grease

Your Project #: 1407634  
Site#: 1407634  
Site Location: MCCARTHY  
Your C.O.C. #: 571437-05-01

**Attention:Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2017/09/29**  
Report #: R4745122  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B7K7724**  
**Received: 2017/09/22, 09:30**

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.



### RESULTS OF ANALYSES OF WATER

|                                                                                              |              |                     |            |                 |
|----------------------------------------------------------------------------------------------|--------------|---------------------|------------|-----------------|
| <b>Maxxam ID</b>                                                                             |              | FEF823              |            |                 |
| <b>Sampling Date</b>                                                                         |              | 2017/09/21<br>11:05 |            |                 |
| <b>COC Number</b>                                                                            |              | 571437-05-01        |            |                 |
|                                                                                              | <b>UNITS</b> | <b>POND</b>         | <b>RDL</b> | <b>QC Batch</b> |
| <b>Calculated Parameters</b>                                                                 |              |                     |            |                 |
| Total Animal/Vegetable Oil and Grease                                                        | mg/L         | 1.7                 | 0.50       | 5177305         |
| <b>Inorganics</b>                                                                            |              |                     |            |                 |
| pH                                                                                           | pH           | 8.19                | N/A        | 5179398         |
| Phenols-4AAP                                                                                 | mg/L         | 0.0042              | 0.0020     | 5183116         |
| Total Suspended Solids                                                                       | mg/L         | 5                   | 1          | 5179576         |
| <b>Petroleum Hydrocarbons</b>                                                                |              |                     |            |                 |
| Total Oil & Grease                                                                           | mg/L         | 1.7                 | 0.50       | 5180552         |
| Total Oil & Grease Mineral/Synthetic                                                         | mg/L         | <0.50               | 0.50       | 5180553         |
| RDL = Reportable Detection Limit<br>QC Batch = Quality Control Batch<br>N/A = Not Applicable |              |                     |            |                 |

### GENERAL COMMENTS

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

|           |       |
|-----------|-------|
| Package 1 | 8.3°C |
|-----------|-------|

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

Maxxam Job #: B7K7724  
Report Date: 2017/09/29

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

### QUALITY ASSURANCE REPORT

| QA/QC Batch | Init | QC Type      | Parameter                            | Date Analyzed | Value   | Recovery | UNITS | QC Limits |
|-------------|------|--------------|--------------------------------------|---------------|---------|----------|-------|-----------|
| 5179398     | TA1  | Spiked Blank | pH                                   | 2017/09/25    |         | 102      | %     | 98 - 103  |
| 5179398     | TA1  | RPD          | pH                                   | 2017/09/25    | 0.19    |          | %     | N/A       |
| 5179576     | XZH  | QC Standard  | Total Suspended Solids               | 2017/09/23    |         | 97       | %     | 85 - 115  |
| 5179576     | XZH  | Method Blank | Total Suspended Solids               | 2017/09/23    | <1      |          | mg/L  |           |
| 5179576     | XZH  | RPD          | Total Suspended Solids               | 2017/09/23    | 18      |          | %     | 25        |
| 5180552     | FA   | Spiked Blank | Total Oil & Grease                   | 2017/09/26    |         | 98       | %     | 85 - 115  |
| 5180552     | FA   | RPD          | Total Oil & Grease                   | 2017/09/26    | 2.6     |          | %     | 25        |
| 5180552     | FA   | Method Blank | Total Oil & Grease                   | 2017/09/26    | <0.50   |          | mg/L  |           |
| 5180553     | FA   | Spiked Blank | Total Oil & Grease Mineral/Synthetic | 2017/09/25    |         | 97       | %     | 85 - 115  |
| 5180553     | FA   | RPD          | Total Oil & Grease Mineral/Synthetic | 2017/09/25    | 3.5     |          | %     | 25        |
| 5180553     | FA   | Method Blank | Total Oil & Grease Mineral/Synthetic | 2017/09/25    | <0.50   |          | mg/L  |           |
| 5183116     | ZSK  | Matrix Spike | Phenols-4AAP                         | 2017/09/26    |         | 94       | %     | 80 - 120  |
| 5183116     | ZSK  | Spiked Blank | Phenols-4AAP                         | 2017/09/26    |         | 96       | %     | 85 - 115  |
| 5183116     | ZSK  | Method Blank | Phenols-4AAP                         | 2017/09/26    | <0.0010 |          | mg/L  |           |
| 5183116     | ZSK  | RPD          | Phenols-4AAP                         | 2017/09/26    | NC      |          | %     | 20        |

N/A = Not Applicable

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

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

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

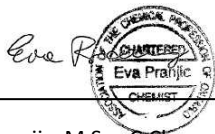
Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

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

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

### VALIDATION SIGNATURE PAGE

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



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

---

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.

Your Project #: 1407634  
Site#: MCCARTHY  
Site Location: MCCARTHY  
Your C.O.C. #: 628645-03-01

**Attention: Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2017/10/05**  
Report #: R4763170  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B7L4244**

**Received: 2017/09/29, 09:42**

Sample Matrix: Water  
# Samples Received: 1

| Analyses                          | Quantity | Date<br>Extracted | Date<br>Analyzed | Laboratory Method | Reference             |
|-----------------------------------|----------|-------------------|------------------|-------------------|-----------------------|
| Animal and Vegetable Oil & Grease | 1        | N/A               | 2017/10/04       | CAM SOP-00326     | EPA1664B m, SM5520B m |
| Total Oil and Grease              | 1        | 2017/10/03        | 2017/10/04       | CAM SOP-00326     | EPA1664B m, SM5520A m |
| pH                                | 1        | N/A               | 2017/10/02       | CAM SOP-00413     | SM 4500H+ B m         |
| Phenols (4AAP)                    | 1        | N/A               | 2017/10/03       | CAM SOP-00444     | OMOE E3179 m          |
| TPH (Heavy Oil) (1)               | 1        | 2017/10/03        | 2017/10/04       | CAM SOP-00326     | EPA1664B m, SM5520F m |
| Low Level Total Suspended Solids  | 1        | 2017/09/30        | 2017/10/02       | 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.

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#: MCCARTHY  
Site Location: MCCARTHY  
Your C.O.C. #: 628645-03-01

**Attention: Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2017/10/05**  
Report #: R4763170  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B7L4244**  
**Received: 2017/09/29, 09:42**

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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### RESULTS OF ANALYSES OF WATER

|                                                                                              |              |                     |            |                 |
|----------------------------------------------------------------------------------------------|--------------|---------------------|------------|-----------------|
| <b>Maxxam ID</b>                                                                             |              | FFM830              |            |                 |
| <b>Sampling Date</b>                                                                         |              | 2017/09/28<br>11:55 |            |                 |
| <b>COC Number</b>                                                                            |              | 628645-03-01        |            |                 |
|                                                                                              | <b>UNITS</b> | <b>POND</b>         | <b>RDL</b> | <b>QC Batch</b> |
| <b>Calculated Parameters</b>                                                                 |              |                     |            |                 |
| Total Animal/Vegetable Oil and Grease                                                        | mg/L         | <0.50               | 0.50       | 5188950         |
| <b>Inorganics</b>                                                                            |              |                     |            |                 |
| pH                                                                                           | pH           | 8.08                | N/A        | 5191271         |
| Phenols-4AAP                                                                                 | mg/L         | 0.0045              | 0.0020     | 5194315         |
| Total Suspended Solids                                                                       | mg/L         | 5                   | 1          | 5191263         |
| <b>Petroleum Hydrocarbons</b>                                                                |              |                     |            |                 |
| Total Oil & Grease                                                                           | mg/L         | <0.50               | 0.50       | 5194401         |
| Total Oil & Grease Mineral/Synthetic                                                         | mg/L         | <0.50               | 0.50       | 5194421         |
| RDL = Reportable Detection Limit<br>QC Batch = Quality Control Batch<br>N/A = Not Applicable |              |                     |            |                 |

### GENERAL COMMENTS

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

|           |       |
|-----------|-------|
| Package 1 | 5.0°C |
|-----------|-------|

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



Maxxam Job #: B7L4244  
Report Date: 2017/10/05

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

### QUALITY ASSURANCE REPORT

| QA/QC Batch | Init | QC Type      | Parameter                            | Date Analyzed | Value   | Recovery | UNITS | QC Limits |
|-------------|------|--------------|--------------------------------------|---------------|---------|----------|-------|-----------|
| 5191263     | AS6  | QC Standard  | Total Suspended Solids               | 2017/10/02    |         | 98       | %     | 85 - 115  |
| 5191263     | AS6  | Method Blank | Total Suspended Solids               | 2017/10/02    | <1      |          | mg/L  |           |
| 5191263     | AS6  | RPD          | Total Suspended Solids               | 2017/10/02    | 12      |          | %     | 25        |
| 5191271     | TA1  | Spiked Blank | pH                                   | 2017/10/02    |         | 102      | %     | 98 - 103  |
| 5191271     | TA1  | RPD          | pH                                   | 2017/10/02    | 0.18    |          | %     | N/A       |
| 5194315     | ZSK  | Matrix Spike | Phenols-4AAP                         | 2017/10/03    |         | 92       | %     | 80 - 120  |
| 5194315     | ZSK  | Spiked Blank | Phenols-4AAP                         | 2017/10/03    |         | 98       | %     | 85 - 115  |
| 5194315     | ZSK  | Method Blank | Phenols-4AAP                         | 2017/10/03    | <0.0010 |          | mg/L  |           |
| 5194315     | ZSK  | RPD          | Phenols-4AAP                         | 2017/10/03    | 14      |          | %     | 20        |
| 5194401     | AMJ  | Spiked Blank | Total Oil & Grease                   | 2017/10/04    |         | 95       | %     | 85 - 115  |
| 5194401     | AMJ  | RPD          | Total Oil & Grease                   | 2017/10/04    | 2.6     |          | %     | 25        |
| 5194401     | AMJ  | Method Blank | Total Oil & Grease                   | 2017/10/04    | <0.50   |          | mg/L  |           |
| 5194421     | AMJ  | Spiked Blank | Total Oil & Grease Mineral/Synthetic | 2017/10/04    |         | 93       | %     | 85 - 115  |
| 5194421     | AMJ  | RPD          | Total Oil & Grease Mineral/Synthetic | 2017/10/04    | 1.8     |          | %     | 25        |
| 5194421     | AMJ  | Method Blank | Total Oil & Grease Mineral/Synthetic | 2017/10/04    | <0.50   |          | mg/L  |           |

N/A = Not Applicable

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

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

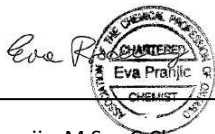
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Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

### VALIDATION SIGNATURE PAGE

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

  
The seal is circular with the text "THE CHEMICAL PROFESSION" around the top edge and "CANADA" around the bottom edge. In the center, it says "CHARTERED", "Eva Pranjić", and "CHEMIST".

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

---

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Your Project #: 1407634  
Site#: McCarthy  
Your C.O.C. #: 628645-02-01

**Attention: Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2017/10/16**  
Report #: R4785354  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B7M0992**  
**Received: 2017/10/06, 10:21**

Sample Matrix: Water  
# Samples Received: 1

| Analyses                          | Quantity | Date<br>Extracted | Date<br>Analyzed | Laboratory Method | Reference             |
|-----------------------------------|----------|-------------------|------------------|-------------------|-----------------------|
| Animal and Vegetable Oil & Grease | 1        | N/A               | 2017/10/13       | CAM SOP-00326     | EPA1664B m, SM5520B m |
| Total Oil and Grease              | 1        | 2017/10/12        | 2017/10/13       | CAM SOP-00326     | EPA1664B m, SM5520A m |
| pH                                | 1        | N/A               | 2017/10/10       | CAM SOP-00413     | SM 4500H+ B m         |
| Phenols (4AAP)                    | 1        | N/A               | 2017/10/12       | CAM SOP-00444     | OMOE E3179 m          |
| TPH (Heavy Oil) (1)               | 1        | 2017/10/12        | 2017/10/13       | CAM SOP-00326     | EPA1664B m, SM5520F m |
| Low Level Total Suspended Solids  | 1        | 2017/10/07        | 2017/10/10       | CAM SOP-00428     | SM 22 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.

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Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

\* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) Note: TPH (Heavy Oil) is equivalent to Mineral / Synthetic Oil & Grease

Your Project #: 1407634  
Site#: McCarthy  
Your C.O.C. #: 628645-02-01

**Attention: Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2017/10/16**  
Report #: R4785354  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B7M0992**  
**Received: 2017/10/06, 10:21**

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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### RESULTS OF ANALYSES OF WATER

|                                                                                                                                                                                                                                                                                                                     |              |                 |              |            |                 |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|-----------------|--------------|------------|-----------------|
| <b>Maxxam ID</b>                                                                                                                                                                                                                                                                                                    |              |                 | FGU912       |            |                 |
| <b>Sampling Date</b>                                                                                                                                                                                                                                                                                                |              |                 | 2017/10/05   |            |                 |
| <b>COC Number</b>                                                                                                                                                                                                                                                                                                   |              |                 | 628645-02-01 |            |                 |
|                                                                                                                                                                                                                                                                                                                     | <b>UNITS</b> | <b>Criteria</b> | <b>POND</b>  | <b>RDL</b> | <b>QC Batch</b> |
| <b>Calculated Parameters</b>                                                                                                                                                                                                                                                                                        |              |                 |              |            |                 |
| Total Animal/Vegetable Oil and Grease                                                                                                                                                                                                                                                                               | mg/L         | -               | 2.1          | 0.50       | 5200473         |
| <b>Inorganics</b>                                                                                                                                                                                                                                                                                                   |              |                 |              |            |                 |
| pH                                                                                                                                                                                                                                                                                                                  | pH           | <b>6.5:8.5</b>  | 8.15         | N/A        | 5202586         |
| Phenols-4AAP                                                                                                                                                                                                                                                                                                        | mg/L         | <b>0.001</b>    | <0.0020 (1)  | 0.0020     | 5208367         |
| Total Suspended Solids                                                                                                                                                                                                                                                                                              | mg/L         | -               | 5            | 1          | 5202691         |
| <b>Petroleum Hydrocarbons</b>                                                                                                                                                                                                                                                                                       |              |                 |              |            |                 |
| Total Oil & Grease                                                                                                                                                                                                                                                                                                  | mg/L         | -               | 2.1          | 0.50       | 5207873         |
| Total Oil & Grease Mineral/Synthetic                                                                                                                                                                                                                                                                                | mg/L         | <b>0.5</b>      | <0.50        | 0.50       | 5207876         |
| RDL = Reportable Detection Limit<br>QC Batch = Quality Control Batch<br>Criteria: Ontario Provincial Water Quality Objectives<br>Ref. to MOEE Water Management document dated Feb.1999<br>N/A = Not Applicable<br>(1) Due to the sample matrix, sample required dilution. Detection Limit was adjusted accordingly. |              |                 |              |            |                 |

### GENERAL COMMENTS

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

|           |       |
|-----------|-------|
| Package 1 | 9.3°C |
|-----------|-------|

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

### QUALITY ASSURANCE REPORT

| QA/QC Batch | Init | QC Type      | Parameter                            | Date Analyzed | Value   | Recovery | UNITS | QC Limits |
|-------------|------|--------------|--------------------------------------|---------------|---------|----------|-------|-----------|
| 5202586     | TA1  | Spiked Blank | pH                                   | 2017/10/10    |         | 102      | %     | 98 - 103  |
| 5202586     | TA1  | RPD          | pH                                   | 2017/10/10    | 0.045   |          | %     | N/A       |
| 5202691     | XZH  | QC Standard  | Total Suspended Solids               | 2017/10/10    |         | 95       | %     | 85 - 115  |
| 5202691     | XZH  | Method Blank | Total Suspended Solids               | 2017/10/10    | <1      |          | mg/L  |           |
| 5202691     | XZH  | RPD          | Total Suspended Solids               | 2017/10/10    | 12      |          | %     | 25        |
| 5207873     | FA   | Spiked Blank | Total Oil & Grease                   | 2017/10/13    |         | 99       | %     | 85 - 115  |
| 5207873     | FA   | RPD          | Total Oil & Grease                   | 2017/10/13    | 2.3     |          | %     | 25        |
| 5207873     | FA   | Method Blank | Total Oil & Grease                   | 2017/10/13    | <0.50   |          | mg/L  |           |
| 5207876     | FA   | Spiked Blank | Total Oil & Grease Mineral/Synthetic | 2017/10/13    |         | 92       | %     | 85 - 115  |
| 5207876     | FA   | RPD          | Total Oil & Grease Mineral/Synthetic | 2017/10/13    | 1.8     |          | %     | 25        |
| 5207876     | FA   | Method Blank | Total Oil & Grease Mineral/Synthetic | 2017/10/13    | <0.50   |          | mg/L  |           |
| 5208367     | ZSK  | Matrix Spike | Phenols-4AAP                         | 2017/10/12    |         | 98       | %     | 80 - 120  |
| 5208367     | ZSK  | Spiked Blank | Phenols-4AAP                         | 2017/10/12    |         | 101      | %     | 80 - 120  |
| 5208367     | ZSK  | Method Blank | Phenols-4AAP                         | 2017/10/12    | <0.0010 |          | mg/L  |           |
| 5208367     | ZSK  | RPD          | Phenols-4AAP                         | 2017/10/12    | NC      |          | %     | 20        |

N/A = Not Applicable

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

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

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

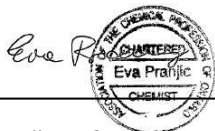
Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

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

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

### VALIDATION SIGNATURE PAGE

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



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

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Your Project #: 1407634  
Site#: McCarthy  
Site Location: MCCARTHY  
Your C.O.C. #: 628645-06-01

**Attention: Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2017/10/20**  
Report #: R4794254  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B7M7153**  
**Received: 2017/10/13, 11:37**

Sample Matrix: Water  
# Samples Received: 1

| Analyses                          | Quantity | Date<br>Extracted | Date<br>Analyzed | Laboratory Method | Reference             |
|-----------------------------------|----------|-------------------|------------------|-------------------|-----------------------|
| Animal and Vegetable Oil & Grease | 1        | N/A               | 2017/10/18       | CAM SOP-00326     | EPA1664B m, SM5520B m |
| Total Oil and Grease              | 1        | 2017/10/18        | 2017/10/18       | CAM SOP-00326     | EPA1664B m, SM5520A m |
| pH                                | 1        | N/A               | 2017/10/18       | CAM SOP-00413     | SM 4500H+ B m         |
| Phenols (4AAP)                    | 1        | N/A               | 2017/10/17       | CAM SOP-00444     | OMOE E3179 m          |
| TPH (Heavy Oil) (1)               | 1        | 2017/10/18        | 2017/10/18       | CAM SOP-00326     | EPA1664B m, SM5520F m |
| Low Level Total Suspended Solids  | 1        | 2017/10/16        | 2017/10/16       | CAM SOP-00428     | SM 22 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.

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#: McCarthy  
Site Location: MCCARTHY  
Your C.O.C. #: 628645-06-01

**Attention: Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2017/10/20**  
Report #: R4794254  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B7M7153**  
**Received: 2017/10/13, 11:37**

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.

### RESULTS OF ANALYSES OF WATER

|                                                                                                                                          |              |                     |                         |            |                 |
|------------------------------------------------------------------------------------------------------------------------------------------|--------------|---------------------|-------------------------|------------|-----------------|
| <b>Maxxam ID</b>                                                                                                                         |              | FIA760              | FIA760                  |            |                 |
| <b>Sampling Date</b>                                                                                                                     |              | 2017/10/12<br>11:15 | 2017/10/12<br>11:15     |            |                 |
| <b>COC Number</b>                                                                                                                        |              | 628645-06-01        | 628645-06-01            |            |                 |
|                                                                                                                                          | <b>UNITS</b> | <b>POND</b>         | <b>POND<br/>Lab-Dup</b> | <b>RDL</b> | <b>QC Batch</b> |
| <b>Calculated Parameters</b>                                                                                                             |              |                     |                         |            |                 |
| Total Animal/Vegetable Oil and Grease                                                                                                    | mg/L         | 1.9                 | N/A                     | 0.50       | 5212322         |
| <b>Inorganics</b>                                                                                                                        |              |                     |                         |            |                 |
| pH                                                                                                                                       | pH           | 8.15                | N/A                     | N/A        | 5217060         |
| Phenols-4AAP                                                                                                                             | mg/L         | 0.0020              | 0.0021                  | 0.0010     | 5215813         |
| Total Suspended Solids                                                                                                                   | mg/L         | 4                   | N/A                     | 1          | 5213662         |
| <b>Petroleum Hydrocarbons</b>                                                                                                            |              |                     |                         |            |                 |
| Total Oil & Grease                                                                                                                       | mg/L         | 1.9                 | N/A                     | 0.50       | 5217418         |
| Total Oil & Grease Mineral/Synthetic                                                                                                     | mg/L         | <0.50               | N/A                     | 0.50       | 5217424         |
| RDL = Reportable Detection Limit<br>QC Batch = Quality Control Batch<br>Lab-Dup = Laboratory Initiated Duplicate<br>N/A = Not Applicable |              |                     |                         |            |                 |

### GENERAL COMMENTS

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

|           |       |
|-----------|-------|
| Package 1 | 7.7°C |
|-----------|-------|

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

### QUALITY ASSURANCE REPORT

| QA/QC Batch | Init | QC Type                  | Parameter                            | Date Analyzed | Value   | Recovery | UNITS | QC Limits |
|-------------|------|--------------------------|--------------------------------------|---------------|---------|----------|-------|-----------|
| 5213662     | SDE  | QC Standard              | Total Suspended Solids               | 2017/10/16    |         | 102      | %     | 85 - 115  |
| 5213662     | SDE  | Method Blank             | Total Suspended Solids               | 2017/10/16    | <1      |          | mg/L  |           |
| 5213662     | SDE  | RPD                      | Total Suspended Solids               | 2017/10/16    | 15      |          | %     | 25        |
| 5215813     | ZSK  | Matrix Spike [FIA760-04] | Phenols-4AAP                         | 2017/10/17    |         | 95       | %     | 80 - 120  |
| 5215813     | ZSK  | Spiked Blank             | Phenols-4AAP                         | 2017/10/17    |         | 100      | %     | 80 - 120  |
| 5215813     | ZSK  | Method Blank             | Phenols-4AAP                         | 2017/10/17    | <0.0010 |          | mg/L  |           |
| 5215813     | ZSK  | RPD [FIA760-04]          | Phenols-4AAP                         | 2017/10/17    | 4.9     |          | %     | 20        |
| 5217060     | TA1  | Spiked Blank             | pH                                   | 2017/10/18    |         | 102      | %     | 98 - 103  |
| 5217060     | TA1  | RPD                      | pH                                   | 2017/10/18    | 0.21    |          | %     | N/A       |
| 5217418     | FA   | Spiked Blank             | Total Oil & Grease                   | 2017/10/18    |         | 98       | %     | 85 - 115  |
| 5217418     | FA   | RPD                      | Total Oil & Grease                   | 2017/10/18    | 1.4     |          | %     | 25        |
| 5217418     | FA   | Method Blank             | Total Oil & Grease                   | 2017/10/18    | <0.50   |          | mg/L  |           |
| 5217424     | FA   | Spiked Blank             | Total Oil & Grease Mineral/Synthetic | 2017/10/18    |         | 95       | %     | 85 - 115  |
| 5217424     | FA   | RPD                      | Total Oil & Grease Mineral/Synthetic | 2017/10/18    | 3.6     |          | %     | 25        |
| 5217424     | FA   | Method Blank             | Total Oil & Grease Mineral/Synthetic | 2017/10/18    | <0.50   |          | mg/L  |           |

N/A = Not Applicable

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

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

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

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

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

### VALIDATION SIGNATURE PAGE

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



Brad Newman, Scientific Service Specialist

---

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Your Project #: 1407634  
Site#: MCCARTHY  
Site Location: MCCARTHY  
Your C.O.C. #: 628645-04-01

**Attention: Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2017/10/27**  
Report #: R4806725  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B7N4178**

**Received: 2017/10/20, 09:52**

Sample Matrix: Water  
# Samples Received: 1

| Analyses                          | Quantity | Date<br>Extracted | Date<br>Analyzed | Laboratory Method | Reference             |
|-----------------------------------|----------|-------------------|------------------|-------------------|-----------------------|
| Animal and Vegetable Oil & Grease | 1        | N/A               | 2017/10/26       | CAM SOP-00326     | EPA1664B m, SM5520B m |
| Total Oil and Grease              | 1        | 2017/10/26        | 2017/10/26       | CAM SOP-00326     | EPA1664B m, SM5520A m |
| pH                                | 1        | N/A               | 2017/10/25       | CAM SOP-00413     | SM 4500H+ B m         |
| Phenols (4AAP)                    | 1        | N/A               | 2017/10/24       | CAM SOP-00444     | OMOE E3179 m          |
| TPH (Heavy Oil) (1)               | 1        | 2017/10/26        | 2017/10/26       | CAM SOP-00326     | EPA1664B m, SM5520F m |
| Low Level Total Suspended Solids  | 1        | 2017/10/23        | 2017/10/24       | CAM SOP-00428     | SM 22 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.

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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. #: 628645-04-01

**Attention:Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2017/10/27**  
Report #: R4806725  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B7N4178**  
**Received: 2017/10/20, 09:52**

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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### RESULTS OF ANALYSES OF WATER

|                                                                                                                                                                                                                |              |                 |                     |            |                 |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|-----------------|---------------------|------------|-----------------|
| <b>Maxxam ID</b>                                                                                                                                                                                               |              |                 | FJP824              |            |                 |
| <b>Sampling Date</b>                                                                                                                                                                                           |              |                 | 2017/10/19<br>12:50 |            |                 |
| <b>COC Number</b>                                                                                                                                                                                              |              |                 | 628645-04-01        |            |                 |
|                                                                                                                                                                                                                | <b>UNITS</b> | <b>Criteria</b> | <b>POND</b>         | <b>RDL</b> | <b>QC Batch</b> |
| <b>Calculated Parameters</b>                                                                                                                                                                                   |              |                 |                     |            |                 |
| Total Animal/Vegetable Oil and Grease                                                                                                                                                                          | mg/L         | -               | 2.3                 | 0.50       | 5224341         |
| <b>Inorganics</b>                                                                                                                                                                                              |              |                 |                     |            |                 |
| pH                                                                                                                                                                                                             | pH           | <b>6.5:8.5</b>  | 8.07                | N/A        | 5228573         |
| Phenols-4AAP                                                                                                                                                                                                   | mg/L         | <b>0.001</b>    | <b>0.0013</b>       | 0.0010     | 5227234         |
| Total Suspended Solids                                                                                                                                                                                         | mg/L         | -               | 4                   | 1          | 5225523         |
| <b>Petroleum Hydrocarbons</b>                                                                                                                                                                                  |              |                 |                     |            |                 |
| Total Oil & Grease                                                                                                                                                                                             | mg/L         | -               | 2.9                 | 0.50       | 5232116         |
| Total Oil & Grease Mineral/Synthetic                                                                                                                                                                           | mg/L         | <b>0.5</b>      | <b>0.60</b>         | 0.50       | 5232117         |
| RDL = Reportable Detection Limit<br>QC Batch = Quality Control Batch<br>Criteria: Ontario Provincial Water Quality Objectives<br>Ref. to MOEE Water Management document dated Feb.1999<br>N/A = Not Applicable |              |                 |                     |            |                 |

### GENERAL COMMENTS

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

|           |       |
|-----------|-------|
| Package 1 | 2.7°C |
|-----------|-------|

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

Maxxam Job #: B7N4178  
Report Date: 2017/10/27

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

### QUALITY ASSURANCE REPORT

| QA/QC Batch | Init | QC Type      | Parameter                            | Date Analyzed | Value   | Recovery | UNITS | QC Limits |
|-------------|------|--------------|--------------------------------------|---------------|---------|----------|-------|-----------|
| 5225523     | XZH  | QC Standard  | Total Suspended Solids               | 2017/10/24    |         | 98       | %     | 85 - 115  |
| 5225523     | XZH  | Method Blank | Total Suspended Solids               | 2017/10/24    | <1      |          | mg/L  |           |
| 5225523     | XZH  | RPD          | Total Suspended Solids               | 2017/10/24    | 0       |          | %     | 25        |
| 5227234     | BMO  | Matrix Spike | Phenols-4AAP                         | 2017/10/24    |         | 96       | %     | 80 - 120  |
| 5227234     | BMO  | Spiked Blank | Phenols-4AAP                         | 2017/10/24    |         | 97       | %     | 80 - 120  |
| 5227234     | BMO  | Method Blank | Phenols-4AAP                         | 2017/10/24    | <0.0010 |          | mg/L  |           |
| 5227234     | BMO  | RPD          | Phenols-4AAP                         | 2017/10/24    | NC      |          | %     | 20        |
| 5228573     | NYS  | Spiked Blank | pH                                   | 2017/10/25    |         | 102      | %     | 98 - 103  |
| 5228573     | NYS  | RPD          | pH                                   | 2017/10/25    | 0.28    |          | %     | N/A       |
| 5232116     | FA   | Spiked Blank | Total Oil & Grease                   | 2017/10/26    |         | 99       | %     | 85 - 115  |
| 5232116     | FA   | RPD          | Total Oil & Grease                   | 2017/10/26    | 1.4     |          | %     | 25        |
| 5232116     | FA   | Method Blank | Total Oil & Grease                   | 2017/10/26    | <0.50   |          | mg/L  |           |
| 5232117     | FA   | Spiked Blank | Total Oil & Grease Mineral/Synthetic | 2017/10/26    |         | 96       | %     | 85 - 115  |
| 5232117     | FA   | RPD          | Total Oil & Grease Mineral/Synthetic | 2017/10/26    | 3.0     |          | %     | 25        |
| 5232117     | FA   | Method Blank | Total Oil & Grease Mineral/Synthetic | 2017/10/26    | <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.

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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.

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

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

### 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 Service Specialist

---

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Your Project #: 1407634  
Site#: 1407634  
Site Location: MCCARTHY  
Your C.O.C. #: 571437-06-01

**Attention: Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2017/11/03**  
Report #: R4822740  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B700165**

**Received: 2017/10/27, 09:32**

Sample Matrix: Water  
# Samples Received: 1

| Analyses                          | Quantity | Date<br>Extracted | Date<br>Analyzed | Laboratory Method | Reference             |
|-----------------------------------|----------|-------------------|------------------|-------------------|-----------------------|
| Animal and Vegetable Oil & Grease | 1        | N/A               | 2017/11/01       | CAM SOP-00326     | EPA1664B m, SM5520B m |
| Total Oil and Grease              | 1        | 2017/11/01        | 2017/11/01       | CAM SOP-00326     | EPA1664B m, SM5520A m |
| pH                                | 1        | N/A               | 2017/10/30       | CAM SOP-00413     | SM 4500H+ B m         |
| Phenols (4AAP)                    | 1        | N/A               | 2017/11/02       | CAM SOP-00444     | OMOE E3179 m          |
| TPH (Heavy Oil) (1)               | 1        | 2017/11/01        | 2017/11/01       | CAM SOP-00326     | EPA1664B m, SM5520F m |
| Low Level Total Suspended Solids  | 1        | 2017/10/30        | 2017/10/30       | CAM SOP-00428     | SM 22 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.

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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. #: 571437-06-01

**Attention:Dawn Hoyle/Jamie Bonany**

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

**Report Date: 2017/11/03**  
Report #: R4822740  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B7O0165**  
**Received: 2017/10/27, 09:32**

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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### RESULTS OF ANALYSES OF WATER

|                                                                                                                                                                                                                                                            |              |                 |               |                         |            |                 |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|-----------------|---------------|-------------------------|------------|-----------------|
| <b>Maxxam ID</b>                                                                                                                                                                                                                                           |              |                 | FKV592        | FKV592                  |            |                 |
| <b>Sampling Date</b>                                                                                                                                                                                                                                       |              |                 | 2017/10/26    | 2017/10/26              |            |                 |
| <b>COC Number</b>                                                                                                                                                                                                                                          |              |                 | 571437-06-01  | 571437-06-01            |            |                 |
|                                                                                                                                                                                                                                                            | <b>UNITS</b> | <b>Criteria</b> | <b>POND</b>   | <b>POND<br/>Lab-Dup</b> | <b>RDL</b> | <b>QC Batch</b> |
| <b>Calculated Parameters</b>                                                                                                                                                                                                                               |              |                 |               |                         |            |                 |
| Total Animal/Vegetable Oil and Grease                                                                                                                                                                                                                      | mg/L         | -               | <0.50         | N/A                     | 0.50       | 5235072         |
| <b>Inorganics</b>                                                                                                                                                                                                                                          |              |                 |               |                         |            |                 |
| pH                                                                                                                                                                                                                                                         | pH           | <b>6.5:8.5</b>  | 8.22          | N/A                     | N/A        | 5237066         |
| Phenols-4AAP                                                                                                                                                                                                                                               | mg/L         | <b>0.001</b>    | <b>0.0026</b> | N/A                     | 0.0010     | 5244825         |
| Total Suspended Solids                                                                                                                                                                                                                                     | mg/L         | -               | 2             | 2                       | 1          | 5238752         |
| <b>Petroleum Hydrocarbons</b>                                                                                                                                                                                                                              |              |                 |               |                         |            |                 |
| Total Oil & Grease                                                                                                                                                                                                                                         | mg/L         | -               | <0.50         | N/A                     | 0.50       | 5242548         |
| Total Oil & Grease Mineral/Synthetic                                                                                                                                                                                                                       | mg/L         | <b>0.5</b>      | <0.50         | N/A                     | 0.50       | 5242552         |
| RDL = Reportable Detection Limit<br>QC Batch = Quality Control Batch<br>Lab-Dup = Laboratory Initiated Duplicate<br>Criteria: Ontario Provincial Water Quality Objectives<br>Ref. to MOEE Water Management document dated Feb.1999<br>N/A = Not Applicable |              |                 |               |                         |            |                 |

### GENERAL COMMENTS

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

|           |       |
|-----------|-------|
| Package 1 | 9.3°C |
|-----------|-------|

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



### QUALITY ASSURANCE REPORT

| QA/QC<br>Batch | Init | QC Type         | Parameter                            | Date Analyzed | Value   | Recovery | UNITS | QC Limits |
|----------------|------|-----------------|--------------------------------------|---------------|---------|----------|-------|-----------|
| 5237066        | TA1  | Spiked Blank    | pH                                   | 2017/10/30    |         | 102      | %     | 98 - 103  |
| 5237066        | TA1  | RPD             | pH                                   | 2017/10/30    | 0.30    |          | %     | N/A       |
| 5238752        | XZH  | QC Standard     | Total Suspended Solids               | 2017/10/30    |         | 94       | %     | 85 - 115  |
| 5238752        | XZH  | Method Blank    | Total Suspended Solids               | 2017/10/30    | <1      |          | mg/L  |           |
| 5238752        | XZH  | RPD [FKV592-03] | Total Suspended Solids               | 2017/10/30    | 0       |          | %     | 25        |
| 5242548        | MA4  | Spiked Blank    | Total Oil & Grease                   | 2017/11/01    |         | 95       | %     | 85 - 115  |
| 5242548        | MA4  | RPD             | Total Oil & Grease                   | 2017/11/01    | 3.7     |          | %     | 25        |
| 5242548        | MA4  | Method Blank    | Total Oil & Grease                   | 2017/11/01    | <0.50   |          | mg/L  |           |
| 5242552        | MA4  | Spiked Blank    | Total Oil & Grease Mineral/Synthetic | 2017/11/01    |         | 93       | %     | 85 - 115  |
| 5242552        | MA4  | RPD             | Total Oil & Grease Mineral/Synthetic | 2017/11/01    | 1.8     |          | %     | 25        |
| 5242552        | MA4  | Method Blank    | Total Oil & Grease Mineral/Synthetic | 2017/11/01    | <0.50   |          | mg/L  |           |
| 5244825        | ZSK  | Matrix Spike    | Phenols-4AAP                         | 2017/11/02    |         | 96       | %     | 80 - 120  |
| 5244825        | ZSK  | Spiked Blank    | Phenols-4AAP                         | 2017/11/02    |         | 100      | %     | 80 - 120  |
| 5244825        | ZSK  | Method Blank    | Phenols-4AAP                         | 2017/11/02    | <0.0010 |          | mg/L  |           |
| 5244825        | ZSK  | RPD             | Phenols-4AAP                         | 2017/11/02    | 9.5     |          | %     | 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.

### VALIDATION SIGNATURE PAGE

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

*Cristina Carriere*

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Cristina Carriere, Scientific Service Specialist

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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.

Your Project #: 1407634  
Site Location: MCCARTHY- COCO  
Your C.O.C. #: 611508-01-01

**Attention: Jamie Bonany**

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

**Report Date: 2017/05/31**  
Report #: R4494426  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B7A5755**

**Received: 2017/05/24, 10:15**

Sample Matrix: Water  
# Samples Received: 3

| Analyses                                                               | Quantity | Date<br>Extracted | Date<br>Analyzed | Laboratory Method            | Reference                                     |
|------------------------------------------------------------------------|----------|-------------------|------------------|------------------------------|-----------------------------------------------|
| Alkalinity                                                             | 3        | N/A               | 2017/05/30       | CAM SOP-00448                | SM 22 2320 B m                                |
| Chloride by Automated Colourimetry                                     | 3        | N/A               | 2017/05/29       | CAM SOP-00463                | EPA 325.2 m                                   |
| Conductivity                                                           | 3        | N/A               | 2017/05/30       | CAM SOP-00414                | SM 22 2510 m                                  |
| Dissolved Organic Carbon (DOC) (1)                                     | 3        | N/A               | 2017/05/26       | CAM SOP-00446                | SM 22 5310 B m                                |
| Fluoride                                                               | 3        | 2017/05/27        | 2017/05/30       | CAM SOP-00449                | SM 22 4500-F C m                              |
| Hardness (calculated as CaCO <sub>3</sub> )                            | 3        | N/A               | 2017/05/30       | CAM SOP<br>00102/00408/00447 | SM 2340 B                                     |
| Lab Filtered Metals Analysis by ICP                                    | 3        | 2017/05/27        | 2017/05/29       | CAM SOP-00408                | EPA 6010D m                                   |
| Total Metals Analysis by ICPMS                                         | 3        | N/A               | 2017/05/26       | CAM SOP-00447                | EPA 6020B m                                   |
| Anion and Cation Sum                                                   | 3        | N/A               | 2017/05/30       |                              |                                               |
| Total Ammonia-N                                                        | 3        | N/A               | 2017/05/30       | CAM SOP-00441                | EPA GS I-2522-90 m                            |
| Nitrate (NO <sub>3</sub> ) and Nitrite (NO <sub>2</sub> ) in Water (2) | 3        | N/A               | 2017/05/29       | CAM SOP-00440                | SM 22 4500-NO <sub>3</sub> /NO <sub>2</sub> B |
| Total Oil and Grease                                                   | 3        | 2017/05/25        | 2017/05/25       | CAM SOP-00326                | EPA1664B m, SM5520A m                         |
| pH                                                                     | 3        | N/A               | 2017/05/30       | CAM SOP-00413                | SM 4500H+ B m                                 |
| Phenols (4AAP)                                                         | 3        | N/A               | 2017/05/29       | CAM SOP-00444                | OMOE E3179 m                                  |
| Sulphate by Automated Colourimetry                                     | 3        | N/A               | 2017/05/29       | CAM SOP-00464                | EPA 375.4 m                                   |
| Total Dissolved Solids                                                 | 3        | 2017/05/26        | 2017/05/26       | CAM SOP-00428                | SM 22 2540C m                                 |
| Total Kjeldahl Nitrogen in Water                                       | 2        | 2017/05/26        | 2017/05/29       | CAM SOP-00938                | OMOE E3516 m                                  |
| Total Kjeldahl Nitrogen in Water                                       | 1        | 2017/05/27        | 2017/05/28       | CAM SOP-00938                | OMOE E3516 m                                  |
| Total Phosphorus (Colourimetric)                                       | 2        | 2017/05/31        | 2017/05/31       | CAM SOP-00407                | SM 22 4500 P B H m                            |
| Total Phosphorus (Colourimetric)                                       | 1        | 2017/05/26        | 2017/05/29       | CAM SOP-00407                | SM 22 4500 P B H m                            |
| Total Suspended Solids                                                 | 3        | 2017/05/26        | 2017/05/26       | 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.

Your Project #: 1407634  
Site Location: MCCARTHY- COCO  
Your C.O.C. #: 611508-01-01

**Attention: Jamie Bonany**

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

**Report Date: 2017/05/31**  
Report #: R4494426  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B7A5755**

**Received: 2017/05/24, 10:15**

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.

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

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

\* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) Dissolved Organic Carbon (DOC) present in the sample should be considered as non-purgeable DOC.

(2) Values for calculated parameters may not appear to add up due to rounding of raw data and significant figures.

**Encryption Key**

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

Ema Gitej, Senior Project Manager

Email: EGitej@maxxam.ca

Phone# (905)817-5829

=====

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.

## RESULTS OF ANALYSES OF WATER

| Maxxam ID                                             |                                 |          | EKW691              |          | EKW692              |        |          | EKW693              |        |          |
|-------------------------------------------------------|---------------------------------|----------|---------------------|----------|---------------------|--------|----------|---------------------|--------|----------|
| Sampling Date                                         |                                 |          | 2017/05/23<br>14:30 |          | 2017/05/23<br>12:00 |        |          | 2017/05/23<br>10:20 |        |          |
| COC Number                                            |                                 |          | 611508-01-01        |          | 611508-01-01        |        |          | 611508-01-01        |        |          |
|                                                       | UNITS                           | Criteria | POND                | QC Batch | SW1                 | RDL    | QC Batch | SW2                 | RDL    | QC Batch |
| Calculated Parameters                                 |                                 |          |                     |          |                     |        |          |                     |        |          |
| Anion Sum                                             | me/L                            | -        | 10.1                | 4997030  | 9.82                | N/A    | 4997030  | 6.31                | N/A    | 4997030  |
| Cation Sum                                            | me/L                            | -        | 10.3                | 4997030  | 10.3                | N/A    | 4997030  | 6.52                | N/A    | 4997030  |
| Hardness (CaCO3)                                      | mg/L                            | -        | 300                 | 4996097  | 300                 | 1.0    | 4996097  | 310                 | 1.0    | 4996097  |
| Inorganics                                            |                                 |          |                     |          |                     |        |          |                     |        |          |
| Total Ammonia-N                                       | mg/L                            | -        | <0.050              | 5000869  | <0.050              | 0.050  | 5000869  | <0.050              | 0.050  | 5000869  |
| Conductivity                                          | mS/cm                           | -        | 1.01                | 5002303  | 0.988               | 0.001  | 5002303  | 0.570               | 0.001  | 5002303  |
| Total Dissolved Solids                                | mg/L                            | -        | 638                 | 5000102  | 622                 | 10     | 5000102  | 362                 | 10     | 5000102  |
| Fluoride (F-)                                         | mg/L                            | -        | 0.58                | 5002304  | 0.55                | 0.10   | 5002304  | 0.10                | 0.10   | 5002304  |
| Total Kjeldahl Nitrogen (TKN)                         | mg/L                            | -        | 0.26                | 5001830  | 0.51                | 0.10   | 5000971  | 0.62                | 0.10   | 5000971  |
| Dissolved Organic Carbon                              | mg/L                            | -        | 3.8                 | 4999164  | 3.7                 | 0.20   | 4999164  | 13                  | 0.20   | 4999164  |
| pH                                                    | pH                              | 6.5:8.5  | 8.10                | 5002305  | 8.01                |        | 5002305  | 8.04                |        | 5002305  |
| Phenols-4AAP                                          | mg/L                            | 0.001    | <0.0010             | 5003108  | <0.0010             | 0.0010 | 5003108  | <0.0010             | 0.0010 | 5003108  |
| Total Phosphorus                                      | mg/L                            | 0.01     | 0.012               | 5006286  | 0.016               | 0.004  | 5006286  | 0.035               | 0.020  | 5000571  |
| Total Suspended Solids                                | mg/L                            | -        | <10                 | 5000098  | <10                 | 10     | 5000098  | 12                  | 10     | 5000098  |
| Dissolved Sulphate (SO4)                              | mg/L                            | -        | 260                 | 5001303  | 240                 | 1.0    | 5001303  | 22                  | 1.0    | 5001303  |
| Alkalinity (Total as CaCO3)                           | mg/L                            | -        | 110                 | 5002302  | 120                 | 1.0    | 5002302  | 280                 | 1.0    | 5002302  |
| Dissolved Chloride (Cl)                               | mg/L                            | -        | 84                  | 5001291  | 79                  | 1.0    | 5001291  | 7.7                 | 1.0    | 5001291  |
| Nitrite (N)                                           | mg/L                            | -        | 0.119               | 5001217  | 0.109               | 0.010  | 5001217  | <0.010              | 0.010  | 5001217  |
| Nitrate (N)                                           | mg/L                            | -        | 2.91                | 5001217  | 2.80                | 0.10   | 5001217  | <0.10               | 0.10   | 5001217  |
| Nitrate + Nitrite (N)                                 | mg/L                            | -        | 3.02                | 5001217  | 2.91                | 0.10   | 5001217  | <0.10               | 0.10   | 5001217  |
| Petroleum Hydrocarbons                                |                                 |          |                     |          |                     |        |          |                     |        |          |
| Total Oil & Grease                                    | mg/L                            | -        | <0.50               | 4998299  | <0.50               | 0.50   | 4998299  | <0.50               | 0.50   | 4998299  |
| No Fill                                               | No Exceedance                   |          |                     |          |                     |        |          |                     |        |          |
| Grey                                                  | Exceeds 1 criteria policy/level |          |                     |          |                     |        |          |                     |        |          |
| Black                                                 | Exceeds both criteria/levels    |          |                     |          |                     |        |          |                     |        |          |
| RDL = Reportable Detection Limit                      |                                 |          |                     |          |                     |        |          |                     |        |          |
| QC Batch = Quality Control Batch                      |                                 |          |                     |          |                     |        |          |                     |        |          |
| Criteria: Ontario Provincial Water Quality Objectives |                                 |          |                     |          |                     |        |          |                     |        |          |
| Ref. to MOEE Water Management document dated Feb.1999 |                                 |          |                     |          |                     |        |          |                     |        |          |
| N/A = Not Applicable                                  |                                 |          |                     |          |                     |        |          |                     |        |          |

### ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

| Maxxam ID                                             |                                 |          | EKW691              | EKW691              | EKW692              |          | EKW693              |      |          |
|-------------------------------------------------------|---------------------------------|----------|---------------------|---------------------|---------------------|----------|---------------------|------|----------|
| Sampling Date                                         |                                 |          | 2017/05/23<br>14:30 | 2017/05/23<br>14:30 | 2017/05/23<br>12:00 |          | 2017/05/23<br>10:20 |      |          |
| COC Number                                            |                                 |          | 611508-01-01        | 611508-01-01        | 611508-01-01        |          | 611508-01-01        |      |          |
|                                                       | UNITS                           | Criteria | POND                | POND<br>Lab-Dup     | SW1                 | QC Batch | SW2                 | RDL  | QC Batch |
| Metals                                                |                                 |          |                     |                     |                     |          |                     |      |          |
| Dissolved Calcium (Ca)                                | mg/L                            | -        | 70                  |                     | 73                  | 5002296  | 110                 | 0.05 | 5002296  |
| Dissolved Magnesium (Mg)                              | mg/L                            | -        | 30                  |                     | 30                  | 5002296  | 6.5                 | 0.05 | 5002296  |
| Dissolved Potassium (K)                               | mg/L                            | -        | 12                  |                     | 12                  | 5002296  | 3                   | 1    | 5002296  |
| Dissolved Sodium (Na)                                 | mg/L                            | -        | 92                  |                     | 90                  | 5002296  | 6.9                 | 0.5  | 5002296  |
| Total Arsenic (As)                                    | ug/L                            | 100      | <1.0                | <1.0                | <1.0                | 5000162  | <1.0                | 1.0  | 5000162  |
| Total Cadmium (Cd)                                    | ug/L                            | 0.2      | <0.10               | <0.10               | <0.10               | 5000162  | <0.10               | 0.10 | 5000162  |
| Total Calcium (Ca)                                    | ug/L                            | -        | 64000               | 66000               | 68000               | 5000162  | 110000              | 200  | 5000162  |
| Total Chromium (Cr)                                   | ug/L                            | -        | <5.0                | <5.0                | <5.0                | 5000162  | <5.0                | 5.0  | 5000162  |
| Total Copper (Cu)                                     | ug/L                            | 5        | <1.0                |                     | <1.0                | 5003241  | <1.0                | 1.0  | 5000162  |
| Total Iron (Fe)                                       | ug/L                            | 300      | <100                | <100                | <100                | 5000162  | 310                 | 100  | 5000162  |
| Total Lead (Pb)                                       | ug/L                            | 5        | <0.50               | <0.50               | <0.50               | 5000162  | <0.50               | 0.50 | 5000162  |
| Total Magnesium (Mg)                                  | ug/L                            | -        | 29000               | 29000               | 28000               | 5000162  | 6400                | 50   | 5000162  |
| Total Manganese (Mn)                                  | ug/L                            | -        | 10                  | 11                  | 14                  | 5000162  | 62                  | 2.0  | 5000162  |
| Total Nickel (Ni)                                     | ug/L                            | 25       | 1.5                 | 1.5                 | 1.3                 | 5000162  | <1.0                | 1.0  | 5000162  |
| Total Potassium (K)                                   | ug/L                            | -        | 11000               | 11000               | 11000               | 5000162  | 2200                | 200  | 5000162  |
| Total Sodium (Na)                                     | ug/L                            | -        | 85000               | 86000               | 83000               | 5000162  | 6200                | 100  | 5000162  |
| Total Zinc (Zn)                                       | ug/L                            | 30       | <5.0                | <5.0                | <5.0                | 5000162  | 5.0                 | 5.0  | 5000162  |
| 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 |                                 |          |                     |                     |                     |          |                     |      |          |

## TEST SUMMARY

**Maxxam ID:** EKW691  
**Sample ID:** POND  
**Matrix:** Water

**Collected:** 2017/05/23  
**Shipped:**  
**Received:** 2017/05/24

| Test Description                                                   | Instrumentation      | Batch   | Extracted  | Date Analyzed | Analyst              |
|--------------------------------------------------------------------|----------------------|---------|------------|---------------|----------------------|
| Alkalinity                                                         | AT                   | 5002302 | N/A        | 2017/05/30    | Surinder Rai         |
| Chloride by Automated Colourimetry                                 | KONE                 | 5001291 | N/A        | 2017/05/29    | Deonarine Ramnarine  |
| Conductivity                                                       | AT                   | 5002303 | N/A        | 2017/05/30    | Surinder Rai         |
| Dissolved Organic Carbon (DOC)                                     | TOCV/NDIR            | 4999164 | N/A        | 2017/05/26    | Anastasia Hamanov    |
| Fluoride                                                           | ISE                  | 5002304 | 2017/05/27 | 2017/05/30    | Surinder Rai         |
| Hardness (calculated as CaCO <sub>3</sub> )                        |                      | 4996097 | N/A        | 2017/05/30    | Automated Statchk    |
| Lab Filtered Metals Analysis by ICP                                | ICP                  | 5002296 | 2017/05/27 | 2017/05/29    | Azita Fazaeli        |
| Total Metals Analysis by ICPMS                                     | ICP/MS               | 5000162 | N/A        | 2017/05/26    | Arefa Dabhad         |
| Anion and Cation Sum                                               | CALC                 | 4997030 | N/A        | 2017/05/30    | Automated Statchk    |
| Total Ammonia-N                                                    | LACH/NH <sub>4</sub> | 5000869 | N/A        | 2017/05/30    | Charles Opoku-Ware   |
| Nitrate (NO <sub>3</sub> ) and Nitrite (NO <sub>2</sub> ) in Water | LACH                 | 5001217 | N/A        | 2017/05/29    | Chandra Nandlal      |
| Total Oil and Grease                                               | BAL                  | 4998299 | 2017/05/25 | 2017/05/25    | Amjad Mir            |
| pH                                                                 | AT                   | 5002305 | N/A        | 2017/05/30    | Surinder Rai         |
| Phenols (4AAP)                                                     | TECH/PHEN            | 5003108 | N/A        | 2017/05/29    | Zahid Soikot         |
| Sulphate by Automated Colourimetry                                 | KONE                 | 5001303 | N/A        | 2017/05/29    | Deonarine Ramnarine  |
| Total Dissolved Solids                                             | BAL                  | 5000102 | 2017/05/26 | 2017/05/26    | Xue Zheng Li( Scott) |
| Total Kjeldahl Nitrogen in Water                                   | SKAL                 | 5001830 | 2017/05/27 | 2017/05/28    | Rajni Tyagi          |
| Total Phosphorus (Colourimetric)                                   | LACH/P               | 5006286 | 2017/05/31 | 2017/05/31    | Amanpreet Sappal     |
| Total Suspended Solids                                             | BAL                  | 5000098 | 2017/05/26 | 2017/05/26    | Lu Wang(Alice)       |

**Maxxam ID:** EKW691 Dup  
**Sample ID:** POND  
**Matrix:** Water

**Collected:** 2017/05/23  
**Shipped:**  
**Received:** 2017/05/24

| Test Description               | Instrumentation | Batch   | Extracted | Date Analyzed | Analyst      |
|--------------------------------|-----------------|---------|-----------|---------------|--------------|
| Total Metals Analysis by ICPMS | ICP/MS          | 5000162 | N/A       | 2017/05/26    | Arefa Dabhad |

**Maxxam ID:** EKW692  
**Sample ID:** SW1  
**Matrix:** Water

**Collected:** 2017/05/23  
**Shipped:**  
**Received:** 2017/05/24

| Test Description                                                   | Instrumentation      | Batch   | Extracted  | Date Analyzed | Analyst             |
|--------------------------------------------------------------------|----------------------|---------|------------|---------------|---------------------|
| Alkalinity                                                         | AT                   | 5002302 | N/A        | 2017/05/30    | Surinder Rai        |
| Chloride by Automated Colourimetry                                 | KONE                 | 5001291 | N/A        | 2017/05/29    | Deonarine Ramnarine |
| Conductivity                                                       | AT                   | 5002303 | N/A        | 2017/05/30    | Surinder Rai        |
| Dissolved Organic Carbon (DOC)                                     | TOCV/NDIR            | 4999164 | N/A        | 2017/05/26    | Anastasia Hamanov   |
| Fluoride                                                           | ISE                  | 5002304 | 2017/05/27 | 2017/05/30    | Surinder Rai        |
| Hardness (calculated as CaCO <sub>3</sub> )                        |                      | 4996097 | N/A        | 2017/05/30    | Automated Statchk   |
| Lab Filtered Metals Analysis by ICP                                | ICP                  | 5002296 | 2017/05/27 | 2017/05/29    | Azita Fazaeli       |
| Total Metals Analysis by ICPMS                                     | ICP/MS               | 5000162 | N/A        | 2017/05/26    | Arefa Dabhad        |
| Anion and Cation Sum                                               | CALC                 | 4997030 | N/A        | 2017/05/30    | Automated Statchk   |
| Total Ammonia-N                                                    | LACH/NH <sub>4</sub> | 5000869 | N/A        | 2017/05/30    | Charles Opoku-Ware  |
| Nitrate (NO <sub>3</sub> ) and Nitrite (NO <sub>2</sub> ) in Water | LACH                 | 5001217 | N/A        | 2017/05/29    | Chandra Nandlal     |
| Total Oil and Grease                                               | BAL                  | 4998299 | 2017/05/25 | 2017/05/25    | Amjad Mir           |

Maxxam Job #: B7A5755  
Report Date: 2017/05/31

Golder Associates Ltd  
Client Project #: 1407634  
Site Location: MCCARTHY- COCO  
Sampler Initials: DEH

## TEST SUMMARY

**Maxxam ID:** EKW692  
**Sample ID:** SW1  
**Matrix:** Water

**Collected:** 2017/05/23  
**Shipped:**  
**Received:** 2017/05/24

| Test Description                   | Instrumentation | Batch   | Extracted  | Date Analyzed | Analyst              |
|------------------------------------|-----------------|---------|------------|---------------|----------------------|
| pH                                 | AT              | 5002305 | N/A        | 2017/05/30    | Surinder Rai         |
| Phenols (4AAP)                     | TECH/PHEN       | 5003108 | N/A        | 2017/05/29    | Zahid Soikot         |
| Sulphate by Automated Colourimetry | KONE            | 5001303 | N/A        | 2017/05/29    | Deonarine Ramnarine  |
| Total Dissolved Solids             | BAL             | 5000102 | 2017/05/26 | 2017/05/26    | Xue Zheng Li( Scott) |
| Total Kjeldahl Nitrogen in Water   | SKAL            | 5000971 | 2017/05/26 | 2017/05/29    | Rajni Tyagi          |
| Total Phosphorus (Colourimetric)   | LACH/P          | 5006286 | 2017/05/31 | 2017/05/31    | Amanpreet Sappal     |
| Total Suspended Solids             | BAL             | 5000098 | 2017/05/26 | 2017/05/26    | Lu Wang(Alice)       |

**Maxxam ID:** EKW693  
**Sample ID:** SW2  
**Matrix:** Water

**Collected:** 2017/05/23  
**Shipped:**  
**Received:** 2017/05/24

| Test Description                         | Instrumentation | Batch   | Extracted  | Date Analyzed | Analyst              |
|------------------------------------------|-----------------|---------|------------|---------------|----------------------|
| Alkalinity                               | AT              | 5002302 | N/A        | 2017/05/30    | Surinder Rai         |
| Chloride by Automated Colourimetry       | KONE            | 5001291 | N/A        | 2017/05/29    | Deonarine Ramnarine  |
| Conductivity                             | AT              | 5002303 | N/A        | 2017/05/30    | Surinder Rai         |
| Dissolved Organic Carbon (DOC)           | TOCV/NDIR       | 4999164 | N/A        | 2017/05/26    | Anastasia Hamanov    |
| Fluoride                                 | ISE             | 5002304 | 2017/05/27 | 2017/05/30    | Surinder Rai         |
| Hardness (calculated as CaCO3)           |                 | 4996097 | N/A        | 2017/05/30    | Automated Statchk    |
| Lab Filtered Metals Analysis by ICP      | ICP             | 5002296 | 2017/05/27 | 2017/05/29    | Azita Fazaeli        |
| Total Metals Analysis by ICPMS           | ICP/MS          | 5000162 | N/A        | 2017/05/26    | Arefa Dabhad         |
| Anion and Cation Sum                     | CALC            | 4997030 | N/A        | 2017/05/30    | Automated Statchk    |
| Total Ammonia-N                          | LACH/NH4        | 5000869 | N/A        | 2017/05/30    | Charles Opoku-Ware   |
| Nitrate (NO3) and Nitrite (NO2) in Water | LACH            | 5001217 | N/A        | 2017/05/29    | Chandra Nandlal      |
| Total Oil and Grease                     | BAL             | 4998299 | 2017/05/25 | 2017/05/25    | Amjad Mir            |
| pH                                       | AT              | 5002305 | N/A        | 2017/05/30    | Surinder Rai         |
| Phenols (4AAP)                           | TECH/PHEN       | 5003108 | N/A        | 2017/05/29    | Zahid Soikot         |
| Sulphate by Automated Colourimetry       | KONE            | 5001303 | N/A        | 2017/05/29    | Deonarine Ramnarine  |
| Total Dissolved Solids                   | BAL             | 5000102 | 2017/05/26 | 2017/05/26    | Xue Zheng Li( Scott) |
| Total Kjeldahl Nitrogen in Water         | SKAL            | 5000971 | 2017/05/26 | 2017/05/29    | Rajni Tyagi          |
| Total Phosphorus (Colourimetric)         | LACH/P          | 5000571 | 2017/05/26 | 2017/05/29    | Amanpreet Sappal     |
| Total Suspended Solids                   | BAL             | 5000098 | 2017/05/26 | 2017/05/26    | Lu Wang(Alice)       |



### GENERAL COMMENTS

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

|           |       |
|-----------|-------|
| Package 1 | 5.3°C |
| Package 2 | 3.3°C |
| Package 3 | 3.3°C |

Sample EKW691, Total Metals Analysis by ICPMS: Test repeated.

Sample EKW692, Total Metals Analysis by ICPMS: Test repeated.

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

Maxxam Job #: B7A5755  
Report Date: 2017/05/31

Golder Associates Ltd  
Client Project #: 1407634  
Site Location: MCCARTHY- COCO  
Sampler Initials: DEH

### QUALITY ASSURANCE REPORT

| QA/QC<br>Batch | Init | QC Type                     | Parameter                | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|----------------|------|-----------------------------|--------------------------|---------------|-------|----------|-------|-----------|
| 4998299        | AMJ  | Spiked Blank                | Total Oil & Grease       | 2017/05/25    |       | 101      | %     | 85 - 115  |
| 4998299        | AMJ  | RPD                         | Total Oil & Grease       | 2017/05/25    | 4.5   |          | %     | 25        |
| 4998299        | AMJ  | Method Blank                | Total Oil & Grease       | 2017/05/25    | <0.50 |          | mg/L  |           |
| 4999164        | AHA  | Matrix Spike                | Dissolved Organic Carbon | 2017/05/26    |       | 95       | %     | 80 - 120  |
| 4999164        | AHA  | Spiked Blank                | Dissolved Organic Carbon | 2017/05/26    |       | 96       | %     | 80 - 120  |
| 4999164        | AHA  | Method Blank                | Dissolved Organic Carbon | 2017/05/26    | <0.20 |          | mg/L  |           |
| 4999164        | AHA  | RPD                         | Dissolved Organic Carbon | 2017/05/26    | 0.51  |          | %     | 20        |
| 5000098        | LWA  | QC Standard                 | Total Suspended Solids   | 2017/05/26    |       | 98       | %     | 85 - 115  |
| 5000098        | LWA  | Method Blank                | Total Suspended Solids   | 2017/05/26    | <10   |          | mg/L  |           |
| 5000098        | LWA  | RPD                         | Total Suspended Solids   | 2017/05/26    | NC    |          | %     | 25        |
| 5000102        | XZH  | QC Standard                 | Total Dissolved Solids   | 2017/05/26    |       | 99       | %     | 90 - 110  |
| 5000102        | XZH  | Method Blank                | Total Dissolved Solids   | 2017/05/26    | <10   |          | mg/L  |           |
| 5000102        | XZH  | RPD                         | Total Dissolved Solids   | 2017/05/26    | 1.1   |          | %     | 25        |
| 5000162        | ADA  | Matrix Spike<br>[EKW691-07] | Total Arsenic (As)       | 2017/05/26    |       | 100      | %     | 80 - 120  |
|                |      |                             | Total Cadmium (Cd)       | 2017/05/26    |       | 100      | %     | 80 - 120  |
|                |      |                             | Total Calcium (Ca)       | 2017/05/26    |       | NC       | %     | 80 - 120  |
|                |      |                             | Total Chromium (Cr)      | 2017/05/26    |       | 102      | %     | 80 - 120  |
|                |      |                             | Total Copper (Cu)        | 2017/05/26    |       | 102      | %     | 80 - 120  |
|                |      |                             | Total Iron (Fe)          | 2017/05/26    |       | 98       | %     | 80 - 120  |
|                |      |                             | Total Lead (Pb)          | 2017/05/26    |       | 97       | %     | 80 - 120  |
|                |      |                             | Total Magnesium (Mg)     | 2017/05/26    |       | NC       | %     | 80 - 120  |
|                |      |                             | Total Manganese (Mn)     | 2017/05/26    |       | 97       | %     | 80 - 120  |
|                |      |                             | Total Nickel (Ni)        | 2017/05/26    |       | 98       | %     | 80 - 120  |
|                |      |                             | Total Potassium (K)      | 2017/05/26    |       | 94       | %     | 80 - 120  |
|                |      |                             | Total Sodium (Na)        | 2017/05/26    |       | NC       | %     | 80 - 120  |
|                |      |                             | Total Zinc (Zn)          | 2017/05/26    |       | 100      | %     | 80 - 120  |
| 5000162        | ADA  | Spiked Blank                | Total Arsenic (As)       | 2017/05/26    |       | 99       | %     | 80 - 120  |
|                |      |                             | Total Cadmium (Cd)       | 2017/05/26    |       | 100      | %     | 80 - 120  |
|                |      |                             | Total Calcium (Ca)       | 2017/05/26    |       | 94       | %     | 80 - 120  |
|                |      |                             | Total Chromium (Cr)      | 2017/05/26    |       | 100      | %     | 80 - 120  |
|                |      |                             | Total Copper (Cu)        | 2017/05/26    |       | 102      | %     | 80 - 120  |
|                |      |                             | Total Iron (Fe)          | 2017/05/26    |       | 99       | %     | 80 - 120  |
|                |      |                             | Total Lead (Pb)          | 2017/05/26    |       | 99       | %     | 80 - 120  |
|                |      |                             | Total Magnesium (Mg)     | 2017/05/26    |       | 96       | %     | 80 - 120  |
|                |      |                             | Total Manganese (Mn)     | 2017/05/26    |       | 96       | %     | 80 - 120  |
|                |      |                             | Total Nickel (Ni)        | 2017/05/26    |       | 100      | %     | 80 - 120  |
|                |      |                             | Total Potassium (K)      | 2017/05/26    |       | 96       | %     | 80 - 120  |
|                |      |                             | Total Sodium (Na)        | 2017/05/26    |       | 95       | %     | 80 - 120  |
|                |      |                             | Total Zinc (Zn)          | 2017/05/26    |       | 100      | %     | 80 - 120  |
| 5000162        | ADA  | Method Blank                | Total Arsenic (As)       | 2017/05/26    | <1.0  |          | ug/L  |           |
|                |      |                             | Total Cadmium (Cd)       | 2017/05/26    | <0.10 |          | ug/L  |           |
|                |      |                             | Total Calcium (Ca)       | 2017/05/26    | <200  |          | ug/L  |           |
|                |      |                             | Total Chromium (Cr)      | 2017/05/26    | <5.0  |          | ug/L  |           |
|                |      |                             | Total Copper (Cu)        | 2017/05/26    | <1.0  |          | ug/L  |           |
|                |      |                             | Total Iron (Fe)          | 2017/05/26    | <100  |          | ug/L  |           |
|                |      |                             | Total Lead (Pb)          | 2017/05/26    | <0.50 |          | ug/L  |           |
|                |      |                             | Total Magnesium (Mg)     | 2017/05/26    | <50   |          | ug/L  |           |
|                |      |                             | Total Manganese (Mn)     | 2017/05/26    | <2.0  |          | ug/L  |           |
|                |      |                             | Total Nickel (Ni)        | 2017/05/26    | <1.0  |          | ug/L  |           |
|                |      |                             | Total Potassium (K)      | 2017/05/26    | <200  |          | ug/L  |           |
|                |      |                             | Total Sodium (Na)        | 2017/05/26    | <100  |          | ug/L  |           |

Maxxam Job #: B7A5755  
Report Date: 2017/05/31

Golder Associates Ltd  
Client Project #: 1407634  
Site Location: MCCARTHY- COCO  
Sampler Initials: DEH

### QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC Batch | Init | QC Type                  | Parameter                     | Date Analyzed | Value  | Recovery | UNITS | QC Limits |
|-------------|------|--------------------------|-------------------------------|---------------|--------|----------|-------|-----------|
| 5000162     | ADA  | RPD [EKW691-07]          | Total Zinc (Zn)               | 2017/05/26    | <5.0   |          | ug/L  |           |
|             |      |                          | Total Arsenic (As)            | 2017/05/26    | NC     |          | %     | 20        |
|             |      |                          | Total Cadmium (Cd)            | 2017/05/26    | NC     |          | %     | 20        |
|             |      |                          | Total Calcium (Ca)            | 2017/05/26    | 4.4    |          | %     | 20        |
|             |      |                          | Total Chromium (Cr)           | 2017/05/26    | NC     |          | %     | 20        |
|             |      |                          | Total Iron (Fe)               | 2017/05/26    | NC     |          | %     | 20        |
|             |      |                          | Total Lead (Pb)               | 2017/05/26    | NC     |          | %     | 20        |
|             |      |                          | Total Magnesium (Mg)          | 2017/05/26    | 1.2    |          | %     | 20        |
|             |      |                          | Total Manganese (Mn)          | 2017/05/26    | 5.5    |          | %     | 20        |
|             |      |                          | Total Nickel (Ni)             | 2017/05/26    | 3.1    |          | %     | 20        |
|             |      |                          | Total Potassium (K)           | 2017/05/26    | 1.5    |          | %     | 20        |
|             |      |                          | Total Sodium (Na)             | 2017/05/26    | 2.0    |          | %     | 20        |
|             |      |                          | Total Zinc (Zn)               | 2017/05/26    | NC     |          | %     | 20        |
|             |      |                          | Total Phosphorus              | 2017/05/29    |        | 97       | %     | 80 - 120  |
| 5000571     | ASP  | Matrix Spike [EKW691-04] | Total Phosphorus              | 2017/05/29    |        | 98       | %     | 80 - 120  |
| 5000571     | ASP  | Spiked Blank             | Total Phosphorus              | 2017/05/29    |        | 97       | %     | 80 - 120  |
| 5000571     | ASP  | Method Blank             | Total Phosphorus              | 2017/05/29    | <0.020 |          | mg/L  |           |
| 5000869     | COP  | Matrix Spike             | Total Ammonia-N               | 2017/05/30    |        | 91       | %     | 80 - 120  |
| 5000869     | COP  | Spiked Blank             | Total Ammonia-N               | 2017/05/30    |        | 96       | %     | 85 - 115  |
| 5000869     | COP  | Method Blank             | Total Ammonia-N               | 2017/05/30    | <0.050 |          | mg/L  |           |
| 5000869     | COP  | RPD                      | Total Ammonia-N               | 2017/05/30    | NC     |          | %     | 20        |
| 5000971     | RTY  | Matrix Spike             | Total Kjeldahl Nitrogen (TKN) | 2017/05/29    |        | 115      | %     | 80 - 120  |
| 5000971     | RTY  | QC Standard              | Total Kjeldahl Nitrogen (TKN) | 2017/05/29    |        | 103      | %     | 80 - 120  |
| 5000971     | RTY  | Spiked Blank             | Total Kjeldahl Nitrogen (TKN) | 2017/05/29    |        | 104      | %     | 80 - 120  |
| 5000971     | RTY  | Method Blank             | Total Kjeldahl Nitrogen (TKN) | 2017/05/29    | <0.10  |          | mg/L  |           |
| 5000971     | RTY  | RPD                      | Total Kjeldahl Nitrogen (TKN) | 2017/05/29    | NC     |          | %     | 20        |
| 5001217     | C_N  | Matrix Spike             | Nitrite (N)                   | 2017/05/29    |        | 100      | %     | 80 - 120  |
|             |      |                          | Nitrate (N)                   | 2017/05/29    |        | 109      | %     | 80 - 120  |
| 5001217     | C_N  | Spiked Blank             | Nitrite (N)                   | 2017/05/29    |        | 97       | %     | 80 - 120  |
|             |      |                          | Nitrate (N)                   | 2017/05/29    |        | 103      | %     | 80 - 120  |
| 5001217     | C_N  | Method Blank             | Nitrite (N)                   | 2017/05/29    | <0.010 |          | mg/L  |           |
|             |      |                          | Nitrate (N)                   | 2017/05/29    | <0.10  |          | mg/L  |           |
| 5001217     | C_N  | RPD                      | Nitrite (N)                   | 2017/05/29    | NC     |          | %     | 20        |
|             |      |                          | Nitrate (N)                   | 2017/05/29    | NC     |          | %     | 20        |
| 5001291     | DRM  | Matrix Spike             | Dissolved Chloride (Cl)       | 2017/05/29    |        | NC       | %     | 80 - 120  |
| 5001291     | DRM  | Spiked Blank             | Dissolved Chloride (Cl)       | 2017/05/29    |        | 105      | %     | 80 - 120  |
| 5001291     | DRM  | Method Blank             | Dissolved Chloride (Cl)       | 2017/05/29    | <1.0   |          | mg/L  |           |
| 5001291     | DRM  | RPD                      | Dissolved Chloride (Cl)       | 2017/05/29    | 2.3    |          | %     | 20        |
| 5001303     | DRM  | Matrix Spike             | Dissolved Sulphate (SO4)      | 2017/05/29    |        | 110      | %     | 75 - 125  |
| 5001303     | DRM  | Spiked Blank             | Dissolved Sulphate (SO4)      | 2017/05/29    |        | 103      | %     | 80 - 120  |
| 5001303     | DRM  | Method Blank             | Dissolved Sulphate (SO4)      | 2017/05/29    | <1.0   |          | mg/L  |           |
| 5001303     | DRM  | RPD                      | Dissolved Sulphate (SO4)      | 2017/05/29    | 1.4    |          | %     | 20        |
| 5001830     | RTY  | Matrix Spike             | Total Kjeldahl Nitrogen (TKN) | 2017/05/28    |        | NC       | %     | 80 - 120  |
| 5001830     | RTY  | QC Standard              | Total Kjeldahl Nitrogen (TKN) | 2017/05/28    |        | 97       | %     | 80 - 120  |
| 5001830     | RTY  | Spiked Blank             | Total Kjeldahl Nitrogen (TKN) | 2017/05/28    |        | 96       | %     | 80 - 120  |
| 5001830     | RTY  | Method Blank             | Total Kjeldahl Nitrogen (TKN) | 2017/05/28    | <0.10  |          | mg/L  |           |
| 5001830     | RTY  | RPD                      | Total Kjeldahl Nitrogen (TKN) | 2017/05/28    | 0.065  |          | %     | 20        |
| 5002296     | AFZ  | Matrix Spike             | Dissolved Calcium (Ca)        | 2017/05/29    |        | NC       | %     | 80 - 120  |
|             |      |                          | Dissolved Magnesium (Mg)      | 2017/05/29    |        | NC       | %     | 80 - 120  |
|             |      |                          | Dissolved Potassium (K)       | 2017/05/29    |        | 102      | %     | 80 - 120  |
|             |      |                          | Dissolved Sodium (Na)         | 2017/05/29    |        | NC       | %     | 80 - 120  |

### QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC Batch | Init | QC Type      | Parameter                                | Date Analyzed | Value   | Recovery | UNITS | QC Limits |
|-------------|------|--------------|------------------------------------------|---------------|---------|----------|-------|-----------|
| 5002296     | AFZ  | Spiked Blank | Dissolved Calcium (Ca)                   | 2017/05/29    |         | 100      | %     | 80 - 120  |
|             |      |              | Dissolved Magnesium (Mg)                 | 2017/05/29    |         | 96       | %     | 80 - 120  |
|             |      |              | Dissolved Potassium (K)                  | 2017/05/29    |         | 101      | %     | 80 - 120  |
|             |      |              | Dissolved Sodium (Na)                    | 2017/05/29    |         | 99       | %     | 80 - 120  |
| 5002296     | AFZ  | Method Blank | Dissolved Calcium (Ca)                   | 2017/05/29    | <0.05   |          | mg/L  |           |
|             |      |              | Dissolved Magnesium (Mg)                 | 2017/05/29    | <0.05   |          | mg/L  |           |
|             |      |              | Dissolved Potassium (K)                  | 2017/05/29    | <1      |          | mg/L  |           |
|             |      |              | Dissolved Sodium (Na)                    | 2017/05/29    | <0.5    |          | mg/L  |           |
| 5002302     | SAU  | Spiked Blank | Alkalinity (Total as CaCO <sub>3</sub> ) | 2017/05/29    |         | 95       | %     | 85 - 115  |
| 5002302     | SAU  | Method Blank | Alkalinity (Total as CaCO <sub>3</sub> ) | 2017/05/29    | <1.0    |          | mg/L  |           |
| 5002302     | SAU  | RPD          | Alkalinity (Total as CaCO <sub>3</sub> ) | 2017/05/30    | 0.42    |          | %     | 20        |
| 5002303     | SAU  | Spiked Blank | Conductivity                             | 2017/05/29    |         | 101      | %     | 85 - 115  |
| 5002303     | SAU  | Method Blank | Conductivity                             | 2017/05/29    | <0.001  |          | mS/cm |           |
| 5002303     | SAU  | RPD          | Conductivity                             | 2017/05/30    | 0.11    |          | %     | 25        |
| 5002304     | SAU  | Matrix Spike | Fluoride (F <sup>-</sup> )               | 2017/05/29    |         | 83       | %     | 80 - 120  |
| 5002304     | SAU  | Spiked Blank | Fluoride (F <sup>-</sup> )               | 2017/05/29    |         | 105      | %     | 80 - 120  |
| 5002304     | SAU  | Method Blank | Fluoride (F <sup>-</sup> )               | 2017/05/29    | <0.10   |          | mg/L  |           |
| 5002304     | SAU  | RPD          | Fluoride (F <sup>-</sup> )               | 2017/05/29    | 0.93    |          | %     | 20        |
| 5002305     | SAU  | Spiked Blank | pH                                       | 2017/05/29    |         | 101      | %     | 98 - 103  |
| 5002305     | SAU  | RPD          | pH                                       | 2017/05/30    | 0.61    |          | %     | N/A       |
| 5003108     | ZSK  | Matrix Spike | Phenols-4AAP                             | 2017/05/29    |         | 104      | %     | 80 - 120  |
| 5003108     | ZSK  | Spiked Blank | Phenols-4AAP                             | 2017/05/29    |         | 101      | %     | 85 - 115  |
| 5003108     | ZSK  | Method Blank | Phenols-4AAP                             | 2017/05/29    | <0.0010 |          | mg/L  |           |
| 5003108     | ZSK  | RPD          | Phenols-4AAP                             | 2017/05/29    | NC      |          | %     | 20        |
| 5003241     | ADA  | Matrix Spike | Total Copper (Cu)                        | 2017/05/29    |         | 102      | %     | 80 - 120  |
| 5003241     | ADA  | Spiked Blank | Total Copper (Cu)                        | 2017/05/29    |         | 99       | %     | 80 - 120  |
| 5003241     | ADA  | Method Blank | Total Copper (Cu)                        | 2017/05/29    | <1.0    |          | ug/L  |           |
| 5003241     | ADA  | RPD          | Total Copper (Cu)                        | 2017/05/30    | 2.3     |          | %     | 20        |
| 5006286     | ASP  | Matrix Spike | Total Phosphorus                         | 2017/05/31    |         | 103      | %     | 80 - 120  |
| 5006286     | ASP  | QC Standard  | Total Phosphorus                         | 2017/05/31    |         | 101      | %     | 80 - 120  |
| 5006286     | ASP  | Spiked Blank | Total Phosphorus                         | 2017/05/31    |         | 99       | %     | 80 - 120  |
| 5006286     | ASP  | Method Blank | Total Phosphorus                         | 2017/05/31    | <0.004  |          | mg/L  |           |
| 5006286     | ASP  | RPD          | Total Phosphorus                         | 2017/05/31    | 7.9     |          | %     | 20        |

N/A = Not Applicable

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

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

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

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

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

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

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

### VALIDATION SIGNATURE PAGE

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

*Cristina Carriere*

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Cristina Carriere, Scientific Services

*Ewa Pranjić*

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

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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.

**Exceedence Summary Table – Prov. Water Quality Obj.**  
**Result Exceedences**

| Sample ID                                                                                                                                                                           | Maxxam ID | Parameter        | Criteria | Result | DL    | Units |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|------------------|----------|--------|-------|-------|
| POND                                                                                                                                                                                | EKW691-04 | Total Phosphorus | 0.01     | 0.012  | 0.004 | mg/L  |
| SW1                                                                                                                                                                                 | EKW692-04 | Total Phosphorus | 0.01     | 0.016  | 0.004 | mg/L  |
| SW2                                                                                                                                                                                 | EKW693-07 | Total Iron (Fe)  | 300      | 310    | 100   | ug/L  |
| SW2                                                                                                                                                                                 | EKW693-04 | Total Phosphorus | 0.01     | 0.035  | 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. |           |                  |          |        |       |       |

Your Project #: 1407634  
Site Location: MCCARTHY  
Your C.O.C. #: 634301-01-01

**Attention: Jamie Bonany**

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

**Report Date: 2017/11/02**  
Report #: R4818934  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B700348**

**Received: 2017/10/27, 09:14**

Sample Matrix: Water  
# Samples Received: 3

| Analyses                                                               | Quantity | Date<br>Extracted | Date<br>Analyzed | Laboratory Method            | Reference                                     |
|------------------------------------------------------------------------|----------|-------------------|------------------|------------------------------|-----------------------------------------------|
| Alkalinity                                                             | 3        | N/A               | 2017/10/31       | CAM SOP-00448                | SM 22 2320 B m                                |
| Chloride by Automated Colourimetry                                     | 3        | N/A               | 2017/10/30       | CAM SOP-00463                | EPA 325.2 m                                   |
| Conductivity                                                           | 3        | N/A               | 2017/10/31       | CAM SOP-00414                | SM 22 2510 m                                  |
| Dissolved Organic Carbon (DOC) (1)                                     | 3        | N/A               | 2017/10/30       | CAM SOP-00446                | SM 22 5310 B m                                |
| Fluoride                                                               | 3        | 2017/10/30        | 2017/10/31       | CAM SOP-00449                | SM 22 4500-F C m                              |
| Hardness (calculated as CaCO <sub>3</sub> )                            | 3        | N/A               | 2017/11/01       | CAM SOP<br>00102/00408/00447 | SM 2340 B                                     |
| Lab Filtered Metals by ICPMS                                           | 3        | 2017/10/31        | 2017/11/01       | CAM SOP-00447                | EPA 6020B m                                   |
| Total Metals Analysis by ICPMS                                         | 3        | N/A               | 2017/11/01       | CAM SOP-00447                | EPA 6020B m                                   |
| Anion and Cation Sum                                                   | 3        | N/A               | 2017/11/01       |                              |                                               |
| Total Ammonia-N                                                        | 3        | N/A               | 2017/10/31       | CAM SOP-00441                | EPA GS I-2522-90 m                            |
| Nitrate (NO <sub>3</sub> ) and Nitrite (NO <sub>2</sub> ) in Water (2) | 3        | N/A               | 2017/10/31       | CAM SOP-00440                | SM 22 4500-NO <sub>3</sub> /NO <sub>2</sub> B |
| Total Oil and Grease                                                   | 3        | 2017/10/31        | 2017/11/01       | CAM SOP-00326                | EPA1664B m, SM5520A m                         |
| pH                                                                     | 3        | N/A               | 2017/10/31       | CAM SOP-00413                | SM 4500H+ B m                                 |
| Phenols (4AAP)                                                         | 3        | N/A               | 2017/11/01       | CAM SOP-00444                | OMOE E3179 m                                  |
| Sulphate by Automated Colourimetry                                     | 3        | N/A               | 2017/10/30       | CAM SOP-00464                | EPA 375.4 m                                   |
| Total Dissolved Solids                                                 | 3        | 2017/10/30        | 2017/10/31       | CAM SOP-00428                | SM 22 2540C m                                 |
| Total Kjeldahl Nitrogen in Water                                       | 3        | 2017/10/31        | 2017/11/01       | CAM SOP-00938                | OMOE E3516 m                                  |
| Total Phosphorus (Colourimetric)                                       | 3        | 2017/10/31        | 2017/10/31       | CAM SOP-00407                | SM 22 4500 P B H m                            |
| Total Suspended Solids                                                 | 3        | 2017/10/30        | 2017/10/30       | 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

Your Project #: 1407634  
Site Location: MCCARTHY  
Your C.O.C. #: 634301-01-01

**Attention: Jamie Bonany**

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

**Report Date: 2017/11/02**  
Report #: R4818934  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B7O0348**

**Received: 2017/10/27, 09:14**

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.

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

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

\* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) Dissolved Organic Carbon (DOC) present in the sample should be considered as non-purgeable DOC.

(2) Values for calculated parameters may not appear to add up due to rounding of raw data and significant figures.

**Encryption Key**

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

Ema Gitej, Senior Project Manager

Email: EGitej@maxxam.ca

Phone# (905)817-5829

=====

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.



### RESULTS OF ANALYSES OF WATER

| Maxxam ID                                                                                                                                |       | FKW250              | FKW251              | FKW251              |        |          | FKW252              |        |          |
|------------------------------------------------------------------------------------------------------------------------------------------|-------|---------------------|---------------------|---------------------|--------|----------|---------------------|--------|----------|
| Sampling Date                                                                                                                            |       | 2017/10/26<br>16:15 | 2017/10/26<br>16:15 | 2017/10/26<br>16:15 |        |          | 2017/10/26<br>12:45 |        |          |
| COC Number                                                                                                                               |       | 634301-01-01        | 634301-01-01        | 634301-01-01        |        |          | 634301-01-01        |        |          |
|                                                                                                                                          | UNITS | POND                | SW1                 | SW1<br>Lab-Dup      | RDL    | QC Batch | SW2                 | RDL    | QC Batch |
| <b>Calculated Parameters</b>                                                                                                             |       |                     |                     |                     |        |          |                     |        |          |
| Anion Sum                                                                                                                                | me/L  | 20.2                | 20.1                |                     | N/A    | 5235950  | 10.2                | N/A    | 5235950  |
| Cation Sum                                                                                                                               | me/L  | 19.0                | 19.1                |                     | N/A    | 5235950  | 9.40                | N/A    | 5235950  |
| Hardness (CaCO <sub>3</sub> )                                                                                                            | mg/L  | 400                 | 400                 |                     | 1.0    | 5235583  | 440                 | 1.0    | 5235583  |
| <b>Inorganics</b>                                                                                                                        |       |                     |                     |                     |        |          |                     |        |          |
| Total Ammonia-N                                                                                                                          | mg/L  | 0.37                | 0.35                |                     | 0.050  | 5240332  | <0.050              | 0.050  | 5240332  |
| Conductivity                                                                                                                             | mS/cm | 2.12                | 2.11                |                     | 0.001  | 5239134  | 0.903               | 0.001  | 5239134  |
| Total Dissolved Solids                                                                                                                   | mg/L  | 1300                | 1180                |                     | 10     | 5238971  | 580                 | 10     | 5238971  |
| Fluoride (F <sup>-</sup> )                                                                                                               | mg/L  | 0.80                | 0.80                |                     | 0.10   | 5239150  | <0.10               | 0.10   | 5239150  |
| Total Kjeldahl Nitrogen (TKN)                                                                                                            | mg/L  | 1.1                 | 1.0                 |                     | 0.10   | 5240064  | 0.51                | 0.10   | 5240847  |
| Dissolved Organic Carbon                                                                                                                 | mg/L  | 4.8                 | 4.8                 |                     | 0.20   | 5238246  | 11                  | 0.20   | 5238246  |
| pH                                                                                                                                       | pH    | 8.18                | 8.22                |                     |        | 5239153  | 8.03                |        | 5239153  |
| Phenols-4AAP                                                                                                                             | mg/L  | <0.0010             | <0.0010             |                     | 0.0010 | 5242580  | 0.0024              | 0.0020 | 5242601  |
| Total Phosphorus                                                                                                                         | mg/L  | <0.020              | <0.020              |                     | 0.020  | 5240093  | 0.028               | 0.020  | 5240093  |
| Total Suspended Solids                                                                                                                   | mg/L  | <10                 | <10                 | <10                 | 10     | 5238963  | <10                 | 10     | 5238963  |
| Dissolved Sulphate (SO <sub>4</sub> )                                                                                                    | mg/L  | 360                 | 360                 |                     | 1.0    | 5237479  | 150                 | 1.0    | 5237479  |
| Alkalinity (Total as CaCO <sub>3</sub> )                                                                                                 | mg/L  | 140                 | 140                 |                     | 1.0    | 5239146  | 330                 | 1.0    | 5239146  |
| Dissolved Chloride (Cl)                                                                                                                  | mg/L  | 340                 | 340                 |                     | 4.0    | 5237474  | 16                  | 1.0    | 5237474  |
| Nitrite (N)                                                                                                                              | mg/L  | 0.054               | 0.050               | 0.050               | 0.010  | 5237435  | <0.010              | 0.010  | 5237435  |
| Nitrate (N)                                                                                                                              | mg/L  | 0.87                | 0.87                | 0.88                | 0.10   | 5237435  | <0.10               | 0.10   | 5237435  |
| Nitrate + Nitrite (N)                                                                                                                    | mg/L  | 0.93                | 0.92                | 0.93                | 0.10   | 5237435  | <0.10               | 0.10   | 5237435  |
| <b>Petroleum Hydrocarbons</b>                                                                                                            |       |                     |                     |                     |        |          |                     |        |          |
| Total Oil & Grease                                                                                                                       | mg/L  | <0.50               | <0.50               |                     | 0.50   | 5240220  | <0.50               | 0.50   | 5240220  |
| RDL = Reportable Detection Limit<br>QC Batch = Quality Control Batch<br>Lab-Dup = Laboratory Initiated Duplicate<br>N/A = Not Applicable |       |                     |                     |                     |        |          |                     |        |          |

### RESULTS OF ANALYSES OF WATER

|                                                                                                                  |              |                        |            |                 |
|------------------------------------------------------------------------------------------------------------------|--------------|------------------------|------------|-----------------|
| <b>Maxxam ID</b>                                                                                                 |              | FKW252                 |            |                 |
| <b>Sampling Date</b>                                                                                             |              | 2017/10/26<br>12:45    |            |                 |
| <b>COC Number</b>                                                                                                |              | 634301-01-01           |            |                 |
|                                                                                                                  | <b>UNITS</b> | <b>SW2<br/>Lab-Dup</b> | <b>RDL</b> | <b>QC Batch</b> |
| <b>Inorganics</b>                                                                                                |              |                        |            |                 |
| Total Dissolved Solids                                                                                           | mg/L         | 570                    | 10         | 5238971         |
| Phenols-4AAP                                                                                                     | mg/L         | 0.0024                 | 0.0020     | 5242601         |
| RDL = Reportable Detection Limit<br>QC Batch = Quality Control Batch<br>Lab-Dup = Laboratory Initiated Duplicate |              |                        |            |                 |

### ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

| Maxxam ID                                |       | FKW250              | FKW250              | FKW251              | FKW252              |      |          |
|------------------------------------------|-------|---------------------|---------------------|---------------------|---------------------|------|----------|
| Sampling Date                            |       | 2017/10/26<br>16:15 | 2017/10/26<br>16:15 | 2017/10/26<br>16:15 | 2017/10/26<br>12:45 |      |          |
| COC Number                               |       | 634301-01-01        | 634301-01-01        | 634301-01-01        | 634301-01-01        |      |          |
|                                          | UNITS | POND                | POND<br>Lab-Dup     | SW1                 | SW2                 | RDL  | QC Batch |
| <b>Metals</b>                            |       |                     |                     |                     |                     |      |          |
| Total Arsenic (As)                       | ug/L  | <1.0                | <1.0                | <1.0                | <1.0                | 1.0  | 5240962  |
| Total Cadmium (Cd)                       | ug/L  | <0.10               | <0.10               | <0.10               | <0.10               | 0.10 | 5240962  |
| Dissolved Calcium (Ca)                   | ug/L  | 81000               |                     | 82000               | 150000              | 200  | 5240393  |
| Total Calcium (Ca)                       | ug/L  | 99000               | 89000               | 88000               | 170000              | 200  | 5240962  |
| Total Chromium (Cr)                      | ug/L  | <5.0                | <5.0                | <5.0                | <5.0                | 5.0  | 5240962  |
| Total Copper (Cu)                        | ug/L  | <1.0                | <1.0                | <1.0                | <1.0                | 1.0  | 5240962  |
| Total Iron (Fe)                          | ug/L  | <100                | <100                | <100                | 280                 | 100  | 5240962  |
| Total Lead (Pb)                          | ug/L  | <0.50               | <0.50               | <0.50               | <0.50               | 0.50 | 5240962  |
| Dissolved Magnesium (Mg)                 | ug/L  | 47000               |                     | 48000               | 15000               | 50   | 5240393  |
| Total Magnesium (Mg)                     | ug/L  | 54000               | 50000               | 50000               | 16000               | 50   | 5240962  |
| Total Manganese (Mn)                     | ug/L  | 21                  | 20                  | 14                  | 26                  | 2.0  | 5240962  |
| Total Nickel (Ni)                        | ug/L  | 1.3                 | 1.2                 | 1.3                 | <1.0                | 1.0  | 5240962  |
| Dissolved Potassium (K)                  | ug/L  | 18000               |                     | 18000               | 5900                | 200  | 5240393  |
| Total Potassium (K)                      | ug/L  | 21000               | 20000               | 19000               | 6200                | 200  | 5240962  |
| Dissolved Sodium (Na)                    | ug/L  | 240000              |                     | 240000              | 11000               | 100  | 5240393  |
| Total Sodium (Na)                        | ug/L  | 280000              | 260000              | 260000              | 11000               | 100  | 5240962  |
| Total Zinc (Zn)                          | ug/L  | <5.0                | <5.0                | 5.3                 | <5.0                | 5.0  | 5240962  |
| RDL = Reportable Detection Limit         |       |                     |                     |                     |                     |      |          |
| QC Batch = Quality Control Batch         |       |                     |                     |                     |                     |      |          |
| Lab-Dup = Laboratory Initiated Duplicate |       |                     |                     |                     |                     |      |          |

## TEST SUMMARY

**Maxxam ID:** FKW250  
**Sample ID:** POND  
**Matrix:** Water

**Collected:** 2017/10/26  
**Shipped:**  
**Received:** 2017/10/27

| Test Description                                                   | Instrumentation      | Batch   | Extracted  | Date Analyzed | Analyst             |
|--------------------------------------------------------------------|----------------------|---------|------------|---------------|---------------------|
| Alkalinity                                                         | AT                   | 5239146 | N/A        | 2017/10/31    | Surinder Rai        |
| Chloride by Automated Colourimetry                                 | KONE                 | 5237474 | N/A        | 2017/10/30    | Deonarine Ramnarine |
| Conductivity                                                       | AT                   | 5239134 | N/A        | 2017/10/31    | Surinder Rai        |
| Dissolved Organic Carbon (DOC)                                     | TOCV/NDIR            | 5238246 | N/A        | 2017/10/30    | Anastasia Hamanov   |
| Fluoride                                                           | ISE                  | 5239150 | 2017/10/30 | 2017/10/31    | Surinder Rai        |
| Hardness (calculated as CaCO <sub>3</sub> )                        |                      | 5235583 | N/A        | 2017/11/01    | Automated Statchk   |
| Lab Filtered Metals by ICPMS                                       | ICP/MS               | 5240393 | 2017/10/31 | 2017/11/01    | Thao Nguyen         |
| Total Metals Analysis by ICPMS                                     | ICP/MS               | 5240962 | N/A        | 2017/11/01    | Arefa Dabhad        |
| Anion and Cation Sum                                               | CALC                 | 5235950 | N/A        | 2017/11/01    | Automated Statchk   |
| Total Ammonia-N                                                    | LACH/NH <sub>4</sub> | 5240332 | N/A        | 2017/10/31    | Charles Opoku-Ware  |
| Nitrate (NO <sub>3</sub> ) and Nitrite (NO <sub>2</sub> ) in Water | LACH                 | 5237435 | N/A        | 2017/10/31    | Chandra Nandlal     |
| Total Oil and Grease                                               | BAL                  | 5240220 | 2017/10/31 | 2017/11/01    | Amjad Mir           |
| pH                                                                 | AT                   | 5239153 | N/A        | 2017/10/31    | Surinder Rai        |
| Phenols (4AAP)                                                     | TECH/PHEN            | 5242580 | N/A        | 2017/11/01    | Zahid Soikot        |
| Sulphate by Automated Colourimetry                                 | KONE                 | 5237479 | N/A        | 2017/10/30    | Deonarine Ramnarine |
| Total Dissolved Solids                                             | BAL                  | 5238971 | 2017/10/30 | 2017/10/31    | Fang Wang           |
| Total Kjeldahl Nitrogen in Water                                   | SKAL                 | 5240064 | 2017/10/31 | 2017/11/01    | Bramdeo Motiram     |
| Total Phosphorus (Colourimetric)                                   | LACH/P               | 5240093 | 2017/10/31 | 2017/10/31    | Amanpreet Sappal    |
| Total Suspended Solids                                             | BAL                  | 5238963 | 2017/10/30 | 2017/10/30    | Arpan Shah          |

**Maxxam ID:** FKW250 Dup  
**Sample ID:** POND  
**Matrix:** Water

**Collected:** 2017/10/26  
**Shipped:**  
**Received:** 2017/10/27

| Test Description               | Instrumentation | Batch   | Extracted | Date Analyzed | Analyst      |
|--------------------------------|-----------------|---------|-----------|---------------|--------------|
| Total Metals Analysis by ICPMS | ICP/MS          | 5240962 | N/A       | 2017/11/01    | Arefa Dabhad |

**Maxxam ID:** FKW251  
**Sample ID:** SW1  
**Matrix:** Water

**Collected:** 2017/10/26  
**Shipped:**  
**Received:** 2017/10/27

| Test Description                                                   | Instrumentation      | Batch   | Extracted  | Date Analyzed | Analyst             |
|--------------------------------------------------------------------|----------------------|---------|------------|---------------|---------------------|
| Alkalinity                                                         | AT                   | 5239146 | N/A        | 2017/10/31    | Surinder Rai        |
| Chloride by Automated Colourimetry                                 | KONE                 | 5237474 | N/A        | 2017/10/30    | Deonarine Ramnarine |
| Conductivity                                                       | AT                   | 5239134 | N/A        | 2017/10/31    | Surinder Rai        |
| Dissolved Organic Carbon (DOC)                                     | TOCV/NDIR            | 5238246 | N/A        | 2017/10/30    | Anastasia Hamanov   |
| Fluoride                                                           | ISE                  | 5239150 | 2017/10/30 | 2017/10/31    | Surinder Rai        |
| Hardness (calculated as CaCO <sub>3</sub> )                        |                      | 5235583 | N/A        | 2017/11/01    | Automated Statchk   |
| Lab Filtered Metals by ICPMS                                       | ICP/MS               | 5240393 | 2017/10/31 | 2017/11/01    | Thao Nguyen         |
| Total Metals Analysis by ICPMS                                     | ICP/MS               | 5240962 | N/A        | 2017/11/01    | Arefa Dabhad        |
| Anion and Cation Sum                                               | CALC                 | 5235950 | N/A        | 2017/11/01    | Automated Statchk   |
| Total Ammonia-N                                                    | LACH/NH <sub>4</sub> | 5240332 | N/A        | 2017/10/31    | Charles Opoku-Ware  |
| Nitrate (NO <sub>3</sub> ) and Nitrite (NO <sub>2</sub> ) in Water | LACH                 | 5237435 | N/A        | 2017/10/31    | Chandra Nandlal     |
| Total Oil and Grease                                               | BAL                  | 5240220 | 2017/10/31 | 2017/11/01    | Amjad Mir           |

## TEST SUMMARY

**Maxxam ID:** FKW251  
**Sample ID:** SW1  
**Matrix:** Water

**Collected:** 2017/10/26  
**Shipped:**  
**Received:** 2017/10/27

| Test Description                   | Instrumentation | Batch   | Extracted  | Date Analyzed | Analyst             |
|------------------------------------|-----------------|---------|------------|---------------|---------------------|
| pH                                 | AT              | 5239153 | N/A        | 2017/10/31    | Surinder Rai        |
| Phenols (4AAP)                     | TECH/PHEN       | 5242580 | N/A        | 2017/11/01    | Zahid Soikot        |
| Sulphate by Automated Colourimetry | KONE            | 5237479 | N/A        | 2017/10/30    | Deonarine Ramnarine |
| Total Dissolved Solids             | BAL             | 5238971 | 2017/10/30 | 2017/10/31    | Fang Wang           |
| Total Kjeldahl Nitrogen in Water   | SKAL            | 5240064 | 2017/10/31 | 2017/11/01    | Bramdeo Motiram     |
| Total Phosphorus (Colourimetric)   | LACH/P          | 5240093 | 2017/10/31 | 2017/10/31    | Amanpreet Sappal    |
| Total Suspended Solids             | BAL             | 5238963 | 2017/10/30 | 2017/10/30    | Arpan Shah          |

**Maxxam ID:** FKW251 Dup  
**Sample ID:** SW1  
**Matrix:** Water

**Collected:** 2017/10/26  
**Shipped:**  
**Received:** 2017/10/27

| Test Description                         | Instrumentation | Batch   | Extracted  | Date Analyzed | Analyst         |
|------------------------------------------|-----------------|---------|------------|---------------|-----------------|
| Nitrate (NO3) and Nitrite (NO2) in Water | LACH            | 5237435 | N/A        | 2017/10/31    | Chandra Nandlal |
| Total Suspended Solids                   | BAL             | 5238963 | 2017/10/30 | 2017/10/30    | Arpan Shah      |

**Maxxam ID:** FKW252  
**Sample ID:** SW2  
**Matrix:** Water

**Collected:** 2017/10/26  
**Shipped:**  
**Received:** 2017/10/27

| Test Description                         | Instrumentation | Batch   | Extracted  | Date Analyzed | Analyst             |
|------------------------------------------|-----------------|---------|------------|---------------|---------------------|
| Alkalinity                               | AT              | 5239146 | N/A        | 2017/10/31    | Surinder Rai        |
| Chloride by Automated Colourimetry       | KONE            | 5237474 | N/A        | 2017/10/30    | Deonarine Ramnarine |
| Conductivity                             | AT              | 5239134 | N/A        | 2017/10/31    | Surinder Rai        |
| Dissolved Organic Carbon (DOC)           | TOCV/NDIR       | 5238246 | N/A        | 2017/10/30    | Anastasia Hamanov   |
| Fluoride                                 | ISE             | 5239150 | 2017/10/30 | 2017/10/31    | Surinder Rai        |
| Hardness (calculated as CaCO3)           |                 | 5235583 | N/A        | 2017/11/01    | Automated Statchk   |
| Lab Filtered Metals by ICPMS             | ICP/MS          | 5240393 | 2017/10/31 | 2017/11/01    | Thao Nguyen         |
| Total Metals Analysis by ICPMS           | ICP/MS          | 5240962 | N/A        | 2017/11/01    | Arefa Dabhad        |
| Anion and Cation Sum                     | CALC            | 5235950 | N/A        | 2017/11/01    | Automated Statchk   |
| Total Ammonia-N                          | LACH/NH4        | 5240332 | N/A        | 2017/10/31    | Charles Opoku-Ware  |
| Nitrate (NO3) and Nitrite (NO2) in Water | LACH            | 5237435 | N/A        | 2017/10/31    | Chandra Nandlal     |
| Total Oil and Grease                     | BAL             | 5240220 | 2017/10/31 | 2017/11/01    | Amjad Mir           |
| pH                                       | AT              | 5239153 | N/A        | 2017/10/31    | Surinder Rai        |
| Phenols (4AAP)                           | TECH/PHEN       | 5242601 | N/A        | 2017/11/01    | Zahid Soikot        |
| Sulphate by Automated Colourimetry       | KONE            | 5237479 | N/A        | 2017/10/30    | Deonarine Ramnarine |
| Total Dissolved Solids                   | BAL             | 5238971 | 2017/10/30 | 2017/10/31    | Fang Wang           |
| Total Kjeldahl Nitrogen in Water         | SKAL            | 5240847 | 2017/10/31 | 2017/11/01    | Rajni Tyagi         |
| Total Phosphorus (Colourimetric)         | LACH/P          | 5240093 | 2017/10/31 | 2017/10/31    | Amanpreet Sappal    |
| Total Suspended Solids                   | BAL             | 5238963 | 2017/10/30 | 2017/10/30    | Arpan Shah          |

Maxxam Job #: B7O0348  
Report Date: 2017/11/02

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

## TEST SUMMARY

**Maxxam ID:** FKW252 Dup  
**Sample ID:** SW2  
**Matrix:** Water

**Collected:** 2017/10/26  
**Shipped:**  
**Received:** 2017/10/27

| Test Description       | Instrumentation | Batch   | Extracted  | Date Analyzed | Analyst      |
|------------------------|-----------------|---------|------------|---------------|--------------|
| Phenols (4AAP)         | TECH/PHEN       | 5242601 | N/A        | 2017/11/01    | Zahid Soikot |
| Total Dissolved Solids | BAL             | 5238971 | 2017/10/30 | 2017/10/31    | Fang Wang    |

### GENERAL COMMENTS

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

|           |       |
|-----------|-------|
| Package 1 | 2.7°C |
|-----------|-------|

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

Maxxam Job #: B700348  
Report Date: 2017/11/02

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

### QUALITY ASSURANCE REPORT

| QA/QC Batch | Init | QC Type                  | Parameter                     | Date Analyzed | Value  | Recovery | UNITS | QC Limits |
|-------------|------|--------------------------|-------------------------------|---------------|--------|----------|-------|-----------|
| 5237435     | C_N  | Matrix Spike [FKW251-03] | Nitrite (N)                   | 2017/10/31    |        | 107      | %     | 80 - 120  |
|             |      |                          | Nitrate (N)                   | 2017/10/31    |        | 105      | %     | 80 - 120  |
| 5237435     | C_N  | Spiked Blank             | Nitrite (N)                   | 2017/10/31    |        | 100      | %     | 80 - 120  |
|             |      |                          | Nitrate (N)                   | 2017/10/31    |        | 101      | %     | 80 - 120  |
| 5237435     | C_N  | Method Blank             | Nitrite (N)                   | 2017/10/31    | <0.010 |          | mg/L  |           |
|             |      |                          | Nitrate (N)                   | 2017/10/31    | <0.10  |          | mg/L  |           |
| 5237435     | C_N  | RPD [FKW251-03]          | Nitrite (N)                   | 2017/10/31    | 0.20   |          | %     | 20        |
|             |      |                          | Nitrate (N)                   | 2017/10/31    | 2.0    |          | %     | 20        |
| 5237474     | DRM  | Matrix Spike             | Dissolved Chloride (Cl)       | 2017/10/30    |        | 120      | %     | 80 - 120  |
| 5237474     | DRM  | Spiked Blank             | Dissolved Chloride (Cl)       | 2017/10/30    |        | 102      | %     | 80 - 120  |
| 5237474     | DRM  | Method Blank             | Dissolved Chloride (Cl)       | 2017/10/30    | <1.0   |          | mg/L  |           |
| 5237474     | DRM  | RPD                      | Dissolved Chloride (Cl)       | 2017/10/30    | 2.2    |          | %     | 20        |
| 5237479     | DRM  | Matrix Spike             | Dissolved Sulphate (SO4)      | 2017/10/30    |        | 98       | %     | 75 - 125  |
| 5237479     | DRM  | Spiked Blank             | Dissolved Sulphate (SO4)      | 2017/10/30    |        | 101      | %     | 80 - 120  |
| 5237479     | DRM  | Method Blank             | Dissolved Sulphate (SO4)      | 2017/10/30    | <1.0   |          | mg/L  |           |
| 5237479     | DRM  | RPD                      | Dissolved Sulphate (SO4)      | 2017/10/30    | NC     |          | %     | 20        |
| 5238246     | AHA  | Matrix Spike             | Dissolved Organic Carbon      | 2017/10/30    |        | NC       | %     | 80 - 120  |
| 5238246     | AHA  | Spiked Blank             | Dissolved Organic Carbon      | 2017/10/30    |        | 101      | %     | 80 - 120  |
| 5238246     | AHA  | Method Blank             | Dissolved Organic Carbon      | 2017/10/30    | <0.20  |          | mg/L  |           |
| 5238246     | AHA  | RPD                      | Dissolved Organic Carbon      | 2017/10/30    | 0.084  |          | %     | 20        |
| 5238963     | AS6  | QC Standard              | Total Suspended Solids        | 2017/10/30    |        | 95       | %     | 85 - 115  |
| 5238963     | AS6  | Method Blank             | Total Suspended Solids        | 2017/10/30    | <10    |          | mg/L  |           |
| 5238963     | AS6  | RPD [FKW251-02]          | Total Suspended Solids        | 2017/10/30    | NC     |          | %     | 25        |
| 5238971     | FW   | QC Standard              | Total Dissolved Solids        | 2017/10/31    |        | 97       | %     | 90 - 110  |
| 5238971     | FW   | Method Blank             | Total Dissolved Solids        | 2017/10/31    | <10    |          | mg/L  |           |
| 5238971     | FW   | RPD [FKW252-02]          | Total Dissolved Solids        | 2017/10/31    | 1.7    |          | %     | 25        |
| 5239134     | SAU  | Spiked Blank             | Conductivity                  | 2017/10/31    |        | 101      | %     | 85 - 115  |
| 5239134     | SAU  | Method Blank             | Conductivity                  | 2017/10/31    | <0.001 |          | mS/cm |           |
| 5239134     | SAU  | RPD                      | Conductivity                  | 2017/10/31    | 0.26   |          | %     | 25        |
| 5239146     | SAU  | Spiked Blank             | Alkalinity (Total as CaCO3)   | 2017/10/31    |        | 95       | %     | 85 - 115  |
| 5239146     | SAU  | Method Blank             | Alkalinity (Total as CaCO3)   | 2017/10/31    | <1.0   |          | mg/L  |           |
| 5239146     | SAU  | RPD                      | Alkalinity (Total as CaCO3)   | 2017/10/31    | 0.0016 |          | %     | 20        |
| 5239150     | SAU  | Matrix Spike             | Fluoride (F-)                 | 2017/10/31    |        | 107      | %     | 80 - 120  |
| 5239150     | SAU  | Spiked Blank             | Fluoride (F-)                 | 2017/10/31    |        | 102      | %     | 80 - 120  |
| 5239150     | SAU  | Method Blank             | Fluoride (F-)                 | 2017/10/31    | <0.10  |          | mg/L  |           |
| 5239150     | SAU  | RPD                      | Fluoride (F-)                 | 2017/10/31    | 7.6    |          | %     | 20        |
| 5239153     | SAU  | Spiked Blank             | pH                            | 2017/10/31    |        | 101      | %     | 98 - 103  |
| 5239153     | SAU  | RPD                      | pH                            | 2017/10/31    | 0.35   |          | %     | N/A       |
| 5240064     | BMO  | Matrix Spike             | Total Kjeldahl Nitrogen (TKN) | 2017/11/01    |        | 104      | %     | 80 - 120  |
| 5240064     | BMO  | QC Standard              | Total Kjeldahl Nitrogen (TKN) | 2017/11/01    |        | 94       | %     | 80 - 120  |
| 5240064     | BMO  | Spiked Blank             | Total Kjeldahl Nitrogen (TKN) | 2017/11/01    |        | 96       | %     | 80 - 120  |
| 5240064     | BMO  | Method Blank             | Total Kjeldahl Nitrogen (TKN) | 2017/11/01    | <0.10  |          | mg/L  |           |
| 5240064     | BMO  | RPD                      | Total Kjeldahl Nitrogen (TKN) | 2017/11/01    | NC     |          | %     | 20        |
| 5240093     | ASP  | Matrix Spike             | Total Phosphorus              | 2017/10/31    |        | 104      | %     | 80 - 120  |
| 5240093     | ASP  | QC Standard              | Total Phosphorus              | 2017/10/31    |        | 103      | %     | 80 - 120  |
| 5240093     | ASP  | Spiked Blank             | Total Phosphorus              | 2017/10/31    |        | 97       | %     | 80 - 120  |
| 5240093     | ASP  | Method Blank             | Total Phosphorus              | 2017/10/31    | <0.020 |          | mg/L  |           |
| 5240093     | ASP  | RPD                      | Total Phosphorus              | 2017/10/31    | 5.4    |          | %     | 20        |
| 5240220     | AMJ  | Matrix Spike             | Total Oil & Grease            | 2017/11/01    |        | 103      | %     | 75 - 125  |
| 5240220     | AMJ  | Spiked Blank             | Total Oil & Grease            | 2017/11/01    |        | 97       | %     | 85 - 115  |
| 5240220     | AMJ  | RPD                      | Total Oil & Grease            | 2017/11/01    | 2.3    |          | %     | 25        |



### QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC<br>Batch | Init | QC Type                     | Parameter                     | Date Analyzed | Value  | Recovery | UNITS | QC Limits |
|----------------|------|-----------------------------|-------------------------------|---------------|--------|----------|-------|-----------|
| 5240220        | AMJ  | Method Blank                | Total Oil & Grease            | 2017/11/01    | <0.50  |          | mg/L  |           |
| 5240332        | COP  | Matrix Spike                | Total Ammonia-N               | 2017/10/31    |        | 96       | %     | 80 - 120  |
| 5240332        | COP  | Spiked Blank                | Total Ammonia-N               | 2017/10/31    |        | 97       | %     | 85 - 115  |
| 5240332        | COP  | Method Blank                | Total Ammonia-N               | 2017/10/31    | <0.050 |          | mg/L  |           |
| 5240332        | COP  | RPD                         | Total Ammonia-N               | 2017/10/31    | NC     |          | %     | 20        |
| 5240393        | TNG  | Matrix Spike                | Dissolved Calcium (Ca)        | 2017/11/01    |        | NC       | %     | 80 - 120  |
|                |      |                             | Dissolved Magnesium (Mg)      | 2017/11/01    |        | NC       | %     | 80 - 120  |
|                |      |                             | Dissolved Potassium (K)       | 2017/11/01    |        | 102      | %     | 80 - 120  |
|                |      |                             | Dissolved Sodium (Na)         | 2017/11/01    |        | NC       | %     | 80 - 120  |
| 5240393        | TNG  | Spiked Blank                | Dissolved Calcium (Ca)        | 2017/11/01    |        | 94       | %     | 80 - 120  |
|                |      |                             | Dissolved Magnesium (Mg)      | 2017/11/01    |        | 98       | %     | 80 - 120  |
|                |      |                             | Dissolved Potassium (K)       | 2017/11/01    |        | 98       | %     | 80 - 120  |
|                |      |                             | Dissolved Sodium (Na)         | 2017/11/01    |        | 98       | %     | 80 - 120  |
| 5240393        | TNG  | Method Blank                | Dissolved Calcium (Ca)        | 2017/11/01    | <200   |          | ug/L  |           |
|                |      |                             | Dissolved Magnesium (Mg)      | 2017/11/01    | <50    |          | ug/L  |           |
|                |      |                             | Dissolved Potassium (K)       | 2017/11/01    | <200   |          | ug/L  |           |
|                |      |                             | Dissolved Sodium (Na)         | 2017/11/01    | <100   |          | ug/L  |           |
| 5240393        | TNG  | RPD                         | Dissolved Sodium (Na)         | 2017/11/01    | 1.2    |          | %     | 20        |
| 5240847        | RTY  | Matrix Spike                | Total Kjeldahl Nitrogen (TKN) | 2017/11/01    |        | 104      | %     | 80 - 120  |
| 5240847        | RTY  | QC Standard                 | Total Kjeldahl Nitrogen (TKN) | 2017/11/01    |        | 96       | %     | 80 - 120  |
| 5240847        | RTY  | Spiked Blank                | Total Kjeldahl Nitrogen (TKN) | 2017/11/01    |        | 97       | %     | 80 - 120  |
| 5240847        | RTY  | Method Blank                | Total Kjeldahl Nitrogen (TKN) | 2017/11/01    | <0.10  |          | mg/L  |           |
| 5240847        | RTY  | RPD                         | Total Kjeldahl Nitrogen (TKN) | 2017/11/01    | NC (1) |          | %     | 20        |
| 5240962        | ADA  | Matrix Spike<br>[FKW250-07] | Total Arsenic (As)            | 2017/11/01    |        | 94       | %     | 80 - 120  |
|                |      |                             | Total Cadmium (Cd)            | 2017/11/01    |        | 95       | %     | 80 - 120  |
|                |      |                             | Total Calcium (Ca)            | 2017/11/01    |        | NC       | %     | 80 - 120  |
|                |      |                             | Total Chromium (Cr)           | 2017/11/01    |        | 94       | %     | 80 - 120  |
|                |      |                             | Total Copper (Cu)             | 2017/11/01    |        | 97       | %     | 80 - 120  |
|                |      |                             | Total Iron (Fe)               | 2017/11/01    |        | 95       | %     | 80 - 120  |
|                |      |                             | Total Lead (Pb)               | 2017/11/01    |        | 91       | %     | 80 - 120  |
|                |      |                             | Total Magnesium (Mg)          | 2017/11/01    |        | NC       | %     | 80 - 120  |
|                |      |                             | Total Manganese (Mn)          | 2017/11/01    |        | 91       | %     | 80 - 120  |
|                |      |                             | Total Nickel (Ni)             | 2017/11/01    |        | 88       | %     | 80 - 120  |
|                |      |                             | Total Potassium (K)           | 2017/11/01    |        | 90       | %     | 80 - 120  |
|                |      |                             | Total Sodium (Na)             | 2017/11/01    |        | NC       | %     | 80 - 120  |
|                |      |                             | Total Zinc (Zn)               | 2017/11/01    |        | 94       | %     | 80 - 120  |
| 5240962        | ADA  | Spiked Blank                | Total Arsenic (As)            | 2017/11/01    |        | 97       | %     | 80 - 120  |
|                |      |                             | Total Cadmium (Cd)            | 2017/11/01    |        | 101      | %     | 80 - 120  |
|                |      |                             | Total Calcium (Ca)            | 2017/11/01    |        | 100      | %     | 80 - 120  |
|                |      |                             | Total Chromium (Cr)           | 2017/11/01    |        | 99       | %     | 80 - 120  |
|                |      |                             | Total Copper (Cu)             | 2017/11/01    |        | 102      | %     | 80 - 120  |
|                |      |                             | Total Iron (Fe)               | 2017/11/01    |        | 99       | %     | 80 - 120  |
|                |      |                             | Total Lead (Pb)               | 2017/11/01    |        | 98       | %     | 80 - 120  |
|                |      |                             | Total Magnesium (Mg)          | 2017/11/01    |        | 103      | %     | 80 - 120  |
|                |      |                             | Total Manganese (Mn)          | 2017/11/01    |        | 97       | %     | 80 - 120  |
|                |      |                             | Total Nickel (Ni)             | 2017/11/01    |        | 94       | %     | 80 - 120  |
|                |      |                             | Total Potassium (K)           | 2017/11/01    |        | 105      | %     | 80 - 120  |
|                |      |                             | Total Sodium (Na)             | 2017/11/01    |        | 100      | %     | 80 - 120  |
|                |      |                             | Total Zinc (Zn)               | 2017/11/01    |        | 100      | %     | 80 - 120  |
| 5240962        | ADA  | Method Blank                | Total Arsenic (As)            | 2017/11/01    | <1.0   |          | ug/L  |           |
|                |      |                             | Total Cadmium (Cd)            | 2017/11/01    | <0.10  |          | ug/L  |           |

### QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC<br>Batch | Init | QC Type                     | Parameter            | Date Analyzed | Value   | Recovery | UNITS | QC Limits |
|----------------|------|-----------------------------|----------------------|---------------|---------|----------|-------|-----------|
| 5240962        | ADA  | RPD [FKW250-07]             | Total Calcium (Ca)   | 2017/11/01    | <200    |          | ug/L  |           |
|                |      |                             | Total Chromium (Cr)  | 2017/11/01    | <5.0    |          | ug/L  |           |
|                |      |                             | Total Copper (Cu)    | 2017/11/01    | <1.0    |          | ug/L  |           |
|                |      |                             | Total Iron (Fe)      | 2017/11/01    | <100    |          | ug/L  |           |
|                |      |                             | Total Lead (Pb)      | 2017/11/01    | <0.50   |          | ug/L  |           |
|                |      |                             | Total Magnesium (Mg) | 2017/11/01    | <50     |          | ug/L  |           |
|                |      |                             | Total Manganese (Mn) | 2017/11/01    | <2.0    |          | ug/L  |           |
|                |      |                             | Total Nickel (Ni)    | 2017/11/01    | <1.0    |          | ug/L  |           |
|                |      |                             | Total Potassium (K)  | 2017/11/01    | <200    |          | ug/L  |           |
|                |      |                             | Total Sodium (Na)    | 2017/11/01    | <100    |          | ug/L  |           |
|                |      |                             | Total Zinc (Zn)      | 2017/11/01    | <5.0    |          | ug/L  |           |
|                |      |                             | Total Arsenic (As)   | 2017/11/01    | NC      |          | %     | 20        |
|                |      |                             | Total Cadmium (Cd)   | 2017/11/01    | NC      |          | %     | 20        |
|                |      |                             | Total Calcium (Ca)   | 2017/11/01    | 10      |          | %     | 20        |
|                |      |                             | Total Chromium (Cr)  | 2017/11/01    | NC      |          | %     | 20        |
|                |      |                             | Total Copper (Cu)    | 2017/11/01    | NC      |          | %     | 20        |
|                |      |                             | Total Iron (Fe)      | 2017/11/01    | NC      |          | %     | 20        |
|                |      |                             | Total Lead (Pb)      | 2017/11/01    | NC      |          | %     | 20        |
|                |      |                             | Total Magnesium (Mg) | 2017/11/01    | 7.6     |          | %     | 20        |
|                |      |                             | Total Manganese (Mn) | 2017/11/01    | 7.3     |          | %     | 20        |
|                |      |                             | Total Nickel (Ni)    | 2017/11/01    | 11      |          | %     | 20        |
|                |      |                             | Total Potassium (K)  | 2017/11/01    | 5.5     |          | %     | 20        |
|                |      |                             | Total Sodium (Na)    | 2017/11/01    | 7.3     |          | %     | 20        |
|                |      |                             | Total Zinc (Zn)      | 2017/11/01    | NC      |          | %     | 20        |
| 5242580        | ZSK  | Matrix Spike                | Phenols-4AAP         | 2017/11/01    |         | 98       | %     | 80 - 120  |
| 5242580        | ZSK  | Spiked Blank                | Phenols-4AAP         | 2017/11/01    |         | 100      | %     | 80 - 120  |
| 5242580        | ZSK  | Method Blank                | Phenols-4AAP         | 2017/11/01    | <0.0010 |          | mg/L  |           |
| 5242580        | ZSK  | RPD                         | Phenols-4AAP         | 2017/11/01    | NC      |          | %     | 20        |
| 5242601        | ZSK  | Matrix Spike<br>[FKW252-05] | Phenols-4AAP         | 2017/11/01    |         | 93       | %     | 80 - 120  |
| 5242601        | ZSK  | Spiked Blank                | Phenols-4AAP         | 2017/11/01    |         | 96       | %     | 80 - 120  |
| 5242601        | ZSK  | Method Blank                | Phenols-4AAP         | 2017/11/01    | <0.0010 |          | mg/L  |           |
| 5242601        | ZSK  | RPD [FKW252-05]             | Phenols-4AAP         | 2017/11/01    | 0       |          | %     | 20        |

N/A = Not Applicable

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

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

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

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

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

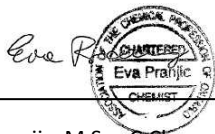
NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

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

(1) TKN: Due to high concentrations of NO3NO2 analytes, sample required dilution. Detection limits were adjusted accordingly.

### VALIDATION SIGNATURE PAGE

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



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

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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.

**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: 16T161088**

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

**DATE REPORTED: Dec 09, 2016**

**PAGES (INCLUDING COVER): 5**

**VERSION\*: 1**

Should you require any information regarding this analysis please contact your client services representative at (905) 712-5100

**\*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

## Certificate of Analysis

AGAT WORK ORDER: 16T161088

PROJECT: 1407634

5835 COOPERS AVENUE  
MISSISSAUGA, ONTARIO  
CANADA L4Z 1Y2  
TEL (905)712-5100  
FAX (905)712-5122  
<http://www.agatlabs.com>

CLIENT NAME: GOLDER ASSOCIATES LTD.

SAMPLING SITE:

ATTENTION TO: Ryan Abrams

SAMPLED BY:

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

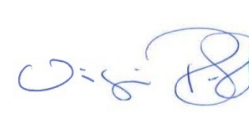
DATE RECEIVED: 2016-11-17

DATE REPORTED: 2016-12-09

|                    |                 |                     |     |            |
|--------------------|-----------------|---------------------|-----|------------|
|                    |                 | SAMPLE DESCRIPTION: |     | Pond       |
|                    |                 | SAMPLE TYPE:        |     | Water      |
|                    |                 | DATE SAMPLED:       |     | 2016-11-16 |
| Parameter          | Unit            | G / S               | RDL | 8020097    |
| Mortality 100% v/v | % mortality-48h |                     |     | 0          |
| Acute Lethality    |                 |                     |     | NO         |

**Comments:** RDL - Reported Detection Limit; G / S - Guideline / Standard  
**8020097** 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:




**AGAT** Laboratories

## Certificate of Analysis

AGAT WORK ORDER: 16T161088

PROJECT: 1407634

5835 COOPERS AVENUE  
MISSISSAUGA, ONTARIO  
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CLIENT NAME: GOLDER ASSOCIATES LTD.

ATTENTION TO: Ryan Abrams

SAMPLING SITE:

SAMPLED BY:

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

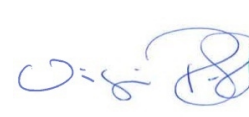
DATE RECEIVED: 2016-11-17

DATE REPORTED: 2016-12-09

|                    |                 |                     |     |            |
|--------------------|-----------------|---------------------|-----|------------|
|                    |                 | SAMPLE DESCRIPTION: |     | Pond       |
|                    |                 | SAMPLE TYPE:        |     | Water      |
|                    |                 | DATE SAMPLED:       |     | 2016-11-16 |
| Parameter          | Unit            | G / S               | RDL | 8020097    |
| Mortality 100% v/v | % mortality-96h |                     |     | 10         |
| Acute Lethality    |                 |                     |     | NO         |

**Comments:** RDL - Reported Detection Limit; G / S - Guideline / Standard  
**8020097** 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:


## Method Summary

CLIENT NAME: GOLDER ASSOCIATES LTD.

AGAT WORK ORDER: 16T161088

PROJECT: 1407634

ATTENTION TO: Ryan Abrams

SAMPLING SITE:

SAMPLED BY:

| PARAMETER              | AGAT S.O.P     | LITERATURE REFERENCE | ANALYTICAL TECHNIQUE |
|------------------------|----------------|----------------------|----------------------|
| <b>ECOTOX Analysis</b> |                |                      |                      |
| Mortality 100% v/v     |                |                      | NA                   |
| Acute Lethality        |                |                      |                      |
| Mortality 100% v/v     | ECO-152-20000F | EPS1/RM/13           |                      |







**CLIENT NAME: GOLDER ASSOCIATES LTD.  
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BARRIE, ON L4N8X1  
(705) 722-4492**

**ATTENTION TO: Ryan Abrams**

**PROJECT: 1407634**

**AGAT WORK ORDER: 16T168230**

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

**DATE REPORTED: Jan 04, 2017**

**PAGES (INCLUDING COVER): 5**

**VERSION\*: 1**

Should you require any information regarding this analysis please contact your client services representative at (905) 712-5100

**\*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

## Certificate of Analysis

AGAT WORK ORDER: 16T168230

PROJECT: 1407634

5835 COOPERS AVENUE  
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FAX (905)712-5122  
<http://www.agatlabs.com>

CLIENT NAME: GOLDER ASSOCIATES LTD.

ATTENTION TO: Ryan Abrams

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2016-12-07

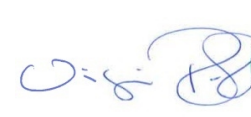
DATE REPORTED: 2017-01-04

|                    |                 |                     |     |            |
|--------------------|-----------------|---------------------|-----|------------|
|                    |                 | SAMPLE DESCRIPTION: |     | Pond       |
|                    |                 | SAMPLE TYPE:        |     | Water      |
|                    |                 | DATE SAMPLED:       |     | 2016-12-06 |
| Parameter          | Unit            | G / S               | RDL | 8071992    |
| Mortality 100% v/v | % mortality-48h |                     |     | 3.3        |
| Acute Lethality    |                 |                     |     | NO         |

**Comments:** RDL - Reported Detection Limit; G / S - Guideline / Standard  
**8071992** Refer to the annex for analysis details.

Acute lethality: NO (mortality: 50% or less)  
Acute lethality: YES (mortality: more than 50%)

Certified By:




**AGAT** Laboratories

## Certificate of Analysis

AGAT WORK ORDER: 16T168230

PROJECT: 1407634

5835 COOPERS AVENUE  
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FAX (905)712-5122  
<http://www.agatlabs.com>

CLIENT NAME: GOLDER ASSOCIATES LTD.

ATTENTION TO: Ryan Abrams

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2016-12-07

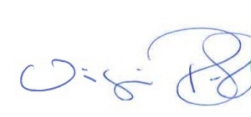
DATE REPORTED: 2017-01-04

|                    |                 |                     |     |            |
|--------------------|-----------------|---------------------|-----|------------|
|                    |                 | SAMPLE DESCRIPTION: |     | Pond       |
|                    |                 | SAMPLE TYPE:        |     | Water      |
|                    |                 | DATE SAMPLED:       |     | 2016-12-06 |
| Parameter          | Unit            | G / S               | RDL | 8071992    |
| Mortality 100% v/v | % mortality-96h |                     |     | 0          |
| Acute Lethality    |                 |                     |     | NO         |

**Comments:** RDL - Reported Detection Limit; G / S - Guideline / Standard  
**8071992** Refer to the annex for analysis details.

Acute lethality: NO (mortality: 50% or less)  
Acute lethality: YES (mortality: more than 50%)

Certified By:


## Method Summary

CLIENT NAME: GOLDER ASSOCIATES LTD.

AGAT WORK ORDER: 16T168230

PROJECT: 1407634

ATTENTION TO: Ryan Abrams

SAMPLING SITE:

SAMPLED BY:

| PARAMETER              | AGAT S.O.P     | LITERATURE REFERENCE | ANALYTICAL TECHNIQUE |
|------------------------|----------------|----------------------|----------------------|
| <b>ECOTOX Analysis</b> |                |                      |                      |
| Mortality 100% v/v     |                |                      | NA                   |
| Acute Lethality        |                |                      |                      |
| Mortality 100% v/v     | ECO-152-20000F | EPS1/RM/13           |                      |



## \*ASAP - TOXICITY\*

5835 Coopers Avenue  
Mississauga, Ontario L4Z 1Y2  
Ph: 905.712.5100 Fax: 905.712.5122  
[www.agatlabs.com](http://www.agatlabs.com) [webearth.agatlabs.com](http://webearth.agatlabs.com)

**If this is a Drinking Water sample, please use Drinking Water Chain of Custody Form** (potable water intended for human consumption)

### Report Information:

Company: Goldner Associates

Contact: I Ryan Abrams

Address: 121 Commerce Park Dr. Unit L Barrie ON. L4N 8X1

Phone: 705-722-4492 Fax: \_\_\_\_\_

Reports to be sent to:

1. Email: \_\_\_\_\_

2. Email: ryan-abrams@goldner.com

### Project Information:

Project: 1407634  
Site Location: McCarthy  
Sampled By: RPA  
AGAT Quote #: 60738

**Invoice Information:**

Bill To Same: Yes ☐ No ☐

Company: Golder Associates  
Contact: Patti Chapple@golder.com  
Address: \_\_\_\_\_  
Email: \_\_\_\_\_

### Regulatory Requirements:

*(Please check all applicable boxes)*

☐ No Regulatory Requirement

Regulation 153/04

Table \_\_\_\_\_  
Indicate Opp.☐ Ind/Com☐ Res/Park☐ Agriculture

Soil Texture (Check One)

☐ Coarse☐ Fine☐ Sewer Use☐ Sanitary☐ Storm

Region \_\_\_\_\_

*Indicate One*

☐ Regulation 558☐ CCME☒ Prov. Water Quality Objectives (PWQO)☐ Other

Indicate One

Is this submission for a  
**Record of Site Condition?**

☐ Yes ☒ No

### Report Guideline on Certificate of Analysis

☒ Yes      ☐ No

### Sample Matrix Legend

|           |               |
|-----------|---------------|
| <b>B</b>  | Biota         |
| <b>GW</b> | Ground Water  |
| <b>O</b>  | Oil           |
| <b>P</b>  | Paint         |
| <b>S</b>  | Soil          |
| <b>SD</b> | Sediment      |
| <b>SW</b> | Surface Water |

(Check Applicable)

☐ B-HWS ☐ Cl<sup>-</sup> ☐ CN<sup>-</sup>  
☐ EC ☐ FOC ☐ NO<sub>3</sub>/NO<sub>2</sub>  
☐ Hg ☐ pH ☐ SAR  
☐ NO<sub>2</sub> ☐ TP ☐ NH<sub>3</sub> ☐ TKN  
☐ NO<sub>3</sub>/NO<sub>2</sub>  
☐ VOC ☐ BTEX ☐ THM

[illegible]

|       |           |                                            |           |          |                     |
|-------|-----------|--------------------------------------------|-----------|----------|---------------------|
| Date  | Time      | Samples Received By (Print Name and Sign): | Date      | Time     | Page _____ of _____ |
| 11/12 | 06-Dec-14 | 2:00pm                                     | A. MARTIN | 16/12/07 | 1110                |
| Date  | Time      | Samples Received By (Print Name and Sign): | Date      | Time     | Nº                  |

Pink Copy - Client | Yellow Copy - AGAT | White Copy- AGAT

Date issued: Jan 8, 2015

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

**ATTENTION TO: Ryan Abrams**

**PROJECT: 1407634 McCarthy**

**AGAT WORK ORDER: 17T179406**

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

**DATE REPORTED: Feb 02, 2017**

**PAGES (INCLUDING COVER): 5**

**VERSION\*: 1**

Should you require any information regarding this analysis please contact your client services representative at (905) 712-5100

**\*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

## Certificate of Analysis

AGAT WORK ORDER: 17T179406

PROJECT: 1407634 McCarthy

5835 COOPERS AVENUE  
MISSISSAUGA, ONTARIO  
CANADA L4Z 1Y2  
TEL (905)712-5100  
FAX (905)712-5122  
<http://www.agatlabs.com>

CLIENT NAME: GOLDER ASSOCIATES LTD.

SAMPLING SITE:McCarthy

ATTENTION TO: Ryan Abrams

SAMPLED BY:RPA

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

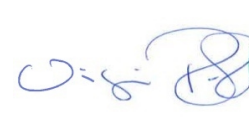
DATE RECEIVED: 2017-01-19

DATE REPORTED: 2017-02-02

|                    |                 |                     |     |            |
|--------------------|-----------------|---------------------|-----|------------|
|                    |                 | SAMPLE DESCRIPTION: |     | Pond       |
|                    |                 | SAMPLE TYPE:        |     | Water      |
|                    |                 | DATE SAMPLED:       |     | 2017-01-18 |
| Parameter          | Unit            | G / S               | RDL | 8135986    |
| Mortality 100% v/v | % mortality-48h |                     |     | 0          |
| Acute Lethality    |                 |                     |     | NO         |

**Comments:** RDL - Reported Detection Limit; G / S - Guideline / Standard  
**8135986** Refer to the annex for analysis details.  
Acute lethality: NO (mortality: 50% or less)  
Acute lethality: YES (mortality: more than 50%)

Certified By:




**AGAT** Laboratories

## Certificate of Analysis

AGAT WORK ORDER: 17T179406

PROJECT: 1407634 McCarthy

5835 COOPERS AVENUE  
MISSISSAUGA, ONTARIO  
CANADA L4Z 1Y2  
TEL (905)712-5100  
FAX (905)712-5122  
<http://www.agatlabs.com>

CLIENT NAME: GOLDER ASSOCIATES LTD.

SAMPLING SITE:McCarthy

ATTENTION TO: Ryan Abrams

SAMPLED BY:RPA

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

DATE RECEIVED: 2017-01-19

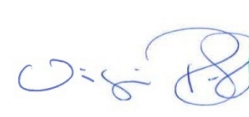
DATE REPORTED: 2017-02-02

|                    |                 |                     |     |            |
|--------------------|-----------------|---------------------|-----|------------|
|                    |                 | SAMPLE DESCRIPTION: |     | Pond       |
|                    |                 | SAMPLE TYPE:        |     | Water      |
|                    |                 | DATE SAMPLED:       |     | 2017-01-18 |
| Parameter          | Unit            | G / S               | RDL | 8135986    |
| Mortality 100% v/v | % mortality-96h |                     |     | 0          |
| Acute Lethality    |                 |                     |     | NO         |

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

8135986 Refer to the annex for analysis details.  
Acute lethality: NO (mortality: 50% or less)  
Acute lethality: YES (mortality: more than 50%)

Certified By:




## Method Summary

CLIENT NAME: GOLDER ASSOCIATES LTD.

AGAT WORK ORDER: 17T179406

PROJECT: 1407634 McCarthy

ATTENTION TO: Ryan Abrams

SAMPLING SITE:McCarthy

SAMPLED BY:RPA

| PARAMETER              | AGAT S.O.P     | LITERATURE REFERENCE | ANALYTICAL TECHNIQUE |
|------------------------|----------------|----------------------|----------------------|
| <b>ECOTOX Analysis</b> |                |                      |                      |
| Mortality 100% v/v     |                |                      | NA                   |
| Acute Lethality        |                |                      |                      |
| Mortality 100% v/v     | ECO-152-20000F | EPS1/RM/13           |                      |



**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.



**AGAT** Laboratories

## Certificate of Analysis

AGAT WORK ORDER: 17M197724

PROJECT: 1407634 (McCarthy)

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.

SAMPLED BY:

ATTENTION TO: Ryan Abrams

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

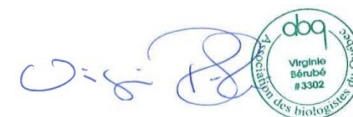
**Conclusion Legend:**

Non lethal: mortality: 10% or less

Acceptable: mortality: between 10% and 50%

Acute lethality: mortality: more than 50%

Certified By:



AGAT Laboratories' procedure for signatures and signatories adheres strictly to the requirements of accreditation ISO 17025:2005 as required by CALA, SCC and MDDEP where applicable. All electronic signatures on AGAT certificates are password protected and all signatories meet their regional and scope of accreditation requirements and are approved by CALA, SCC and MDDEP.



**AGAT** Laboratories

## Certificate of Analysis

AGAT WORK ORDER: 17M197724

PROJECT: 1407634 (McCarthy)

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.

ATTENTION TO: Ryan Abrams

SAMPLED BY:

SAMPLING SITE:

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

DATE RECEIVED: 2017-03-20

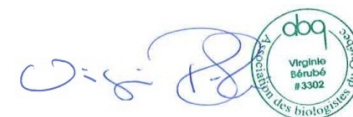
DATE REPORTED: 2017-04-10

|                    |                 |                     |     |            |
|--------------------|-----------------|---------------------|-----|------------|
|                    |                 | 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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**AGAT** CERTIFICATE OF ANALYSIS

Page 3 of 4

*This version replaces and cancels all previous versions, if applicable. Reproduction of this document is prohibited, in whole or part, unless authorised in writing by the laboratory. The results relate only to the samples analyzed*

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

**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

## Certificate of Analysis

AGAT WORK ORDER: 17M209605

PROJECT: 1407634

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.

SAMPLED BY: Ryan Abrams

ATTENTION TO: 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: \_\_\_\_\_



AGAT Laboratories' procedure for signatures and signatories adheres strictly to the requirements of accreditation ISO 17025:2005 as required by CALA, SCC and MDDELCC where applicable. All electronic signatures on AGAT certificates are password protected and all signatories meet their regional and scope of accreditation requirements and are approved by CALA, SCC and MDDELCC.





**AGAT** Laboratories

## Certificate of Analysis

AGAT WORK ORDER: 17M209605

PROJECT: 1407634

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.

SAMPLED BY: Ryan Abrams

ATTENTION TO: 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

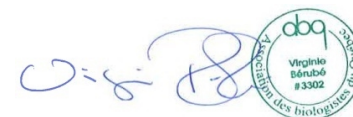
Refer to the annex for analysis details.

Conclusion legend:

Acute lethality: NO (mortality: 50% or less)

Acute lethality: YES (mortality: more than 50%)

Certified By:



AGAT Laboratories' procedure for signatures and signatories adheres strictly to the requirements of accreditation ISO 17025:2005 as required by CALA, SCC and MDDELCC where applicable. All electronic signatures on AGAT certificates are password protected and all signatories meet their regional and scope of accreditation requirements and are approved by CALA, SCC and MDDELCC.

## Method Summary

CLIENT NAME: GOLDER ASSOCIATES LTD.

AGAT WORK ORDER: 17M209605

PROJECT: 1407634

ATTENTION TO: Ryan Abrams

SAMPLED BY: Ryan Abrams

SAMPLING SITE: McCartney

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

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

**ATTENTION TO: Dawn Hoyle**

**PROJECT: 1407634**

**AGAT WORK ORDER: 17M218416**

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

**DATE REPORTED: 2017-07-25**

**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

## Certificate of Analysis

AGAT WORK ORDER: 17M218416

PROJECT: 1407634

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.

SAMPLED BY: Dawn Hoyle

ATTENTION TO: Dawn Hoyle

SAMPLING SITE:

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

DATE RECEIVED: 2017-05-24

DATE REPORTED: 2017-07-25

|                    |                 |                     |     |            |
|--------------------|-----------------|---------------------|-----|------------|
|                    |                 | SAMPLE DESCRIPTION: |     | Pond       |
|                    |                 | SAMPLE TYPE:        |     | SW         |
|                    |                 | DATE SAMPLED:       |     | 2017-05-23 |
| Parameter          | Unit            | G / S               | RDL | 8412806    |
| Mortality 100% v/v | % mortality-48h |                     |     | 0          |
| Acute Lethality    |                 |                     |     | NO         |

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

8412806 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:



AGAT Laboratories' procedure for signatures and signatories adheres strictly to the requirements of accreditation ISO 17025:2005 as required by CALA, SCC and MDDELCC where applicable. All electronic signatures on AGAT certificates are password protected and all signatories meet their regional and scope of accreditation requirements and are approved by CALA, SCC and MDDELCC.



**AGAT** Laboratories

## Certificate of Analysis

AGAT WORK ORDER: 17M218416

PROJECT: 1407634

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.

SAMPLED BY: Dawn Hoyle

ATTENTION TO: Dawn Hoyle

SAMPLING SITE:

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

DATE RECEIVED: 2017-05-24

DATE REPORTED: 2017-07-25

|                    |                 |                     |     |            |
|--------------------|-----------------|---------------------|-----|------------|
|                    |                 | SAMPLE DESCRIPTION: |     | Pond       |
|                    |                 | SAMPLE TYPE:        |     | SW         |
|                    |                 | DATE SAMPLED:       |     | 2017-05-23 |
| Parameter          | Unit            | G / S               | RDL | 8412806    |
| Mortality 100% v/v | % mortality-96h |                     |     | 0          |
| Acute Lethality    |                 |                     |     | NO         |

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

8412806

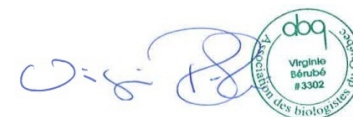
Refer to the annex for analysis details.

Conclusion legend:

Acute lethality: NO (mortality: 50% or less)

Acute lethality: YES (mortality: more than 50%)

Certified By:



AGAT Laboratories' procedure for signatures and signatories adheres strictly to the requirements of accreditation ISO 17025:2005 as required by CALA, SCC and MDDELCC where applicable. All electronic signatures on AGAT certificates are password protected and all signatories meet their regional and scope of accreditation requirements and are approved by CALA, SCC and MDDELCC.

## Method Summary

CLIENT NAME: GOLDER ASSOCIATES LTD.

AGAT WORK ORDER: 17M218416

PROJECT: 1407634

ATTENTION TO: Dawn Hoyle

SAMPLED BY: Dawn Hoyle

SAMPLING SITE:

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

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

**À L'ATTENTION DE: Ryan Abrams**

**N° DE PROJET: 1407634 Macarthy**

**N° BON DE TRAVAIL: 17M236355**

**ÉCOTOX VÉRIFIÉ PAR: Virginie Bérubé, biologiste**

**DATE DU RAPPORT: 2017-07-27**

**VERSION\*: 1**

**NOMBRE DE PAGES: 4**

Si vous désirez de l'information concernant cette analyse, S.V.P. contactez votre chargé de projets au (514) 337-1000.

\*NOTES

Nous disposerons des échantillons dans les 30 jours suivants les analyses. S.V.P. Contactez le laboratoire si vous désirez avoir un délai d'entreposage.



**AGAT** Laboratoires

## Certificat d'analyse

N° BON DE TRAVAIL: 17M236355

N° DE PROJET: 1407634 Macarthy

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

NOM DU CLIENT: GOLDER ASSOCIATES LTD.

PRÉLEVÉ PAR:

À L'ATTENTION DE: Ryan Abrams

LIEU DE PRÉLÈVEMENT:

### Létalité-Daphnie (D. magna) CU-48h

DATE DE RÉCEPTION: 2017-07-12

DATE DU RAPPORT: 2017-07-27

|                                       |            |       |     |         |
|---------------------------------------|------------|-------|-----|---------|
| IDENTIFICATION DE L'ÉCHANTILLON: pond |            |       |     |         |
| MATRICE: Eau                          |            |       |     |         |
| DATE D'ÉCHANTILLONNAGE: 2017-07-11    |            |       |     |         |
| Paramètre                             | Unités     | C / N | LDR | 8549071 |
| Mortalité 100% v/v                    | % mort-48h |       |     | 0       |
| Létalité aiguë                        |            |       |     | NO      |

Commentaires: LDR - Limite de détection rapportée; C / N - Critères Normes

8549071

Détails de l'analyse en annexe.

Légende conclusion:

Létalité aiguë : non (50% mortalité ou moins)

Létalité aiguë : oui (plus de 50% mortalité)

Certifié par:



La procédure des Laboratoires AGAT concernant les signatures et les signataires se conforme strictement aux exigences d'accréditation ISO 17025:2005 comme le requiert, lorsque applicable, CALA, CCN et MDDELCC. Toutes les signatures sur les certificats d'AGAT sont protégées par des mots de passe et les signataires rencontrent les exigences des domaines d'accréditation ainsi que les exigences régionales approuvées par CALA, CCN et MDDELCC.





**AGAT** Laboratoires

## Certificat d'analyse

N° BON DE TRAVAIL: 17M236355

N° DE PROJET: 1407634 Macarthy

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

NOM DU CLIENT: GOLDER ASSOCIATES LTD.

PRÉLEVÉ PAR:

À L'ATTENTION DE: Ryan Abrams

LIEU DE PRÉLÈVEMENT:

### Létalité-Truite arc-en-ciel (O. mykiss) CU-96h

DATE DE RÉCEPTION: 2017-07-12

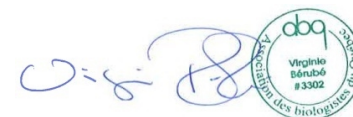
DATE DU RAPPORT: 2017-07-27

|                                       |            |       |     |         |
|---------------------------------------|------------|-------|-----|---------|
| IDENTIFICATION DE L'ÉCHANTILLON: pond |            |       |     |         |
| MATRICE: Eau                          |            |       |     |         |
| DATE D'ÉCHANTILLONNAGE: 2017-07-11    |            |       |     |         |
| Paramètre                             | Unités     | C / N | LDR | 8549071 |
| Mortalité 100% v/v                    | % mort-96h |       |     | 0       |
| Létalité aiguë                        |            |       |     | NO      |

Commentaires: LDR - Limite de détection rapportée; C / N - Critères Normes

8549071 Détails de l'analyse en annexe.  
Létalité aiguë : non (50% mortalité ou moins)  
Létalité aiguë : oui (plus de 50% mortalité)

Certifié par:



La procédure des Laboratoires AGAT concernant les signatures et les signataires se conforme strictement aux exigences d'accréditation ISO 17025:2005 comme le requiert, lorsque applicable, CALA, CCN et MDDELCC. Toutes les signatures sur les certificats d'AGAT sont protégées par des mots de passe et les signataires rencontrent les exigences des domaines d'accréditation ainsi que les exigences régionales approuvées par CALA, CCN et MDDELCC.

## Sommaire de méthode

NOM DU CLIENT: GOLDER ASSOCIATES LTD.

N° BON DE TRAVAIL: 17M236355

N° DE PROJET: 1407634 Macarthy

À L'ATTENTION DE: Ryan Abrams

PRÉLEVÉ PAR:

LIEU DE PRÉLÈVEMENT:

| PARAMÈTRE             | PRÉPARÉ LE | ANALYSÉ LE | AGAT P.O.N.    | RÉFÉRENCE DE LITTÉRATURE | TECHNIQUE ANALYTIQUE |
|-----------------------|------------|------------|----------------|--------------------------|----------------------|
| <b>Analyse écotox</b> |            |            |                |                          |                      |
| Mortalité 100% v/v    |            |            |                |                          | NA                   |
| Létalité aiguë        |            |            |                |                          |                      |
| Mortalité 100% v/v    |            |            | ECO-152-20000F | SPE1/RM/13               |                      |
| Létalité aiguë        |            |            |                |                          |                      |

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

**ATTENTION TO: Dawn Hoyle**

**PROJECT: 1407634**

**AGAT WORK ORDER: 17T253580**

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

**DATE REPORTED: Sep 19, 2017**

**PAGES (INCLUDING COVER): 5**

**VERSION\*: 1**

Should you require any information regarding this analysis please contact your client services representative at (905) 712-5100

**\*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

## Certificate of Analysis

AGAT WORK ORDER: 17T253580

PROJECT: 1407634

5835 COOPERS AVENUE  
MISSISSAUGA, ONTARIO  
CANADA L4Z 1Y2  
TEL (905)712-5100  
FAX (905)712-5122  
<http://www.agatlabs.com>

CLIENT NAME: GOLDER ASSOCIATES LTD.

ATTENTION TO: Dawn Hoyle

SAMPLING SITE:

SAMPLED BY:

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

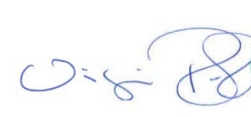
DATE RECEIVED: 2017-08-25

DATE REPORTED: 2017-09-19

|                    |                 |                     |     |            |
|--------------------|-----------------|---------------------|-----|------------|
|                    |                 | SAMPLE DESCRIPTION: |     | POND       |
|                    |                 | SAMPLE TYPE:        |     | Water      |
|                    |                 | DATE SAMPLED:       |     | 2017-08-24 |
| Parameter          | Unit            | G / S               | RDL | 8669510    |
| Mortality 100% v/v | % mortality-48h |                     |     | 0          |
| Acute Lethality    |                 |                     |     | NO         |

**Comments:** RDL - Reported Detection Limit; G / S - Guideline / Standard  
**8669510** Refer to the annex for analysis details.  
Acute lethality: NO (mortality: 50% or less)  
Acute lethality: YES (mortality: more than 50%)

Certified By:




**AGAT** Laboratories

## Certificate of Analysis

AGAT WORK ORDER: 17T253580

PROJECT: 1407634

5835 COOPERS AVENUE  
MISSISSAUGA, ONTARIO  
CANADA L4Z 1Y2  
TEL (905)712-5100  
FAX (905)712-5122  
<http://www.agatlabs.com>

CLIENT NAME: GOLDER ASSOCIATES LTD.

ATTENTION TO: Dawn Hoyle

SAMPLING SITE:

SAMPLED BY:

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

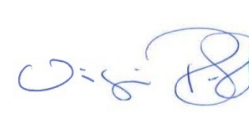
DATE RECEIVED: 2017-08-25

DATE REPORTED: 2017-09-19

|                    |                 |                     |     |            |
|--------------------|-----------------|---------------------|-----|------------|
|                    |                 | SAMPLE DESCRIPTION: |     | POND       |
|                    |                 | SAMPLE TYPE:        |     | Water      |
|                    |                 | DATE SAMPLED:       |     | 2017-08-24 |
| Parameter          | Unit            | G / S               | RDL | 8669510    |
| Mortality 100% v/v | % mortality-96h |                     |     | 0          |
| Acute Lethality    |                 |                     |     | NO         |

**Comments:** RDL - Reported Detection Limit; G / S - Guideline / Standard  
**8669510** Refer to the annex for analysis details.  
Acute lethality: NO (mortality: 50% or less)  
Acute lethality: YES (mortality: more than 50%)

Certified By:


## Method Summary

CLIENT NAME: GOLDER ASSOCIATES LTD.

AGAT WORK ORDER: 17T253580

PROJECT: 1407634

ATTENTION TO: Dawn Hoyle

SAMPLING SITE:

SAMPLED BY:

| PARAMETER              | AGAT S.O.P     | LITERATURE REFERENCE | ANALYTICAL TECHNIQUE |
|------------------------|----------------|----------------------|----------------------|
| <b>ECOTOX Analysis</b> |                |                      |                      |
| Mortality 100% v/v     |                |                      | NA                   |
| Acute Lethality        |                |                      |                      |
| Mortality 100% v/v     | ECO-152-20000F | EPS1/RM/13           |                      |



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

**À L'ATTENTION DE: Dawn Hoyle**

**N° DE PROJET: M01634**

**N° BON DE TRAVAIL: 17M265819**

**ÉCOTOX VÉRIFIÉ PAR: Virginie Bérubé, biologiste**

**DATE DU RAPPORT: 2017-10-19**

**VERSION\*: 1**

**NOMBRE DE PAGES: 4**

Si vous désirez de l'information concernant cette analyse, S.V.P. contactez votre chargé de projets au (514) 337-1000.

\*NOTES

Nous disposerons des échantillons dans les 30 jours suivants les analyses. S.V.P. Contactez le laboratoire si vous désirez avoir un délai d'entreposage.





**AGAT** Laboratoires

## Certificat d'analyse

N° BON DE TRAVAIL: 17M265819

N° DE PROJET: M01634

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

NOM DU CLIENT: GOLDER ASSOCIATES LTD.

PRÉLEVÉ PAR:Dawn Hoyle

À L'ATTENTION DE: Dawn Hoyle

LIEU DE PRÉLÈVEMENT:BRICHIN (CO CO)

### Létalité-Daphnie (D. magna) CU-48h

DATE DE RÉCEPTION: 2017-09-29

DATE DU RAPPORT: 2017-10-19

| IDENTIFICATION DE L'ÉCHANTILLON: POND |            |       |     |         |
|---------------------------------------|------------|-------|-----|---------|
| MATRICE: Eau de surface               |            |       |     |         |
| DATE D'ÉCHANTILLONNAGE: 2017-09-28    |            |       |     |         |
| Paramètre                             | Unités     | C / N | LDR | 8767961 |
| Mortalité 100% v/v                    | % mort-48h |       |     | 0       |
| Létalité aiguë                        |            |       |     | NO      |

Commentaires: LDR - Limite de détection rapportée; C / N - Critères Normes

8767961

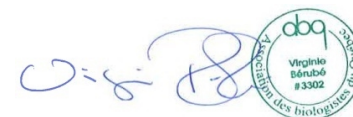
Détails de l'analyse en annexe.

Légende conclusion:

Létalité aiguë : non (50% mortalité ou moins)

Létalité aiguë : oui (plus de 50% mortalité)

Certifié par:



La procédure des Laboratoires AGAT concernant les signatures et les signataires se conforme strictement aux exigences d'accréditation ISO 17025:2005 comme le requiert, lorsque applicable, CALA, CCN et MDDELCC. Toutes les signatures sur les certificats d'AGAT sont protégées par des mots de passe et les signataires rencontrent les exigences des domaines d'accréditation ainsi que les exigences régionales approuvées par CALA, CCN et MDDELCC.



**AGAT** Laboratoires

## Certificat d'analyse

N° BON DE TRAVAIL: 17M265819

N° DE PROJET: M01634

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

NOM DU CLIENT: GOLDER ASSOCIATES LTD.

PRÉLEVÉ PAR:Dawn Hoyle

À L'ATTENTION DE: Dawn Hoyle

LIEU DE PRÉLÈVEMENT:BRICHIN (CO CO)

### Létalité-Truite arc-en-ciel (O. mykiss) CU-96h

DATE DE RÉCEPTION: 2017-09-29

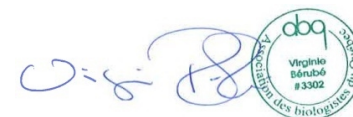
DATE DU RAPPORT: 2017-10-19

| IDENTIFICATION DE L'ÉCHANTILLON: POND |            |       |     |         |
|---------------------------------------|------------|-------|-----|---------|
| MATRICE: Eau de surface               |            |       |     |         |
| DATE D'ÉCHANTILLONNAGE: 2017-09-28    |            |       |     |         |
| Paramètre                             | Unités     | C / N | LDR | 8767961 |
| Mortalité 100% v/v                    | % mort-96h |       |     | 0       |
| Létalité aiguë                        |            |       |     | NO      |

Commentaires: LDR - Limite de détection rapportée; C / N - Critères Normes

8767961 Détails de l'analyse en annexe.  
Létalité aiguë : non (50% mortalité ou moins)  
Létalité aiguë : oui (plus de 50% mortalité)

Certifié par:



La procédure des Laboratoires AGAT concernant les signatures et les signataires se conforme strictement aux exigences d'accréditation ISO 17025:2005 comme le requiert, lorsque applicable, CALA, CCN et MDDELCC. Toutes les signatures sur les certificats d'AGAT sont protégées par des mots de passe et les signataires rencontrent les exigences des domaines d'accréditation ainsi que les exigences régionales approuvées par CALA, CCN et MDDELCC.

## Sommaire de méthode

NOM DU CLIENT: GOLDER ASSOCIATES LTD.

N° BON DE TRAVAIL: 17M265819

N° DE PROJET: M01634

À L'ATTENTION DE: Dawn Hoyle

PRÉLEVÉ PAR: Dawn Hoyle

LIEU DE PRÉLÈVEMENT: BRICHIN (CO CO)

| PARAMÈTRE             | PRÉPARÉ LE | ANALYSÉ LE | AGAT P.O.N.    | RÉFÉRENCE DE LITTÉRATURE | TECHNIQUE ANALYTIQUE |
|-----------------------|------------|------------|----------------|--------------------------|----------------------|
| <b>Analyse écotox</b> |            |            |                |                          |                      |
| Mortalité 100% v/v    |            |            |                |                          | NA                   |
| Létalité aiguë        |            |            |                |                          |                      |
| Mortalité 100% v/v    |            |            | ECO-152-20000F | SPE1/RM/13               |                      |
| Létalité aiguë        |            |            |                |                          |                      |

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

**À L'ATTENTION DE: Jamie Bonary**

**N° DE PROJET: 1407634**

**N° BON DE TRAVAIL: 17M276976**

**ÉCOTOX VÉRIFIÉ PAR: Virginie Bérubé, biologiste**

**DATE DU RAPPORT: 2017-11-13**

**VERSION\*: 1**

**NOMBRE DE PAGES: 4**

Si vous désirez de l'information concernant cette analyse, S.V.P. contactez votre chargé de projets au (514) 337-1000.

\*NOTES

Nous disposerons des échantillons dans les 30 jours suivants les analyses. S.V.P. Contactez le laboratoire si vous désirez avoir un délai d'entreposage.



**AGAT** Laboratoires

## Certificat d'analyse

N° BON DE TRAVAIL: 17M276976

N° DE PROJET: 1407634

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

NOM DU CLIENT: GOLDER ASSOCIATES LTD.

PRÉLEVÉ PAR: S. Patrica

À L'ATTENTION DE: Jamie Bonary

LIEU DE PRÉLÈVEMENT: Mc Carthy (Brechin)

### Létalité-Daphnie (D. magna) CU-48h

DATE DE RÉCEPTION: 2017-10-27

DATE DU RAPPORT: 2017-11-13

| IDENTIFICATION DE L'ÉCHANTILLON: POND |            |       |     |         |
|---------------------------------------|------------|-------|-----|---------|
| MATRICE: Eau de surface               |            |       |     |         |
| DATE D'ÉCHANTILLONNAGE: 2017-10-26    |            |       |     |         |
| Paramètre                             | Unités     | C / N | LDR | 8855278 |
| Mortalité 100% v/v                    | % mort-48h |       |     | 0       |
| Létalité aiguë                        |            |       |     | NO      |

Commentaires: LDR - Limite de détection rapportée; C / N - Critères Normes

8855278

Détails de l'analyse en annexe.

Légende conclusion:

Létalité aiguë : non (50% mortalité ou moins)

Létalité aiguë : oui (plus de 50% mortalité)

Certifié par:



La procédure des Laboratoires AGAT concernant les signatures et les signataires se conforme strictement aux exigences d'accréditation ISO 17025:2005 comme le requiert, lorsque applicable, CALA, CCN et MDDELCC. Toutes les signatures sur les certificats d'AGAT sont protégées par des mots de passe et les signataires rencontrent les exigences des domaines d'accréditation ainsi que les exigences régionales approuvées par CALA, CCN et MDDELCC.



**AGAT** Laboratoires

## Certificat d'analyse

N° BON DE TRAVAIL: 17M276976

N° DE PROJET: 1407634

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

NOM DU CLIENT: GOLDER ASSOCIATES LTD.

PRÉLEVÉ PAR: S. Patrica

À L'ATTENTION DE: Jamie Bonary

LIEU DE PRÉLÈVEMENT: Mc Carthy (Breachin)

### Létalité-Truite arc-en-ciel (O. mykiss) CU-96h

DATE DE RÉCEPTION: 2017-10-27

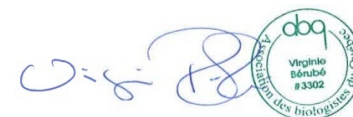
DATE DU RAPPORT: 2017-11-13

| IDENTIFICATION DE L'ÉCHANTILLON: POND |            |       |     |         |
|---------------------------------------|------------|-------|-----|---------|
| MATRICE: Eau de surface               |            |       |     |         |
| DATE D'ÉCHANTILLONNAGE: 2017-10-26    |            |       |     |         |
| Paramètre                             | Unités     | C / N | LDR | 8855278 |
| Mortalité 100% v/v                    | % mort-96h |       |     | 0       |
| Létalité aiguë                        |            |       |     | NO      |

Commentaires: LDR - Limite de détection rapportée; C / N - Critères Normes

8855278  
Détails de l'analyse en annexe.  
Létalité aiguë : non (50% mortalité ou moins)  
Létalité aiguë : oui (plus de 50% mortalité)

Certifié par:



La procédure des Laboratoires AGAT concernant les signatures et les signataires se conforme strictement aux exigences d'accréditation ISO 17025:2005 comme le requiert, lorsque applicable, CALA, CCN et MDDELCC. Toutes les signatures sur les certificats d'AGAT sont protégées par des mots de passe et les signataires rencontrent les exigences des domaines d'accréditation ainsi que les exigences régionales approuvées par CALA, CCN et MDDELCC.

## Sommaire de méthode

NOM DU CLIENT: GOLDER ASSOCIATES LTD.

N° BON DE TRAVAIL: 17M276976

N° DE PROJET: 1407634

À L'ATTENTION DE: Jamie Bonary

PRÉLEVÉ PAR: S. Patrica

LIEU DE PRÉLÈVEMENT: Mc Carthy (Brechtin)

| PARAMÈTRE             | PRÉPARÉ LE | ANALYSÉ LE | AGAT P.O.N.    | RÉFÉRENCE DE LITTÉRATURE | TECHNIQUE ANALYTIQUE |
|-----------------------|------------|------------|----------------|--------------------------|----------------------|
| <b>Analyse écotox</b> |            |            |                |                          |                      |
| Mortalité 100% v/v    |            |            |                |                          | NA                   |
| Létalité aiguë        |            |            |                |                          |                      |
| Mortalité 100% v/v    |            |            | ECO-152-20000F | SPE1/RM/13               |                      |
| Létalité aiguë        |            |            |                |                          |                      |

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| Asia          | + 86 21 6258 5522 |
| Australasia   | + 61 3 8862 3500  |
| Europe        | + 44 1628 851851  |
| North America | + 1 800 275 3281  |
| South America | + 56 2 2616 2000  |

[solutions@golder.com](mailto:solutions@golder.com)  
[www.golder.com](http://www.golder.com)

**Golder Associates Ltd.**  
**121 Commerce Park Drive, Unit L**  
**Barrie, Ontario, L4N 8X1**  
**Canada**  
**T: +1 (705) 722 4492**

