



REPORT

MCCARTHY QUARRY

2023 Environmental Compliance Approval Annual Report

Submitted to:

Chris Hyde

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Barrie District Office
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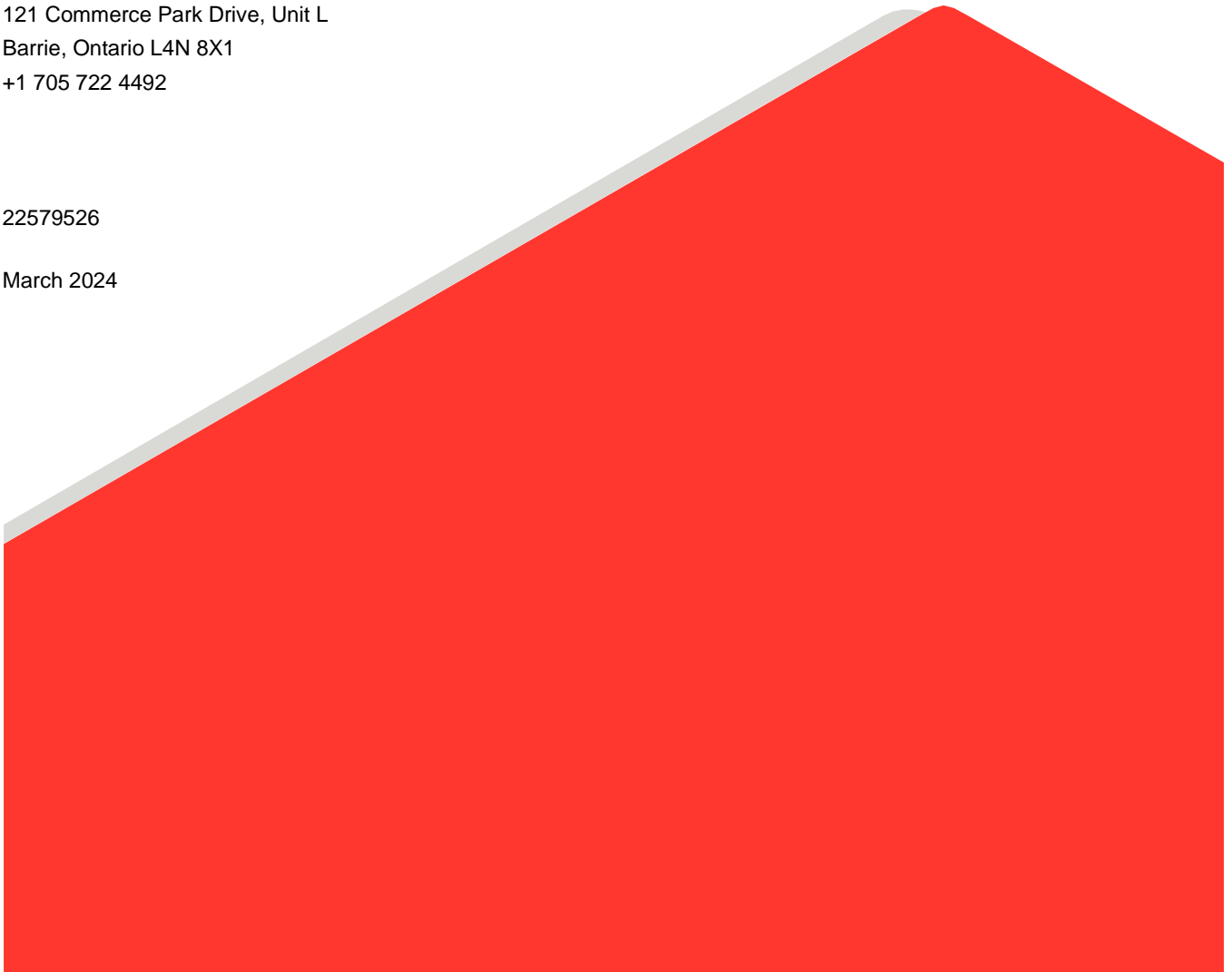
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Distribution List

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APPENDIX A

ECA No. 7737-BH6QEA

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Permit to Take Water No. 1603-BKTPQH and 5184-CQ7MQS

APPENDIX C

Water Quality Results

1.0 INTRODUCTION

WSP Canada Inc. (WSP) was retained by QBJR/Green Infrastructure Partners Inc. (Green) to prepare the annual compliance report for the McCarthy Quarry located in the Township of Ramara, County of Simcoe (Figure 1), as a requirement of Environmental Compliance Approval (ECA) No. 7737-BH6QEA issued on October 22, 2019. A copy of the ECA No. 7737-BH6QEA is provided in Appendix A.

The following report includes a summary of the requirements listed in Section 8(5) of the ECA for the period from January 1, 2023 to December 31, 2023. Included herein is a summary of:

- Interpretation of all monitoring data and a comparison to the effluent limits outlined in the ECA;
- Any operational problems encountered;
- Maintenance work completed on any part of the sewage works; and,
- Effluent discharge quality assurance or control measures undertaken.

2.0 BACKGROUND

The McCarthy Quarry dewatering system consists of the collection of groundwater and surface water at the base of the quarry floor to a settling pond to the south of the active quarry area (Figure 1). Groundwater and precipitation entering the quarry is collected in a sump in the quarry floor located in the southeast corner. The sump is equipped with a pump with a maximum discharge rate of 35 L/sec which is attached the discharge line that directs the water to a ditch that runs southward through the McCarthy property to the 14,000 m³ settling pond. On April 11, 2023, McCarthy staff replaced the pump with a rental from Sunbelt following issues with the previous pump which continues to be in use. The rental pump is rated for a maximum discharge rate of up to 1417 L/min (24L/sec) and is attached to the discharge line. The water in the settling pond discharges once the water level in the pond reaches a specific height via a Hickenbottom control structure to the roadside ditches along Concession Road 1. The water in the roadside ditch travels eastward along the north side of Concession Road 1 to a municipal drain and eventually discharges to the Talbot River, which in turn discharges to Lake Simcoe.

The dewatering activities from the McCarthy Quarry are currently carried out under the existing Permit to Take Water (PTTW) No. 1603-BKTPQH and 5184-CQ7MQS which is the updated PTTW reflecting the name change from QBJR to GIP (Appendix B). The Permit is in place from January 31, 2020 to January 31, 2025. Under the current PTTW Green is permitted to pump water from the quarry sump at a rate of 4,545 L/min.

3.0 QUARRY DISCHARGE MONITORING

3.1 Quarry discharge Monitoring Requirements

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

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

Condition 6(2) Table 2

Weekly quarry discharge monitoring is required at the McCarthy Pond for Total Suspended Solids (TSS), Oil and Grease and Phenols (4AAP). These results are summarized in Table 1 and the monthly averages are summarized in Table 2. No sample was collected for the weeks when quarry staff reported there was no or very limited discharge at the time of sampling.

The weekly quarry discharge samples (Section 6(2)) were collected by staff at the McCarthy Quarry. The weekly quality samples were sent to Bureau Veritas Laboratories of Mississauga, Ontario for analysis. Laboratory analysis results are included in Appendix C.

Condition 6(2) Table 3

Additional water quality sampling is required under Section 6(2) Table 3 at a semi-annual frequency at all three locations. The parameters required for semi-annual water quality monitoring at all three locations are listed in Table 3 of the ECA.

The semi-annual water quality samples (Section 6(2)) were collected by WSP. The semi-annual water quality samples were sent to Bureau Veritas Laboratories of Mississauga, Ontario for analysis. The laboratory analysis results are included in Appendix C.

Condition 6(4)

Section 6(4) requires measurement, recording and calculation of the discharge rate and volume from the works during the discharge period. The flow rates are recorded and provided to WSP by staff at the McCarthy Quarry. These results are summarized in Table 6.

4.0 QUARRY DISCHARGE MONITORING RESULTS

Condition 6(2) Tables 1-2

The TSS, pH, Oil and Grease and Phenols (4AAP) concentrations were all below the daily concentration limits of the ECA (Table 1).

The calculated monthly average of the TSS, Oil and Grease and Phenols (4AAP) concentrations were all below the monthly concentration limits stipulated in the ECA (Table 2).

Condition 6(2) Tables 3-5

All of the parameters tested for samples collected at the McCarthy Pond location were reported at concentrations below the Provincial Water Quality Objectives (PWQO). The results of which are provided in Table 3.

All of the parameters tested for samples collected at both the SW1 and SW2 locations were reported at concentrations below the PWQO except for Total Phosphorous and Phenols at SW1 in the Fall sample, and Total Iron in both the Spring and Fall samples. As previously discussed in the quarterly reports during these periods, the elevated levels of Total Iron found in the samples at SW1 are likely attributed to entrained sediment in the sample. While the elevated levels of Total Phosphorous and Phenols have occurred occasionally in the past sampling events potentially from the limited discharge at that location during the Fall sampling event. A Fall sample was not collected at SW2 due to dry conditions in October. A second attempt was made in November in which a sample was collected successfully. Results for SW1 and SW2 locations are provided in Tables 4 and 5, respectively.

5.0 MEASURED DISCHARGE FROM QUARRY SUMP

A continuous record of flow rates and discharge volumes has been maintained throughout this monitoring period. The pump records are provided by McCarthy Quarry staff. The pump records for January 1, 2023 to December 31, 2023 are found in Table 6. The discharge rates were below the permitted rate of 4,545 L/min (6,544,800 L/day) throughout the monitoring period. There has been no indication of erosion and/or flooding of the downstream ditches.

6.0 OPERATIONAL PROBLEMS AND CORRECTIVE ACTIONS TAKEN

Green identified on November 17, 2021 that the sump pump required replacement and a rental pump was installed on November 21, 2021. In addition, Green reported that on December 17, 2021 it was identified that the discharge line that runs from the sump to the settling pond was damaged. Green stopped pumping for the remainder of the year and replacement of the discharge line was planned for 2022.

Green finalized set-up of a new sump location in March 2022 and started utilized this new sump location for pumping in April 2022. The initial sump location was creating operational issues as Green was not able to properly dewater the southern portion of the quarry. In addition, the previous set up was very inefficient due to the length of piping required from the sump to the horse-shoe shaped settling pond. The new sump location is shown on the attached Figure 1; Green has also adjusted the discharge piping that runs from the pump to the horse-shoe shaped settling pond. No changes were made to the discharge pond. As mentioned earlier in the report, on April 11, 2023, McCarthy staff replaced the pump with a rental from Sunbelt following issues with the previous pump which continues to be in use while a permanent replacement is being investigated. The rental pump is rated for a maximum discharge rate of up to 1417 L/min (24L/sec) and is attached to the discharge line.

Green has indicated that no other operational problems were encountered with the dewatering system during the monitoring period of January to December 2023. Green also indicated that no spills occurred during the January to December 2023 monitoring period.

7.0 MAINTENANCE OF SEWAGE WORKS

Green started set up of a new sump in the southeastern corner of the sump in December 2021, and that was finished installation in March 2022. Green has also adjusted the discharge piping that runs from the pump to the horseshoe shaped settling pond.

8.0 QUARRY DISCHARGE QUALITY ASSURANCE OR CONTROL MEASURES

Green indicated that no major quarry discharge quality assurance or control measures were put in place during this monitoring period.

9.0 SUMMARY

- ECA Condition 6(2) Table 2:
 - All of the weekly quarry discharge monitoring samples from the McCarthy Pond were below the permitted daily concentration limits; and
 - All of the monthly quarry discharge concentrations for the McCarthy Pond were below the permitted monthly concentration limits.

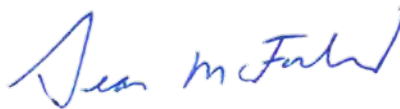
- Condition 6(2) Table 3:
 - At the McCarthy Pond, all parameters were below the PWQO.
 - At SW1, all parameters were below the PWQO, with the exception of Total Phosphorous and Phenols in the Fall sample, and Total Iron in both samples. It is to be noted that limited discharge from the McCarthy Pond was occurring at the time of the Fall sample.
 - At SW2, all parameters were below the PWQO.
- Condition 6(4):
 - A continuous record of flow rates has been maintained throughout the monitoring period and all water takings were below the permitted rate of 4,545 L/min (6,544,800 L/day).

Signature Page

WSP Canada Inc.



Colin Imrie, G.I.T.
Geo-Environmental Consultant

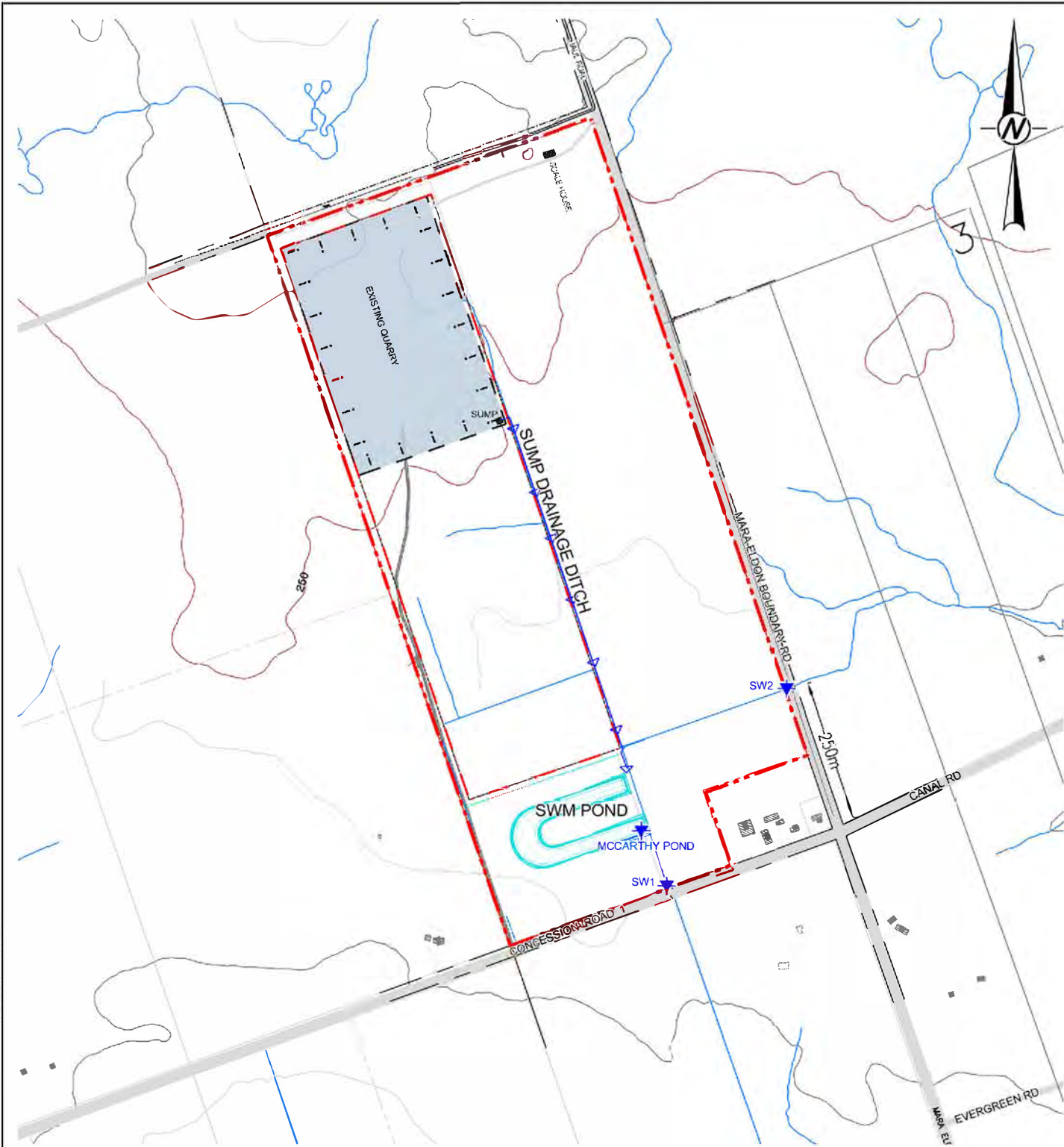


Sean McFarland, Ph.D., P.Geol.
Senior Principal/Fellow, Senior Hydrogeologist

CSI/SM/lb

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Figure



LEGEND

	Approximate Property Boundary
	Approximate Licenced Boundary
	5 m Contour Line
	ECA Surface Water Sampling Location
	Approximate Extent of Quarry

REFERENCES AND NOTES

1. Projection UTM NAD83 Zone 17
2. Mapping based on ESRI Geography Network OBM Features and Bing Orthophotos
3. ECA Location SW2 is Historically (Former) SW1b



CLIENT
GREEN INFRASTRUCTURE PARTNERS INC. / QBJR

PROJECT
STAN MCCARTHY QUARRY

TITLE
LOCATION MAP

CONSULTANT	WSP	YYYY-MM-DD	2024-03-14
PREPARED	JPR	DESIGN	
REVIEW	CI	APPROVED	

PROJECT No.	CONTROL	Rev.	FIGURE
21508089	0001	---	1

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

Tables

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

				McCarthy Quarry											
Sample ID	Unit	RDL	PWQO ¹	Daily Limit ²	Pond										
Date					16-Jan-23	01-May-23	15-May-23	26-Jun-23	30-Oct-23						
pH	pH	n/a		6.0-9.5	7.42	7.64	7.44	7.52	7.31						
Total Suspended Solids	mg/L	1		30	1	6	2	3	3						
Total Oil and Grease	mg/L	0.5	Note 3	30	0.7	<0.5	<0.5	1.4	0.8						
Phenols (4AAP)	mg/L	<0.0010		0.04	0.0011	<0.001	<0.001	<0.001	<0.001						

Notes:

1. Provincial Water Quality Objectives (PWQO); shaded cells denote PWQO exceedance; some PWQOs are dependent on other water quality parameters hence the range in guideline values, refer to PWQO notes.
2. Daily Concentration Limit; bolded values denote exceedances in the Environmental Compliance Approval daily concentration limits.
3. The PWQO for Oil and Grease indicates that oil or petrochemicals should not be present in concentrations that: can be detected as a visible film, sheen or discoloration on the surface, can be detected by odour, can cause tainting of edible organisms, can form detectable deposits on shorelines and bottom sediments.
4. Results that are preceded by "<" denote concentrations that are below the laboratory Reportable Detection Limit (RDL).

Table 2: Condition 6(2) McCarthy Pond Monthly Water Quality Results

	Unit	RDL	PWQO ¹	Monthly Concentration Limit ²												
Sample ID																
Date					January 2023	February 2023	March 2023	April 2023	May 2023	June 2023	July 2023	August 2023	September 2023	October 2023	November 2023	December 2023
Total Suspended Solids	mg/L	1		15	1.0	-	-	-	4.0	3.0	-	-	-	3	-	-
Total Oil and Grease	mg/L	0.5	Note 3	15	0.7	-	-	-	<0.50	1.4	-	-	-	0.8	-	-
Phenols (4AAP)	mg/L	<0.0010		0.02	0.001	-	-	-	<0.001	<0.001	-	-	-	<0.001	-	-

Notes:

1. Provincial Water Quality Objectives (PWQO); shaded cells denote PWQO exceedance; some PWQOs are dependent on other water quality parameters hence the range in guideline values, refer to PWQO notes.
2. Monthly Concentration Limit; bolded values denote exceedances in the Environmental Compliance Approval monthly concentration limits.
3. The PWQO for Oil and Grease indicates that oil or petrochemicals should not be present in concentrations that: can be detected as a visible film, sheen or 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 6(2) McCarthy Pond Water Quality Results

Sample ID Date	Unit	Reportable Detection Limit (RDL)	PWQO ¹	Interim PWQO ²	ECA Effluent Limits	McCarthy Quarry	
						Pond 23-May-23	Pond 28-Oct-22
Field Measured Parameters							
Conductivity	mS/cm					826	1440
pH		n/a	6.5-8.5		6.0-9.5	8.15	8.45
Temperature	°C	n/a				18.4	10
Calculated Parameters							
Hardness (CaCO3)	mg/L	1.0				320	420
Inorganics							
Total Ammonia-N	mg/L	0.050				0.078	0.3
Conductivity	umho/cm	1.0				980.00	1,700.00
Total Dissolved Solids	mg/L	10				570	940
Fluoride (F-)	mg/L	0.10				0.47	0.46
Total Kjeldahl Nitrogen (TKN)	mg/L	0.10				0.45	1.10
Dissolved Organic Carbon	mg/L	0.20				4.3	9.1
pH		N/A	6.5-8.5		6.0-9.5	8.04	7.91
Phenols-4AAP	mg/L	0.0010	0.001		0.04	<0.0010	<0.0010
Total Phosphorus	mg/L	0.002		0.03 ^{3b}		<0.004	0.022
Total Suspended Solids	mg/L	10			30	<10	<10
Dissolved Sulphate (SO4)	mg/L	1				240	280
Alkalinity (Total as CaCO3)	mg/L	1.0				100	110
Dissolved Chloride (Cl)	mg/L	1				94	290
Nitrite (N)	mg/L	0.010				0.010	<0.010
Nitrate (N)	mg/L	0.10				0.18	<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 ^{5d}		<0.09	<0.09
Dissolved Calcium (Ca)	mg/L	0.05				77	91
Total Calcium (Ca)	ug/L	200				83000	100000
Total Chromium (Cr)	ug/L	5	1-8g ^{5e}			<5.0	<5.0
Total Copper (Cu)	ug/L	1	5	1-5 ^{5f}		0.93	<0.9
Total Iron (Fe)	ug/L	100	300			130	250
Total Lead (Pb)	ug/L	0.5	5-25 ^{5g}	1-6 ^{5h}		<0.50	<0.50
Dissolved Magnesium (Mg)	mg/L	0.05				31	46
Total Magnesium (Mg)	ug/L	50				33000	51000
Total Manganese (Mn)	ug/L	2				68	34
Total Nickel (Ni)	ug/L	1	25			1.6	2.0
Dissolved Potassium (K)	mg/L	1				11.0	17.0
Total Potassium (K)	ug/L	200				12000	19000
Dissolved Sodium (Na)	mg/L	0.5				68	160
Total Sodium (Na)	ug/L	100				72000	180000
Total Zinc (Zn)	ug/L	5	30	20		<5.0	<5.0
<p>1. Provincial Water Quality Objectives (PWQO); shaded cells denote PWQO exceedance; some PWQOs are dependent on other water quality parameters hence the range in guideline values, refer to PWQO notes.</p> <p>2. Interim Provincial Water Quality Objectives (Interim PWQO); <i>shaded cells and italics denote Interim PWQO exceedance</i>; some PWQOs are dependent on other water quality parameters hence the range in guideline values, refer to PWQO notes.</p> <p>3. The PWQO for Oil and Grease indicates that oil or petrochemicals should not be present in concentrations that: can be detected as a visible film, sheen or discoloration on the surface, can be detected by odour, can cause tainting of edible organisms, can form detectable deposits on shorelines and bottom sediments.</p> <p>4. Results that are preceded by * < " denote concentrations that are below the laboratory Reportable Detection Limit (RDL).</p>							
<p>5a. <i>Aluminum (Interim):</i></p> <p>- At pH 4.5 to 5.5 the Interim PWQO is 15 ug/L based on inorganic monomeric aluminum measured in clay-free samples.</p> <p>- At pH >5.5 to 6.5, no condition should be permitted which would increase the acid soluble inorganic aluminum concentration in clay-free samples to more than 10% above natural background concentrations for waters representative of that geological area of the Province that are unaffected by man-made inputs.</p> <p>- At pH >6.5 to 9.0, the Interim PWQO is 75 ug/L based on total aluminum measured in clay-free samples.</p> <p>- If natural background aluminum concentrations in water bodies unaffected by manmade inputs are greater than the numerical Interim PWQO (above), no condition is permitted that would increase the aluminum concentration in clay-free samples by more than 10% of the natural background level.</p>							
<p>5b. <i>Phosphorus (Interim):</i></p> <p>- Current scientific evidence is insufficient to develop a firm Objective at this time.</p> <p>- Accordingly, the following phosphorus concentrations should be considered as general guidelines which should be supplemented by site-specific studies:</p> <p>(a) To avoid nuisance concentrations of algae in lakes, average total phosphorus concentrations for the ice-free period should not exceed 20 ug/L;</p> <p>(b) A high level of protection against aesthetic deterioration will be provided by a total phosphorus concentration for the ice-free period of 10 ug/L or less. This should apply to all lakes naturally below this value;</p> <p>(c) Excessive plant growth in rivers and streams should be eliminated at a total phosphorus concentration below 30 ug/L.</p>							
<p>5c. <i>Beryllium:</i> If Hardness <75 mg/L (CaCO3), use 11 ug/L If Hardness >75 mg/L (CaCO3), use 1100 ug/L</p>							
<p>5d. <i>Cadmium (Interim):</i> If Hardness 0-100 mg/L (CaCO3), then use 0.1 ug/L If Hardness >100 mg/L (CaCO3), then use 0.5 ug/L</p>							
<p>5e. <i>Chromium:</i> 1 ug/L for hexavalent chromium (Cr VI) 8.9 ug/L for trivalent chromium (Cr III)</p>							
<p>5f. <i>Copper (Interim):</i> If Hardness as CaCO3 (mg/L) is 0 - 20, then use 1 ug/L If Hardness as CaCO3 (mg/L) is >20, then use 5 ug/L</p>							
<p>5g. <i>Lead:</i> If Alkalinity as CaCO3 (mg/L) is < 20, use 5 ug/L If Alkalinity as CaCO3 (mg/L) is 20 to 40, use 10 ug/L If Alkalinity as CaCO3 (mg/L) is 40 to 80, use 20 ug/L If Alkalinity as CaCO3 (mg/L) is > 80, use 25 ug/L</p>							
<p>5h. <i>Lead (Interim):</i> If Hardness as CaCO3 (mg/L) is < 30, then use 1 ug/L If Hardness as CaCO3 (mg/L) is 30 to 80, then use 3 ug/L If Hardness as CaCO3 (mg/L) is > 80, then use 5 ug/L</p>							

Table 4: Condition 6(2) SW1 Water Quality Results

Sample ID Date	Unit	Reportable Detection Limit (RDL)	PWQO ¹	Interim PWQO ²	ECA Effluent Limits	McCarthy Quarry	
						SW1 23-May-23	SW1 16-Oct-23
Field Measured Parameters							
Conductivity	mS/cm					400	1717
pH	pH	n/a	6.5-8.5		6.0-9.5	7.96	8.09
Temperature	°C	n/a				17.0	9.9
Calculated Parameters							
Anion Sum	me/L	N/A				9.88	18.3
Cation Sum	me/L	N/A				9.82	18.9
Hardness (CaCO3)	mg/L	1.0				390	550
Inorganics							
Total Ammonia-N	mg/L	0.050				0.055	0.38
Conductivity	umho/cm	1.0				930.000	1,900.000
Total Dissolved Solids	mg/L	10				540	1060.0
Fluoride (F-)	mg/L	0.10				0.24	0.45
Total Kjeldahl Nitrogen (TKN)	mg/L	0.10				0.57	1.10
Dissolved Organic Carbon	mg/L	0.20				9.5	7.5
pH	pH	N/A	6.5-8.5		6.0-9.5	8.05	7.80
Phenols-4AAP	mg/L	0.0010	0.001		0.04	<0.0010	0.0011
Total Phosphorus	mg/L	0.002		0.03 ^{5b}		0.015	0.042
Total Suspended Solids	mg/L	10			30	16	15
Dissolved Sulphate (SO4)	mg/L	1				150	290
Alkalinity (Total as CaCO3)	mg/L	1.0				250	180
Dissolved Chloride (Cl)	mg/L	1				65	310
Nitrite (N)	mg/L	0.010				<0.010	0.018
Nitrate (N)	mg/L	0.10				<1.0	0.23
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 ^{5d}		<0.09	<0.09
Dissolved Calcium (Ca)	mg/L	0.05				120	140
Total Calcium (Ca)	ug/L	200				140000	140000
Total Chromium (Cr)	ug/L	5	1-89 ^{5e}			<5.0	<5.0
Total Copper (Cu)	ug/L	1	5	1-5 ^{5f}		0.9	0.97
Total Iron (Fe)	ug/L	100	300			390	620
Total Lead (Pb)	ug/L	0.5	5-25 ^{5g}	1-5 ^{5h}		<0.50	<0.50
Dissolved Magnesium (Mg)	mg/L	0.05				21	51
Total Magnesium (Mg)	ug/L	50				23000	51000
Total Manganese (Mn)	ug/L	2				69	66
Total Nickel (Ni)	ug/L	1	25			1.9	2.2
Dissolved Potassium (K)	mg/L	1				6.0	16.0
Total Potassium (K)	ug/L	200				5700	16000
Dissolved Sodium (Na)	mg/L	0.5				43	170
Total Sodium (Na)	ug/L	100				43000	170000
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): - Current scientific evidence is insufficient to develop a firm Objective at this time.		
2. Interim Provincial Water Quality Objectives (Interim PWQO); shaded cells and italics denote Interim PWQO exceedance; some PWQOs are dependent on other water quality parameters hence the range in guideline values, refer to PWQO notes.					- Accordingly, the following phosphorus concentrations should be considered as general guidelines which should be supplemented by site-specific studies:		
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.					(a) To avoid nuisance concentrations of algae in lakes, average total phosphorus concentrations for the ice-free period should not exceed 20 ug/L; (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; (c) Excessive plant growth in rivers and streams should be eliminated at a total phosphorus concentration below 30 ug/L.		
4. Results that are preceded by "<" denote concentrations that are below the laboratory Reportable Detection Limit (RDL).							
<i>5a. Aluminum (Interim):</i>							
- At pH 4.5 to 5.5 the Interim PWQO is 15 ug/L based on inorganic monomeric aluminum measured in clay-free samples.					5c. Beryllium: If Hardness <75 mg/L (CaCO3), use 11 ug/L If Hardness >75 mg/L (CaCO3), use 1100 ug/L		
- 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.					5d. Cadmium (Interim): If Hardness 0-100 mg/L (CaCO3), then use 0.1 ug/L If Hardness >100 mg/L (CaCO3), then use 0.5 ug/L		
- At pH >6.5 to 9.0, the Interim PWQO is 75 ug/L based on total aluminum measured in clay-free samples.					5e. Chromium: 1 ug/L for hexavalent chromium (Cr VI) 8.9 ug/L for trivalent chromium (Cr III)		
- 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.					5f. Copper (Interim): If Hardness as CaCO3 (mg/L) is 0 - 20, then use 1 ug/L If Hardness as CaCO3 (mg/L) is >20, then use 5 ug/L		
					5g. Lead: If Alkalinity as CaCO3 (mg/L) is < 20, use 5 ug/L If Alkalinity as CaCO3 (mg/L) is 20 to 40, use 10 ug/L If Alkalinity as CaCO3 (mg/L) is 40 to 80, use 20 ug/L If Alkalinity as CaCO3 (mg/L) is > 80, use 25 ug/L		
					5h. Lead (Interim): If Hardness as CaCO3 (mg/L) is < 30, then use 1 ug/L If Hardness as CaCO3 (mg/L) is 30 to 80, then use 3 ug/L If Hardness as CaCO3 (mg/L) is > 80, then use 5 ug/L		

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

Sample ID Date	Unit	Reportable Detection Limit (RDL)	PWQO ¹	Interim PWQO ²	ECA Effluent Limits	McCarthy Quarry	
						SW2 23-May-23	SW2 27-Nov-23
Field Measured Parameters							
Conductivity	mS/cm					540	922
pH	pH	n/a	6.5-8.5		6.0-9.5	7.65	7.22
Temperature	°C	n/a				19.2	3.40
Calculated Parameters							
Anion Sum	me/L	N/A				7.82	9.8
Cation Sum	me/L	N/A				7.98	11.1
Hardness (CaCO3)	mg/L	1.0				370	510.0
Inorganics							
Total Ammonia-N	mg/L	0.050				<0.050	<0.050
Conductivity	umho/cm	1.0				690.000	940.0
Total Dissolved Solids	mg/L	10				335	595.0
Fluoride (F-)	mg/L	0.10				<0.10	<0.10
Total Kjeldahl Nitrogen (TKN)	mg/L	0.10				0.26	0.34
Dissolved Organic Carbon	mg/L	0.20				6.5	4.8
pH	pH	N/A	6.5-8.5		6.0-9.5	8.07	7.76
Phenols-4AAP	mg/L	0.0010	0.001		0.04	<0.0010	<0.0010
Total Phosphorus	mg/L	0.002		0.03 ^{5b}		0.008	0.011
Total Suspended Solids	mg/L	10			30	<10	<10
Dissolved Sulphate (SO4)	mg/L	1				320	160.0
Alkalinity (Total as CaCO3)	mg/L	1.0				320	270.0
Dissolved Chloride (Cl)	mg/L	1				18	34.0
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	1.6
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 ^{5d}		<0.09	<0.090
Dissolved Calcium (Ca)	mg/L	0.05				120	170.0
Total Calcium (Ca)	ug/L	200				120000	150000.0
Total Chromium (Cr)	ug/L	5	1-8 ^{5e}			<5.0	<5.0
Total Copper (Cu)	ug/L	1	5	1-5 ^{5f}		<0.9	1.8
Total Iron (Fe)	ug/L	100	300			100	140.0
Total Lead (Pb)	ug/L	0.5	5-25 ^{5g}	1-5 ^{5h}		<0.50	<0.50
Dissolved Magnesium (Mg)	mg/L	0.05				16.0	21.0
Total Magnesium (Mg)	ug/L	50				11000	19000.0
Total Manganese (Mn)	ug/L	2				17	17.0
Total Nickel (Ni)	ug/L	1	25			<1.0	<1.0
Dissolved Potassium (K)	mg/L	1				1.0	2.0
Total Potassium (K)	ug/L	200				1100	1700.0
Dissolved Sodium (Na)	mg/L	0.5				12.0	19.0
Total Sodium (Na)	ug/L	100				5500	16000.0
Total Zinc (Zn)	ug/L	5	30	20		<5.0	6.1
<p>1. Provincial Water Quality Objectives (PWQO); shaded cells denote PWQO exceedance; some PWQOs are dependent on other water quality parameters hence the range in guideline values, refer to PWQO notes.</p> <p>2. Interim Provincial Water Quality Objectives (Interim PWQO); <i>shaded cells and italics denote Interim PWQO exceedance</i>; some PWQOs are dependent on other water quality parameters hence the range in guideline values, refer to PWQO notes.</p> <p>3. The PWQO for Oil and Grease indicates that oil or petrochemicals should not be present in concentrations that: can be detected as a visible film, sheen or discoloration on the surface, can be detected by odour, can cause tainting of edible organisms, can form detectable deposits on shorelines and bottom sediments.</p> <p>4. Results that are preceded by * < denote concentrations that are below the laboratory Reportable Detection Limit (RDL).</p>							
<p><i>5a. Aluminum (Interim):</i></p> <p>- At pH 4.5 to 5.5 the Interim PWQO is 15 ug/L based on inorganic monomeric aluminum measured in clay-free samples.</p> <p>- At pH >5.5 to 6.5, no condition should be permitted which would increase the acid soluble inorganic aluminum concentration in clay-free samples to more than 10% above natural background concentrations for waters representative of that geological area of the Province that are unaffected by man-made inputs.</p> <p>- At pH >6.5 to 9.0, the Interim PWQO is 75 ug/L based on total aluminum measured in clay-free samples.</p> <p>- If natural background aluminum concentrations in water bodies unaffected by manmade inputs are greater than the numerical Interim PWQO (above), no condition is permitted that would increase the aluminum concentration in clay-free samples by more than 10% of the natural background level.</p>							
						<p><i>5b. Phosphorus (Interim):</i></p> <p>- Current scientific evidence is insufficient to develop a firm Objective at this time.</p> <p>- Accordingly, the following phosphorus concentrations should be considered as general guidelines which should be supplemented by site-specific studies:</p> <p>(a) To avoid nuisance concentrations of algae in lakes, average total phosphorus concentrations for the ice-free period should not exceed 20 ug/L;</p> <p>(b) A high level of protection against aesthetic deterioration will be provided by a total phosphorus concentration for the ice-free period of 10 ug/L or less. This should apply to all lakes naturally below this value;</p> <p>(c) Excessive plant growth in rivers and streams should be eliminated at a total phosphorus concentration below 30 ug/L.</p>	
						<p><i>5c. Beryllium:</i> If Hardness <75 mg/L (CaCO3), use 11 ug/L If Hardness >75 mg/L (CaCO3), use 1100 ug/L</p>	
						<p><i>5d. Cadmium (Interim):</i> If Hardness 0-100 mg/L (CaCO3), then use 0.1 ug/L If Hardness >100 mg/L (CaCO3), then use 0.5 ug/L</p>	
						<p><i>5e. Chromium:</i> 1 ug/L for hexavalent chromium (Cr VI) 8.9 ug/L for trivalent chromium (Cr III)</p>	
						<p><i>5f. Copper (Interim):</i> If Hardness as CaCO3 (mg/L) is 0 - 20, then use 1 ug/L If Hardness as CaCO3 (mg/L) is >20, then use 5 ug/L</p>	
						<p><i>5g. Lead:</i> If Alkalinity as CaCO3 (mg/L) is < 20, use 5 ug/L If Alkalinity as CaCO3 (mg/L) is 20 to 40, use 10 ug/L If Alkalinity as CaCO3 (mg/L) is 40 to 80, use 20 ug/L If Alkalinity as CaCO3 (mg/L) is > 80, use 25 ug/L</p>	
						<p><i>5h. Lead (Interim):</i> If Hardness as CaCO3 (mg/L) is < 30, then use 1 ug/L If Hardness as CaCO3 (mg/L) is 30 to 80, then use 3 ug/L If Hardness as CaCO3 (mg/L) is > 80, then use 5 ug/L</p>	

Table 6: Measured Water Volume and Rate of Discharge from Quarry Sump

Date	Start	Stop	Total Sec.	Total Min.	Total Litres	Rate of Taking (L/sec)	Rate of Taking (L/min)
ECA Permitted Rate					6,544,800	76	4,545
1-Jan-23	NO PUMP		0	0	-	-	-
2-Jan-23	NO PUMP		0	0	-	-	-
3-Jan-23	NO PUMP		0	0	-	-	-
4-Jan-23	NO PUMP		0	0	-	-	-
5-Jan-23	NO PUMP		0	0	-	-	-
6-Jan-23	NO PUMP		0	0	-	-	-
7-Jan-23	NO PUMP		0	0	-	-	-
8-Jan-23	NO PUMP		0	0	-	-	-
9-Jan-23	NO PUMP		0	0	-	-	-
10-Jan-23	NO PUMP		0	0	-	-	-
11-Jan-23	NO PUMP		0	0	-	-	-
12-Jan-23	NO PUMP		0	0	-	-	-
13-Jan-23	NO PUMP		0	0	-	-	-
14-Jan-23	NO PUMP		0	0	-	-	-
15-Jan-23	NO PUMP		0	0	-	-	-
16-Jan-23	NO PUMP		0	0	-	-	-
17-Jan-23	NO PUMP		0	0	-	-	-
18-Jan-23	NO PUMP		0	0	-	-	-
19-Jan-23	NO PUMP		0	0	-	-	-
20-Jan-23	NO PUMP		0	0	-	-	-
21-Jan-23	NO PUMP		0	0	-	-	-
22-Jan-23	NO PUMP		0	0	-	-	-
23-Jan-23	NO PUMP		0	0	-	-	-
24-Jan-23	NO PUMP		0	0	-	-	-
25-Jan-23	NO PUMP		0	0	-	-	-
26-Jan-23	NO PUMP		0	0	-	-	-
27-Jan-23	NO PUMP		0	0	-	-	-
28-Jan-23	NO PUMP		0	0	-	-	-
29-Jan-23	NO PUMP		0	0	-	-	-
30-Jan-23	NO PUMP		0	0	-	-	-
31-Jan-23	NO PUMP		0	0	-	-	-
1-Feb-23	NO PUMP		0	0	-	-	-
2-Feb-23	NO PUMP		0	0	-	-	-
3-Feb-23	NO PUMP		0	0	-	-	-
4-Feb-23	NO PUMP		0	0	-	-	-
5-Feb-23	NO PUMP		0	0	-	-	-
6-Feb-23	NO PUMP		0	0	-	-	-
7-Feb-23	NO PUMP		0	0	-	-	-
8-Feb-23	NO PUMP		0	0	-	-	-
9-Feb-23	NO PUMP		0	0	-	-	-
10-Feb-23	NO PUMP		0	0	-	-	-
11-Feb-23	NO PUMP		0	0	-	-	-
12-Feb-23	NO PUMP		0	0	-	-	-

Table 6: Measured Water Volume and Rate of Discharge from Quarry Sump

Date	Start	Stop	Total Sec.	Total Min.	Total Litres	Rate of Taking (L/sec)	Rate of Taking (L/min)
ECA Permitted Rate					6,544,800	76	4,545
13-Feb-23	NO PUMP		0	0	-	-	-
14-Feb-23	NO PUMP		0	0	-	-	-
15-Feb-23	NO PUMP		0	0	-	-	-
16-Feb-23	NO PUMP		0	0	-	-	-
17-Feb-23	NO PUMP		0	0	-	-	-
18-Feb-23	NO PUMP		0	0	-	-	-
19-Feb-23	NO PUMP		0	0	-	-	-
20-Feb-23	NO PUMP		0	0	-	-	-
21-Feb-23	NO PUMP		0	0	-	-	-
22-Feb-23	NO PUMP		0	0	-	-	-
23-Feb-23	NO PUMP		0	0	-	-	-
24-Feb-23	NO PUMP		0	0	-	-	-
25-Feb-23	NO PUMP		0	0	-	-	-
26-Feb-23	NO PUMP		0	0	-	-	-
27-Feb-23	NO PUMP		0	0	-	-	-
28-Feb-23	NO PUMP		0	0	-	-	-
1-Mar-23	NO PUMP		0	0	-	-	-
2-Mar-23	NO PUMP		0	0	-	-	-
3-Mar-23	NO PUMP		0	0	-	-	-
4-Mar-23	NO PUMP		0	0	-	-	-
5-Mar-23	NO PUMP		0	0	-	-	-
6-Mar-23	NO PUMP		0	0	-	-	-
7-Mar-23	NO PUMP		0	0	-	-	-
8-Mar-23	NO PUMP		0	0	-	-	-
9-Mar-23	NO PUMP		0	0	-	-	-
10-Mar-23	NO PUMP		0	0	-	-	-
11-Mar-23	NO PUMP		0	0	-	-	-
12-Mar-23	NO PUMP		0	0	-	-	-
13-Mar-23	NO PUMP		0	0	-	-	-
14-Mar-23	NO PUMP		0	0	-	-	-
15-Mar-23	NO PUMP		0	0	-	-	-
16-Mar-23	NO PUMP		0	0	-	-	-
17-Mar-23	NO PUMP		0	0	-	-	-
18-Mar-23	NO PUMP		0	0	-	-	-
19-Mar-23	NO PUMP		0	0	-	-	-
20-Mar-23	NO PUMP		0	0	-	-	-
21-Mar-23	NO PUMP		0	0	-	-	-
22-Mar-23	NO PUMP		0	0	-	-	-
23-Mar-23	NO PUMP		0	0	-	-	-
24-Mar-23	7:00	5:00	36000	600	720,000	20	1,200
25-Mar-23	NO PUMP		0	0	-	-	-
26-Mar-23	NO PUMP		0	0	-	-	-
27-Mar-23	7:00	5:00	36000	600	720,000	20	1,200

Table 6: Measured Water Volume and Rate of Discharge from Quarry Sump

Date	Start	Stop	Total Sec.	Total Min.	Total Litres	Rate of Taking (L/sec)	Rate of Taking (L/min)
ECA Permitted Rate					6,544,800	76	4,545
28-Mar-23	7:00	5:00	36000	600	720,000	20	1,200
29-Mar-23	7:00	5:00	36000	600	720,000	20	1,200
30-Mar-23	7:00	5:00	36000	600	720,000	20	1,200
31-Mar-23	7:00	5:00	36000	600	720,000	20	1,200
1-Apr-23	NO PUMP		0	0	-	-	-
2-Apr-23	NO PUMP		0	0	-	-	-
3-Apr-23	7:00	5:00	36000	600	720,000	20	1,200
4-Apr-23	7:00	5:00	36000	600	720,000	20	1,200
5-Apr-23	7:00	5:00	36000	600	720,000	20	1,200
6-Apr-23	7:00	5:00	36000	600	720,000	20	1,200
7-Apr-23	7:00	5:00	36000	600	720,000	20	1,200
8-Apr-23	NO PUMP		0	0	-	-	-
9-Apr-23	NO PUMP		0	0	-	-	-
10-Apr-23	7:00	5:00	36000	600	720,000	20	1,200
11-Apr-23	7:00	5:00	36000	600	850,200	24	1,417
12-Apr-23	NO PUMP		0	0	-	-	-
13-Apr-23	7:00	5:00	36000	600	850,200	24	1,417
14-Apr-23	7:00	5:00	36000	600	850,200	24	1,417
15-Apr-23	NO PUMP		0	0	-	-	-
16-Apr-23	NO PUMP		0	0	-	-	-
17-Apr-23	7:00	5:00	36000	600	850,200	24	1,417
18-Apr-23	NO PUMP		0	0	-	-	-
19-Apr-23	7:00	5:00	36000	600	850,200	24	1,417
20-Apr-23	7:00	5:00	36000	600	850,200	24	1,417
21-Apr-23	7:00	5:00	36000	600	850,200	24	1,417
22-Apr-23	NO PUMP		0	0	-	-	-
23-Apr-23	NO PUMP		0	0	-	-	-
24-Apr-23	7:00	5:00	36000	600	850,200	24	1,417
25-Apr-23	NO PUMP		0	0	-	-	-
26-Apr-23	NO PUMP		0	0	-	-	-
27-Apr-23	7:00	5:00	36000	600	850,200	24	1,417
28-Apr-23	7:00	5:00	36000	600	850,200	24	1,417
29-Apr-23	NO PUMP		0	0	-	-	-
30-Apr-23	NO PUMP		0	0	-	-	-
1-May-23	NO PUMP		0	0	-	-	-
2-May-23	NO PUMP		0	0	-	-	-
3-May-23	7:00	5:00	36000	600	850,200	24	1,417
4-May-23	7:00	5:00	36000	600	850,200	24	1,417
5-May-23	7:00	5:00	36000	600	850,200	24	1,417
6-May-23	NO PUMP		0	0	-	-	-
7-May-23	NO PUMP		0	0	-	-	-
8-May-23	NO PUMP		0	0	-	-	-
9-May-23	NO PUMP		0	0	-	-	-

Table 6: Measured Water Volume and Rate of Discharge from Quarry Sump

Date	Start	Stop	Total Sec.	Total Min.	Total Litres	Rate of Taking (L/sec)	Rate of Taking (L/min)
ECA Permitted Rate					6,544,800	76	4,545
10-May-23	NO PUMP		0	0	-	-	-
11-May-23	NO PUMP		0	0	-	-	-
12-May-23	7:00	5:00	36000	600	850,200	24	1,417
13-May-23	NO PUMP		0	0	-	-	-
14-May-23	NO PUMP		0	0	-	-	-
15-May-23	NO PUMP		0	0	-	-	-
16-May-23	NO PUMP		0	0	-	-	-
17-May-23	7:00	5:00	36000	600	850,200	24	1,417
18-May-23	NO PUMP		0	0	-	-	-
19-May-23	7:00	5:00	36000	600	850,200	24	1,417
20-May-23	NO PUMP		0	0	-	-	-
21-May-23	NO PUMP		0	0	-	-	-
22-May-23	7:00	5:00	36000	600	850,200	24	1,417
23-May-23	7:00	5:00	36000	600	850,200	24	1,417
24-May-23	NO PUMP		0	0	-	-	-
25-May-23	NO PUMP		0	0	-	-	-
26-May-23	NO PUMP		0	0	-	-	-
27-May-23	NO PUMP		0	0	-	-	-
28-May-23	NO PUMP		0	0	-	-	-
29-May-23	NO PUMP		0	0	-	-	-
30-May-23	NO PUMP		0	0	-	-	-
31-May-23	NO PUMP		0	0	-	-	-
1-Jun-23	NO PUMP		0	0	-	-	-
2-Jun-23	NO PUMP		0	0	-	-	-
3-Jun-23	NO PUMP		0	0	-	-	-
4-Jun-23	NO PUMP		0	0	-	-	-
5-Jun-23	NO PUMP		0	0	-	-	-
6-Jun-23	NO PUMP		0	0	-	-	-
7-Jun-23	7:00	5:00	36000	600	850,200	24	1,417
8-Jun-23	7:00	5:00	36000	600	850,200	24	1,417
9-Jun-23	NO PUMP		0	0	-	-	-
10-Jun-23	NO PUMP		0	0	-	-	-
11-Jun-23	NO PUMP		0	0	-	-	-
12-Jun-23	7:00	5:00	36000	600	850,200	24	1,417
13-Jun-23	7:00	5:00	36000	600	850,200	24	1,417
14-Jun-23	NO PUMP		0	0	-	-	-
15-Jun-23	NO PUMP		0	0	-	-	-
16-Jun-23	NO PUMP		0	0	-	-	-
17-Jun-23	NO PUMP		0	0	-	-	-

Table 6: Measured Water Volume and Rate of Discharge from Quarry Sump

Date	Start	Stop	Total Sec.	Total Min.	Total Litres	Rate of Taking (L/sec)	Rate of Taking (L/min)
ECA Permitted Rate					6,544,800	76	4,545
18-Jun-23	NO PUMP		0	0	-	-	-
19-Jun-23	7:00	5:00	36000	600	850,200	24	1,417
20-Jun-23	NO PUMP		0	0	-	-	-
21-Jun-23	NO PUMP		0	0	-	-	-
22-Jun-23	NO PUMP		0	0	-	-	-
23-Jun-23	NO PUMP		0	0	-	-	-
24-Jun-23	NO PUMP		0	0	-	-	-
25-Jun-23	NO PUMP		0	0	-	-	-
26-Jun-23	7:00	5:00	36000	600	850,200	24	1,417
27-Jun-23	NO PUMP		0	0	-	-	-
28-Jun-23	NO PUMP		0	0	-	-	-
29-Jun-23	NO PUMP		0	0	-	-	-
30-Jun-23	NO PUMP		0	0	-	-	-
1-Jul-23	NO PUMP		0	0	-	-	-
2-Jul-23	NO PUMP		0	0	-	-	-
3-Jul-23	7:00	5:00	36000	600	850,200	24	1,417
4-Jul-23	7:00	5:00	36000	600	850,200	24	1,417
5-Jul-23	NO PUMP		0	0	-	-	-
6-Jul-23	NO PUMP		0	0	-	-	-
7-Jul-23	NO PUMP		0	0	-	-	-
8-Jul-23	NO PUMP		0	0	-	-	-
9-Jul-23	NO PUMP		0	0	-	-	-
10-Jul-23	NO PUMP		0	0	-	-	-
11-Jul-23	NO PUMP		0	0	-	-	-
12-Jul-23	NO PUMP		0	0	-	-	-
13-Jul-23	NO PUMP		0	0	-	-	-
14-Jul-23	NO PUMP		0	0	-	-	-
15-Jul-23	NO PUMP		0	0	-	-	-
16-Jul-23	NO PUMP		0	0	-	-	-
17-Jul-23	7:00	5:00	36000	600	850,200	24	1,417
18-Jul-23	NO PUMP		0	0	-	-	-
19-Jul-23	NO PUMP		0	0	-	-	-
20-Jul-23	NO PUMP		0	0	-	-	-
21-Jul-23	NO PUMP		0	0	-	-	-
22-Jul-23	NO PUMP		0	0	-	-	-
23-Jul-23	NO PUMP		0	0	-	-	-
24-Jul-23	NO PUMP		0	0	-	-	-
25-Jul-23	NO PUMP		0	0	-	-	-
26-Jul-23	NO PUMP		0	0	-	-	-
27-Jul-23	NO PUMP		0	0	-	-	-
28-Jul-23	7:00	2:00	25200	420	595,140	24	1,417
29-Jul-23	NO PUMP		0	0	-	-	-
30-Jul-23	NO PUMP		0	0	-	-	-

Table 6: Measured Water Volume and Rate of Discharge from Quarry Sump

Date	Start	Stop	Total Sec.	Total Min.	Total Litres	Rate of Taking (L/sec)	Rate of Taking (L/min)
ECA Permitted Rate					6,544,800	76	4,545
31-Jul-23	NO PUMP		0	0	-	-	-
1-Aug-23	NO PUMP		0	0	-	-	-
2-Aug-23	NO PUMP		0	0	-	-	-
3-Aug-23	NO PUMP		0	0	-	-	-
4-Aug-23	7:00	12:00	18000	300	425,100	24	1,417
5-Aug-23	NO PUMP		0	0	-	-	-
6-Aug-23	NO PUMP		0	0	-	-	-
7-Aug-23	NO PUMP		0	0	-	-	-
8-Aug-23	NO PUMP		0	0	-	-	-
9-Aug-23	NO PUMP		0	0	-	-	-
10-Aug-23	NO PUMP		0	0	-	-	-
11-Aug-23	NO PUMP		0	0	-	-	-
12-Aug-23	NO PUMP		0	0	-	-	-
13-Aug-23	NO PUMP		0	0	-	-	-
14-Aug-23	NO PUMP		0	0	-	-	-
15-Aug-23	NO PUMP		0	0	-	-	-
16-Aug-23	NO PUMP		0	0	-	-	-
17-Aug-23	NO PUMP		0	0	-	-	-
18-Aug-23	NO PUMP		0	0	-	-	-
19-Aug-23	NO PUMP		0	0	-	-	-
20-Aug-23	NO PUMP		0	0	-	-	-
21-Aug-23	NO PUMP		0	0	-	-	-
22-Aug-23	NO PUMP		0	0	-	-	-
23-Aug-23	NO PUMP		0	0	-	-	-
24-Aug-23	NO PUMP		0	0	-	-	-
25-Aug-23	NO PUMP		0	0	-	-	-
26-Aug-23	NO PUMP		0	0	-	-	-
27-Aug-23	NO PUMP		0	0	-	-	-
28-Aug-23	NO PUMP		0	0	-	-	-
29-Aug-23	NO PUMP		0	0	-	-	-
30-Aug-23	NO PUMP		0	0	-	-	-
31-Aug-23	NO PUMP		0	0	-	-	-
1-Sep-23	NO PUMP		0	0	-	-	-
2-Sep-23	NO PUMP		0	0	-	-	-
3-Sep-23	NO PUMP		0	0	-	-	-
4-Sep-23	NO PUMP		0	0	-	-	-
5-Sep-23	NO PUMP		0	0	-	-	-
6-Sep-23	NO PUMP		0	0	-	-	-
7-Sep-23	NO PUMP		0	0	-	-	-
8-Sep-23	NO PUMP		0	0	-	-	-
9-Sep-23	NO PUMP		0	0	-	-	-
10-Sep-23	NO PUMP		0	0	-	-	-
11-Sep-23	7:00	11:00	14400	240	340,080	24	1,417

Table 6: Measured Water Volume and Rate of Discharge from Quarry Sump

Date	Start	Stop	Total Sec.	Total Min.	Total Litres	Rate of Taking (L/sec)	Rate of Taking (L/min)
ECA Permitted Rate					6,544,800	76	4,545
12-Sep-23	NO PUMP		0	0	-	-	-
13-Sep-23	NO PUMP		0	0	-	-	-
14-Sep-23	NO PUMP		0	0	-	-	-
15-Sep-23	NO PUMP		0	0	-	-	-
16-Sep-23	NO PUMP		0	0	-	-	-
17-Sep-23	NO PUMP		0	0	-	-	-
18-Sep-23	NO PUMP		0	0	-	-	-
19-Sep-23	NO PUMP		0	0	-	-	-
20-Sep-23	NO PUMP		0	0	-	-	-
21-Sep-23	NO PUMP		0	0	-	-	-
22-Sep-23	NO PUMP		0	0	-	-	-
23-Sep-23	NO PUMP		0	0	-	-	-
24-Sep-23	NO PUMP		0	0	-	-	-
25-Sep-23	7:00	9:00	7200	120	170,040	24	1,417
26-Sep-23	NO PUMP		0	0	-	-	-
27-Sep-23	NO PUMP		0	0	-	-	-
28-Sep-23	NO PUMP		0	0	-	-	-
29-Sep-23	NO PUMP		0	0	-	-	-
30-Sep-23	NO PUMP		0	0	-	-	-
1-Oct-23	NO PUMP		0	0	-	-	-
2-Oct-23	NO PUMP		0	0	-	-	-
3-Oct-23	NO PUMP		0	0	-	-	-
4-Oct-23	NO PUMP		0	0	-	-	-
5-Oct-23	NO PUMP		0	0	-	-	-
6-Oct-23	NO PUMP		0	0	-	-	-
7-Oct-23	NO PUMP		0	0	-	-	-
8-Oct-23	NO PUMP		0	0	-	-	-
9-Oct-23	NO PUMP		0	0	-	-	-
10-Oct-23	NO PUMP		0	0	-	-	-
11-Oct-23	NO PUMP		0	0	-	-	-
12-Oct-23	NO PUMP		0	0	-	-	-
13-Oct-23	NO PUMP		0	0	-	-	-
14-Oct-23	NO PUMP		0	0	-	-	-
15-Oct-23	NO PUMP		0	0	-	-	-
16-Oct-23	7:00	11:00	14400	240	340,080	24	1,417
17-Oct-23	NO PUMP		0	0	-	-	-
18-Oct-23	NO PUMP		0	0	-	-	-
19-Oct-23	NO PUMP		0	0	-	-	-
20-Oct-23	NO PUMP		0	0	-	-	-
21-Oct-23	NO PUMP		0	0	-	-	-
22-Oct-23	NO PUMP		0	0	-	-	-
23-Oct-23	NO PUMP		0	0	-	-	-
24-Oct-23	NO PUMP		0	0	-	-	-

Table 6: Measured Water Volume and Rate of Discharge from Quarry Sump

Date	Start	Stop	Total Sec.	Total Min.	Total Litres	Rate of Taking (L/sec)	Rate of Taking (L/min)
ECA Permitted Rate					6,544,800	76	4,545
25-Oct-23	NO PUMP		0	0	-	-	-
26-Oct-23	NO PUMP		0	0	-	-	-
27-Oct-23	NO PUMP		0	0	-	-	-
28-Oct-23	NO PUMP		0	0	-	-	-
29-Oct-23	NO PUMP		0	0	-	-	-
30-Oct-23	7:00	2:00	25200	420	595,140	24	1,417
31-Oct-23	NO PUMP		0	0	-	-	-
1-Nov-23	NO PUMP		0	0	-	-	-
2-Nov-23	NO PUMP		0	0	-	-	-
3-Nov-23	NO PUMP		0	0	-	-	-
4-Nov-23	NO PUMP		0	0	-	-	-
5-Nov-23	NO PUMP		0	0	-	-	-
6-Nov-23	7:00	12:00	18000	300	425,100	24	1,417
7-Nov-23	7:00	2:00	18000	300	425,100	24	1,417
8-Nov-23	NO PUMP		0	0	-	-	-
9-Nov-23	NO PUMP		0	0	-	-	-
10-Nov-23	NO PUMP		0	0	-	-	-
11-Nov-23	NO PUMP		0	0	-	-	-
12-Nov-23	NO PUMP		0	0	-	-	-
13-Nov-23	NO PUMP		0	0	-	-	-
14-Nov-23	7:30	4:30	32400	540	765,180	24	1,417
15-Nov-23	7:00	4:00	32400	540	765,180	24	1,417
16-Nov-23	NO PUMP		0	0	-	-	-
17-Nov-23	NO PUMP		0	0	-	-	-
18-Nov-23	NO PUMP		0	0	-	-	-
19-Nov-23	NO PUMP		0	0	-	-	-
20-Nov-23	NO PUMP		0	0	-	-	-
21-Nov-23	NO PUMP		0	0	-	-	-
22-Nov-23	NO PUMP		0	0	-	-	-
23-Nov-23	7:30	4:30	32400	540	765,180	24	1,417
24-Nov-23	7:30	4:30	32400	540	765,180	24	1,417
25-Nov-23	NO PUMP		0	0	-	-	-
26-Nov-23	NO PUMP		0	0	-	-	-
27-Nov-23	NO PUMP		0	0	-	-	-
28-Nov-23	NO PUMP		0	0	-	-	-
29-Nov-23	7:30	4:30	32400	540	765,180	24	1,417
30-Nov-23	NO PUMP		0	0	-	-	-
1-Dec-23	NO PUMP		0	0	-	-	-
2-Dec-23	NO PUMP		0	0	-	-	-
3-Dec-23	NO PUMP		0	0	-	-	-
4-Dec-23	NO PUMP		0	0	-	-	-
5-Dec-23	NO PUMP		0	0	-	-	-
6-Dec-23	NO PUMP		0	0	-	-	-

Table 6: Measured Water Volume and Rate of Discharge from Quarry Sump

Date	Start	Stop	Total Sec.	Total Min.	Total Litres	Rate of Taking (L/sec)	Rate of Taking (L/min)
ECA Permitted Rate					6,544,800	76	4,545
7-Dec-23	NO PUMP		0	0	-	-	-
8-Dec-23	NO PUMP		0	0	-	-	-
9-Dec-23	NO PUMP		0	0	-	-	-
10-Dec-23	NO PUMP		0	0	-	-	-
11-Dec-23	7:00	5:00	36000	600	850,200	24	1,417
12-Dec-23	7:30	12:00	18000	300	425,100	24	1,417
13-Dec-23	NO PUMP		0	0	-	-	-
14-Dec-23	NO PUMP		0	0	-	-	-
15-Dec-23	NO PUMP		0	0	-	-	-
16-Dec-23	NO PUMP		0	0	-	-	-
17-Dec-23	NO PUMP		0	0	-	-	-
18-Dec-23	NO PUMP		0	0	-	-	-
19-Dec-23	NO PUMP		0	0	-	-	-
20-Dec-23	NO PUMP		0	0	-	-	-
21-Dec-23	NO PUMP		0	0	-	-	-
22-Dec-23	NO PUMP		0	0	-	-	-
23-Dec-23	NO PUMP		0	0	-	-	-
24-Dec-23	NO PUMP		0	0	-	-	-
25-Dec-23	NO PUMP		0	0	-	-	-
26-Dec-23	NO PUMP		0	0	-	-	-
27-Dec-23	NO PUMP		0	0	-	-	-
28-Dec-23	NO PUMP		0	0	-	-	-
29-Dec-23	NO PUMP		0	0	-	-	-
30-Dec-23	NO PUMP		0	0	-	-	-
31-Dec-23	NO PUMP		0	0	-	-	-

APPENDIX A

ECA No. 7737-BH6QEA

AMENDED ENVIRONMENTAL COMPLIANCE APPROVAL

NUMBER 7737-BH6QEA
Issue Date: October 22, 2019

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

TERMS AND CONDITIONS

1. GENERAL CONDITION

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

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

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

2. CHANGE OF OWNER

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

forwarded to the District Manager.

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

3. OPERATION AND MAINTENANCE

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

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

4. EFFLUENT LIMITS

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

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

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

5. EFFLUENT - VISUAL OBSERVATIONS

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

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

6. MONITORING AND RECORDING

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

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

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

Table 3 - Effluent and Surface Water Monitoring	
Sample Point	1. Outfall of settling pond approximately 150 metres north of Concession 1 (i.e. end of pipe discharge). 2. Box culvert on Eldon-Ramara Townline approximately 260 metres north of the intersection of Ramara Concession 1 and Eldon-Ramara Townline (i.e. upgradient of end of pipe discharge). 3. 80 centimetre CSP located at Concession 1 Road on McCarthy property (i.e. downgradient of end of pipe discharge).
Frequency	Semi-Annually during discharge event.
Sample Type	Grab
Parameters	Total Suspended Solids, Copper, Lead, Nickel, Zinc, Arsenic, Oil and Grease, Phenolics (4AAP), Hardness (as CaCO ₃), Alkalinity(as CaCO ₃), Conductivity, pH, Fluoride, Chloride, Nitrate (N), Nitrite (N), Sulphate, Calcium, Magnesium, Sodium, Potassium, Ammonia (N), Dissolved Organic Carbon, Iron, Total Kjeldahl Nitrogen, Phosphorus (Total), Cadmium, Chromium, Manganese, Anion (Sum), Cation (Sum) and Total Dissolved Solids.

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

7. RECEIVER INSPECTION

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

8. REPORTING

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

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

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

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

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

any person or property is minimised and/or prevented.

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

SCHEDULE 'A'

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

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

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

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

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

The Notice should also include:

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

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

This Notice must be served upon:

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

AND

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

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

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

DATED AT TORONTO this 22nd day of October, 2019



Fariha Pannu, P.Eng.
Director
appointed for the purposes of Part II.1 of the
Environmental Protection Act

AA/

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

APPENDIX B

**Permit to Take Water
No. 1603-BKTPQH
and 5184-CQ7MQS**

PERMIT TO TAKE WATER
Ground Water
NUMBER 1603-BKTPQH

Pursuant to Section 34.1 of the Ontario Water Resources Act, R.S.O. 1990 this Permit To Take Water is hereby issued to:

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

For the water taking from: Quarry Sump, McCarthy Quarry

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

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

DEFINITIONS

- (a) "Director" means any person appointed in writing as a Director pursuant to section 5 of the OWRA for the purposes of section 34.1, OWRA.
- (b) "Provincial Officer" means any person designated in writing by the Minister as a Provincial Officer pursuant to section 5 of the OWRA.
- (c) "Ministry" means Ontario Ministry of the Environment, Conservation and Parks.
- (d) "District Office" means the Barrie District Office.
- (e) "Permit" means this Permit to Take Water No. 1603-BKTPQH including its Schedules, if any, issued in accordance with Section 34.1 of the OWRA.
- (f) "Permit Holder" means QBJR Aggregates Inc..
- (g) "OWRA " means the *Ontario Water Resources Act*, R.S.O. 1990, c. O. 40, as amended.

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

TERMS AND CONDITIONS

1. Compliance with Permit

- 1.1 Except where modified by this Permit, the water taking shall be in accordance with the application for this Permit To Take Water, dated October 23, 2019 and signed by Jenny Coco, CEO, and all Schedules included in this Permit.
- 1.2 The Permit Holder shall ensure that any person authorized by the Permit Holder to take water under this Permit is provided with a copy of this Permit and shall take all reasonable measures to ensure that any such person complies with the conditions of this Permit.
- 1.3 Any person authorized by the Permit Holder to take water under this Permit shall comply with the conditions of this Permit.
- 1.4 This Permit is not transferable to another person.
- 1.5 This Permit provides the Permit Holder with permission to take water in accordance with the conditions of this Permit, up to the date of the expiry of this Permit. This Permit does not constitute a legal right, vested or otherwise, to a water allocation, and the issuance of this Permit does not guarantee that, upon its expiry, it will be renewed.
- 1.6 The Permit Holder shall keep this Permit available at all times at or near the site of the taking, and shall produce this Permit immediately for inspection by a Provincial Officer upon his or her request.
- 1.7 The Permit Holder shall report any changes of address to the Director within thirty days of any such change. The Permit Holder shall report any change of ownership of the property for which this Permit is issued within thirty days of any such change. A change in ownership in the property shall cause this Permit to be cancelled.

2. General Conditions and Interpretation

- 2.1 Inspections
The Permit Holder must forthwith, upon presentation of credentials, permit a Provincial Officer to carry out any and all inspections authorized by the OWRA, the *Environmental Protection Act*, R.S.O. 1990, the *Pesticides Act*, R.S.O. 1990, or the *Safe Drinking Water Act*, S. O. 2002.
- 2.2 Other Approvals
The issuance of, and compliance with this Permit, does not:
 - (a) relieve the Permit Holder or any other person from any obligation to comply with any other applicable legal requirements, including the provisions of the *Ontario Water Resources Act*, and

the *Environmental Protection Act* , and any regulations made thereunder; or

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

2.3 Information

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

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

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

2.4 Rights of Action

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

2.5 Severability

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

2.6 Conflicts

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

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

3.1 **Expiry**

This Permit expires on **January 31, 2025**. No water shall be taken under authority of this Permit after the expiry date.

3.2 Amounts of Taking Permitted

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

Table A

	Source Name / Description:	Source: Type:	Taking Specific Purpose:	Taking Major Category:	Max. Taken per Minute (litres):	Max. Num. of Hrs Taken per Day:	Max. Taken per Day (litres):	Max. Num. of Days Taken per Year:	Zone/ Easting/ Northing:
1	Quarry Sump	Pond Connected	Pits and Quarries	Dewatering	4,545	24	6,544,800	250	17 650950 4933500
							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 conduct daily water level monitoring with the use of pressure transducers and data loggers at:

- a) The residential well known by the MOE Water Well Record Number 5727662 and identified as well DW3 on Figure 2 in Item 2 of Schedule A of this Permit, if granted permission by the property owner.
- b) The monitoring wells named OW4-1, OW4-2, OW5-1, OW6-1, OW6-2, OW8-3, OW9-2, and Bored Well (shown on Figure 2, in Item 2 of Schedule A of this Permit).
- c) The City of Kwartha Lakes monitoring well CKL-1, if granted permission by the property owner .

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

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

- a) The residential well known by the MOE Water Well Record Number 5727662 and identified as well DW3 on Figure 2 in Item 2 of Schedule A of this Permit, if granted permission by the property owner.
- b) The residential wells named DW1, DW2, and DW4, if granted permission by the property owner (shown on Figure 2, in Item 2 of Schedule A of this Permit).
- c) The monitoring wells named AM1b, AMX-R, TW1-1, OW4-1, OW4-2, OW5-1, OW5-2, OW5-3, OW6-1, OW6-2, OW6-3, OW7-1, OW7-2, OW7-3, OW8-1, OW8-2, OW8-3, OW9-1, OW9-2, and Bored Well (shown on Figure 2 in Item 2 of Schedule A of this Permit).
- d) The City of Kwartha Lakes monitoring wells CKL-1 and CKL-2, if granted permission by the property owner .

The Permit Holder may suspend monthly water level monitoring under Condition 4.3 for the months of January and/or February if no water is taken from the quarry on those months.

4.4 The Permit Holder shall, if granted permission by the property owner, measure and record static water levels in the residential wells named DW6, DW7, and DW8, as shown on Figure 2 in Item 2 of Schedule A of this Permit, at least once in every two (2) month period during which water is taken from the quarry. The Permit Holder may suspend monthly water level monitoring under Condition 4.4 for the months of January and/or February if no water is taken from the quarry on those months.

4.5 The Permit Holder shall, if granted permission by the property owner, on a semi-annual basis collect raw water samples from the residential wells named DW1, DW2, and the well identified in condition 4.2(a). Each sample shall be tested, at a minimum, for the parameters listed in Table 1 below:

Table 1: Water Quality Parameters for Residential Wells

pH	Sulphate	DOC	Copper
Alkalinity (CaCO ₃)	Magnesium	Colour	Iron
Bicarbonate	Calcium	Turbidity	Lead
Conductivity	Sodium	Aluminium	Manganese
Fluoride	Potassium	Arsenic	Selenium
Chloride	Ammonia (N)	Barium	Zinc
Nitrate	Phosphate	Boron	Hardness (CaCO ₃)
Nitrite	Phosphorus	Cadmium	TDS (iron sum calc.)
Chromium	Anion Sum	Ion Ratio	Langelier Index
Tannins	Cation Sum	% Difference	

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

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

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

AM1b	OW4-I	OW5-III	OW8-I
AMX-R	OW4-II	OW6-II	OW8-II
TW1-1	OW5-I	OW7-I	OW9-I
Bored Well	OW5-II	OW7-II	OW9-II

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

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

- 4.7 The Permit Holder shall notify the Director, in writing, within 30 days if the groundwater level or groundwater quality monitoring of any well listed under conditions 4.2, 4.3, 4.4, 4.5, and 4.6 is not possible, including being denied access to a private well. In the event of damage or loss of any monitoring well, monitoring devices or related equipment, the Permit Holder shall be allowed 30 calendar days from the date of discovery of the occurrence to repair or replace equipment. If a well is too damaged to be repaired or monitored, or if the well is deemed unsafe to be monitored, then the Director will decide if a replacement well is required and will modify the appropriate monitoring conditions in a written letter to the Permit Holder.
- 4.8 The Permit Holder shall maintain a record of all water takings. This record shall include the dates and times of water takings, and the total measured or calculated amounts for water pumped per day for each day that water is taken under the authorization of this Permit.
- 4.9 The Permit Holder shall keep all required records up to date and available at or near the site of the taking and shall produce the records immediately for inspection by a Provincial Officer upon his or her request.
- 4.10 The Permit Holder shall provide to the Director an annual monitoring report no later than March 1 each year during the life of this Permit. The annual monitoring report shall be prepared by an individual with P.Geo. or equivalent qualifications and shall include, at a minimum:
- 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.

- 4.11 The Permit Holder shall make available on a publicly-accessible site on the internet the water quality and quantity data that it is required to monitor and record under this Permit and O.Reg. 387/04, as amended, and a copy of every report that is required to be prepared under this Permit. For greater clarity, the Permit Holder shall not publish any personal information as defined by the *Freedom of Information and Protection of Privacy Act*, R.S.O. 1990, c. F.31, as amended.
- 4.12 The Permit Holder shall maintain a Public Liaison Committee ("PLC") comprised of not more than seven (7) members that will meet at least once every four (4) months, unless the majority of the PLC decide that more or less frequent meetings are required. The PLC shall be comprised of: two (2) members appointed by the Permit Holder - one of whom shall act as Chairperson; one (1) member from each of the Township and the County, if they wish to have representatives; and three (3) members appointed by the public, if they wish to have representatives, who must be permanent residents within a 3 kilometre radius of the quarry property. The PLC shall serve in an advisory / community liaison role and shall have no powers to direct the Permit Holder or the Ministry.
- 4.13 Any request for an amendment or renewal of this Permit must be accompanied by a report prepared by an individual with P.Geo. or equivalent qualifications and shall include, at a minimum:
 - 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.

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

5. Impacts of the Water Taking

5.1 Notification

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

5.2 For Groundwater Takings

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

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

- 5.2.1 Where the water supply provided by the well known by MOE Water Well Record Number 5727662 is restored in accordance with Condition 5.2, the Permit Holder shall restore the supply in a manner satisfactory to the Director, taking into account the residential needs, requirements and preferences of the persons serviced by the well.

- 5.3 Upon the receipt of a groundwater interference complaint, the Permit Holder shall:

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

6. Director May Amend Permit

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

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

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

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

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

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

- a. The name of the appellant;
- b. The address of the appellant;
- c. The Permit to Take Water number;
- d. The date of the Permit to Take Water;
- e. The name of the Director;
- f. The municipality within which the works are located;

This notice must be served upon:

*The Secretary
Environmental Review Tribunal
655 Bay Street, 15th Floor
Toronto ON
M5G 1E5
Fax: (416) 326-5370
Email:
ERTTribunalsecretary@ontario.ca*

AND

*The Minister of the Environment,
Conservation and Parks
777 Bay Street, 5th Floor
Toronto, Ontario
M7J 2J3*

AND

*The Director, Section 34.1,
Ministry of the Environment,
Conservation and Parks
8th Floor
5775 Yonge St
Toronto ON M2M 4J1
Fax: (416) 325-6347*

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

by Telephone at

(416) 212-6349

Toll Free 1(866) 448-2248

by Fax at

(416) 326-5370

Toll Free 1(844) 213-3474

by e-mail at

www.ert.gov.on.ca

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

This Permit cancels and replaces Permit Number 7818-9QJNL4, issued on 2014/12/30.

Dated at Toronto this 31st day of January, 2020.



Ellen Klupfel
Director, Section 34.1
Ontario Water Resources Act , R.S.O. 1990

Schedule A

This Schedule "A" forms part of Permit To Take Water 1603-BKTPQH, dated January 31, 2020.

1. Permit to Take Water Application, dated October 23, 2019 and signed by Jenny Coco.
2. Golder Associates Ltd. (November 1, 2019). Hydrogeological Assessment, Permit to Take Water Renewal, McCarthy Quarry.

**Ministry of the Environment,
Conservation and Parks**

Environmental Assessment and
Permissions Division
Brownfields and Permit to Take Water
Permit To Take Water Unit
Floor 1, 135 St Clair Ave W
Toronto, ON
M4V 1P5
Tel: (289) 830-5867

**Ministère de l'Environnement, de la
Protection de la nature et des
Parcs**

Division des évaluations et des
permissions environnementales
Réaménagement des friches
contaminées et réglementation des
prélèvements d'eau
Unité de la réglementation des
prélèvements d'eau
1er étage, 135 av. St. Clair O
Toronto, ON
M4V 1P5
Tél:(289) 830-5867



February 28, 2022

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

Attn: Jenny Coco

RE: Amendment to Permit To Take Water No. 1603-BKTPQH
Lot 1 Concession 1 Original Township of Mara
Ramara, County of Simcoe
Reference Number 0707-BHMPF8

In a letter, *Change of Sump Location Identified at the McCarthy Quarry Under Permit No. 1603-BKTPQH*) prepared by Golder Associates Ltd. on behalf of QBJR Aggregates Inc., dated February 23, 2022, it has been requested the the location of water taking identified for **Source 1** in **Table A** (Quarry Sump) of Permit To Take Water ("PTTW") number 1603-BKTPQH be revised to reflect a new proposed water taking location, in the southern portion of the quarry site. In consultation with the Ministry's Central Region Technical Support Section Staff (Mihran Aslanyan, P.Geo., Hydrogeologist) there are no technical concerns identified regarding this request.

I am a Director appointed for the purposes of section 34.1 of the *Ontario Water Resources Act* , R.S.O. 1990, c. O.40, as amended ("OWRA"), and pursuant to my authority under subsection 34.1(2) of the OWRA, I am exercising my discretion to amend Permit to Take Water 1603-BKTPQH by amending Condition 3.2, Table A, as follows:

3.2 Amounts of Taking Permitted

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

Table A

	Source Name / Description:	Source: Type:	Taking Specific Purpose:	Taking Major Category:	Max. Taken per Minute (litres):	Max. Num. of Hrs Taken per Day:	Max. Taken per Day (litres):	Max. Num. of Days Taken per Year:	Zone/ Easting/ Northing:
1	Quarry Sump	Pond Connected	Pits and Quarries	Dewatering	4,545	24	6,544,800	250	17 651324 4933188
						Total Taking:	6,544,800		

Please note that all other terms and conditions of Permit to Take Water 1603-BKTPQH shall remain in force.

This Notice now forms part of the current permit and must be attached to the original Permit to Take Water, if available. If the original is no longer available, this letter must be kept attached to a certified copy of the Permit to Take Water.

Any change in circumstances related to this permit should be reported promptly to a Director.

In accordance with Section 100 of the *Ontario Water Resources Act, R.S.O. 1990*, you may by written notice served upon me and the Ontario Land Tribunal within 15 days after receipt of this notice, require a hearing by the Tribunal. Section 101 of the *Ontario Water Resources Act, R.S.O. 1990*, as amended, provides that the notice requiring the hearing ("the Notice") shall state:

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

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

- a. The name of the appellant;
- b. The address of the appellant;
- c. The Permit to Take Water number;
- d. The date of the Permit to Take Water;
- e. The name of the Director;
- f. The municipality within which the works are located;

This notice must be served upon:

Registrar*
Ontario Land Tribunal
655 Bay Street, Suite 1500
Toronto, Ontario
M5G 1E5
OLT.Registrar@ontario.ca

AND

*The Director, Section 34.1,
Ministry of the Environment, Conservation
and Parks*

*** Further information on the Ontario Land Tribunal's requirements for an appeal can be obtained directly from the Tribunal at: (416) 212-6349 or 1 (866) 448-2248, or www.olt.gov.on.ca.**

Yours truly,



Gregory Meek
Supervisor (Acting), Permit To Take Water
Director, Section 34.1, Ontario Water Resources Act, R.S.O. 1990
Environmental Permissions Branch

File Storage Number: -

AMENDED PERMIT TO TAKE WATER

Ground Water
NUMBER 5184-CQ7MQS

Pursuant to Section 34.1 of the Ontario Water Resources Act, R.S.O. 1990 this Permit To Take Water is hereby issued to:

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

For the water taking from: Quarry Sump

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

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

DEFINITIONS

- (a) "Director" means any person appointed in writing as a Director pursuant to section 5 of the OWRA for the purposes of section 34.1, OWRA.
- (b) "Provincial Officer" means any person designated in writing by the Minister as a Provincial Officer pursuant to section 5 of the OWRA.
- (c) "Ministry" means Ontario Ministry of the Environment, Conservation and Parks.
- (d) "District Office" means the Barrie District Office.
- (e) "Permit" means this Permit to Take Water No. 5184-CQ7MQS including its Schedules, if any, issued in accordance with Section 34.1 of the OWRA.
- (f) "Permit Holder" means GIP 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 31, 2019 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 without the Director's written consent.
- 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.

2. General Conditions and Interpretation

2.1 Inspections

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

2.2 Other Approvals

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

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

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

2.3 Information

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

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

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

2.4 Rights of Action

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

2.5 Severability

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

2.6 Conflicts

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

3. Water Takings Authorized by This Permit

3.1 Expiry

This Permit expires on **January 31, 2025**. No water shall be taken under authority of this Permit after the expiry date.

3.2 Amounts of Taking Permitted

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

Table A

	Source Name / Description:	Source: Type:	Taking Specific Purpose:	Taking Major Category:	Max. Taken per Minute (litres):	Max. Num. of Hrs Taken per Day:	Max. Taken per Day (litres):	Max. Num. of Days Taken per Year:	Zone/ Easting/ Northing:
1	Quarry Sump	Pond Connected	Pits and Quarries	Dewatering	4,545	24	6,544,800	250	17 650950 4933500
							Total Taking:	6,544,800	

3.3 Notwithstanding Table A, the **maximum taking per year** from **Source 1** (Quarry Sump) is 196,500,000 litres.

4. Monitoring

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

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

- a) The residential well known by the MOE Water Well Record Number 5727662 and identified as well DW3 on Figure 2 in Item 2 of Schedule A of this Permit, if granted permission by the property owner.
- b) The monitoring wells named OW4-1, OW4-2, OW5-1, OW6-1, OW6-2, OW8-3, OW9-2, and Bored Well (shown on Figure 2, in Item 2 of Schedule A of this Permit).
- c) The City of Kwartha Lakes monitoring well CKL-1, if granted permission by the property owner.

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

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

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

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

The Permit Holder may suspend monthly water level monitoring under Condition 4.3 for the months of January and/or February if no water is taken from the quarry on those months.

- 4.4 The Permit Holder shall, if granted permission by the property owner, measure and record static water levels in the residential wells named DW6, DW7, and DW8, as shown on Figure 2 in Item 2 of Schedule A of this Permit, at least once in every two (2) month period during which water is taken from the quarry. The Permit Holder may suspend monthly water level monitoring under Condition 4.4 for the months of January and/or February if no water is taken from the quarry on those months.
- 4.5 The Permit Holder shall, if granted permission by the property owner, on a semi-annual basis collect raw water samples from the residential wells named DW1, DW2, and the well identified in condition 4.2(a). Each sample shall be tested, at a minimum, for the parameters listed in Table 1 below:

Table 1: Water Quality Parameters for Residential Wells

pH	Sulphate	DOC	Copper
Alkalinity (CaCO ₃)	Magnesium	Colour	Iron
Bicarbonate	Calcium	Turbidity	Lead
Conductivity	Sodium	Aluminium	Manganese
Fluoride	Potassium	Arsenic	Selenium
Chloride	Ammonia (N)	Barium	Zinc
Nitrate	Phosphate	Boron	Hardness (CaCO ₃)
Nitrite	Phosphorus	Cadmium	TDS (iron sum calc.)
Chromium	Anion Sum	Ion Ratio	Langelier Index
Tannins	Cation Sum	% Difference	

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

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

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

AM1b	OW4-I	OW5-III	OW8-I
AMX-R	OW4-II	OW6-II	OW8-II
TW1-1	OW5-I	OW7-I	OW9-I
Bored Well	OW5-II	OW7-II	OW9-II

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

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

- 4.7 The Permit Holder shall notify the Director, in writing, within 30 days if the groundwater level or groundwater quality monitoring of any well listed under conditions 4.2, 4.3, 4.4, 4.5, and 4.6 is not possible, including being denied access to a private well. In the event of damage or loss of any monitoring well, monitoring devices or related equipment, the Permit Holder shall be allowed 30 calendar days from the date of discovery of the occurrence to repair or replace equipment. If a well is too damaged to be repaired or monitored, or if the well is deemed unsafe to be monitored, then the Director will decide if a replacement well is required and will modify the appropriate monitoring conditions in a written letter to the Permit Holder.
- 4.8 The Permit Holder shall maintain a record of all water takings. This record shall include the dates and times of water takings, and the total measured or calculated amounts for water pumped per day for each day that water is taken under the authorization of this Permit.
- 4.9 The Permit Holder shall keep all required records up to date and available at or near the site of the taking and shall produce the records immediately for inspection by a Provincial Officer upon his or her request.
- 4.10 The Permit Holder shall provide to the Director an annual monitoring report no later than March 1 each year during the life of this Permit. The annual monitoring report shall be prepared by an individual with P.Geo. or equivalent qualifications and shall include, at a minimum:
- 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.

- 4.11 The Permit Holder shall make available on a publicly-accessible site on the internet the water quality and quantity data that it is required to monitor and record under this Permit and O.Reg. 387/04, as amended, and a copy of every report that is required to be prepared under this Permit. For greater clarity, the Permit Holder shall not publish any personal information as defined by the *Freedom of Information and Protection of Privacy Act*, R.S.O. 1990, c. F.31, as amended.
- 4.12 The Permit Holder shall maintain a Public Liaison Committee ("PLC") comprised of not more than seven (7) members that will meet at least once every four (4) months, unless the majority of the PLC decide that more or less frequent meetings are required. The PLC shall be comprised of: two (2) members appointed by the Permit Holder - one of whom shall act as Chairperson; one (1) member from each of the Township and the County, if they wish to have representatives; and three (3) members appointed by the public, if they wish to have representatives, who must be permanent residents within a 3 kilometre radius of the quarry property. The PLC shall serve in an advisory / community liaison role and shall have no powers to direct the Permit Holder or the Ministry.
- 4.13 Any request for an amendment or renewal of this Permit must be accompanied by a report prepared by an individual with P.Geo. or equivalent qualifications and shall include, at a minimum:
 - 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 and 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.

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

5. Impacts of the Water Taking

5.1 Notification

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

5.2 For Groundwater Takings

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

to prevent or alleviate the observed negative impact. Pending permanent restoration of the affected supplies, the Permit Holder shall provide, to those affected, temporary water supplies adequate to meet their normal requirements, or shall compensate such persons for their reasonable costs of doing so.

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

5.2.1 Where the water supply provided by the well known by MOE Water Well Record Number 5727662 is restored in accordance with Condition 5.2, the Permit Holder shall restore the supply in a manner satisfactory to the Director, taking into account the residential needs, requirements and preferences of the persons serviced by the well.

5.3 Upon the receipt of a groundwater interference complaint, the Permit Holder shall:

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

6. **Director May Amend Permit**

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

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

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

In accordance with Section 100 of the Ontario Water Resources Act, R.S.O. 1990, you may by written Notice served upon me and the Environmental Review Tribunal within 15 days after receipt of this Notice, require a hearing by the Tribunal. Section 101 of the Ontario Water Resources Act, R.S.O. 1990, as amended, provides that the Notice requiring the hearing shall state:

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

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

- a. The name of the appellant;
- b. The address of the appellant;
- c. The Permit to Take Water number;
- d. The date of the Permit to Take Water;
- e. The name of the Director;
- f. The municipality within which the works are located;

This notice must be served upon:

*The Secretary
Environmental Review Tribunal
Registrar*
Ontario Land Tribunal
655 Bay Street, Suite 1500
Toronto, Ontario
M5G 1E5
OLT.Registrar@ontario.ca*

AND

*The Director, Section 34.1,
Ministry of the Environment, Conservation
and Parks
Floor 1, 135 St Clair Ave W
Toronto, ON
M4V 1P5*

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

by Telephone at
(416) 212-6349
Toll Free 1(866) 448-2248

by Fax at
(416) 326-5370
Toll Free 1(844) 213-3474

by e-mail at
www.ert.gov.on.ca

This Permit cancels and replaces Permit Number 1603-BKTPQH, issued on 2020/01/31.

Dated at Toronto this 27th day of March, 2023.



Archana Uprety
Director, Section 34.1
Ontario Water Resources Act , R.S.O. 1990

Schedule A

This Schedule "A" forms part of Permit To Take Water 5184-CQ7MQS, dated March 27, 2023.

1. Permit to Take Water Application, dated October 23, 2019 and signed by Jenny Coco.
2. Golder Associates Ltd. (November 1, 2019). Hydrogeological Assessment, Permit to Take Water Renewal, McCarthy Quarry.
3. McCarthy Quarry Complaint Resolution Process, Golder Associates Ltd. November 2014.
4. Request to change name on Permit to Take Water No. 1603-BKTPQH signed by Anthony Rossi and dated March 6, 2023.

APPENDIX C

Water Quality Results



Your Project #: 21508089
 Site#: McCarthy
 Site Location: MCCARTHY
 Your C.O.C. #: 901523-01-01

Attention: Jamie Bonany/Colin Imrie

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

Report Date: 2023/01/25
 Report #: R7483508
 Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C314146

Received: 2023/01/17, 09:05

Sample Matrix: Water
 # Samples Received: 1

Analyses	Quantity	Date		Laboratory Method	Analytical Method
		Extracted	Analyzed		
Animal and Vegetable Oil and Grease	1	N/A	2023/01/24	CAM SOP-00326	EPA1664B m,SM5520B m
Total Oil and Grease	1	2023/01/24	2023/01/24	CAM SOP-00326	EPA1664B m,SM5520B m
pH	1	2023/01/18	2023/01/19	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	1	N/A	2023/01/19	CAM SOP-00444	OMOE E3179 m
Mineral/Synthetic O & G (TPH Heavy Oil) (1)	1	2023/01/24	2023/01/24	CAM SOP-00326	EPA1664B m,SM5520F m
Low Level Total Suspended Solids	1	2023/01/21	2023/01/23	CAM SOP-00428	SM 23 2540D m

Remarks:

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

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas 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 Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

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

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

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

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

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

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



Your Project #: 21508089
Site#: McCarthy
Site Location: MCCARTHY
Your C.O.C. #: 901523-01-01

Attention: Jamie Bonany/Colin Imrie

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

Report Date: 2023/01/25
Report #: R7483508
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C314146
Received: 2023/01/17, 09:05

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:

Ankita Bhalla, Project Manager
Email: Ankita.Bhalla@bureauveritas.com
Phone# (905) 817-5700

=====

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

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RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		UUY025		
Sampling Date		2023/01/16 14:00		
COC Number		901523-01-01		
	UNITS	POND	RDL	QC Batch
Calculated Parameters				
Total Animal/Vegetable Oil and Grease	mg/L	0.70	0.50	8455307
Inorganics				
pH	pH	7.42	N/A	8456032
Phenols-4AAP	mg/L	0.0011	0.0010	8458557
Total Suspended Solids	mg/L	1	1	8460812
Petroleum Hydrocarbons				
Total Oil & Grease	mg/L	0.70	0.50	8465416
Total Oil & Grease Mineral/Synthetic	mg/L	<0.50	0.50	8465417
RDL = Reportable Detection Limit QC Batch = Quality Control Batch N/A = Not Applicable				



Bureau Veritas Job #: C314146
Report Date: 2023/01/25

Golder Associates Ltd
Client Project #: 21508089
Site Location: MCCARTHY
Sampler Initials: IM

GENERAL COMMENTS

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

Package 1	13.3°C
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Results relate only to the items tested.



QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
8456032	TAK	Spiked Blank	pH	2023/01/19		102	%	98 - 103
8456032	TAK	RPD	pH	2023/01/19	0.064		%	N/A
8458557	MKX	Matrix Spike	Phenols-4AAP	2023/01/19		107	%	80 - 120
8458557	MKX	Spiked Blank	Phenols-4AAP	2023/01/19		105	%	80 - 120
8458557	MKX	Method Blank	Phenols-4AAP	2023/01/19	<0.0010		mg/L	
8458557	MKX	RPD	Phenols-4AAP	2023/01/19	NC		%	20
8460812	SHD	QC Standard	Total Suspended Solids	2023/01/23		95	%	85 - 115
8460812	SHD	Method Blank	Total Suspended Solids	2023/01/23	<1		mg/L	
8460812	SHD	RPD	Total Suspended Solids	2023/01/23	6.5		%	20
8465416	NSG	Spiked Blank	Total Oil & Grease	2023/01/24		99	%	85 - 115
8465416	NSG	RPD	Total Oil & Grease	2023/01/24	0		%	25
8465416	NSG	Method Blank	Total Oil & Grease	2023/01/24	<0.50		mg/L	
8465417	NSG	Spiked Blank	Total Oil & Grease Mineral/Synthetic	2023/01/24		96	%	85 - 115
8465417	NSG	RPD	Total Oil & Grease Mineral/Synthetic	2023/01/24	0.52		%	25
8465417	NSG	Method Blank	Total Oil & Grease Mineral/Synthetic	2023/01/24	<0.50		mg/L	

N/A = Not Applicable

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

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

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

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

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

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



Bureau Veritas Job #: C314146
Report Date: 2023/01/25

Golder Associates Ltd
Client Project #: 21508089
Site Location: MCCARTHY
Sampler Initials: IM

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Cristina Carriere

Cristina Carriere, Senior Scientific Specialist

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Your Project #: 21508089
 Site#: McCarthy
 Your C.O.C. #: 901523-04-01

Attention: Colin Imrie

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

Report Date: 2023/05/09
 Report #: R7621985
 Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3C3085

Received: 2023/05/02, 08:59

Sample Matrix: Water
 # Samples Received: 1

Analyses	Quantity	Date	Date	Laboratory Method	Analytical Method
		Extracted	Analyzed		
Animal and Vegetable Oil and Grease	1	N/A	2023/05/08	CAM SOP-00326	EPA1664B m,SM5520B m
Total Oil and Grease	1	2023/05/08	2023/05/08	CAM SOP-00326	EPA1664B m,SM5520B m
pH	1	2023/05/03	2023/05/03	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	1	N/A	2023/05/08	CAM SOP-00444	OMOE E3179 m
Mineral/Synthetic O & G (TPH Heavy Oil) (1)	1	2023/05/08	2023/05/08	CAM SOP-00326	EPA1664B m,SM5520F m
Low Level Total Suspended Solids	1	2023/05/05	2023/05/05	CAM SOP-00428	SM 23 2540D m

Remarks:

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

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas 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 Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

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

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

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

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

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



Your Project #: 21508089
Site#: McCarthy
Your C.O.C. #: 901523-04-01

Attention: Colin Imrie

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

Report Date: 2023/05/09
Report #: R7621985
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3C3085

Received: 2023/05/02, 08:59

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:

Ankita Bhalla, Project Manager
Email: Ankita.Bhalla@bureauveritas.com
Phone# (905) 817-5700

=====

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RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		VRU035		
Sampling Date		2023/05/01 11:00		
COC Number		901523-04-01		
	UNITS	POND	RDL	QC Batch
Calculated Parameters				
Total Animal/Vegetable Oil and Grease	mg/L	<0.50	0.50	8640706
Inorganics				
pH	pH	7.64	N/A	8644252
Phenols-4AAP	mg/L	<0.0010	0.0010	8652578
Total Suspended Solids	mg/L	6	1	8643381
Petroleum Hydrocarbons				
Total Oil & Grease	mg/L	<0.50	0.50	8651990
Total Oil & Grease Mineral/Synthetic	mg/L	<0.50	0.50	8652004
RDL = Reportable Detection Limit QC Batch = Quality Control Batch N/A = Not Applicable				



BUREAU
VERITAS

Bureau Veritas Job #: C3C3085

Report Date: 2023/05/09

Golder Associates Ltd

Client Project #: 21508089

Sampler Initials: JM

GENERAL COMMENTS

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

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



BUREAU
VERITAS

Bureau Veritas Job #: C3C3085

Report Date: 2023/05/09

Golder Associates Ltd

Client Project #: 21508089

Sampler Initials: JM

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
8643381	RTB	QC Standard	Total Suspended Solids	2023/05/05		95	%	85 - 115
8643381	RTB	Method Blank	Total Suspended Solids	2023/05/05	<1		mg/L	
8643381	RTB	RPD	Total Suspended Solids	2023/05/05	0		%	20
8644252	TAK	Spiked Blank	pH	2023/05/03		102	%	98 - 103
8644252	TAK	RPD	pH	2023/05/03	0.011		%	N/A
8651990	RUP	Spiked Blank	Total Oil & Grease	2023/05/08		99	%	85 - 115
8651990	RUP	RPD	Total Oil & Grease	2023/05/08	0.76		%	25
8651990	RUP	Method Blank	Total Oil & Grease	2023/05/08	<0.50		mg/L	
8652004	RUP	Spiked Blank	Total Oil & Grease Mineral/Synthetic	2023/05/08		98	%	85 - 115
8652004	RUP	RPD	Total Oil & Grease Mineral/Synthetic	2023/05/08	1.5		%	25
8652004	RUP	Method Blank	Total Oil & Grease Mineral/Synthetic	2023/05/08	<0.50		mg/L	
8652578	MKX	Matrix Spike	Phenols-4AAP	2023/05/08		100	%	80 - 120
8652578	MKX	Spiked Blank	Phenols-4AAP	2023/05/08		97	%	80 - 120
8652578	MKX	Method Blank	Phenols-4AAP	2023/05/08	<0.0010		mg/L	
8652578	MKX	RPD	Phenols-4AAP	2023/05/08	5.4		%	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.



Bureau Veritas Job #: C3C3085
Report Date: 2023/05/09

Golder Associates Ltd
Client Project #: 21508089
Sampler Initials: JM

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Cristina Carriere

Cristina Carriere, Senior Scientific Specialist

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Your Project #: 21508089
 Site#: MCCARTHY
 Your C.O.C. #: 901523-02-01

Attention: Colin Imrie

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

Report Date: 2023/05/24
 Report #: R7641271
 Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3D8777

Received: 2023/05/16, 09:25

Sample Matrix: Water
 # Samples Received: 1

Analyses	Quantity	Date	Date	Laboratory Method	Analytical Method
		Extracted	Analyzed		
Animal and Vegetable Oil and Grease	1	N/A	2023/05/24	CAM SOP-00326	EPA1664B m,SM5520B m
Total Oil and Grease	1	2023/05/23	2023/05/24	CAM SOP-00326	EPA1664B m,SM5520B m
pH	1	2023/05/16	2023/05/16	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	1	N/A	2023/05/18	CAM SOP-00444	OMOE E3179 m
Mineral/Synthetic O & G (TPH Heavy Oil) (1)	1	2023/05/23	2023/05/24	CAM SOP-00326	EPA1664B m,SM5520F m
Low Level Total Suspended Solids	1	2023/05/16	2023/05/17	CAM SOP-00428	SM 23 2540D m

Remarks:

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

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas 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 Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

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

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

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

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

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

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



Your Project #: 21508089
Site#: MCCARTHY
Your C.O.C. #: 901523-02-01

Attention: Colin Imrie

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

Report Date: 2023/05/24
Report #: R7641271
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3D8777

Received: 2023/05/16, 09:25

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:

Ankita Bhalla, Project Manager
Email: Ankita.Bhalla@bureauveritas.com
Phone# (905) 817-5700

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RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		VVA423		
Sampling Date		2023/05/15 13:09		
COC Number		901523-02-01		
	UNITS	MCCARTHY POND	RDL	QC Batch
Calculated Parameters				
Total Animal/Vegetable Oil and Grease	mg/L	<0.50	0.50	8667544
Inorganics				
pH	pH	7.44	N/A	8668086
Phenols-4AAP	mg/L	<0.0010	0.0010	8673723
Total Suspended Solids	mg/L	2	1	8667555
Petroleum Hydrocarbons				
Total Oil & Grease	mg/L	<0.50	0.50	8679812
Total Oil & Grease Mineral/Synthetic	mg/L	<0.50	0.50	8679825
RDL = Reportable Detection Limit QC Batch = Quality Control Batch N/A = Not Applicable				



BUREAU
VERITAS

Bureau Veritas Job #: C3D8777

Report Date: 2023/05/24

Golder Associates Ltd

Client Project #: 21508089

Sampler Initials: JM

GENERAL COMMENTS

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

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



QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
8667555	SHD	QC Standard	Total Suspended Solids	2023/05/17		95	%	85 - 115
8667555	SHD	Method Blank	Total Suspended Solids	2023/05/17	<1		mg/L	
8667555	SHD	RPD	Total Suspended Solids	2023/05/17	17		%	20
8668086	TAK	Spiked Blank	pH	2023/05/16		102	%	98 - 103
8668086	TAK	RPD	pH	2023/05/16	0.097		%	N/A
8673723	MKX	Matrix Spike	Phenols-4AAP	2023/05/18		101	%	80 - 120
8673723	MKX	Spiked Blank	Phenols-4AAP	2023/05/18		101	%	80 - 120
8673723	MKX	Method Blank	Phenols-4AAP	2023/05/18	<0.0010		mg/L	
8673723	MKX	RPD	Phenols-4AAP	2023/05/18	15		%	20
8679812	K1P	Spiked Blank	Total Oil & Grease	2023/05/24		99	%	85 - 115
8679812	K1P	RPD	Total Oil & Grease	2023/05/24	0.25		%	25
8679812	K1P	Method Blank	Total Oil & Grease	2023/05/24	<0.50		mg/L	
8679825	K1P	Spiked Blank	Total Oil & Grease Mineral/Synthetic	2023/05/24		98	%	85 - 115
8679825	K1P	RPD	Total Oil & Grease Mineral/Synthetic	2023/05/24	1.0		%	25
8679825	K1P	Method Blank	Total Oil & Grease Mineral/Synthetic	2023/05/24	<0.50		mg/L	

N/A = Not Applicable

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

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

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

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

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



Bureau Veritas Job #: C3D8777
Report Date: 2023/05/24

Golder Associates Ltd
Client Project #: 21508089
Sampler Initials: JM

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

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

Anastassia Hamanov, Scientific Specialist

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Your Project #: 22579526
 Site Location: McCarthy
 Your C.O.C. #: 934505-01-01

Attention: Colin Imrie

WSP Canada Inc.
 121 Commerce Park Drive
 Unit L
 Barrie, ON
 CANADA L4N 8X1

Report Date: 2023/05/31
 Report #: R7651789
 Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3E7254

Received: 2023/05/24, 11:45

Sample Matrix: Water
 # Samples Received: 4

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Alkalinity	4	N/A	2023/05/26	CAM SOP-00448	SM 23 2320 B m
Carbonate, Bicarbonate and Hydroxide	4	N/A	2023/05/29	CAM SOP-00102	APHA 4500-CO2 D
Chloride by Automated Colourimetry	4	N/A	2023/05/26	CAM SOP-00463	SM 23 4500-Cl E m
Conductivity	4	N/A	2023/05/26	CAM SOP-00414	SM 23 2510 m
Dissolved Organic Carbon (DOC) (1)	1	N/A	2023/05/24	CAM SOP-00446	SM 23 5310 B m
Dissolved Organic Carbon (DOC) (1)	3	N/A	2023/05/25	CAM SOP-00446	SM 23 5310 B m
Fluoride	4	2023/05/24	2023/05/26	CAM SOP-00449	SM 23 4500-F C m
Hardness (calculated as CaCO3)	4	N/A	2023/05/31	CAM SOP 00102/00408/00447	SM 2340 B
Lab Filtered Metals Analysis by ICP	4	2023/05/25	2023/05/31	CAM SOP-00408	EPA 6010D m
Total Metals Analysis by ICPMS	4	2023/05/26	2023/05/29	CAM SOP-00447	EPA 6020B m
Anion and Cation Sum	4	N/A	2023/05/31		
Total Ammonia-N	4	N/A	2023/05/29	CAM SOP-00441	USGS I-2522-90 m
Nitrate & Nitrite as Nitrogen in Water (2)	4	N/A	2023/05/25	CAM SOP-00440	SM 23 4500-NO3I/NO2B
Animal and Vegetable Oil and Grease	4	N/A	2023/05/30	CAM SOP-00326	EPA1664B m,SM5520B m
Total Oil and Grease	4	2023/05/30	2023/05/30	CAM SOP-00326	EPA1664B m,SM5520B m
pH	4	2023/05/24	2023/05/26	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	4	N/A	2023/05/26	CAM SOP-00444	OMOE E3179 m
Orthophosphate	4	N/A	2023/05/26	CAM SOP-00461	SM 23 4500-P E m
Sat. pH and Langelier Index (@ 20C)	4	N/A	2023/05/31		Auto Calc
Sat. pH and Langelier Index (@ 4C)	4	N/A	2023/05/31		Auto Calc
Sulphate by Automated Turbidimetry	4	N/A	2023/05/26	CAM SOP-00464	SM 23 4500-SO42- E m
Total Dissolved Solids	4	2023/05/26	2023/05/29	CAM SOP-00428	SM 23 2540C m
Total Kjeldahl Nitrogen in Water	4	2023/05/26	2023/05/29	CAM SOP-00938	OMOE E3516 m
Total Phosphorus (Colourimetric)	4	2023/05/26	2023/05/29	CAM SOP-00407	SM 23 4500-P I
Mineral/Synthetic O & G (TPH Heavy Oil) (3)	4	2023/05/30	2023/05/30	CAM SOP-00326	EPA1664B m,SM5520F m
Total Suspended Solids	4	2023/05/26	2023/05/29	CAM SOP-00428	SM 23 2540D m
Turbidity	4	N/A	2023/05/25	CAM SOP-00417	SM 23 2130 B m

Remarks:



Your Project #: 22579526
Site Location: McCarthy
Your C.O.C. #: 934505-01-01

Attention: Colin Imrie

WSP Canada Inc.
121 Commerce Park Drive
Unit L
Barrie, ON
CANADA L4N 8X1

Report Date: 2023/05/31
Report #: R7651789
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3E7254

Received: 2023/05/24, 11:45

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All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

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

Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested. This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

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

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

- (1) Dissolved Organic Carbon (DOC) present in the sample should be considered as non-purgeable DOC.
- (2) Values for calculated parameters may not appear to add up due to rounding of raw data and significant figures.
- (3) Note: TPH (Heavy Oil) is equivalent to Mineral / Synthetic Oil & Grease

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Ankita Bhalla, Project Manager
Email: Ankita.Bhalla@bureauveritas.com
Phone# (905) 817-5700

=====

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Total Cover Pages : 2
Page 2 of 24



OIL & GREASE - A/V/M/T (WATER)

Bureau Veritas ID			VWW778	VWW779	VWW780	VWW781		
Sampling Date			2023/05/23 11:30	2023/05/23 11:11	2023/05/23 13:11	2023/05/23		
COC Number			934505-01-01	934505-01-01	934505-01-01	934505-01-01		
	UNITS	Criteria	POND	SW1	SW2	DUP 3	RDL	QC Batch
Calculated Parameters								
Total Animal/Vegetable Oil and Grease	mg/L	-	<0.50	<0.50	<0.50	<0.50	0.50	8681631
Petroleum Hydrocarbons								
Total Oil & Grease	mg/L	-	<0.50	<0.50	<0.50	<0.50	0.50	8692656
Total Oil & Grease Mineral/Synthetic	mg/L	0.5	<0.50	<0.50	<0.50	<0.50	0.50	8692668
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								



RESULTS OF ANALYSES OF WATER

Bureau Veritas ID			VWW778			VWW778		
Sampling Date			2023/05/23 11:30			2023/05/23 11:30		
COC Number			934505-01-01			934505-01-01		
	UNITS	Criteria	POND	RDL	QC Batch	POND Lab-Dup	RDL	QC Batch
Calculated Parameters								
Anion Sum	me/L	-	9.75	N/A	8682207			
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	-	100	1.0	8681739			
Carb. Alkalinity (calc. as CaCO3)	mg/L	-	1.1	1.0	8681739			
Cation Sum	me/L	-	9.68	N/A	8682207			
Hardness (CaCO3)	mg/L	-	320	1.0	8681022			
Langelier Index (@ 20C)	N/A	-	0.463		8682208			
Langelier Index (@ 4C)	N/A	-	0.215		8682209			
Saturation pH (@ 20C)	N/A	-	7.58		8682208			
Saturation pH (@ 4C)	N/A	-	7.83		8682209			
Inorganics								
Total Ammonia-N	mg/L	-	0.078	0.050	8690187	0.061	0.050	8690187
Conductivity	umho/cm	-	980	1.0	8683061	980	1.0	8683061
Total Dissolved Solids	mg/L	-	570	10	8686039			
Fluoride (F-)	mg/L	-	0.47	0.10	8683055	0.46	0.10	8683055
Total Kjeldahl Nitrogen (TKN)	mg/L	-	0.45	0.10	8687259			
Dissolved Organic Carbon	mg/L	-	4.3	0.40	8682772			
Orthophosphate (P)	mg/L	-	<0.010	0.010	8683078			
pH	pH	6.5:8.5	8.04		8683057	8.06		8683057
Phenols-4AAP	mg/L	0.001	<0.0010	0.0010	8686757			
Total Phosphorus	mg/L	0.01	<0.004	0.004	8687341			
Total Suspended Solids	mg/L	-	<10	10	8686035			
Dissolved Sulphate (SO4)	mg/L	-	240	1.0	8683076			
Turbidity	NTU	-	3.0	0.1	8683034			
Alkalinity (Total as CaCO3)	mg/L	-	100	1.0	8683056	100	1.0	8683056
Dissolved Chloride (Cl-)	mg/L	-	94	1.0	8683068			
Nitrite (N)	mg/L	-	0.010	0.010	8683051	<0.010	0.010	8683051
No Fill	No Exceedance							
Grey	Exceeds 1 criteria policy/level							
Black	Exceeds both criteria/levels							
RDL = Reportable Detection Limit								
QC Batch = Quality Control Batch								
Lab-Dup = Laboratory Initiated Duplicate								
Criteria: Ontario Provincial Water Quality Objectives								
Ref. to MOEE Water Management document dated Feb.1999								
N/A = Not Applicable								



RESULTS OF ANALYSES OF WATER

Bureau Veritas ID			VWW778			VWW778		
Sampling Date			2023/05/23 11:30			2023/05/23 11:30		
COC Number			934505-01-01			934505-01-01		
	UNITS	Criteria	POND	RDL	QC Batch	POND Lab-Dup	RDL	QC Batch
Nitrate (N)	mg/L	-	0.18	0.10	8683051	0.19	0.10	8683051
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								



RESULTS OF ANALYSES OF WATER

Bureau Veritas ID			VWW779			VWW779		
Sampling Date			2023/05/23 11:11			2023/05/23 11:11		
COC Number			934505-01-01			934505-01-01		
	UNITS	Criteria	SW1	RDL	QC Batch	SW1 Lab-Dup	RDL	QC Batch
Calculated Parameters								
Anion Sum	me/L	-	9.88	N/A	8682207			
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	-	250	1.0	8681739			
Carb. Alkalinity (calc. as CaCO3)	mg/L	-	2.6	1.0	8681739			
Cation Sum	me/L	-	9.82	N/A	8682207			
Hardness (CaCO3)	mg/L	-	390	1.0	8681022			
Langelier Index (@ 20C)	N/A	-	1.06		8682208			
Langelier Index (@ 4C)	N/A	-	0.808		8682209			
Saturation pH (@ 20C)	N/A	-	6.99		8682208			
Saturation pH (@ 4C)	N/A	-	7.24		8682209			
Inorganics								
Total Ammonia-N	mg/L	-	0.055	0.050	8690187			
Conductivity	umho/cm	-	930	1.0	8683061			
Total Dissolved Solids	mg/L	-	540	10	8686039			
Fluoride (F-)	mg/L	-	0.24	0.10	8683055			
Total Kjeldahl Nitrogen (TKN)	mg/L	-	0.57	0.10	8687259	0.57	0.10	8687259
Dissolved Organic Carbon	mg/L	-	9.5	0.40	8685578			
Orthophosphate (P)	mg/L	-	<0.010	0.010	8683078			
pH	pH	6.5:8.5	8.05		8683057			
Phenols-4AAP	mg/L	0.001	0.0010	0.0010	8686757			
Total Phosphorus	mg/L	0.01	0.015	0.004	8687341			
Total Suspended Solids	mg/L	-	16	10	8686035			
Dissolved Sulphate (SO4)	mg/L	-	150	1.0	8683076			
Turbidity	NTU	-	6.1	0.1	8683034			
Alkalinity (Total as CaCO3)	mg/L	-	250	1.0	8683056			
Dissolved Chloride (Cl-)	mg/L	-	65	1.0	8683068			
Nitrite (N)	mg/L	-	<0.010	0.010	8683051			
No Fill	No Exceedance							
Grey	Exceeds 1 criteria policy/level							
Black	Exceeds both criteria/levels							
RDL = Reportable Detection Limit								
QC Batch = Quality Control Batch								
Lab-Dup = Laboratory Initiated Duplicate								
Criteria: Ontario Provincial Water Quality Objectives								
Ref. to MOEE Water Management document dated Feb.1999								
N/A = Not Applicable								



RESULTS OF ANALYSES OF WATER

Bureau Veritas ID			VWW779			VWW779		
Sampling Date			2023/05/23 11:11			2023/05/23 11:11		
COC Number			934505-01-01			934505-01-01		
	UNITS	Criteria	SW1	RDL	QC Batch	SW1 Lab-Dup	RDL	QC Batch
Nitrate (N)	mg/L	-	<0.10	0.10	8683051			
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								



RESULTS OF ANALYSES OF WATER

Bureau Veritas ID			VWW780			VWW780		
Sampling Date			2023/05/23 13:11			2023/05/23 13:11		
COC Number			934505-01-01			934505-01-01		
	UNITS	Criteria	SW2	RDL	QC Batch	SW2 Lab-Dup	RDL	QC Batch
Calculated Parameters								
Anion Sum	me/L	-	7.82	N/A	8682207			
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	-	320	1.0	8681739			
Carb. Alkalinity (calc. as CaCO3)	mg/L	-	3.5	1.0	8681739			
Cation Sum	me/L	-	7.98	N/A	8682207			
Hardness (CaCO3)	mg/L	-	370	1.0	8681022			
Langelier Index (@ 20C)	N/A	-	1.24		8682208			
Langelier Index (@ 4C)	N/A	-	0.987		8682209			
Saturation pH (@ 20C)	N/A	-	6.83		8682208			
Saturation pH (@ 4C)	N/A	-	7.08		8682209			
Inorganics								
Total Ammonia-N	mg/L	-	<0.050	0.050	8690187			
Conductivity	umho/cm	-	690	1.0	8683061			
Total Dissolved Solids	mg/L	-	335	10	8686039			
Fluoride (F-)	mg/L	-	<0.10	0.10	8683055			
Total Kjeldahl Nitrogen (TKN)	mg/L	-	0.26	0.10	8687259			
Dissolved Organic Carbon	mg/L	-	6.5	0.40	8684183			
Orthophosphate (P)	mg/L	-	<0.010	0.010	8683078			
pH	pH	6.5:8.5	8.07		8683057			
Phenols-4AAP	mg/L	0.001	<0.0010	0.0010	8686757			
Total Phosphorus	mg/L	0.01	0.008	0.004	8687341	0.005	0.004	8687341
Total Suspended Solids	mg/L	-	<10	10	8686035			
Dissolved Sulphate (SO4)	mg/L	-	42	1.0	8683076			
Turbidity	NTU	-	0.8	0.1	8683034	0.8	0.1	8683034
Alkalinity (Total as CaCO3)	mg/L	-	320	1.0	8683056			
Dissolved Chloride (Cl-)	mg/L	-	18	1.0	8683068			
Nitrite (N)	mg/L	-	<0.010	0.010	8683051			
No Fill	No Exceedance							
Grey	Exceeds 1 criteria policy/level							
Black	Exceeds both criteria/levels							
RDL = Reportable Detection Limit								
QC Batch = Quality Control Batch								
Lab-Dup = Laboratory Initiated Duplicate								
Criteria: Ontario Provincial Water Quality Objectives								
Ref. to MOEE Water Management document dated Feb.1999								
N/A = Not Applicable								



RESULTS OF ANALYSES OF WATER

Bureau Veritas ID			VWW780			VWW780		
Sampling Date			2023/05/23 13:11			2023/05/23 13:11		
COC Number			934505-01-01			934505-01-01		
	UNITS	Criteria	SW2	RDL	QC Batch	SW2 Lab-Dup	RDL	QC Batch
Nitrate (N)	mg/L	-	<0.10	0.10	8683051			
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								



RESULTS OF ANALYSES OF WATER

Bureau Veritas ID			VWW781			VWW781		
Sampling Date			2023/05/23			2023/05/23		
COC Number			934505-01-01			934505-01-01		
	UNITS	Criteria	DUP 3	RDL	QC Batch	DUP 3 Lab-Dup	RDL	QC Batch
Calculated Parameters								
Anion Sum	me/L	-	9.72	N/A	8682207			
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	-	250	1.0	8681739			
Carb. Alkalinity (calc. as CaCO3)	mg/L	-	2.4	1.0	8681739			
Cation Sum	me/L	-	9.76	N/A	8682207			
Hardness (CaCO3)	mg/L	-	390	1.0	8681022			
Langelier Index (@ 20C)	N/A	-	1.02		8682208			
Langelier Index (@ 4C)	N/A	-	0.774		8682209			
Saturation pH (@ 20C)	N/A	-	6.99		8682208			
Saturation pH (@ 4C)	N/A	-	7.23		8682209			
Inorganics								
Total Ammonia-N	mg/L	-	<0.050	0.050	8690187			
Conductivity	umho/cm	-	920	1.0	8683061			
Total Dissolved Solids	mg/L	-	550	10	8686039			
Fluoride (F-)	mg/L	-	0.23	0.10	8683055			
Total Kjeldahl Nitrogen (TKN)	mg/L	-	0.49	0.10	8687259			
Dissolved Organic Carbon	mg/L	-	9.4	0.40	8682772	9.5	0.40	8682772
Orthophosphate (P)	mg/L	-	<0.010	0.010	8683078			
pH	pH	6.5:8.5	8.01		8683057			
Phenols-4AAP	mg/L	0.001	0.0010	0.0010	8686757			
Total Phosphorus	mg/L	0.01	0.016	0.004	8687341			
Total Suspended Solids	mg/L	-	16	10	8686035			
Dissolved Sulphate (SO4)	mg/L	-	140	1.0	8683076			
Turbidity	NTU	-	6.4	0.1	8683034			
Alkalinity (Total as CaCO3)	mg/L	-	250	1.0	8683056			
Dissolved Chloride (Cl-)	mg/L	-	62	1.0	8683068			
Nitrite (N)	mg/L	-	<0.010	0.010	8683051			
No Fill	No Exceedance							
Grey	Exceeds 1 criteria policy/level							
Black	Exceeds both criteria/levels							
RDL = Reportable Detection Limit								
QC Batch = Quality Control Batch								
Lab-Dup = Laboratory Initiated Duplicate								
Criteria: Ontario Provincial Water Quality Objectives								
Ref. to MOEE Water Management document dated Feb.1999								
N/A = Not Applicable								



RESULTS OF ANALYSES OF WATER

Bureau Veritas ID			VWW781			VWW781		
Sampling Date			2023/05/23			2023/05/23		
COC Number			934505-01-01			934505-01-01		
	UNITS	Criteria	DUP 3	RDL	QC Batch	DUP 3 Lab-Dup	RDL	QC Batch
Nitrate (N)	mg/L	-	<0.10	0.10	8683051			
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								



BUREAU
VERITAS

Bureau Veritas Job #: C3E7254

Report Date: 2023/05/31

WSP Canada Inc.

Client Project #: 22579526

Site Location: McCarthy

Sampler Initials: CI

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID			VWW778	VWW779	VWW780			VWW780		
Sampling Date			2023/05/23 11:30	2023/05/23 11:11	2023/05/23 13:11			2023/05/23 13:11		
COC Number			934505-01-01	934505-01-01	934505-01-01			934505-01-01		
	UNITS	Criteria	POND	SW1	SW2	RDL	QC Batch	SW2 Lab-Dup	RDL	QC Batch
Metals										
Dissolved Calcium (Ca)	mg/L	-	77	120	120	0.05	8685315	120	0.05	8685315
Dissolved Magnesium (Mg)	mg/L	-	31	21	16	0.05	8685315	16	0.05	8685315
Dissolved Potassium (K)	mg/L	-	11	6	1	1	8685315	1	1	8685315
Dissolved Sodium (Na)	mg/L	-	68	43	12	0.5	8685315	12	0.5	8685315
Total Arsenic (As)	ug/L	100	<1.0	<1.0	<1.0	1.0	8686761			
Total Cadmium (Cd)	ug/L	0.2	<0.090	<0.090	<0.090	0.090	8686761			
Total Calcium (Ca)	ug/L	-	83000	140000	120000	200	8686761			
Total Chromium (Cr)	ug/L	-	<5.0	<5.0	<5.0	5.0	8686761			
Total Copper (Cu)	ug/L	5	0.93	0.90	<0.90	0.90	8686761			
Total Iron (Fe)	ug/L	300	130	390	100	100	8686761			
Total Lead (Pb)	ug/L	5	<0.50	<0.50	<0.50	0.50	8686761			
Total Magnesium (Mg)	ug/L	-	33000	23000	11000	50	8686761			
Total Manganese (Mn)	ug/L	-	68	69	17	2.0	8686761			
Total Nickel (Ni)	ug/L	25	1.6	1.9	<1.0	1.0	8686761			
Total Potassium (K)	ug/L	-	12000	5700	1100	200	8686761			
Total Sodium (Na)	ug/L	-	72000	43000	5500	100	8686761			
Total Zinc (Zn)	ug/L	30	<5.0	<5.0	<5.0	5.0	8686761			
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										



ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID			VWW781		
Sampling Date			2023/05/23		
COC Number			934505-01-01		
	UNITS	Criteria	DUP 3	RDL	QC Batch
Metals					
Dissolved Calcium (Ca)	mg/L	-	120	0.05	8685315
Dissolved Magnesium (Mg)	mg/L	-	20	0.05	8685315
Dissolved Potassium (K)	mg/L	-	6	1	8685315
Dissolved Sodium (Na)	mg/L	-	41	0.5	8685315
Total Arsenic (As)	ug/L	100	<1.0	1.0	8686761
Total Cadmium (Cd)	ug/L	0.2	<0.090	0.090	8686761
Total Calcium (Ca)	ug/L	-	140000	200	8686761
Total Chromium (Cr)	ug/L	-	<5.0	5.0	8686761
Total Copper (Cu)	ug/L	5	1.2	0.90	8686761
Total Iron (Fe)	ug/L	300	380	100	8686761
Total Lead (Pb)	ug/L	5	<0.50	0.50	8686761
Total Magnesium (Mg)	ug/L	-	22000	50	8686761
Total Manganese (Mn)	ug/L	-	70	2.0	8686761
Total Nickel (Ni)	ug/L	25	2.0	1.0	8686761
Total Potassium (K)	ug/L	-	5400	200	8686761
Total Sodium (Na)	ug/L	-	41000	100	8686761
Total Zinc (Zn)	ug/L	30	<5.0	5.0	8686761
No Fill	No Exceedance				
Grey	Exceeds 1 criteria policy/level				
Black	Exceeds both criteria/levels				
RDL = Reportable Detection Limit					
QC Batch = Quality Control Batch					
Criteria: Ontario Provincial Water Quality Objectives					
Ref. to MOEE Water Management document dated Feb.1999					



Bureau Veritas Job #: C3E7254
Report Date: 2023/05/31

WSP Canada Inc.
Client Project #: 22579526
Site Location: McCarthy
Sampler Initials: CI

TEST SUMMARY

Bureau Veritas ID: VWW778
Sample ID: POND
Matrix: Water

Collected: 2023/05/23
Shipped:
Received: 2023/05/24

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	8683056	N/A	2023/05/26	Kien Tran
Carbonate, Bicarbonate and Hydroxide	CALC	8681739	N/A	2023/05/29	Automated Statchk
Chloride by Automated Colourimetry	KONE	8683068	N/A	2023/05/26	Massarat Jan
Conductivity	AT	8683061	N/A	2023/05/26	Kien Tran
Dissolved Organic Carbon (DOC)	TOCV/NDIR	8682772	N/A	2023/05/25	Gyulshen Idriz
Fluoride	ISE	8683055	2023/05/24	2023/05/26	Kien Tran
Hardness (calculated as CaCO3)		8681022	N/A	2023/05/31	Automated Statchk
Lab Filtered Metals Analysis by ICP	ICP	8685315	2023/05/25	2023/05/31	Suban Kanapathipplai
Total Metals Analysis by ICPMS	ICP/MS	8686761	2023/05/26	2023/05/29	Arefa Dabhad
Anion and Cation Sum	CALC	8682207	N/A	2023/05/31	Automated Statchk
Total Ammonia-N	LACH/NH4	8690187	N/A	2023/05/29	Prabhjot Kaur
Nitrate & Nitrite as Nitrogen in Water	LACH	8683051	N/A	2023/05/25	Viorica Rotaru
Animal and Vegetable Oil and Grease	BAL	8681631	N/A	2023/05/30	Automated Statchk
Total Oil and Grease	BAL	8692656	2023/05/30	2023/05/30	Mitul Patel
pH	AT	8683057	2023/05/24	2023/05/26	Kien Tran
Phenols (4AAP)	TECH/PHEN	8686757	N/A	2023/05/26	Mandeep Kaur
Orthophosphate	KONE	8683078	N/A	2023/05/26	Massarat Jan
Sat. pH and Langelier Index (@ 20C)	CALC	8682208	N/A	2023/05/31	Automated Statchk
Sat. pH and Langelier Index (@ 4C)	CALC	8682209	N/A	2023/05/31	Automated Statchk
Sulphate by Automated Turbidimetry	KONE	8683076	N/A	2023/05/26	Massarat Jan
Total Dissolved Solids	BAL	8686039	2023/05/26	2023/05/29	Shaneil Hall
Total Kjeldahl Nitrogen in Water	SKAL	8687259	2023/05/26	2023/05/29	Rajni Tyagi
Total Phosphorus (Colourimetric)	SKAL/P	8687341	2023/05/26	2023/05/29	Sachi Patel
Mineral/Synthetic O & G (TPH Heavy Oil)	BAL	8692668	2023/05/30	2023/05/30	Mitul Patel
Total Suspended Solids	BAL	8686035	2023/05/26	2023/05/29	Tina Teng
Turbidity	AT	8683034	N/A	2023/05/25	Gurpartee Kaur

Bureau Veritas ID: VWW778 Dup
Sample ID: POND
Matrix: Water

Collected: 2023/05/23
Shipped:
Received: 2023/05/24

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	8683056	N/A	2023/05/26	Kien Tran
Conductivity	AT	8683061	N/A	2023/05/26	Kien Tran
Fluoride	ISE	8683055	2023/05/24	2023/05/26	Kien Tran
Total Ammonia-N	LACH/NH4	8690187	N/A	2023/05/29	Prabhjot Kaur
Nitrate & Nitrite as Nitrogen in Water	LACH	8683051	N/A	2023/05/25	Viorica Rotaru
pH	AT	8683057	2023/05/24	2023/05/26	Kien Tran



Bureau Veritas Job #: C3E7254
Report Date: 2023/05/31

WSP Canada Inc.
Client Project #: 22579526
Site Location: McCarthy
Sampler Initials: CI

TEST SUMMARY

Bureau Veritas ID: VWW779
Sample ID: SW1
Matrix: Water

Collected: 2023/05/23
Shipped:
Received: 2023/05/24

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	8683056	N/A	2023/05/26	Kien Tran
Carbonate, Bicarbonate and Hydroxide	CALC	8681739	N/A	2023/05/29	Automated Statchk
Chloride by Automated Colourimetry	KONE	8683068	N/A	2023/05/26	Massarat Jan
Conductivity	AT	8683061	N/A	2023/05/26	Kien Tran
Dissolved Organic Carbon (DOC)	TOCV/NDIR	8685578	N/A	2023/05/25	Gyulshen Idriz
Fluoride	ISE	8683055	2023/05/24	2023/05/26	Kien Tran
Hardness (calculated as CaCO3)		8681022	N/A	2023/05/31	Automated Statchk
Lab Filtered Metals Analysis by ICP	ICP	8685315	2023/05/25	2023/05/31	Suban Kanapathipplai
Total Metals Analysis by ICPMS	ICP/MS	8686761	2023/05/26	2023/05/29	Arefa Dabhad
Anion and Cation Sum	CALC	8682207	N/A	2023/05/31	Automated Statchk
Total Ammonia-N	LACH/NH4	8690187	N/A	2023/05/29	Prabhjot Kaur
Nitrate & Nitrite as Nitrogen in Water	LACH	8683051	N/A	2023/05/25	Viorica Rotaru
Animal and Vegetable Oil and Grease	BAL	8681631	N/A	2023/05/30	Automated Statchk
Total Oil and Grease	BAL	8692656	2023/05/30	2023/05/30	Mitul Patel
pH	AT	8683057	2023/05/24	2023/05/26	Kien Tran
Phenols (4AAP)	TECH/PHEN	8686757	N/A	2023/05/26	Mandeep Kaur
Orthophosphate	KONE	8683078	N/A	2023/05/26	Massarat Jan
Sat. pH and Langelier Index (@ 20C)	CALC	8682208	N/A	2023/05/31	Automated Statchk
Sat. pH and Langelier Index (@ 4C)	CALC	8682209	N/A	2023/05/31	Automated Statchk
Sulphate by Automated Turbidimetry	KONE	8683076	N/A	2023/05/26	Massarat Jan
Total Dissolved Solids	BAL	8686039	2023/05/26	2023/05/29	Shaneil Hall
Total Kjeldahl Nitrogen in Water	SKAL	8687259	2023/05/26	2023/05/29	Rajni Tyagi
Total Phosphorus (Colourimetric)	SKAL/P	8687341	2023/05/26	2023/05/29	Sachi Patel
Mineral/Synthetic O & G (TPH Heavy Oil)	BAL	8692668	2023/05/30	2023/05/30	Mitul Patel
Total Suspended Solids	BAL	8686035	2023/05/26	2023/05/29	Tina Teng
Turbidity	AT	8683034	N/A	2023/05/25	Gurpartee KAU

Bureau Veritas ID: VWW779 Dup
Sample ID: SW1
Matrix: Water

Collected: 2023/05/23
Shipped:
Received: 2023/05/24

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Total Kjeldahl Nitrogen in Water	SKAL	8687259	2023/05/26	2023/05/29	Rajni Tyagi

Bureau Veritas ID: VWW780
Sample ID: SW2
Matrix: Water

Collected: 2023/05/23
Shipped:
Received: 2023/05/24

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	8683056	N/A	2023/05/26	Kien Tran
Carbonate, Bicarbonate and Hydroxide	CALC	8681739	N/A	2023/05/29	Automated Statchk
Chloride by Automated Colourimetry	KONE	8683068	N/A	2023/05/26	Massarat Jan
Conductivity	AT	8683061	N/A	2023/05/26	Kien Tran
Dissolved Organic Carbon (DOC)	TOCV/NDIR	8684183	N/A	2023/05/25	Gyulshen Idriz



Bureau Veritas Job #: C3E7254
Report Date: 2023/05/31

WSP Canada Inc.
Client Project #: 22579526
Site Location: McCarthy
Sampler Initials: CI

TEST SUMMARY

Bureau Veritas ID: VWW780
Sample ID: SW2
Matrix: Water

Collected: 2023/05/23
Shipped:
Received: 2023/05/24

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Fluoride	ISE	8683055	2023/05/24	2023/05/26	Kien Tran
Hardness (calculated as CaCO3)		8681022	N/A	2023/05/31	Automated Statchk
Lab Filtered Metals Analysis by ICP	ICP	8685315	2023/05/25	2023/05/31	Suban Kanapathipplai
Total Metals Analysis by ICPMS	ICP/MS	8686761	2023/05/26	2023/05/29	Arefa Dabhad
Anion and Cation Sum	CALC	8682207	N/A	2023/05/31	Automated Statchk
Total Ammonia-N	LACH/NH4	8690187	N/A	2023/05/29	Prabhjot Kaur
Nitrate & Nitrite as Nitrogen in Water	LACH	8683051	N/A	2023/05/25	Viorica Rotaru
Animal and Vegetable Oil and Grease	BAL	8681631	N/A	2023/05/30	Automated Statchk
Total Oil and Grease	BAL	8692656	2023/05/30	2023/05/30	Mitul Patel
pH	AT	8683057	2023/05/24	2023/05/26	Kien Tran
Phenols (4AAP)	TECH/PHEN	8686757	N/A	2023/05/26	Mandeep Kaur
Orthophosphate	KONE	8683078	N/A	2023/05/26	Massarat Jan
Sat. pH and Langelier Index (@ 20C)	CALC	8682208	N/A	2023/05/31	Automated Statchk
Sat. pH and Langelier Index (@ 4C)	CALC	8682209	N/A	2023/05/31	Automated Statchk
Sulphate by Automated Turbidimetry	KONE	8683076	N/A	2023/05/26	Massarat Jan
Total Dissolved Solids	BAL	8686039	2023/05/26	2023/05/29	Shaneil Hall
Total Kjeldahl Nitrogen in Water	SKAL	8687259	2023/05/26	2023/05/29	Rajni Tyagi
Total Phosphorus (Colourimetric)	SKAL/P	8687341	2023/05/26	2023/05/29	Sachi Patel
Mineral/Synthetic O & G (TPH Heavy Oil)	BAL	8692668	2023/05/30	2023/05/30	Mitul Patel
Total Suspended Solids	BAL	8686035	2023/05/26	2023/05/29	Tina Teng
Turbidity	AT	8683034	N/A	2023/05/25	Gurpartee KAU

Bureau Veritas ID: VWW780 Dup
Sample ID: SW2
Matrix: Water

Collected: 2023/05/23
Shipped:
Received: 2023/05/24

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Lab Filtered Metals Analysis by ICP	ICP	8685315	2023/05/25	2023/05/31	Suban Kanapathipplai
Total Phosphorus (Colourimetric)	SKAL/P	8687341	2023/05/26	2023/05/29	Sachi Patel
Turbidity	AT	8683034	N/A	2023/05/25	Gurpartee KAU

Bureau Veritas ID: VWW781
Sample ID: DUP 3
Matrix: Water

Collected: 2023/05/23
Shipped:
Received: 2023/05/24

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	8683056	N/A	2023/05/26	Kien Tran
Carbonate, Bicarbonate and Hydroxide	CALC	8681739	N/A	2023/05/29	Automated Statchk
Chloride by Automated Colourimetry	KONE	8683068	N/A	2023/05/26	Massarat Jan
Conductivity	AT	8683061	N/A	2023/05/26	Kien Tran
Dissolved Organic Carbon (DOC)	TOCV/NDIR	8682772	N/A	2023/05/24	Gyulshen Idriz
Fluoride	ISE	8683055	2023/05/24	2023/05/26	Kien Tran
Hardness (calculated as CaCO3)		8681022	N/A	2023/05/31	Automated Statchk
Lab Filtered Metals Analysis by ICP	ICP	8685315	2023/05/25	2023/05/31	Suban Kanapathipplai



Bureau Veritas Job #: C3E7254
 Report Date: 2023/05/31

WSP Canada Inc.
 Client Project #: 22579526
 Site Location: McCarthy
 Sampler Initials: CI

TEST SUMMARY

Bureau Veritas ID: VWW781
Sample ID: DUP 3
Matrix: Water

Collected: 2023/05/23
Shipped:
Received: 2023/05/24

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Total Metals Analysis by ICPMS	ICP/MS	8686761	2023/05/26	2023/05/29	Arefa Dabhad
Anion and Cation Sum	CALC	8682207	N/A	2023/05/31	Automated Statchk
Total Ammonia-N	LACH/NH4	8690187	N/A	2023/05/29	Prabhjot Kaur
Nitrate & Nitrite as Nitrogen in Water	LACH	8683051	N/A	2023/05/25	Viorica Rotaru
Animal and Vegetable Oil and Grease	BAL	8681631	N/A	2023/05/30	Automated Statchk
Total Oil and Grease	BAL	8692656	2023/05/30	2023/05/30	Mitul Patel
pH	AT	8683057	2023/05/24	2023/05/26	Kien Tran
Phenols (4AAP)	TECH/PHEN	8686757	N/A	2023/05/26	Mandeep Kaur
Orthophosphate	KONE	8683078	N/A	2023/05/26	Massarat Jan
Sat. pH and Langelier Index (@ 20C)	CALC	8682208	N/A	2023/05/31	Automated Statchk
Sat. pH and Langelier Index (@ 4C)	CALC	8682209	N/A	2023/05/31	Automated Statchk
Sulphate by Automated Turbidimetry	KONE	8683076	N/A	2023/05/26	Massarat Jan
Total Dissolved Solids	BAL	8686039	2023/05/26	2023/05/29	Shaneil Hall
Total Kjeldahl Nitrogen in Water	SKAL	8687259	2023/05/26	2023/05/29	Rajni Tyagi
Total Phosphorus (Colourimetric)	SKAL/P	8687341	2023/05/26	2023/05/29	Sachi Patel
Mineral/Synthetic O & G (TPH Heavy Oil)	BAL	8692668	2023/05/30	2023/05/30	Mitul Patel
Total Suspended Solids	BAL	8686035	2023/05/26	2023/05/29	Tina Teng
Turbidity	AT	8683034	N/A	2023/05/25	Gurpartee Kaur

Bureau Veritas ID: VWW781 Dup
Sample ID: DUP 3
Matrix: Water

Collected: 2023/05/23
Shipped:
Received: 2023/05/24

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Dissolved Organic Carbon (DOC)	TOCV/NDIR	8682772	N/A	2023/05/24	Gyulshen Idriz



Bureau Veritas Job #: C3E7254
Report Date: 2023/05/31

WSP Canada Inc.
Client Project #: 22579526
Site Location: McCarthy
Sampler Initials: CI

GENERAL COMMENTS

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

Package 1	9.0°C
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Results relate only to the items tested.



BUREAU
VERITAS

Bureau Veritas Job #: C3E7254

Report Date: 2023/05/31

WSP Canada Inc.

Client Project #: 22579526

Site Location: McCarthy

Sampler Initials: CI

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
8682772	GID	Matrix Spike [VWW781-04]	Dissolved Organic Carbon	2023/05/24		98	%	80 - 120
8682772	GID	Spiked Blank	Dissolved Organic Carbon	2023/05/24		98	%	80 - 120
8682772	GID	Method Blank	Dissolved Organic Carbon	2023/05/24	<0.40		mg/L	
8682772	GID	RPD [VWW781-04]	Dissolved Organic Carbon	2023/05/24	0.11		%	20
8683034	GTK	Spiked Blank	Turbidity	2023/05/25		100	%	80 - 120
8683034	GTK	Method Blank	Turbidity	2023/05/25	<0.1		NTU	
8683034	GTK	RPD [VWW780-02]	Turbidity	2023/05/25	1.8		%	20
8683051	VRO	Matrix Spike [VWW778-02]	Nitrite (N)	2023/05/25		103	%	80 - 120
			Nitrate (N)	2023/05/25		98	%	80 - 120
8683051	VRO	Spiked Blank	Nitrite (N)	2023/05/25		106	%	80 - 120
			Nitrate (N)	2023/05/25		99	%	80 - 120
8683051	VRO	Method Blank	Nitrite (N)	2023/05/25	<0.010		mg/L	
			Nitrate (N)	2023/05/25	<0.10		mg/L	
8683051	VRO	RPD [VWW778-02]	Nitrite (N)	2023/05/25	3.0		%	20
			Nitrate (N)	2023/05/25	7.4		%	20
8683055	KIT	Matrix Spike [VWW778-02]	Fluoride (F-)	2023/05/26		97	%	80 - 120
8683055	KIT	Spiked Blank	Fluoride (F-)	2023/05/26		98	%	80 - 120
8683055	KIT	Method Blank	Fluoride (F-)	2023/05/26	<0.10		mg/L	
8683055	KIT	RPD [VWW778-02]	Fluoride (F-)	2023/05/26	1.9		%	20
8683056	KIT	Spiked Blank	Alkalinity (Total as CaCO3)	2023/05/26		98	%	85 - 115
8683056	KIT	Method Blank	Alkalinity (Total as CaCO3)	2023/05/26	<1.0		mg/L	
8683056	KIT	RPD [VWW778-02]	Alkalinity (Total as CaCO3)	2023/05/26	0.12		%	20
8683057	KIT	Spiked Blank	pH	2023/05/26		102	%	98 - 103
8683057	KIT	RPD [VWW778-02]	pH	2023/05/26	0.23		%	N/A
8683061	KIT	Spiked Blank	Conductivity	2023/05/26		101	%	85 - 115
8683061	KIT	Method Blank	Conductivity	2023/05/26	<1.0		umho/cm	
8683061	KIT	RPD [VWW778-02]	Conductivity	2023/05/26	0.20		%	25
8683068	MJ1	Matrix Spike	Dissolved Chloride (Cl-)	2023/05/26		NC	%	80 - 120
8683068	MJ1	Spiked Blank	Dissolved Chloride (Cl-)	2023/05/26		96	%	80 - 120
8683068	MJ1	Method Blank	Dissolved Chloride (Cl-)	2023/05/26	<1.0		mg/L	
8683068	MJ1	RPD	Dissolved Chloride (Cl-)	2023/05/26	3.0		%	20
8683076	MJ1	Matrix Spike	Dissolved Sulphate (SO4)	2023/05/26		NC	%	75 - 125
8683076	MJ1	Spiked Blank	Dissolved Sulphate (SO4)	2023/05/26		105	%	80 - 120
8683076	MJ1	Method Blank	Dissolved Sulphate (SO4)	2023/05/26	<1.0		mg/L	
8683076	MJ1	RPD	Dissolved Sulphate (SO4)	2023/05/26	1.6		%	20
8683078	MJ1	Matrix Spike	Orthophosphate (P)	2023/05/26		97	%	75 - 125
8683078	MJ1	Spiked Blank	Orthophosphate (P)	2023/05/26		99	%	80 - 120
8683078	MJ1	Method Blank	Orthophosphate (P)	2023/05/26	<0.010		mg/L	
8683078	MJ1	RPD	Orthophosphate (P)	2023/05/26	NC		%	20
8684183	GID	Matrix Spike	Dissolved Organic Carbon	2023/05/25		93	%	80 - 120
8684183	GID	Spiked Blank	Dissolved Organic Carbon	2023/05/25		96	%	80 - 120
8684183	GID	Method Blank	Dissolved Organic Carbon	2023/05/25	<0.40		mg/L	
8684183	GID	RPD	Dissolved Organic Carbon	2023/05/25	4.4		%	20
8685315	SUK	Matrix Spike [VWW780-02]	Dissolved Calcium (Ca)	2023/05/31		NC	%	80 - 120
			Dissolved Magnesium (Mg)	2023/05/31		NC	%	80 - 120
			Dissolved Potassium (K)	2023/05/31		99	%	80 - 120
			Dissolved Sodium (Na)	2023/05/31		NC	%	80 - 120



BUREAU
VERITAS

Bureau Veritas Job #: C3E7254

Report Date: 2023/05/31

WSP Canada Inc.

Client Project #: 22579526

Site Location: McCarthy

Sampler Initials: CI

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC	Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
8685315	SUK	Spiked Blank	Dissolved Calcium (Ca)	2023/05/31		96	%	80 - 120	
			Dissolved Magnesium (Mg)	2023/05/31		96	%	80 - 120	
			Dissolved Potassium (K)	2023/05/31		97	%	80 - 120	
			Dissolved Sodium (Na)	2023/05/31		96	%	80 - 120	
8685315	SUK	Method Blank	Dissolved Calcium (Ca)	2023/05/31	<0.05		mg/L		
			Dissolved Magnesium (Mg)	2023/05/31	<0.05		mg/L		
			Dissolved Potassium (K)	2023/05/31	<1		mg/L		
			Dissolved Sodium (Na)	2023/05/31	<0.5		mg/L		
8685315	SUK	RPD [VWW780-02]	Dissolved Calcium (Ca)	2023/05/31	1.5		%	25	
			Dissolved Magnesium (Mg)	2023/05/31	1.4		%	25	
			Dissolved Potassium (K)	2023/05/31	3.6		%	25	
			Dissolved Sodium (Na)	2023/05/31	0		%	25	
8685578	GID	Matrix Spike	Dissolved Organic Carbon	2023/05/25		96	%	80 - 120	
8685578	GID	Spiked Blank	Dissolved Organic Carbon	2023/05/25		98	%	80 - 120	
8685578	GID	Method Blank	Dissolved Organic Carbon	2023/05/25	<0.40		mg/L		
8685578	GID	RPD	Dissolved Organic Carbon	2023/05/25	0.45		%	20	
8686035	TTE	Spiked Blank	Total Suspended Solids	2023/05/29		100	%	85 - 115	
8686035	TTE	Method Blank	Total Suspended Solids	2023/05/29	<10		mg/L		
8686035	TTE	RPD	Total Suspended Solids	2023/05/29	NC		%	20	
8686039	SHD	Spiked Blank	Total Dissolved Solids	2023/05/29		97	%	90 - 110	
8686039	SHD	Method Blank	Total Dissolved Solids	2023/05/29	<10		mg/L		
8686039	SHD	RPD	Total Dissolved Solids	2023/05/29	1.4		%	20	
8686757	MKX	Matrix Spike	Phenols-4AAP	2023/05/26		103	%	80 - 120	
8686757	MKX	Spiked Blank	Phenols-4AAP	2023/05/26		101	%	80 - 120	
8686757	MKX	Method Blank	Phenols-4AAP	2023/05/26	<0.0010		mg/L		
8686757	MKX	RPD	Phenols-4AAP	2023/05/26	NC		%	20	
8686761	ADA	Matrix Spike	Total Arsenic (As)	2023/05/29		103	%	80 - 120	
			Total Cadmium (Cd)	2023/05/29		101	%	80 - 120	
			Total Calcium (Ca)	2023/05/29		105	%	80 - 120	
			Total Chromium (Cr)	2023/05/29		101	%	80 - 120	
			Total Copper (Cu)	2023/05/29		108	%	80 - 120	
			Total Iron (Fe)	2023/05/29		105	%	80 - 120	
			Total Lead (Pb)	2023/05/29		108	%	80 - 120	
			Total Magnesium (Mg)	2023/05/29		109	%	80 - 120	
			Total Manganese (Mn)	2023/05/29		98	%	80 - 120	
			Total Nickel (Ni)	2023/05/29		102	%	80 - 120	
			Total Potassium (K)	2023/05/29		104	%	80 - 120	
			Total Sodium (Na)	2023/05/29		102	%	80 - 120	
			Total Zinc (Zn)	2023/05/29		105	%	80 - 120	
			8686761	ADA	Spiked Blank	Total Arsenic (As)	2023/05/29		100
Total Cadmium (Cd)	2023/05/29					97	%	80 - 120	
Total Calcium (Ca)	2023/05/29					106	%	80 - 120	
Total Chromium (Cr)	2023/05/29					97	%	80 - 120	
Total Copper (Cu)	2023/05/29					103	%	80 - 120	
Total Iron (Fe)	2023/05/29					101	%	80 - 120	
Total Lead (Pb)	2023/05/29					102	%	80 - 120	
Total Magnesium (Mg)	2023/05/29					102	%	80 - 120	
Total Manganese (Mn)	2023/05/29					95	%	80 - 120	
Total Nickel (Ni)	2023/05/29					98	%	80 - 120	
Total Potassium (K)	2023/05/29					104	%	80 - 120	
Total Sodium (Na)	2023/05/29		103	%	80 - 120				



BUREAU
VERITAS

Bureau Veritas Job #: C3E7254

Report Date: 2023/05/31

WSP Canada Inc.

Client Project #: 22579526

Site Location: McCarthy

Sampler Initials: CI

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
8686761	ADA	Method Blank	Total Zinc (Zn)	2023/05/29		100	%	80 - 120
			Total Arsenic (As)	2023/05/29	<1.0		ug/L	
			Total Cadmium (Cd)	2023/05/29	<0.090		ug/L	
			Total Calcium (Ca)	2023/05/29	<200		ug/L	
			Total Chromium (Cr)	2023/05/29	<5.0		ug/L	
			Total Copper (Cu)	2023/05/29	<0.90		ug/L	
			Total Iron (Fe)	2023/05/29	<100		ug/L	
			Total Lead (Pb)	2023/05/29	<0.50		ug/L	
			Total Magnesium (Mg)	2023/05/29	<50		ug/L	
			Total Manganese (Mn)	2023/05/29	<2.0		ug/L	
			Total Nickel (Ni)	2023/05/29	<1.0		ug/L	
			Total Potassium (K)	2023/05/29	<200		ug/L	
			Total Sodium (Na)	2023/05/29	<100		ug/L	
			Total Zinc (Zn)	2023/05/29	<5.0		ug/L	
8686761	ADA	RPD	Total Arsenic (As)	2023/05/29	10		%	20
			Total Cadmium (Cd)	2023/05/29	NC		%	20
			Total Copper (Cu)	2023/05/29	NC		%	20
			Total Iron (Fe)	2023/05/29	0.96		%	20
			Total Lead (Pb)	2023/05/29	NC		%	20
			Total Nickel (Ni)	2023/05/29	NC		%	20
			Total Zinc (Zn)	2023/05/29	NC		%	20
8687259	RTY	Matrix Spike [VWW779-06]	Total Kjeldahl Nitrogen (TKN)	2023/05/29		102	%	80 - 120
8687259	RTY	QC Standard	Total Kjeldahl Nitrogen (TKN)	2023/05/29		97	%	80 - 120
8687259	RTY	Spiked Blank	Total Kjeldahl Nitrogen (TKN)	2023/05/29		100	%	80 - 120
8687259	RTY	Method Blank	Total Kjeldahl Nitrogen (TKN)	2023/05/29	<0.10		mg/L	
8687259	RTY	RPD [VWW779-06]	Total Kjeldahl Nitrogen (TKN)	2023/05/29	0		%	20
8687341	SPC	Matrix Spike [VWW780-06]	Total Phosphorus	2023/05/29		99	%	80 - 120
			Total Phosphorus	2023/05/29		103	%	80 - 120
8687341	SPC	Spiked Blank	Total Phosphorus	2023/05/29		101	%	80 - 120
8687341	SPC	Method Blank	Total Phosphorus	2023/05/29	<0.004		mg/L	
8687341	SPC	RPD [VWW780-06]	Total Phosphorus	2023/05/29	NC		%	20
8690187	KPJ	Matrix Spike [VWW778-08]	Total Ammonia-N	2023/05/29		102	%	75 - 125
8690187	KPJ	Spiked Blank	Total Ammonia-N	2023/05/29		101	%	80 - 120
8690187	KPJ	Method Blank	Total Ammonia-N	2023/05/29	<0.050		mg/L	
8690187	KPJ	RPD [VWW778-08]	Total Ammonia-N	2023/05/29	NC		%	20
8692656	MPZ	Spiked Blank	Total Oil & Grease	2023/05/30		99	%	85 - 115
8692656	MPZ	RPD	Total Oil & Grease	2023/05/30	0.25		%	25
8692656	MPZ	Method Blank	Total Oil & Grease	2023/05/30	<0.50		mg/L	
8692668	MPZ	Spiked Blank	Total Oil & Grease Mineral/Synthetic	2023/05/30		96	%	85 - 115
8692668	MPZ	RPD	Total Oil & Grease Mineral/Synthetic	2023/05/30	1.0		%	25



QUALITY ASSURANCE REPORT(CONT'D)

QA/QC	Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
	8692668	MPZ	Method Blank	Total Oil & Grease Mineral/Synthetic	2023/05/30	<0.50		mg/L	

N/A = Not Applicable

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

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

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

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

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

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

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



Bureau Veritas Job #: C3E7254
Report Date: 2023/05/31

WSP Canada Inc.
Client Project #: 22579526
Site Location: McCarthy
Sampler Initials: CI

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Anastassia Hamanov, Scientific Specialist

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by {0}, {1} responsible for {2} {3} laboratory operations.



Bureau Veritas Job #: C3E7254
 Report Date: 2023/05/31

WSP Canada Inc.
 Client Project #: 22579526
 Site Location: McCarthy
 Sampler Initials: CI

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

Sample ID	Bureau Veritas ID	Parameter	Criteria	Result	DL	UNITS
SW1	VWW779-05	Total Iron (Fe)	300	390	100	ug/L
SW1	VWW779-06	Total Phosphorus	0.01	0.015	0.004	mg/L
DUP 3	VWW781-05	Total Iron (Fe)	300	380	100	ug/L
DUP 3	VWW781-06	Total Phosphorus	0.01	0.016	0.004	mg/L

The exceedance summary table is for information purposes only and should not be considered a comprehensive listing or statement of conformance to applicable regulatory guidelines.



Your Project #: 22579526
Your C.O.C. #: 934508-04-01

Attention: Colin Imrie

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

Report Date: 2023/07/04
Report #: R7699444
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C318077

Received: 2023/06/27, 09:45

Sample Matrix: Surface Water
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Animal and Vegetable Oil and Grease	1	N/A	2023/07/02	CAM SOP-00326	EPA1664B m,SM5520B m
Total Oil and Grease	1	2023/07/02	2023/07/02	CAM SOP-00326	EPA1664B m,SM5520B m
pH	1	2023/06/29	2023/06/29	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	1	N/A	2023/06/28	CAM SOP-00444	OMOE E3179 m
Mineral/Synthetic O & G (TPH Heavy Oil) (1)	1	2023/07/02	2023/07/02	CAM SOP-00326	EPA1664B m,SM5520F m
Low Level Total Suspended Solids	1	2023/06/29	2023/06/29	CAM SOP-00428	SM 23 2540D m

Remarks:

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

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas 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 Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

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

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

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

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

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



Your Project #: 22579526
Your C.O.C. #: 934508-04-01

Attention: Colin Imrie

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

Report Date: 2023/07/04
Report #: R7699444
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C318077

Received: 2023/06/27, 09:45

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:

Ankita Bhalla, Project Manager
Email: Ankita.Bhalla@bureauveritas.com
Phone# (905) 817-5700

=====

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RESULTS OF ANALYSES OF SURFACE WATER

Bureau Veritas ID		WFL315		
Sampling Date		2023/06/26 13:40		
COC Number		934508-04-01		
	UNITS	POND	RDL	QC Batch
Calculated Parameters				
Total Animal/Vegetable Oil and Grease	mg/L	0.90	0.50	8754231
Inorganics				
pH	pH	7.52	N/A	8760640
Phenols-4AAP	mg/L	<0.0010	0.0010	8758809
Total Suspended Solids	mg/L	3	1	8759754
Petroleum Hydrocarbons				
Total Oil & Grease	mg/L	1.4	0.50	8765519
Total Oil & Grease Mineral/Synthetic	mg/L	0.50	0.50	8765521
RDL = Reportable Detection Limit QC Batch = Quality Control Batch N/A = Not Applicable				



BUREAU
VERITAS

Bureau Veritas Job #: C318077

Report Date: 2023/07/04

Golder Associates Ltd

Client Project #: 22579526

Sampler Initials: JM

GENERAL COMMENTS

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

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



QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
8758809	MKX	Matrix Spike	Phenols-4AAP	2023/06/28		102	%	80 - 120
8758809	MKX	Spiked Blank	Phenols-4AAP	2023/06/28		102	%	80 - 120
8758809	MKX	Method Blank	Phenols-4AAP	2023/06/28	<0.0010		mg/L	
8758809	MKX	RPD	Phenols-4AAP	2023/06/28	NC		%	20
8759754	SHD	Spiked Blank	Total Suspended Solids	2023/06/29		95	%	85 - 115
8759754	SHD	Method Blank	Total Suspended Solids	2023/06/29	<1		mg/L	
8759754	SHD	RPD	Total Suspended Solids	2023/06/29	15		%	20
8760640	TAK	Spiked Blank	pH	2023/06/29		102	%	98 - 103
8760640	TAK	RPD	pH	2023/06/29	0.27		%	N/A
8765519	NSG	Spiked Blank	Total Oil & Grease	2023/07/02		98	%	85 - 115
8765519	NSG	RPD	Total Oil & Grease	2023/07/02	0.25		%	25
8765519	NSG	Method Blank	Total Oil & Grease	2023/07/02	<0.50		mg/L	
8765521	NSG	Spiked Blank	Total Oil & Grease Mineral/Synthetic	2023/07/02		96	%	85 - 115
8765521	NSG	RPD	Total Oil & Grease Mineral/Synthetic	2023/07/02	0.52		%	25
8765521	NSG	Method Blank	Total Oil & Grease Mineral/Synthetic	2023/07/02	<0.50		mg/L	

N/A = Not Applicable

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

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

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

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

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



Bureau Veritas Job #: C318077
Report Date: 2023/07/04

Golder Associates Ltd
Client Project #: 22579526
Sampler Initials: JM

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

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

Anastassia Hamanov, Scientific Specialist

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Your Project #: 22579526
 Site Location: McCarthy
 Your C.O.C. #: 958199-01-01

Attention: Colin Imrie

WSP Canada Inc.
 121 Commerce Park Drive
 Unit L
 Barrie, ON
 CANADA L4N 8X1

Report Date: 2023/10/26
 Report #: R7880284
 Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3W2968

Received: 2023/10/17, 13:00

Sample Matrix: Water
 # Samples Received: 3

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Alkalinity	3	N/A	2023/10/19	CAM SOP-00448	SM 23 2320 B m
Carbonate, Bicarbonate and Hydroxide	3	N/A	2023/10/19	CAM SOP-00102	APHA 4500-CO2 D
Chloride by Automated Colourimetry	3	N/A	2023/10/23	CAM SOP-00463	SM 23 4500-Cl E m
Conductivity	3	N/A	2023/10/19	CAM SOP-00414	SM 23 2510 m
Dissolved Organic Carbon (DOC) (1)	3	N/A	2023/10/20	CAM SOP-00446	SM 23 5310 B m
Fluoride	3	2023/10/18	2023/10/19	CAM SOP-00449	SM 23 4500-F C m
Hardness (calculated as CaCO3)	3	N/A	2023/10/24	CAM SOP 00102/00408/00447	SM 2340 B
Lab Filtered Metals Analysis by ICP	3	2023/10/18	2023/10/24	CAM SOP-00408	EPA 6010D m
Total Metals Analysis by ICPMS	1	2023/10/20	2023/10/20	CAM SOP-00447	EPA 6020B m
Total Metals Analysis by ICPMS	2	2023/10/23	2023/10/23	CAM SOP-00447	EPA 6020B m
Anion and Cation Sum	3	N/A	2023/10/24		
Total Ammonia-N	3	N/A	2023/10/26	CAM SOP-00441	USGS I-2522-90 m
Nitrate & Nitrite as Nitrogen in Water (2)	3	N/A	2023/10/22	CAM SOP-00440	SM 23 4500-NO3I/NO2B
Animal and Vegetable Oil and Grease	3	N/A	2023/10/23	CAM SOP-00326	EPA1664B m,SM5520B m
Total Oil and Grease	3	2023/10/23	2023/10/23	CAM SOP-00326	EPA1664B m,SM5520B m
pH	3	2023/10/18	2023/10/19	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	3	N/A	2023/10/18	CAM SOP-00444	OMOE E3179 m
Orthophosphate	3	N/A	2023/10/19	CAM SOP-00461	SM 23 4500-P E m
Sat. pH and Langelier Index (@ 20C)	3	N/A	2023/10/24		Auto Calc
Sat. pH and Langelier Index (@ 4C)	3	N/A	2023/10/24		Auto Calc
Sulphate by Automated Turbidimetry	3	N/A	2023/10/19	CAM SOP-00464	SM 23 4500-SO42- E m
Total Dissolved Solids	3	2023/10/21	2023/10/23	CAM SOP-00428	SM 23 2540C m
Total Kjeldahl Nitrogen in Water	3	2023/10/20	2023/10/23	CAM SOP-00938	OMOE E3516 m
Total Phosphorus (Colourimetric)	3	2023/10/20	2023/10/23	CAM SOP-00407	SM 23 4500-P I
Total Phosphorus (Colourimetric)	3	2023/10/20	2023/10/23	CAM SOP-00407	SM 23 4500-P I
Mineral/Synthetic O & G (TPH Heavy Oil) (3)	3	2023/10/23	2023/10/23	CAM SOP-00326	EPA1664B m,SM5520F m
Total Suspended Solids	3	2023/10/21	2023/10/22	CAM SOP-00428	SM 23 2540D m
Turbidity	3	N/A	2023/10/19	CAM SOP-00417	SM 23 2130 B m



Your Project #: 22579526
Site Location: McCarthy
Your C.O.C. #: 958199-01-01

Attention: Colin Imrie

WSP Canada Inc.
121 Commerce Park Drive
Unit L
Barrie, ON
CANADA L4N 8X1

Report Date: 2023/10/26
Report #: R7880284
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3W2968

Received: 2023/10/17, 13:00

Remarks:

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

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas 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 Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

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

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

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

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

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

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

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



Your Project #: 22579526
Site Location: McCarthy
Your C.O.C. #: 958199-01-01

Attention: Colin Imrie

WSP Canada Inc.
121 Commerce Park Drive
Unit L
Barrie, ON
CANADA L4N 8X1

Report Date: 2023/10/26
Report #: R7880284
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3W2968

Received: 2023/10/17, 13:00

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:

Ankita Bhalla, Project Manager
Email: Ankita.Bhalla@bureauveritas.com
Phone# (905) 817-5700

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OIL & GREASE - A/V/M/T (WATER)

Bureau Veritas ID			XHX488	XHX489	XHX490		
Sampling Date			2023/10/16 11:30	2023/10/16 11:30	2023/10/16		
COC Number			958199-01-01	958199-01-01	958199-01-01		
	UNITS	Criteria	POND	SW1	DUP3	RDL	QC Batch
Calculated Parameters							
Total Animal/Vegetable Oil and Grease	mg/L	-	0.90	<0.50	1.3	0.50	8987851
Petroleum Hydrocarbons							
Total Oil & Grease	mg/L	-	0.90	<0.50	1.3	0.50	8998542
Total Oil & Grease Mineral/Synthetic	mg/L	0.5	<0.50	<0.50	<0.50	0.50	8998544
No Fill	No Exceedance						
Grey	Exceeds 1 criteria policy/level						
Black	Exceeds both criteria/levels						
RDL = Reportable Detection Limit							
QC Batch = Quality Control Batch							
Criteria: Ontario Provincial Water Quality Objectives							
Ref. to MOEE Water Management document dated Feb.1999							



BUREAU
VERITAS

Bureau Veritas Job #: C3W2968
Report Date: 2023/10/26

WSP Canada Inc.
Client Project #: 22579526
Site Location: McCarthy
Sampler Initials: CI

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID			XHX488		XHX489			XHX489		
Sampling Date			2023/10/16 11:30		2023/10/16 11:30			2023/10/16 11:30		
COC Number			958199-01-01		958199-01-01			958199-01-01		
	UNITS	Criteria	POND	QC Batch	SW1	RDL	QC Batch	SW1 Lab-Dup	RDL	QC Batch

Calculated Parameters										
Anion Sum	me/L	-	16.1	8986223	18.3	N/A	8986223			
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	-	110	8985804	170	1.0	8985804			
Carb. Alkalinity (calc. as CaCO3)	mg/L	-	<1.0	8985804	1.0	1.0	8985804			
Cation Sum	me/L	-	15.8	8986223	18.9	N/A	8986223			
Hardness (CaCO3)	mg/L	-	420	8985805	550	1.0	8985805			
Langelier Index (@ 20C)	N/A	-	0.359	8986216	0.622		8986216			
Langelier Index (@ 4C)	N/A	-	0.113	8986217	0.376		8986217			
Saturation pH (@ 20C)	N/A	-	7.55	8986216	7.18		8986216			
Saturation pH (@ 4C)	N/A	-	7.80	8986217	7.42		8986217			

Inorganics										
Total Ammonia-N	mg/L	-	0.30	9004563	0.38	0.050	9004563			
Conductivity	umho/cm	-	1700	8990881	1900	1.0	8990881	1900	1.0	8990881
Total Dissolved Solids	mg/L	-	940	8996238	1060	10	8996238			
Fluoride (F-)	mg/L	-	0.46	8990882	0.45	0.10	8990882	0.44	0.10	8990882
Total Kjeldahl Nitrogen (TKN)	mg/L	-	1.1	8995677	1.1	0.10	8995677			
Dissolved Organic Carbon	mg/L	-	9.1	8987163	7.5	0.40	8987163			
Orthophosphate (P)	mg/L	-	<0.010	8990930	<0.010	0.010	8990930			
pH	pH	6.5:8.5	7.91	8990883	7.80		8990883	7.97		8990883
Phenols-4AAP	mg/L	0.001	<0.0010	8988664	0.0011	0.0010	8988855	0.0010	0.0010	8988855
Total Phosphorus	mg/L	0.01	0.022	8996644	0.042	0.004	8996644			
Total Suspended Solids	mg/L	-	<10	8997337	15	10	8997337			
Dissolved Sulphate (SO4)	mg/L	-	280	8990929	290	1.0	8990929			
Turbidity	NTU	-	3.5	8990916	5.5	0.1	8990916			
Alkalinity (Total as CaCO3)	mg/L	-	110	8990880	180	1.0	8990880	180	1.0	8990880
Dissolved Chloride (Cl-)	mg/L	-	290	8990923	310	5.0	8990923			
Nitrite (N)	mg/L	-	<0.010	8990230	0.018	0.010	8990230			
Nitrate (N)	mg/L	-	<0.10	8990230	0.23	0.10	8990230			

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels
RDL = Reportable Detection Limit	
QC Batch = Quality Control Batch	
Lab-Dup = Laboratory Initiated Duplicate	
Criteria: Ontario Provincial Water Quality Objectives	
Ref. to MOEE Water Management document dated Feb.1999	
N/A = Not Applicable	



RESULTS OF ANALYSES OF WATER

Bureau Veritas ID			XHX490			XHX490		
Sampling Date			2023/10/16			2023/10/16		
COC Number			958199-01-01			958199-01-01		
	UNITS	Criteria	DUP3	RDL	QC Batch	DUP3 Lab-Dup	RDL	QC Batch
Calculated Parameters								
Anion Sum	me/L	-	18.3	N/A	8986223			
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	-	180	1.0	8985804			
Carb. Alkalinity (calc. as CaCO3)	mg/L	-	1.2	1.0	8985804			
Cation Sum	me/L	-	18.0	N/A	8986223			
Hardness (CaCO3)	mg/L	-	520	1.0	8985805			
Langelier Index (@ 20C)	N/A	-	0.663		8986216			
Langelier Index (@ 4C)	N/A	-	0.418		8986217			
Saturation pH (@ 20C)	N/A	-	7.20		8986216			
Saturation pH (@ 4C)	N/A	-	7.45		8986217			
Inorganics								
Total Ammonia-N	mg/L	-	0.38	0.050	9004563			
Conductivity	umho/cm	-	1900	1.0	8990881			
Total Dissolved Solids	mg/L	-	1080	10	8992857			
Fluoride (F-)	mg/L	-	0.44	0.10	8990882			
Total Kjeldahl Nitrogen (TKN)	mg/L	-	0.99	0.10	8995677	1.1	0.10	8995677
Dissolved Organic Carbon	mg/L	-	7.4	0.40	8987163			
Orthophosphate (P)	mg/L	-	<0.010	0.010	8990930	<0.010	0.010	8990930
pH	pH	6.5:8.5	7.86		8990883			
Phenols-4AAP	mg/L	0.001	0.0011	0.0010	8988855			
Total Phosphorus	mg/L	0.01	0.027	0.004	8996644			
Total Suspended Solids	mg/L	-	20	10	8995263			
Dissolved Sulphate (SO4)	mg/L	-	290	1.0	8990929	290	1.0	8990929
Turbidity	NTU	-	5.7	0.1	8990916	5.5	0.1	8990916
Alkalinity (Total as CaCO3)	mg/L	-	180	1.0	8990880			
Dissolved Chloride (Cl-)	mg/L	-	310	5.0	8990923	320	5.0	8990923
Nitrite (N)	mg/L	-	0.019	0.010	8990230			
Nitrate (N)	mg/L	-	0.24	0.10	8990230			
No Fill	No Exceedance							
Grey	Exceeds 1 criteria policy/level							
Black	Exceeds both criteria/levels							
RDL = Reportable Detection Limit								
QC Batch = Quality Control Batch								
Lab-Dup = Laboratory Initiated Duplicate								
Criteria: Ontario Provincial Water Quality Objectives								
Ref. to MOEE Water Management document dated Feb.1999								
N/A = Not Applicable								



ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID			XHX488		XHX489	XHX490		
Sampling Date			2023/10/16 11:30		2023/10/16 11:30	2023/10/16		
COC Number			958199-01-01		958199-01-01	958199-01-01		
	UNITS	Criteria	POND	QC Batch	SW1	DUP3	RDL	QC Batch
Metals								
Dissolved Calcium (Ca)	mg/L	-	91	8990454	140	130	0.05	8990454
Dissolved Magnesium (Mg)	mg/L	-	46	8990454	51	48	0.05	8990454
Dissolved Potassium (K)	mg/L	-	17	8990454	16	16	1	8990454
Dissolved Sodium (Na)	mg/L	-	160	8990454	170	160	0.5	8990454
Total Arsenic (As)	ug/L	100	<1.0	8994213	<1.0	<1.0	1.0	8998650
Total Cadmium (Cd)	ug/L	0.2	<0.090	8994213	<0.090	<0.090	0.090	8998650
Total Calcium (Ca)	ug/L	-	100000	8994213	140000	140000	200	8998650
Total Chromium (Cr)	ug/L	-	<5.0	8994213	<5.0	<5.0	5.0	8998650
Total Copper (Cu)	ug/L	5	<0.90	8994213	0.97	0.93	0.90	8998650
Total Iron (Fe)	ug/L	300	250	8994213	620	530	100	8998650
Total Lead (Pb)	ug/L	5	<0.50	8994213	<0.50	<0.50	0.50	8998650
Total Magnesium (Mg)	ug/L	-	51000	8994213	51000	50000	50	8998650
Total Manganese (Mn)	ug/L	-	34	8994213	66	63	2.0	8998650
Total Nickel (Ni)	ug/L	25	2.0	8994213	2.2	2.2	1.0	8998650
Total Potassium (K)	ug/L	-	19000	8994213	16000	16000	200	8998650
Total Sodium (Na)	ug/L	-	180000	8994213	170000	180000	100	8998650
Total Zinc (Zn)	ug/L	30	9.4	8994213	<5.0	<5.0	5.0	8998650
No Fill	No Exceedance							
Grey	Exceeds 1 criteria policy/level							
Black	Exceeds both criteria/levels							
RDL = Reportable Detection Limit								
QC Batch = Quality Control Batch								
Criteria: Ontario Provincial Water Quality Objectives								
Ref. to MOEE Water Management document dated Feb.1999								



Bureau Veritas Job #: C3W2968
Report Date: 2023/10/26

WSP Canada Inc.
Client Project #: 22579526
Site Location: McCarthy
Sampler Initials: CI

TEST SUMMARY

Bureau Veritas ID: XHX488
Sample ID: POND
Matrix: Water

Collected: 2023/10/16
Shipped:
Received: 2023/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	8990880	N/A	2023/10/19	Nachiketa Gohil
Carbonate, Bicarbonate and Hydroxide	CALC	8985804	N/A	2023/10/19	Automated Statchk
Chloride by Automated Colourimetry	KONE	8990923	N/A	2023/10/23	Massarat Jan
Conductivity	AT	8990881	N/A	2023/10/19	Nachiketa Gohil
Dissolved Organic Carbon (DOC)	TOCV/NDIR	8987163	N/A	2023/10/20	Gyulshen Idriz
Fluoride	ISE	8990882	2023/10/18	2023/10/19	Nachiketa Gohil
Hardness (calculated as CaCO3)		8985805	N/A	2023/10/24	Automated Statchk
Lab Filtered Metals Analysis by ICP	ICP	8990454	2023/10/18	2023/10/24	Suban Kanapathipplai
Total Metals Analysis by ICPMS	ICP/MS	8994213	2023/10/20	2023/10/20	Nan Raykha
Anion and Cation Sum	CALC	8986223	N/A	2023/10/24	Automated Statchk
Total Ammonia-N	LACH/NH4	9004563	N/A	2023/10/26	Prabhjot Kaur
Nitrate & Nitrite as Nitrogen in Water	LACH	8990230	N/A	2023/10/22	Chandra Nandlal
Animal and Vegetable Oil and Grease	BAL	8987851	N/A	2023/10/23	Automated Statchk
Total Oil and Grease	BAL	8998542	2023/10/23	2023/10/23	Nikhil Dhiman
pH	AT	8990883	2023/10/18	2023/10/19	Nachiketa Gohil
Phenols (4AAP)	TECH/PHEN	8988664	N/A	2023/10/18	Chloe Pollock
Orthophosphate	KONE	8990930	N/A	2023/10/19	Alina Dobreanu
Sat. pH and Langelier Index (@ 20C)	CALC	8986216	N/A	2023/10/24	Automated Statchk
Sat. pH and Langelier Index (@ 4C)	CALC	8986217	N/A	2023/10/24	Automated Statchk
Sulphate by Automated Turbidimetry	KONE	8990929	N/A	2023/10/19	Alina Dobreanu
Total Dissolved Solids	BAL	8996238	2023/10/21	2023/10/23	Shaneil Hall
Total Kjeldahl Nitrogen in Water	SKAL	8995677	2023/10/20	2023/10/23	Kruti Jitesh Patel
Total Phosphorus (Colourimetric)	SKAL/P	8996644	2023/10/20	2023/10/23	Sachi Patel
Total Phosphorus (Colourimetric)	SKAL/P	8995179	2023/10/20	2023/10/23	Sachi Patel
Mineral/Synthetic O & G (TPH Heavy Oil)	BAL	8998544	2023/10/23	2023/10/23	Nikhil Dhiman
Total Suspended Solids	BAL	8997337	2023/10/21	2023/10/22	Darshan Patel
Turbidity	AT	8990916	N/A	2023/10/19	Leily Karimi

Bureau Veritas ID: XHX489
Sample ID: SW1
Matrix: Water

Collected: 2023/10/16
Shipped:
Received: 2023/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	8990880	N/A	2023/10/19	Nachiketa Gohil
Carbonate, Bicarbonate and Hydroxide	CALC	8985804	N/A	2023/10/19	Automated Statchk
Chloride by Automated Colourimetry	KONE	8990923	N/A	2023/10/23	Massarat Jan
Conductivity	AT	8990881	N/A	2023/10/19	Nachiketa Gohil
Dissolved Organic Carbon (DOC)	TOCV/NDIR	8987163	N/A	2023/10/20	Gyulshen Idriz
Fluoride	ISE	8990882	2023/10/18	2023/10/19	Nachiketa Gohil
Hardness (calculated as CaCO3)		8985805	N/A	2023/10/24	Automated Statchk
Lab Filtered Metals Analysis by ICP	ICP	8990454	2023/10/18	2023/10/24	Suban Kanapathipplai
Total Metals Analysis by ICPMS	ICP/MS	8998650	2023/10/23	2023/10/23	Indira HarryPaul
Anion and Cation Sum	CALC	8986223	N/A	2023/10/24	Automated Statchk
Total Ammonia-N	LACH/NH4	9004563	N/A	2023/10/26	Prabhjot Kaur



Bureau Veritas Job #: C3W2968
Report Date: 2023/10/26

WSP Canada Inc.
Client Project #: 22579526
Site Location: McCarthy
Sampler Initials: CI

TEST SUMMARY

Bureau Veritas ID: XHX489
Sample ID: SW1
Matrix: Water

Collected: 2023/10/16
Shipped:
Received: 2023/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Nitrate & Nitrite as Nitrogen in Water	LACH	8990230	N/A	2023/10/22	Chandra Nandlal
Animal and Vegetable Oil and Grease	BAL	8987851	N/A	2023/10/23	Automated Statchk
Total Oil and Grease	BAL	8998542	2023/10/23	2023/10/23	Nikhil Dhiman
pH	AT	8990883	2023/10/18	2023/10/19	Nachiketa Gohil
Phenols (4AAP)	TECH/PHEN	8988855	N/A	2023/10/18	Chloe Pollock
Orthophosphate	KONE	8990930	N/A	2023/10/19	Alina Dobreanu
Sat. pH and Langelier Index (@ 20C)	CALC	8986216	N/A	2023/10/24	Automated Statchk
Sat. pH and Langelier Index (@ 4C)	CALC	8986217	N/A	2023/10/24	Automated Statchk
Sulphate by Automated Turbidimetry	KONE	8990929	N/A	2023/10/19	Alina Dobreanu
Total Dissolved Solids	BAL	8996238	2023/10/21	2023/10/23	Shaneil Hall
Total Kjeldahl Nitrogen in Water	SKAL	8995677	2023/10/20	2023/10/23	Kruti Jitesh Patel
Total Phosphorus (Colourimetric)	SKAL/P	8996644	2023/10/20	2023/10/23	Sachi Patel
Total Phosphorus (Colourimetric)	SKAL/P	8995179	2023/10/20	2023/10/23	Sachi Patel
Mineral/Synthetic O & G (TPH Heavy Oil)	BAL	8998544	2023/10/23	2023/10/23	Nikhil Dhiman
Total Suspended Solids	BAL	8997337	2023/10/21	2023/10/22	Darshan Patel
Turbidity	AT	8990916	N/A	2023/10/19	Leily Karimi

Bureau Veritas ID: XHX489 Dup
Sample ID: SW1
Matrix: Water

Collected: 2023/10/16
Shipped:
Received: 2023/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	8990880	N/A	2023/10/19	Nachiketa Gohil
Conductivity	AT	8990881	N/A	2023/10/19	Nachiketa Gohil
Fluoride	ISE	8990882	2023/10/18	2023/10/19	Nachiketa Gohil
pH	AT	8990883	2023/10/18	2023/10/19	Nachiketa Gohil
Phenols (4AAP)	TECH/PHEN	8988855	N/A	2023/10/18	Chloe Pollock

Bureau Veritas ID: XHX490
Sample ID: DUP3
Matrix: Water

Collected: 2023/10/16
Shipped:
Received: 2023/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	8990880	N/A	2023/10/19	Nachiketa Gohil
Carbonate, Bicarbonate and Hydroxide	CALC	8985804	N/A	2023/10/19	Automated Statchk
Chloride by Automated Colourimetry	KONE	8990923	N/A	2023/10/23	Massarat Jan
Conductivity	AT	8990881	N/A	2023/10/19	Nachiketa Gohil
Dissolved Organic Carbon (DOC)	TOCV/NDIR	8987163	N/A	2023/10/20	Gyulshen Idriz
Fluoride	ISE	8990882	2023/10/18	2023/10/19	Nachiketa Gohil
Hardness (calculated as CaCO3)		8985805	N/A	2023/10/24	Automated Statchk
Lab Filtered Metals Analysis by ICP	ICP	8990454	2023/10/18	2023/10/24	Suban Kanapathipplai
Total Metals Analysis by ICPMS	ICP/MS	8998650	2023/10/23	2023/10/23	Indira HarryPaul
Anion and Cation Sum	CALC	8986223	N/A	2023/10/24	Automated Statchk
Total Ammonia-N	LACH/NH4	9004563	N/A	2023/10/26	Prabhjot Kaur



Bureau Veritas Job #: C3W2968
Report Date: 2023/10/26

WSP Canada Inc.
Client Project #: 22579526
Site Location: McCarthy
Sampler Initials: CI

TEST SUMMARY

Bureau Veritas ID: XHX490
Sample ID: DUP3
Matrix: Water

Collected: 2023/10/16
Shipped:
Received: 2023/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Nitrate & Nitrite as Nitrogen in Water	LACH	8990230	N/A	2023/10/22	Chandra Nandlal
Animal and Vegetable Oil and Grease	BAL	8987851	N/A	2023/10/23	Automated Statchk
Total Oil and Grease	BAL	8998542	2023/10/23	2023/10/23	Nikhil Dhiman
pH	AT	8990883	2023/10/18	2023/10/19	Nachiketa Gohil
Phenols (4AAP)	TECH/PHEN	8988855	N/A	2023/10/18	Chloe Pollock
Orthophosphate	KONE	8990930	N/A	2023/10/19	Alina Dobreanu
Sat. pH and Langelier Index (@ 20C)	CALC	8986216	N/A	2023/10/24	Automated Statchk
Sat. pH and Langelier Index (@ 4C)	CALC	8986217	N/A	2023/10/24	Automated Statchk
Sulphate by Automated Turbidimetry	KONE	8990929	N/A	2023/10/19	Alina Dobreanu
Total Dissolved Solids	BAL	8992857	2023/10/21	2023/10/23	Shaneil Hall
Total Kjeldahl Nitrogen in Water	SKAL	8995677	2023/10/20	2023/10/23	Kruti Jitesh Patel
Total Phosphorus (Colourimetric)	SKAL/P	8996644	2023/10/20	2023/10/23	Sachi Patel
Total Phosphorus (Colourimetric)	SKAL/P	8995179	2023/10/20	2023/10/23	Sachi Patel
Mineral/Synthetic O & G (TPH Heavy Oil)	BAL	8998544	2023/10/23	2023/10/23	Nikhil Dhiman
Total Suspended Solids	BAL	8995263	2023/10/21	2023/10/22	Darshan Patel
Turbidity	AT	8990916	N/A	2023/10/19	Leily Karimi

Bureau Veritas ID: XHX490 Dup
Sample ID: DUP3
Matrix: Water

Collected: 2023/10/16
Shipped:
Received: 2023/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Chloride by Automated Colourimetry	KONE	8990923	N/A	2023/10/23	Massarat Jan
Orthophosphate	KONE	8990930	N/A	2023/10/19	Alina Dobreanu
Sulphate by Automated Turbidimetry	KONE	8990929	N/A	2023/10/19	Alina Dobreanu
Total Kjeldahl Nitrogen in Water	SKAL	8995677	2023/10/20	2023/10/23	Kruti Jitesh Patel
Turbidity	AT	8990916	N/A	2023/10/19	Leily Karimi



Bureau Veritas Job #: C3W2968
Report Date: 2023/10/26

WSP Canada Inc.
Client Project #: 22579526
Site Location: McCarthy
Sampler Initials: CI

GENERAL COMMENTS

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

Package 1	6.3°C
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Results relate only to the items tested.



QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
8987163	GID	Matrix Spike	Dissolved Organic Carbon	2023/10/20		92	%	80 - 120
8987163	GID	Spiked Blank	Dissolved Organic Carbon	2023/10/20		94	%	80 - 120
8987163	GID	Method Blank	Dissolved Organic Carbon	2023/10/20	<0.40		mg/L	
8987163	GID	RPD	Dissolved Organic Carbon	2023/10/20	3.0		%	20
8988664	CPO	Matrix Spike	Phenols-4AAP	2023/10/18		102	%	80 - 120
8988664	CPO	Spiked Blank	Phenols-4AAP	2023/10/18		101	%	80 - 120
8988664	CPO	Method Blank	Phenols-4AAP	2023/10/18	<0.0010		mg/L	
8988664	CPO	RPD	Phenols-4AAP	2023/10/18	NC		%	20
8988855	CPO	Matrix Spike [XHX489-04]	Phenols-4AAP	2023/10/18		102	%	80 - 120
8988855	CPO	Spiked Blank	Phenols-4AAP	2023/10/18		100	%	80 - 120
8988855	CPO	Method Blank	Phenols-4AAP	2023/10/18	<0.0010		mg/L	
8988855	CPO	RPD [XHX489-04]	Phenols-4AAP	2023/10/18	9.5		%	20
8990230	C_N	Matrix Spike	Nitrite (N)	2023/10/22		NC	%	80 - 120
			Nitrate (N)	2023/10/22		NC	%	80 - 120
8990230	C_N	Spiked Blank	Nitrite (N)	2023/10/22		105	%	80 - 120
			Nitrate (N)	2023/10/22		101	%	80 - 120
8990230	C_N	Method Blank	Nitrite (N)	2023/10/22	<0.010		mg/L	
			Nitrate (N)	2023/10/22	<0.10		mg/L	
8990230	C_N	RPD	Nitrite (N)	2023/10/22	4.0		%	20
			Nitrate (N)	2023/10/22	1.8		%	20
8990454	SUK	Matrix Spike	Dissolved Calcium (Ca)	2023/10/24		NC	%	80 - 120
			Dissolved Magnesium (Mg)	2023/10/24		NC	%	80 - 120
			Dissolved Potassium (K)	2023/10/24		101	%	80 - 120
			Dissolved Sodium (Na)	2023/10/24		NC	%	80 - 120
8990454	SUK	Spiked Blank	Dissolved Calcium (Ca)	2023/10/24		101	%	80 - 120
			Dissolved Magnesium (Mg)	2023/10/24		104	%	80 - 120
			Dissolved Potassium (K)	2023/10/24		103	%	80 - 120
			Dissolved Sodium (Na)	2023/10/24		102	%	80 - 120
8990454	SUK	Method Blank	Dissolved Calcium (Ca)	2023/10/24	<0.05		mg/L	
			Dissolved Magnesium (Mg)	2023/10/24	<0.05		mg/L	
			Dissolved Potassium (K)	2023/10/24	<1		mg/L	
			Dissolved Sodium (Na)	2023/10/24	<0.5		mg/L	
8990880	NGI	Spiked Blank	Alkalinity (Total as CaCO3)	2023/10/19		96	%	85 - 115
8990880	NGI	Method Blank	Alkalinity (Total as CaCO3)	2023/10/19	<1.0		mg/L	
8990880	NGI	RPD [XHX489-02]	Alkalinity (Total as CaCO3)	2023/10/19	1.3		%	20
8990881	NGI	Spiked Blank	Conductivity	2023/10/19		101	%	85 - 115
8990881	NGI	Method Blank	Conductivity	2023/10/19	<1.0		umho/cm	
8990881	NGI	RPD [XHX489-02]	Conductivity	2023/10/19	0.053		%	10
8990882	NGI	Matrix Spike [XHX489-02]	Fluoride (F-)	2023/10/19		92	%	80 - 120
8990882	NGI	Spiked Blank	Fluoride (F-)	2023/10/19		94	%	80 - 120
8990882	NGI	Method Blank	Fluoride (F-)	2023/10/19	<0.10		mg/L	
8990882	NGI	RPD [XHX489-02]	Fluoride (F-)	2023/10/19	0.96		%	20
8990883	NGI	Spiked Blank	pH	2023/10/19		102	%	98 - 103
8990883	NGI	RPD [XHX489-02]	pH	2023/10/19	2.2		%	N/A
8990916	LKI	Spiked Blank	Turbidity	2023/10/19		101	%	80 - 120
8990916	LKI	Method Blank	Turbidity	2023/10/19	<0.1		NTU	
8990916	LKI	RPD [XHX490-02]	Turbidity	2023/10/19	3.7		%	20
8990923	MJ1	Matrix Spike [XHX490-02]	Dissolved Chloride (Cl-)	2023/10/23		NC	%	80 - 120
8990923	MJ1	Spiked Blank	Dissolved Chloride (Cl-)	2023/10/23		97	%	80 - 120
8990923	MJ1	Method Blank	Dissolved Chloride (Cl-)	2023/10/23	<1.0		mg/L	
8990923	MJ1	RPD [XHX490-02]	Dissolved Chloride (Cl-)	2023/10/23	4.5		%	20



QUALITY ASSURANCE REPORT(CONT'D)

QA/QC	Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
	8990929	ADB	Matrix Spike [XHX490-02]	Dissolved Sulphate (SO4)	2023/10/19		NC	%	75 - 125
	8990929	ADB	Spiked Blank	Dissolved Sulphate (SO4)	2023/10/19		97	%	80 - 120
	8990929	ADB	Method Blank	Dissolved Sulphate (SO4)	2023/10/19	<1.0		mg/L	
	8990929	ADB	RPD [XHX490-02]	Dissolved Sulphate (SO4)	2023/10/19	0.22		%	20
	8990930	ADB	Matrix Spike [XHX490-02]	Orthophosphate (P)	2023/10/19		91	%	75 - 125
	8990930	ADB	Spiked Blank	Orthophosphate (P)	2023/10/19		91	%	80 - 120
	8990930	ADB	Method Blank	Orthophosphate (P)	2023/10/19	<0.010		mg/L	
	8990930	ADB	RPD [XHX490-02]	Orthophosphate (P)	2023/10/19	NC		%	20
	8992857	SHD	Spiked Blank	Total Dissolved Solids	2023/10/23		100	%	90 - 110
	8992857	SHD	Method Blank	Total Dissolved Solids	2023/10/23	<10		mg/L	
	8992857	SHD	RPD	Total Dissolved Solids	2023/10/23	4.3		%	20
	8994213	N_R	Matrix Spike	Total Arsenic (As)	2023/10/20		97	%	80 - 120
				Total Cadmium (Cd)	2023/10/20		94	%	80 - 120
				Total Calcium (Ca)	2023/10/20		NC	%	80 - 120
				Total Chromium (Cr)	2023/10/20		93	%	80 - 120
				Total Copper (Cu)	2023/10/20		96	%	80 - 120
				Total Iron (Fe)	2023/10/20		95	%	80 - 120
				Total Lead (Pb)	2023/10/20		94	%	80 - 120
				Total Magnesium (Mg)	2023/10/20		94	%	80 - 120
				Total Manganese (Mn)	2023/10/20		92	%	80 - 120
				Total Nickel (Ni)	2023/10/20		90	%	80 - 120
				Total Potassium (K)	2023/10/20		100	%	80 - 120
				Total Sodium (Na)	2023/10/20		NC	%	80 - 120
				Total Zinc (Zn)	2023/10/20		93	%	80 - 120
	8994213	N_R	Spiked Blank	Total Arsenic (As)	2023/10/20		95	%	80 - 120
				Total Cadmium (Cd)	2023/10/20		94	%	80 - 120
				Total Calcium (Ca)	2023/10/20		96	%	80 - 120
				Total Chromium (Cr)	2023/10/20		94	%	80 - 120
				Total Copper (Cu)	2023/10/20		96	%	80 - 120
				Total Iron (Fe)	2023/10/20		96	%	80 - 120
				Total Lead (Pb)	2023/10/20		94	%	80 - 120
				Total Magnesium (Mg)	2023/10/20		97	%	80 - 120
				Total Manganese (Mn)	2023/10/20		93	%	80 - 120
				Total Nickel (Ni)	2023/10/20		89	%	80 - 120
				Total Potassium (K)	2023/10/20		98	%	80 - 120
				Total Sodium (Na)	2023/10/20		98	%	80 - 120
				Total Zinc (Zn)	2023/10/20		95	%	80 - 120
	8994213	N_R	Method Blank	Total Arsenic (As)	2023/10/20	<1.0		ug/L	
				Total Cadmium (Cd)	2023/10/20	<0.090		ug/L	
				Total Calcium (Ca)	2023/10/20	<200		ug/L	
				Total Chromium (Cr)	2023/10/20	<5.0		ug/L	
				Total Copper (Cu)	2023/10/20	<0.90		ug/L	
				Total Iron (Fe)	2023/10/20	<100		ug/L	
				Total Lead (Pb)	2023/10/20	<0.50		ug/L	
				Total Magnesium (Mg)	2023/10/20	<50		ug/L	
				Total Manganese (Mn)	2023/10/20	<2.0		ug/L	
				Total Nickel (Ni)	2023/10/20	<1.0		ug/L	
				Total Potassium (K)	2023/10/20	<200		ug/L	
				Total Sodium (Na)	2023/10/20	<100		ug/L	
				Total Zinc (Zn)	2023/10/20	<5.0		ug/L	
	8994213	N_R	RPD	Total Arsenic (As)	2023/10/20	1.6		%	20



QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Total Cadmium (Cd)	2023/10/20	NC		%	20
			Total Chromium (Cr)	2023/10/20	NC		%	20
			Total Copper (Cu)	2023/10/20	2.9		%	20
			Total Iron (Fe)	2023/10/20	2.2		%	20
			Total Lead (Pb)	2023/10/20	7.4		%	20
			Total Magnesium (Mg)	2023/10/20	0.46		%	20
			Total Nickel (Ni)	2023/10/20	17		%	20
			Total Zinc (Zn)	2023/10/20	1.4		%	20
8995179	SPC	Matrix Spike	Total Phosphorus	2023/10/23		99	%	80 - 120
8995179	SPC	QC Standard	Total Phosphorus	2023/10/23		106	%	80 - 120
8995179	SPC	Spiked Blank	Total Phosphorus	2023/10/23		107	%	80 - 120
8995179	SPC	Method Blank	Total Phosphorus	2023/10/23	<0.020		mg/L	
8995179	SPC	RPD	Total Phosphorus	2023/10/23	NC		%	20
8995263	DPC	Spiked Blank	Total Suspended Solids	2023/10/22		98	%	85 - 115
8995263	DPC	Method Blank	Total Suspended Solids	2023/10/22	<10		mg/L	
8995263	DPC	RPD	Total Suspended Solids	2023/10/22	NC		%	20
8995677	KJP	Matrix Spike [XHX490-07]	Total Kjeldahl Nitrogen (TKN)	2023/10/23		110	%	80 - 120
8995677	KJP	QC Standard	Total Kjeldahl Nitrogen (TKN)	2023/10/23		96	%	80 - 120
8995677	KJP	Spiked Blank	Total Kjeldahl Nitrogen (TKN)	2023/10/23		99	%	80 - 120
8995677	KJP	Method Blank	Total Kjeldahl Nitrogen (TKN)	2023/10/23	<0.10		mg/L	
8995677	KJP	RPD [XHX490-07]	Total Kjeldahl Nitrogen (TKN)	2023/10/23	7.0		%	20
8996238	SHD	Spiked Blank	Total Dissolved Solids	2023/10/23		98	%	90 - 110
8996238	SHD	Method Blank	Total Dissolved Solids	2023/10/23	<10		mg/L	
8996238	SHD	RPD	Total Dissolved Solids	2023/10/23	0		%	20
8996644	SPC	Matrix Spike	Total Phosphorus	2023/10/23		101	%	80 - 120
8996644	SPC	QC Standard	Total Phosphorus	2023/10/23		104	%	80 - 120
8996644	SPC	Spiked Blank	Total Phosphorus	2023/10/23		99	%	80 - 120
8996644	SPC	Method Blank	Total Phosphorus	2023/10/23	<0.004		mg/L	
8996644	SPC	RPD	Total Phosphorus	2023/10/23	9.8		%	20
8997337	DPC	Spiked Blank	Total Suspended Solids	2023/10/22		96	%	85 - 115
8997337	DPC	Method Blank	Total Suspended Solids	2023/10/22	<10		mg/L	
8997337	DPC	RPD	Total Suspended Solids	2023/10/22	NC		%	20
8998542	NDM	Spiked Blank	Total Oil & Grease	2023/10/23		98	%	85 - 115
8998542	NDM	RPD	Total Oil & Grease	2023/10/23	0.25		%	25
8998542	NDM	Method Blank	Total Oil & Grease	2023/10/23	<0.50		mg/L	
8998544	NDM	Spiked Blank	Total Oil & Grease Mineral/Synthetic	2023/10/23		96	%	85 - 115
8998544	NDM	RPD	Total Oil & Grease Mineral/Synthetic	2023/10/23	1.0		%	25
8998544	NDM	Method Blank	Total Oil & Grease Mineral/Synthetic	2023/10/23	<0.50		mg/L	
8998650	IHP	Matrix Spike	Total Arsenic (As)	2023/10/23		102	%	80 - 120
			Total Cadmium (Cd)	2023/10/23		97	%	80 - 120
			Total Calcium (Ca)	2023/10/23		NC	%	80 - 120
			Total Chromium (Cr)	2023/10/23		96	%	80 - 120
			Total Copper (Cu)	2023/10/23		101	%	80 - 120
			Total Iron (Fe)	2023/10/23		101	%	80 - 120
			Total Lead (Pb)	2023/10/23		99	%	80 - 120
			Total Magnesium (Mg)	2023/10/23		103	%	80 - 120
			Total Manganese (Mn)	2023/10/23		94	%	80 - 120
			Total Nickel (Ni)	2023/10/23		99	%	80 - 120
			Total Potassium (K)	2023/10/23		NC	%	80 - 120
			Total Sodium (Na)	2023/10/23		101	%	80 - 120
			Total Zinc (Zn)	2023/10/23		93	%	80 - 120



QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
8998650	IHP	Spiked Blank	Total Arsenic (As)	2023/10/23		98	%	80 - 120
			Total Cadmium (Cd)	2023/10/23		94	%	80 - 120
			Total Calcium (Ca)	2023/10/23		95	%	80 - 120
			Total Chromium (Cr)	2023/10/23		92	%	80 - 120
			Total Copper (Cu)	2023/10/23		93	%	80 - 120
			Total Iron (Fe)	2023/10/23		99	%	80 - 120
			Total Lead (Pb)	2023/10/23		93	%	80 - 120
			Total Magnesium (Mg)	2023/10/23		102	%	80 - 120
			Total Manganese (Mn)	2023/10/23		95	%	80 - 120
			Total Nickel (Ni)	2023/10/23		97	%	80 - 120
			Total Potassium (K)	2023/10/23		99	%	80 - 120
			Total Sodium (Na)	2023/10/23		99	%	80 - 120
			Total Zinc (Zn)	2023/10/23		97	%	80 - 120
			8998650	IHP	Method Blank	Total Arsenic (As)	2023/10/23	<1.0
Total Cadmium (Cd)	2023/10/23	<0.090					ug/L	
Total Calcium (Ca)	2023/10/23	<200					ug/L	
Total Chromium (Cr)	2023/10/23	<5.0					ug/L	
Total Copper (Cu)	2023/10/23	<0.90					ug/L	
Total Iron (Fe)	2023/10/23	<100					ug/L	
Total Lead (Pb)	2023/10/23	<0.50					ug/L	
Total Magnesium (Mg)	2023/10/23	<50					ug/L	
Total Manganese (Mn)	2023/10/23	<2.0					ug/L	
Total Nickel (Ni)	2023/10/23	<1.0					ug/L	
Total Potassium (K)	2023/10/23	<200					ug/L	
Total Sodium (Na)	2023/10/23	<100					ug/L	
Total Zinc (Zn)	2023/10/23	<5.0					ug/L	
8998650	IHP	RPD				Total Arsenic (As)	2023/10/23	2.0
			Total Cadmium (Cd)	2023/10/23	9.1		%	20
			Total Chromium (Cr)	2023/10/23	NC		%	20
			Total Copper (Cu)	2023/10/23	4.3		%	20
			Total Iron (Fe)	2023/10/23	9.7		%	20
			Total Lead (Pb)	2023/10/23	NC		%	20
			Total Magnesium (Mg)	2023/10/23	2.0		%	20
			Total Manganese (Mn)	2023/10/23	14		%	20
			Total Nickel (Ni)	2023/10/23	9.7		%	20
			Total Zinc (Zn)	2023/10/23	11		%	20
9004563	KPJ	Matrix Spike	Total Ammonia-N	2023/10/26		97	%	75 - 125
9004563	KPJ	Spiked Blank	Total Ammonia-N	2023/10/26		102	%	80 - 120
9004563	KPJ	Method Blank	Total Ammonia-N	2023/10/26	<0.050		mg/L	



BUREAU
VERITAS

Bureau Veritas Job #: C3W2968

Report Date: 2023/10/26

WSP Canada Inc.

Client Project #: 22579526

Site Location: McCarthy

Sampler Initials: CI

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC	Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
	9004563	KPJ	RPD	Total Ammonia-N	2023/10/26	6.0		%	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).



Bureau Veritas Job #: C3W2968
Report Date: 2023/10/26

WSP Canada Inc.
Client Project #: 22579526
Site Location: McCarthy
Sampler Initials: CI

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Cristina Carriere

Cristina Carriere, Senior Scientific Specialist

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

Sample ID	Bureau Veritas ID	Parameter	Criteria	Result	DL	UNITS
POND	XHX488-07	Total Phosphorus	0.01	0.022	0.004	mg/L
POND	XHX488-07	Total Phosphorus	0.01	0.031	0.020	mg/L
SW1	XHX489-06	Total Iron (Fe)	300	620	100	ug/L
SW1	XHX489-04	Phenols-4AAP	0.001	0.0011	0.0010	mg/L
SW1	XHX489-07	Total Phosphorus	0.01	0.042	0.004	mg/L
SW1	XHX489-07	Total Phosphorus	0.01	0.049	0.020	mg/L
DUP3	XHX490-06	Total Iron (Fe)	300	530	100	ug/L
DUP3	XHX490-04	Phenols-4AAP	0.001	0.0011	0.0010	mg/L
DUP3	XHX490-07	Total Phosphorus	0.01	0.027	0.004	mg/L
DUP3	XHX490-07	Total Phosphorus	0.01	0.026	0.020	mg/L

The exceedance summary table is for information purposes only and should not be considered a comprehensive listing or statement of conformance to applicable regulatory guidelines.



Your Project #: 22579526
 Your C.O.C. #: 934508-03-01

Attention: Colin Imrie

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

Report Date: 2023/11/08
 Report #: R7901213
 Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3Y0019

Received: 2023/10/31, 09:23

Sample Matrix: Water
 # Samples Received: 1

Analyses	Quantity	Date	Date	Laboratory Method	Analytical Method
		Extracted	Analyzed		
Animal and Vegetable Oil and Grease	1	N/A	2023/11/08	CAM SOP-00326	EPA1664B m,SM5520B m
Total Oil and Grease	1	2023/11/07	2023/11/07	CAM SOP-00326	EPA1664B m,SM5520B m
pH	1	2023/11/02	2023/11/02	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	1	N/A	2023/11/03	CAM SOP-00444	OMOE E3179 m
Mineral/Synthetic O & G (TPH Heavy Oil) (1)	1	2023/11/07	2023/11/07	CAM SOP-00326	EPA1664B m,SM5520F m
Low Level Total Suspended Solids	1	2023/11/02	2023/11/02	CAM SOP-00428	SM 23 2540D m

Remarks:

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

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas 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 Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

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

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

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

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

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

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



Your Project #: 22579526
Your C.O.C. #: 934508-03-01

Attention: Colin Imrie

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

Report Date: 2023/11/08
Report #: R7901213
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3Y0019
Received: 2023/10/31, 09:23

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:

Ankita Bhalla, Project Manager
Email: Ankita.Bhalla@bureauveritas.com
Phone# (905) 817-5700

=====

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RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		XLO779		
Sampling Date		2023/10/30 03:15		
COC Number		934508-03-01		
	UNITS	POND	RDL	QC Batch
Calculated Parameters				
Total Animal/Vegetable Oil and Grease	mg/L	0.80	0.50	9020510
Inorganics				
pH	pH	7.31	N/A	9023663
Phenols-4AAP	mg/L	<0.0010	0.0010	9026493
Total Suspended Solids	mg/L	3	1	9024380
Petroleum Hydrocarbons				
Total Oil & Grease	mg/L	0.80	0.50	9034540
Total Oil & Grease Mineral/Synthetic	mg/L	<0.50	0.50	9034550
RDL = Reportable Detection Limit QC Batch = Quality Control Batch N/A = Not Applicable				



BUREAU
VERITAS

Bureau Veritas Job #: C3Y0019

Report Date: 2023/11/08

Golder Associates Ltd

Client Project #: 22579526

Sampler Initials: KM

GENERAL COMMENTS

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

Package 1	14.3°C
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Results relate only to the items tested.



QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
9023663	GTK	Spiked Blank	pH	2023/11/02		102	%	98 - 103
9023663	GTK	RPD	pH	2023/11/02	0.49		%	N/A
9024380	DPC	Spiked Blank	Total Suspended Solids	2023/11/02		99	%	85 - 115
9024380	DPC	Method Blank	Total Suspended Solids	2023/11/02	<1		mg/L	
9024380	DPC	RPD	Total Suspended Solids	2023/11/02	12		%	20
9026493	CPO	Matrix Spike	Phenols-4AAP	2023/11/03		102	%	80 - 120
9026493	CPO	Spiked Blank	Phenols-4AAP	2023/11/03		99	%	80 - 120
9026493	CPO	Method Blank	Phenols-4AAP	2023/11/03	<0.0010		mg/L	
9026493	CPO	RPD	Phenols-4AAP	2023/11/03	2.2		%	20
9034540	K1P	Spiked Blank	Total Oil & Grease	2023/11/07		98	%	85 - 115
9034540	K1P	RPD	Total Oil & Grease	2023/11/07	0.51		%	25
9034540	K1P	Method Blank	Total Oil & Grease	2023/11/07	<0.50		mg/L	
9034550	K1P	Spiked Blank	Total Oil & Grease Mineral/Synthetic	2023/11/07		96	%	85 - 115
9034550	K1P	RPD	Total Oil & Grease Mineral/Synthetic	2023/11/07	0.52		%	25
9034550	K1P	Method Blank	Total Oil & Grease Mineral/Synthetic	2023/11/07	<0.50		mg/L	

N/A = Not Applicable

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

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

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

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



Bureau Veritas Job #: C3Y0019
Report Date: 2023/11/08

Golder Associates Ltd
Client Project #: 22579526
Sampler Initials: KM

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Anastassia Hamanov, Scientific Specialist

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Your Project #: 22579526
 Site Location: McCarthy
 Your C.O.C. #: 958199-01-01

Attention: Colin Imrie

WSP Canada Inc.
 121 Commerce Park Drive
 Unit L
 Barrie, ON
 CANADA L4N 8X1

Report Date: 2023/12/05
 Report #: R7942183
 Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3AN985

Received: 2023/11/28, 17:35

Sample Matrix: Water
 # Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Alkalinity	1	N/A	2023/11/30	CAM SOP-00448	SM 24 2320 B m
Carbonate, Bicarbonate and Hydroxide	1	N/A	2023/11/30	CAM SOP-00102	APHA 4500-CO2 D
Chloride by Automated Colourimetry	1	N/A	2023/11/30	CAM SOP-00463	SM 24 4500-Cl E m
Conductivity	1	N/A	2023/11/30	CAM SOP-00414	SM 24 2510 m
Dissolved Organic Carbon (DOC) (1)	1	N/A	2023/11/30	CAM SOP-00446	SM 24 5310 B m
Fluoride	1	2023/11/29	2023/11/30	CAM SOP-00449	SM 24 4500-F C m
Hardness (calculated as CaCO3)	1	N/A	2023/12/05	CAM SOP 00102/00408/00447	SM 2340 B
Lab Filtered Metals Analysis by ICP	1	2023/11/29	2023/12/05	CAM SOP-00408	EPA 6010D m
Total Metals Analysis by ICPMS	1	2023/12/04	2023/12/04	CAM SOP-00447	EPA 6020B m
Anion and Cation Sum	1	N/A	2023/12/05		
Total Ammonia-N	1	N/A	2023/11/30	CAM SOP-00441	USGS I-2522-90 m
Nitrate & Nitrite as Nitrogen in Water (2)	1	N/A	2023/11/30	CAM SOP-00440	SM 24 4500-NO3I/NO2B
Animal and Vegetable Oil and Grease	1	N/A	2023/12/04	CAM SOP-00326	EPA1664B m,SM5520B m
Total Oil and Grease	1	2023/12/04	2023/12/04	CAM SOP-00326	EPA1664B m,SM5520B m
pH	1	2023/11/29	2023/11/30	CAM SOP-00413	SM 24th - 4500H+ B
Phenols (4AAP)	1	N/A	2023/12/04	CAM SOP-00444	OMOE E3179 m
Orthophosphate	1	N/A	2023/11/30	CAM SOP-00461	SM 24 4500-P E
Sat. pH and Langelier Index (@ 20C)	1	N/A	2023/12/05		Auto Calc
Sat. pH and Langelier Index (@ 4C)	1	N/A	2023/12/05		Auto Calc
Sulphate by Automated Turbidimetry	1	N/A	2023/11/30	CAM SOP-00464	SM 24 4500-SO42- E m
Total Dissolved Solids	1	2023/12/02	2023/12/04	CAM SOP-00428	SM 24 2540C m
Total Kjeldahl Nitrogen in Water	1	2023/11/29	2023/12/04	CAM SOP-00938	OMOE E3516 m
Total Phosphorus (Colourimetric)	1	2023/11/29	2023/11/30	CAM SOP-00407	SM 24 4500-P I
Mineral/Synthetic O & G (TPH Heavy Oil) (3)	1	2023/12/04	2023/12/04	CAM SOP-00326	EPA1664B m,SM5520F m
Total Suspended Solids	1	2023/12/02	2023/12/04	CAM SOP-00428	SM 24 2540D m
Turbidity	1	N/A	2023/11/29	CAM SOP-00417	SM 24 2130 B

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau



Your Project #: 22579526
Site Location: McCarthy
Your C.O.C. #: 958199-01-01

Attention: Colin Imrie

WSP Canada Inc.
121 Commerce Park Drive
Unit L
Barrie, ON
CANADA L4N 8X1

Report Date: 2023/12/05
Report #: R7942183
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3AN985

Received: 2023/11/28, 17:35

Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCCFP, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas 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 Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

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

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

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

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

- (1) Dissolved Organic Carbon (DOC) present in the sample should be considered as non-purgeable DOC.
- (2) Values for calculated parameters may not appear to add up due to rounding of raw data and significant figures.
- (3) Note: TPH (Heavy Oil) is equivalent to Mineral / Synthetic Oil & Grease

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:

Ankita Bhalla, Project Manager
Email: Ankita.Bhalla@bureauveritas.com
Phone# (905) 817-5700

=====

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Bureau Veritas Job #: C3AN985
 Report Date: 2023/12/05

WSP Canada Inc.
 Client Project #: 22579526
 Site Location: McCarthy
 Sampler Initials: CI

OIL & GREASE - A/V/M/T (WATER)

Bureau Veritas ID		XSS664		
Sampling Date		2023/11/27 11:00		
COC Number		958199-01-01		
	UNITS	SW2	RDL	QC Batch
Calculated Parameters				
Total Animal/Vegetable Oil and Grease	mg/L	0.90	0.50	9078961
Petroleum Hydrocarbons				
Total Oil & Grease	mg/L	1.6	0.50	9089040
Total Oil & Grease Mineral/Synthetic	mg/L	0.70	0.50	9089044
RDL = Reportable Detection Limit QC Batch = Quality Control Batch				



RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		XSS664			XSS664		
Sampling Date		2023/11/27 11:00			2023/11/27 11:00		
COC Number		958199-01-01			958199-01-01		
	UNITS	SW2	RDL	QC Batch	SW2 Lab-Dup	RDL	QC Batch
Calculated Parameters							
Anion Sum	me/L	9.80	N/A	9079001			
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	270	1.0	9079002			
Carb. Alkalinity (calc. as CaCO3)	mg/L	1.5	1.0	9079002			
Cation Sum	me/L	11.1	N/A	9079001			
Hardness (CaCO3)	mg/L	510	1.0	9078999			
Langelier Index (@ 20C)	N/A	0.947		9078995			
Langelier Index (@ 4C)	N/A	0.699		9078996			
Saturation pH (@ 20C)	N/A	6.82		9078995			
Saturation pH (@ 4C)	N/A	7.07		9078996			
Inorganics							
Total Ammonia-N	mg/L	<0.050	0.050	9080733	<0.050	0.050	9080733
Conductivity	umho/cm	940	1.0	9081157			
Total Dissolved Solids	mg/L	595	10	9085390			
Fluoride (F-)	mg/L	<0.10	0.10	9081158			
Total Kjeldahl Nitrogen (TKN)	mg/L	0.34	0.10	9080304			
Dissolved Organic Carbon	mg/L	4.8	0.40	9079800			
Orthophosphate (P)	mg/L	<0.010	0.010	9079934			
pH	pH	7.76		9081159			
Phenols-4AAP	mg/L	<0.0010	0.0010	9088914			
Total Phosphorus	mg/L	0.011	0.004	9080669			
Total Suspended Solids	mg/L	<10	10	9085380			
Dissolved Sulphate (SO4)	mg/L	160	1.0	9079929			
Turbidity	NTU	2.2	0.1	9076129			
Alkalinity (Total as CaCO3)	mg/L	270	1.0	9081156			
Dissolved Chloride (Cl-)	mg/L	34	1.0	9079921			
Nitrite (N)	mg/L	<0.010	0.010	9079954			
Nitrate (N)	mg/L	<0.10	0.10	9079954			
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Lab-Dup = Laboratory Initiated Duplicate N/A = Not Applicable							



ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID		XSS664			XSS664		
Sampling Date		2023/11/27 11:00			2023/11/27 11:00		
COC Number		958199-01-01			958199-01-01		
	UNITS	SW2	RDL	QC Batch	SW2 Lab-Dup	RDL	QC Batch
Metals							
Dissolved Calcium (Ca)	mg/L	170	0.05	9080152	170	0.05	9080152
Dissolved Magnesium (Mg)	mg/L	21	0.05	9080152	21	0.05	9080152
Dissolved Potassium (K)	mg/L	2	1	9080152	2	1	9080152
Dissolved Sodium (Na)	mg/L	19	0.5	9080152	19	0.5	9080152
Total Arsenic (As)	ug/L	<1.0	1.0	9088771			
Total Cadmium (Cd)	ug/L	<0.090	0.090	9088771			
Total Calcium (Ca)	ug/L	150000	200	9088771			
Total Chromium (Cr)	ug/L	<5.0	5.0	9088771			
Total Copper (Cu)	ug/L	1.8	0.90	9088771			
Total Iron (Fe)	ug/L	140	100	9088771			
Total Lead (Pb)	ug/L	<0.50	0.50	9088771			
Total Magnesium (Mg)	ug/L	19000	50	9088771			
Total Manganese (Mn)	ug/L	17	2.0	9088771			
Total Nickel (Ni)	ug/L	<1.0	1.0	9088771			
Total Potassium (K)	ug/L	1700	200	9088771			
Total Sodium (Na)	ug/L	16000	100	9088771			
Total Zinc (Zn)	ug/L	6.1	5.0	9088771			
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Lab-Dup = Laboratory Initiated Duplicate							



Bureau Veritas Job #: C3AN985
Report Date: 2023/12/05

WSP Canada Inc.
Client Project #: 22579526
Site Location: McCarthy
Sampler Initials: CI

TEST SUMMARY

Bureau Veritas ID: XSS664
Sample ID: SW2
Matrix: Water

Collected: 2023/11/27
Shipped:
Received: 2023/11/28

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	9081156	N/A	2023/11/30	Nachiketa Gohil
Carbonate, Bicarbonate and Hydroxide	CALC	9079002	N/A	2023/11/30	Automated Statchk
Chloride by Automated Colourimetry	SKAL	9079921	N/A	2023/11/30	Massarat Jan
Conductivity	AT	9081157	N/A	2023/11/30	Nachiketa Gohil
Dissolved Organic Carbon (DOC)	TOCV/NDIR	9079800	N/A	2023/11/30	Gyulshen Idriz
Fluoride	ISE	9081158	2023/11/29	2023/11/30	Nachiketa Gohil
Hardness (calculated as CaCO3)		9078999	N/A	2023/12/05	Automated Statchk
Lab Filtered Metals Analysis by ICP	ICP	9080152	2023/11/29	2023/12/05	Suban Kanapathipplai
Total Metals Analysis by ICPMS	ICP/MS	9088771	2023/12/04	2023/12/04	Nan Raykha
Anion and Cation Sum	CALC	9079001	N/A	2023/12/05	Automated Statchk
Total Ammonia-N	LACH/NH4	9080733	N/A	2023/11/30	Shivani Shivani
Nitrate & Nitrite as Nitrogen in Water	LACH	9079954	N/A	2023/11/30	Viorica Rotaru
Animal and Vegetable Oil and Grease	BAL	9078961	N/A	2023/12/04	Automated Statchk
Total Oil and Grease	BAL	9089040	2023/12/04	2023/12/04	Kishan Patel
pH	AT	9081159	2023/11/29	2023/11/30	Nachiketa Gohil
Phenols (4AAP)	TECH/PHEN	9088914	N/A	2023/12/04	Chloe Pollock
Orthophosphate	KONE	9079934	N/A	2023/11/30	Massarat Jan
Sat. pH and Langelier Index (@ 20C)	CALC	9078995	N/A	2023/12/05	Automated Statchk
Sat. pH and Langelier Index (@ 4C)	CALC	9078996	N/A	2023/12/05	Automated Statchk
Sulphate by Automated Turbidimetry	SKAL	9079929	N/A	2023/11/30	Massarat Jan
Total Dissolved Solids	BAL	9085390	2023/12/02	2023/12/04	Razieh Tabesh
Total Kjeldahl Nitrogen in Water	SKAL	9080304	2023/11/29	2023/12/04	Rajni Tyagi
Total Phosphorus (Colourimetric)	SKAL/P	9080669	2023/11/29	2023/11/30	Muskan
Mineral/Synthetic O & G (TPH Heavy Oil)	BAL	9089044	2023/12/04	2023/12/04	Kishan Patel
Total Suspended Solids	BAL	9085380	2023/12/02	2023/12/04	Razieh Tabesh
Turbidity	AT	9076129	N/A	2023/11/29	Leily Karimi

Bureau Veritas ID: XSS664 Dup
Sample ID: SW2
Matrix: Water

Collected: 2023/11/27
Shipped:
Received: 2023/11/28

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Lab Filtered Metals Analysis by ICP	ICP	9080152	2023/11/29	2023/12/05	Suban Kanapathipplai
Total Ammonia-N	LACH/NH4	9080733	N/A	2023/11/30	Shivani Shivani



Bureau Veritas Job #: C3AN985
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WSP Canada Inc.
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GENERAL COMMENTS

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

Package 1	3.0°C
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Results relate only to the items tested.



BUREAU
VERITAS

Bureau Veritas Job #: C3AN985

Report Date: 2023/12/05

WSP Canada Inc.

Client Project #: 22579526

Site Location: McCarthy

Sampler Initials: CI

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
9076129	LKI	Spiked Blank	Turbidity	2023/11/29		101	%	80 - 120
9076129	LKI	Method Blank	Turbidity	2023/11/29	<0.1		NTU	
9076129	LKI	RPD	Turbidity	2023/11/29	1.9		%	20
9079800	GID	Matrix Spike	Dissolved Organic Carbon	2023/11/30		91	%	80 - 120
9079800	GID	Spiked Blank	Dissolved Organic Carbon	2023/11/30		95	%	80 - 120
9079800	GID	Method Blank	Dissolved Organic Carbon	2023/11/30	<0.40		mg/L	
9079800	GID	RPD	Dissolved Organic Carbon	2023/11/30	3.3		%	20
9079921	MJ1	Matrix Spike	Dissolved Chloride (Cl-)	2023/11/30		NC	%	80 - 120
9079921	MJ1	Spiked Blank	Dissolved Chloride (Cl-)	2023/11/30		100	%	80 - 120
9079921	MJ1	Method Blank	Dissolved Chloride (Cl-)	2023/11/30	<1.0		mg/L	
9079921	MJ1	RPD	Dissolved Chloride (Cl-)	2023/11/30	1.2		%	20
9079929	MJ1	Matrix Spike	Dissolved Sulphate (SO4)	2023/11/30		NC	%	75 - 125
9079929	MJ1	Spiked Blank	Dissolved Sulphate (SO4)	2023/11/30		104	%	80 - 120
9079929	MJ1	Method Blank	Dissolved Sulphate (SO4)	2023/11/30	<1.0		mg/L	
9079929	MJ1	RPD	Dissolved Sulphate (SO4)	2023/11/30	0.39		%	20
9079934	MJ1	Matrix Spike	Orthophosphate (P)	2023/11/30		93	%	75 - 125
9079934	MJ1	Spiked Blank	Orthophosphate (P)	2023/11/30		94	%	80 - 120
9079934	MJ1	Method Blank	Orthophosphate (P)	2023/11/30	<1.0		mg/L	
9079934	MJ1	RPD	Orthophosphate (P)	2023/11/30	NC		%	20
9079954	VRO	Matrix Spike	Nitrite (N)	2023/11/30		98	%	80 - 120
			Nitrate (N)	2023/11/30		NC	%	80 - 120
9079954	VRO	Spiked Blank	Nitrite (N)	2023/11/30		103	%	80 - 120
			Nitrate (N)	2023/11/30		97	%	80 - 120
9079954	VRO	Method Blank	Nitrite (N)	2023/11/30	<0.010		mg/L	
			Nitrate (N)	2023/11/30	<0.10		mg/L	
9079954	VRO	RPD	Nitrite (N)	2023/11/30	0.38		%	20
			Nitrate (N)	2023/11/30	0.13		%	20
9080152	SUK	Matrix Spike [XSS664-02]	Dissolved Calcium (Ca)	2023/12/05		NC	%	80 - 120
			Dissolved Magnesium (Mg)	2023/12/05		NC	%	80 - 120
			Dissolved Potassium (K)	2023/12/05		96	%	80 - 120
			Dissolved Sodium (Na)	2023/12/05		NC	%	80 - 120
9080152	SUK	Spiked Blank	Dissolved Calcium (Ca)	2023/12/05		98	%	80 - 120
			Dissolved Magnesium (Mg)	2023/12/05		98	%	80 - 120
			Dissolved Potassium (K)	2023/12/05		99	%	80 - 120
			Dissolved Sodium (Na)	2023/12/05		98	%	80 - 120
9080152	SUK	Method Blank	Dissolved Calcium (Ca)	2023/12/05	<0.05		mg/L	
			Dissolved Magnesium (Mg)	2023/12/05	<0.05		mg/L	
			Dissolved Potassium (K)	2023/12/05	<1		mg/L	
			Dissolved Sodium (Na)	2023/12/05	<0.5		mg/L	
9080152	SUK	RPD [XSS664-02]	Dissolved Calcium (Ca)	2023/12/05	0.71		%	20
			Dissolved Magnesium (Mg)	2023/12/05	0.049		%	20
			Dissolved Potassium (K)	2023/12/05	0.096		%	20
			Dissolved Sodium (Na)	2023/12/05	0.49		%	20
9080304	RTY	Matrix Spike	Total Kjeldahl Nitrogen (TKN)	2023/12/04		118	%	80 - 120
9080304	RTY	QC Standard	Total Kjeldahl Nitrogen (TKN)	2023/12/04		95	%	80 - 120
9080304	RTY	Spiked Blank	Total Kjeldahl Nitrogen (TKN)	2023/12/04		102	%	80 - 120
9080304	RTY	Method Blank	Total Kjeldahl Nitrogen (TKN)	2023/12/04	<0.10		mg/L	
9080304	RTY	RPD	Total Kjeldahl Nitrogen (TKN)	2023/12/04	NC		%	20
9080669	MUM	Matrix Spike	Total Phosphorus	2023/11/30		95	%	80 - 120
9080669	MUM	QC Standard	Total Phosphorus	2023/11/30		102	%	80 - 120
9080669	MUM	Spiked Blank	Total Phosphorus	2023/11/30		98	%	80 - 120



BUREAU
VERITAS

Bureau Veritas Job #: C3AN985
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WSP Canada Inc.
Client Project #: 22579526
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Sampler Initials: CI

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC	Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
	9080669	MUM	Method Blank	Total Phosphorus	2023/11/30	<0.004		mg/L	
	9080669	MUM	RPD	Total Phosphorus	2023/11/30	8.4		%	20
	9080733	SSV	Matrix Spike [XSS664-08]	Total Ammonia-N	2023/11/30		104	%	75 - 125
	9080733	SSV	Spiked Blank	Total Ammonia-N	2023/11/30		101	%	80 - 120
	9080733	SSV	Method Blank	Total Ammonia-N	2023/11/30	<0.050		mg/L	
	9080733	SSV	RPD [XSS664-08]	Total Ammonia-N	2023/11/30	NC		%	20
	9081156	NGI	Spiked Blank	Alkalinity (Total as CaCO3)	2023/11/30		96	%	85 - 115
	9081156	NGI	Method Blank	Alkalinity (Total as CaCO3)	2023/11/30	<1.0		mg/L	
	9081156	NGI	RPD	Alkalinity (Total as CaCO3)	2023/11/30	0.65		%	20
	9081157	NGI	Spiked Blank	Conductivity	2023/11/30		101	%	85 - 115
	9081157	NGI	Method Blank	Conductivity	2023/11/30	<1.0		umho/cm	
	9081157	NGI	RPD	Conductivity	2023/11/30	0.051		%	10
	9081158	NGI	Matrix Spike	Fluoride (F-)	2023/11/30		101	%	80 - 120
	9081158	NGI	Spiked Blank	Fluoride (F-)	2023/11/30		104	%	80 - 120
	9081158	NGI	Method Blank	Fluoride (F-)	2023/11/30	<0.10		mg/L	
	9081158	NGI	RPD	Fluoride (F-)	2023/11/30	11		%	20
	9081159	NGI	Spiked Blank	pH	2023/11/30		102	%	98 - 103
	9081159	NGI	RPD	pH	2023/11/30	0.64		%	N/A
	9085380	RTB	Spiked Blank	Total Suspended Solids	2023/12/04		95	%	80 - 120
	9085380	RTB	Method Blank	Total Suspended Solids	2023/12/04	<10		mg/L	
	9085380	RTB	RPD	Total Suspended Solids	2023/12/04	NC		%	20
	9085390	RTB	Spiked Blank	Total Dissolved Solids	2023/12/04		100	%	80 - 120
	9085390	RTB	Method Blank	Total Dissolved Solids	2023/12/04	<10		mg/L	
	9085390	RTB	RPD	Total Dissolved Solids	2023/12/04	15		%	20
	9088771	N_R	Matrix Spike	Total Arsenic (As)	2023/12/04		98	%	80 - 120
				Total Cadmium (Cd)	2023/12/04		98	%	80 - 120
				Total Calcium (Ca)	2023/12/04		NC	%	80 - 120
				Total Chromium (Cr)	2023/12/04		96	%	80 - 120
				Total Copper (Cu)	2023/12/04		105	%	80 - 120
				Total Iron (Fe)	2023/12/04		95	%	80 - 120
				Total Lead (Pb)	2023/12/04		96	%	80 - 120
				Total Magnesium (Mg)	2023/12/04		94	%	80 - 120
				Total Manganese (Mn)	2023/12/04		92	%	80 - 120
				Total Nickel (Ni)	2023/12/04		93	%	80 - 120
				Total Potassium (K)	2023/12/04		99	%	80 - 120
				Total Sodium (Na)	2023/12/04		NC	%	80 - 120
				Total Zinc (Zn)	2023/12/04		96	%	80 - 120
	9088771	N_R	Spiked Blank	Total Arsenic (As)	2023/12/04		99	%	80 - 120
				Total Cadmium (Cd)	2023/12/04		97	%	80 - 120
				Total Calcium (Ca)	2023/12/04		96	%	80 - 120
				Total Chromium (Cr)	2023/12/04		95	%	80 - 120
				Total Copper (Cu)	2023/12/04		98	%	80 - 120
				Total Iron (Fe)	2023/12/04		96	%	80 - 120
				Total Lead (Pb)	2023/12/04		96	%	80 - 120
				Total Magnesium (Mg)	2023/12/04		94	%	80 - 120
				Total Manganese (Mn)	2023/12/04		91	%	80 - 120
				Total Nickel (Ni)	2023/12/04		94	%	80 - 120
				Total Potassium (K)	2023/12/04		98	%	80 - 120
				Total Sodium (Na)	2023/12/04		95	%	80 - 120
				Total Zinc (Zn)	2023/12/04		99	%	80 - 120
	9088771	N_R	Method Blank	Total Arsenic (As)	2023/12/04	<1.0		ug/L	



QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Total Cadmium (Cd)	2023/12/04	<0.090		ug/L	
			Total Calcium (Ca)	2023/12/04	<200		ug/L	
			Total Chromium (Cr)	2023/12/04	<5.0		ug/L	
			Total Copper (Cu)	2023/12/04	<0.90		ug/L	
			Total Iron (Fe)	2023/12/04	<100		ug/L	
			Total Lead (Pb)	2023/12/04	<0.50		ug/L	
			Total Magnesium (Mg)	2023/12/04	<50		ug/L	
			Total Manganese (Mn)	2023/12/04	<2.0		ug/L	
			Total Nickel (Ni)	2023/12/04	<1.0		ug/L	
			Total Potassium (K)	2023/12/04	<200		ug/L	
			Total Sodium (Na)	2023/12/04	<100		ug/L	
			Total Zinc (Zn)	2023/12/04	<5.0		ug/L	
9088771	N_R	RPD	Total Arsenic (As)	2023/12/04	6.1		%	20
			Total Chromium (Cr)	2023/12/04	NC		%	20
			Total Copper (Cu)	2023/12/04	6.6		%	20
			Total Iron (Fe)	2023/12/04	1.7		%	20
			Total Zinc (Zn)	2023/12/04	3.8		%	20
9088914	CPO	Matrix Spike	Phenols-4AAP	2023/12/04		101	%	80 - 120
9088914	CPO	Spiked Blank	Phenols-4AAP	2023/12/04		99	%	80 - 120
9088914	CPO	Method Blank	Phenols-4AAP	2023/12/04	<0.0010		mg/L	
9088914	CPO	RPD	Phenols-4AAP	2023/12/04	NC		%	20
9089040	K1P	Spiked Blank	Total Oil & Grease	2023/12/04		98	%	80 - 110
9089040	K1P	RPD	Total Oil & Grease	2023/12/04	0.51		%	25
9089040	K1P	Method Blank	Total Oil & Grease	2023/12/04	<0.50		mg/L	
9089044	K1P	Spiked Blank	Total Oil & Grease Mineral/Synthetic	2023/12/04		96	%	65 - 130
9089044	K1P	RPD	Total Oil & Grease Mineral/Synthetic	2023/12/04	0.52		%	25
9089044	K1P	Method Blank	Total Oil & Grease Mineral/Synthetic	2023/12/04	<0.50		mg/L	

N/A = Not Applicable

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

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

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

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

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

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

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



Bureau Veritas Job #: C3AN985
Report Date: 2023/12/05

WSP Canada Inc.
Client Project #: 22579526
Site Location: McCarthy
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VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Anastassia Hamanov, Scientific Specialist

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

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