REPORT

MCCARTHY QUARRY

2024 Environmental Compliance Approval Annual Report

Submitted to:

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Distribution List

1 Copy - Ministry of the Environment, Conservation and Parks

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Table of Contents

TABLES

FIGURES

APPENDICES

1.0 INTRODUCTION

WSP Canada Inc. (WSP) was retained by Green Infrastructure Partners Aggregates Inc. (GIP) 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, 2024 to December 31, 2024. 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 m^3 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. 0721-DDKR57 (Appendix B). The Permit is in place from January 31, 2025 to January 31, 2035. Under the current PTTW GIP 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 when collected 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, Phenols, and Total Iron at SW1 in the Fall sample. 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 flow at that location during the Fall sampling event as well as the surrounding land use being farmland for cattle which their waste can produce phosphorous. The exceedance of phenols occasionally seen could be the result of the slow-stagnant flow in the fall allowing organics in the water to settle and decompose. A Fall sample was not collected at SW2 due to dry conditions in October. A second attempt was made in November in which

similarly was dry during that attempt. 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, 2024 to December 31, 2024 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

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

GIP 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 GIP 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; GIP 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.

GIP has indicated that no other operational problems were encountered with the dewatering system during the monitoring period of January to December 2024. GIP also indicted that no spills occurred during the January to December 2024 monitoring period.

7.0 MAINTENANCE OF SEWAGE WORKS

GIP 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. GIP 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

GIP 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, Phenols, and Total Iron in the Fall sample. It is to be noted that limited discharge from the McCarthy Pond was occurring at the time of the Fall sample. As well the area surrounding the SW1 location is notably farmland used for cattle it is also possible that the phosphorous is the result of animal waste in the area. The iron exceedance is likely related to entrained sediment in the sample and the appearance of phenols could be related to organic material around the sampling location.
  - 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.

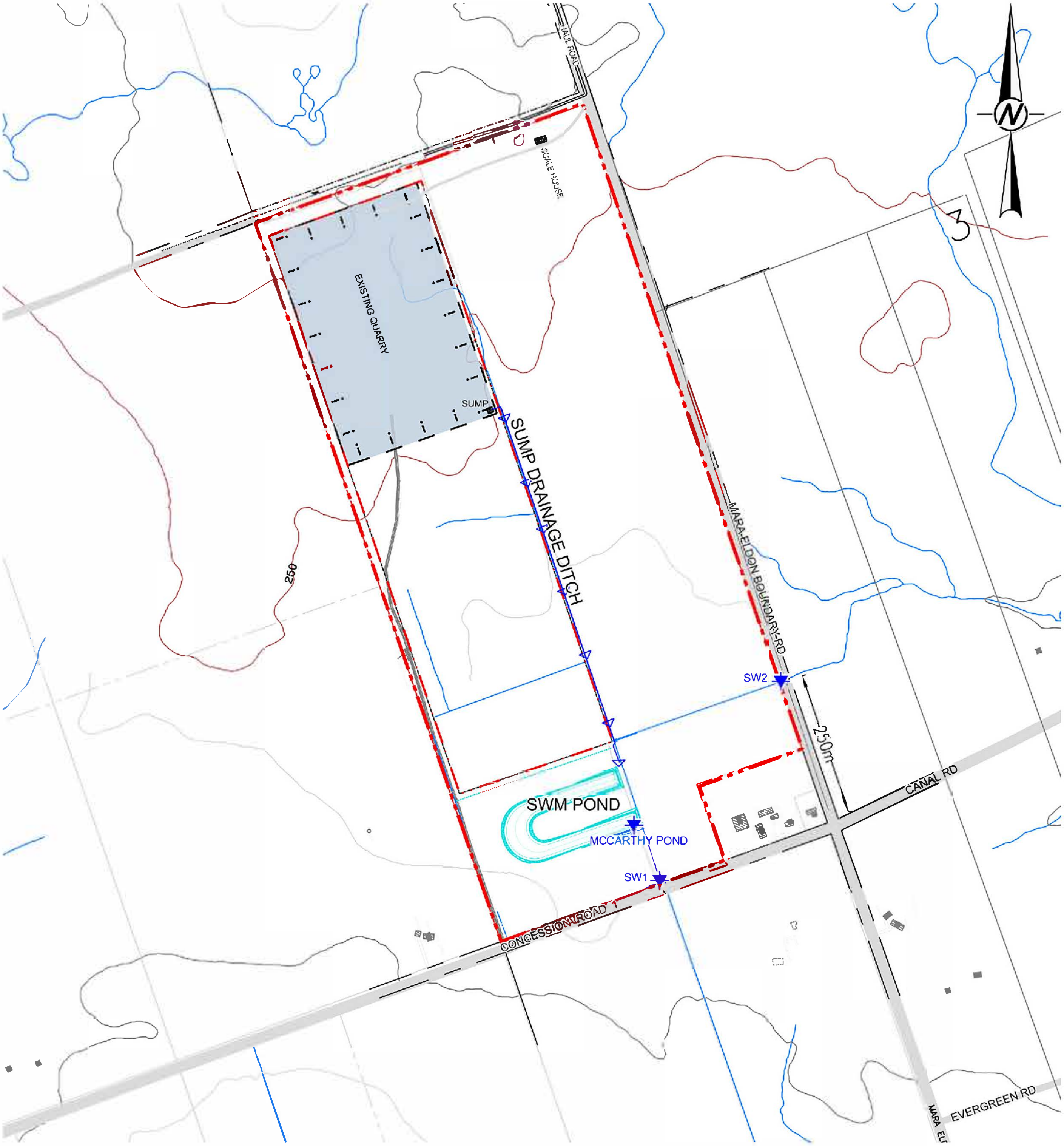
Colin Imrie, G.I.T.
Geoscientist-in-Training

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

CSI/SM/lb

https://wsponlinecan.sharepoint.com/sites/ca-ca00236338620/shared documents/06. deliverables/eca annual report 2024/ca0023633.8620-2024-eca annual report-18mar2025.docx

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

0 200 400 600 m

1:10000

CLIENT
GREEN INFRASTRUCTURE PARTNERS INC.

PROJECT
STAN McCARTHY QUARRY

TITLE
LOCATION MAP

CONSULTANT

wsp

YYYY-MM-DD	2025-03-17
PREPARED	JPR
DESIGN	
REVIEW	CI
APPROVED	

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

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

Tables

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

	Unit	RDL	PWQO [1]	Daily Limit[2]	McCarthy Quarry											
Sample ID					**Pond**											
Date					07-Mar-24	29-Apr-24	14-Nov-24									
pH	pH	n/a		6.0-9.5	7.70	7.49	7.45									
Total Suspended Solids	mg/L	1		30	4	4	7									
Total Oil and Grease	mg/L	0.5	Note 3	30	<0.50	0.7	<0.50									
Phenols (4AAP)	mg/L	<0.0010		0.04	<0.0010	<0.0010	<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 discolouration on the surface, can be detected by odour, can cause tainting of edible organisms, can form detectable deposits on shorelines and bottom sediments.
4. Results that are preceeded by "<" denote concentrations that are below the laboratory Reportable Detection Limit (RDL).

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

	Unit	RDL	PWQO [1]	Monthly Concentration Limit[2]											
Sample ID															
Date					January 2024	February 2024	March 2024	April 2024	May 2024	June 2024	July 2024	August 2024	September 2024	October 2024	November 2024	December 2024
Total Suspended Solids	mg/L	1		15	-	-	4.0	4.0	-	-	-	-	-	-	7.0	-
Total Oil and Grease	mg/L	0.5	Note 3	15	-	-	<0.50	0.7	-	-	-	-	-	-	<0.50	-
Phenols (4AAP)	mg/L	<0.0010		0.02	-	-	<0.0010	<0.0010	-	-	-	-	-	-	<0.0010	-

Notes:

1. Provincial Water Quality Objectives (PWQO); shaded cells denote PWQO exceedance; some PWQOs are dependent on other water quality parameters hence the range in guideline values, refer to PWQO notes.
2. Monthyl Concentration Limit; bolded values denote exceedances in the 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 discolouration on the surface, can be detected by odour, can cause tainting of edible organisms, can form detectable deposits on shorelines and bottom sediments.
4. Results that are preceeded by "<" denote concentrations that are below the laboratory Reportable Detection Limit (RDL).

Table 3: Condition 6(2) McCarthy Pond Water Quality Results

	Unit	Reportable Detection Limit (RDL)	PWQO [1]	Interim PWQO [2]	ECA Effluent Limits	McCarthy Quarry	
Sample ID						**Pond**	**Pond**
Date						**16-May-24**	**22-Oct-24**
Field Measured Parameters							
Conductivity	mS/cm					650	1680
pH	pH	n/a	6.5-8.5		6.0-9.5	8.1	7.97
Temperature	°C	n/a				19.8	17.4
Calculated Parameters							
Hardness (CaCO3)	mg/L	1.0				230	420
Inorganics							
Total Ammonia-N	mg/L	0.050				<0.050	0.079
Conductivity	umho/cm	1.0				450	1,800
Total Dissolved Solids	mg/L	10				570	1110
Fluoride (F-)	mg/L	0.10				0.27	0.44
Total Kjeldahl Nitrogen (TKN)	mg/L	0.10				0.37	0.78
Dissolved Organic Carbon	mg/L	0.20				6.0	8.4
pH	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[5b]		0.010	0.013
Total Suspended Solids	mg/L	10			30	<10	19
Dissolved Sulphate (SO4)	mg/L	1				130	270
Alkalinity (Total as CaCO3)	mg/L	1.0				83	81
Dissolved Chloride (Cl)	mg/L	1				91	330
Nitrite (N)	mg/L	0.010				<0.010	<0.010
Nitrate (N)	mg/L	0.10				<0.10	<0.10
Petroleum Hydrocarbons							
Total Oil & Grease	mg/L	0.50	Note 3		30	<0.50	<0.50
Metals							
Total Arsenic (As)	ug/L	1	100	5		<1.0	<1.0
Total Cadmium (Cd)	ug/L	0.1	0.2	0.1-0.5[5d]		<0.09	<0.09
Dissolved Calcium (Ca)	mg/L	0.05				52	90
Total Calcium (Ca)	ug/L	200				51000	96000
Total Chromium (Cr)	ug/L	5	1-89[5e]			<5.0	<5.0
Total Copper (Cu)	ug/L	1	5	1-5[5f]		1.3	<0.90
Total Iron (Fe)	ug/L	100	300			140	260
Total Lead (Pb)	ug/L	0.5	5-25[5g]	1-5[5h]		<0.50	<0.50
Dissolved Magnesium (Mg)	mg/L	0.05				23	48
Total Magnesium (Mg)	ug/L	50				22000	49000
Total Manganese (Mn)	ug/L	2				22	39
Total Nickel (Ni)	ug/L	1	25			<1.0	1.4
Dissolved Potassium (K)	mg/L	1				6.5	15.0
Total Potassium (K)	ug/L	200				6300	16000
Dissolved Sodium (Na)	mg/L	0.5				59	170
Total Sodium (Na)	ug/L	100				55000	180000
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.

2. Interim Provincial Water Quality Objectives (Interim PWQO); *shaded cells and italics denote Interim PWQO exceedance*; some PWQOs are dependent on other water quality parameters hence the range in guideline values, refer to PQWO notes.

3. The PWQO for Oil and Grease indicates that oil or petrochemicals should not be present in concentrations that: can be detected as a visible film, sheen or discolouration on the surface, can be detected by odour, can cause tainting of edible organisms, can form detectable deposits on shorelines and bottom sediments.

4. Results that are preceeded by "<" denote concentrations that are below the laboratory Reportable Detection Limit (RDL).

5a. Aluminum (Interim):

- At pH 4.5 to 5.5 the Interim PWQO is 15 ug/L based on inorganic monomeric aluminum measured in clay-free samples.
- 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.
- At pH >6.5 to 9.0, the Interim PWQO is 75 ug/L based on total aluminum measured in clay-free samples.
- 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.

5b. Phosphorus (Interim):

- Current scientific evidence is insufficient to develop a firm Objective at this time.
- Accordingly, the following phosphorus concentrations should be considered as general guidelines which should be supplemented by site-specific studies:

(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.

5c. Beryllium:	If Hardness <75 mg/L (CaCO3), use 11 ug/L If Hardness >75 mg/L (CaCO3), use 1100 ug/L
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
5e. Chromium	1 ug/L for hexavalent chromium (Cr VI) 8.9 ug/L for trivalent chromium (Cr III)
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 4: Condition 6(2) SW1 Water Quality Results

	Unit	Reportable Detection Limit (RDL)	PWQO [1]	Interim PWQO [2]	ECA Effluent Limits	McCarthy Quarry	
Sample ID						**SW1**	**SW1**
Date						**16-May-24**	**22-Oct-24**
Field Measured Parameters							
Conductivity	mS/cm					960	2185
pH	pH	n/a	6.5-8.5		6.0-9.5	7.76	6.89
Temperature	°C	n/a				19.6	14.7
Calculated Parameters							
Anion Sum	me/L	N/A				10	21.3
Cation Sum	me/L	N/A				9.2	21.6
Hardness (CaCO3)	mg/L	1.0				340	640
Inorganics							
Total Ammonia-N	mg/L	0.050				0.13	0.87
Conductivity	umho/cm	1.0				960	2,200
Total Dissolved Solids	mg/L	10				575	1400
Fluoride (F-)	mg/L	0.10				0.21	0.48
Total Kjeldahl Nitrogen (TKN)	mg/L	0.10				0.58	1.70
Dissolved Organic Carbon	mg/L	0.20				11.0	7.9
pH	pH	N/A	6.5-8.5		6.0-9.5	8.07	7.71
Phenols-4AAP	mg/L	0.0010	0.001		0.04	<0.0010	0.0013
Total Phosphorus	mg/L	0.002		0.03[5b]		0.012	*0.089*
Total Suspended Solids	mg/L	10			30	<10	20
Dissolved Sulphate (SO4)	mg/L	1				86	310
Alkalinity (Total as CaCO3)	mg/L	1.0				270	210
Dissolved Chloride (Cl)	mg/L	1				100	380
Nitrite (N)	mg/L	0.010				0.111	0.012
Nitrate (N)	mg/L	0.10				0.24	<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				110	160
Total Calcium (Ca)	ug/L	200				120000	160000
Total Chromium (Cr)	ug/L	5	1-89[5e]			<5.0	<5.0
Total Copper (Cu)	ug/L	1	5	1-5[5f]		1.3	1.2
Total Iron (Fe)	ug/L	100	300			140	490
Total Lead (Pb)	ug/L	0.5	5-25[5g]	1-5[5h]		<0.50	<0.50
Dissolved Magnesium (Mg)	mg/L	0.05				23	57
Total Magnesium (Mg)	ug/L	50				22000	57000
Total Manganese (Mn)	ug/L	2				22	180
Total Nickel (Ni)	ug/L	1	25			<1.0	1.7
Dissolved Potassium (K)	mg/L	1				6.5	15.0
Total Potassium (K)	ug/L	200				6300	16000
Dissolved Sodium (Na)	mg/L	0.5				59	190
Total Sodium (Na)	ug/L	100				55000	190000
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.

2. Interim Provincial Water Quality Objectives (Interim PWQO); *shaded cells and italics denote Interim PWQO exceedance*; some PWQOs are dependent on other water quality parameters hence the range in guideline values, refer to PQWO notes.

3. The PWQO for Oil and Grease indicates that oil or petrochemicals should not be present in concentrations that: can be detected as a visible film, sheen or discolouration on the surface, can be detected by odour, can cause tainting of edible organisms, can form detectable deposits on shorelines and bottom sediments.

4. Results that are preceeded by "<" denote concentrations that are below the laboratory Reportable Detection Limit (RDL).

5a. Aluminum (Interim):

- At pH 4.5 to 5.5 the Interim PWQO is 15 ug/L based on inorganic monomeric aluminum measured in clay-free samples.
- 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.
- At pH >6.5 to 9.0, the Interim PWQO is 75 ug/L based on total aluminum measured in clay-free samples.
- 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.

5b. Phosphorus (Interim):

- Current scientific evidence is insufficient to develop a firm Objective at this time.
- Accordingly, the following phosphorus concentrations should be considered as general guidelines which should be supplemented by site-specific studies:

(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.

5c. Beryllium: If Hardness <75 mg/L (CaCO3), use 11 ug/L
If Hardness >75 mg/L (CaCO3), use 1100 ug/L

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

5e. Chromium: 1 ug/L for hexavalent chromium (Cr VI)
8.9 ug/L for trivalent chromium (Cr III)

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

	Unit	Reportable Detection Limit (RDL)	PWQO [1]	Interim PWQO [2]	ECA Effluent Limits	McCarthy Quarry	
Sample ID						**SW2**	**SW2**
Date						**16-May-24**	**-**
Field Measured Parameters							
Conductivity	mS/cm					608	-
pH	pH	n/a	6.5-8.5		6.0-9.5	7.7	-
Temperature	°C	n/a				19.0	-
Calculated Parameters							
Anion Sum	me/L	N/A				6.51	-
Cation Sum	me/L	N/A				6.94	-
Hardness (CaCO3)	mg/L	1.0				330	-
Inorganics							-
Total Ammonia-N	mg/L	0.050				<0.050	-
Conductivity	umho/cm	1.0				580	-
Total Dissolved Solids	mg/L	10				345	-
Fluoride (F-)	mg/L	0.10				<0.10	-
Total Kjeldahl Nitrogen (TKN)	mg/L	0.10				0.34	-
Dissolved Organic Carbon	mg/L	0.20				7.9	-
pH	pH	N/A	6.5-8.5		6.0-9.5	8.03	-
Phenols-4AAP	mg/L	0.0010	0.001		0.04	<0.0010	-
Total Phosphorus	mg/L	0.002		0.03[5b]		0.012	-
Total Suspended Solids	mg/L	10			30	<10	-
Dissolved Sulphate (SO4)	mg/L	1				20	-
Alkalinity (Total as CaCO3)	mg/L	1.0				300	-
Dissolved Chloride (Cl)	mg/L	1				3	-
Nitrite (N)	mg/L	0.010				<0.010	-
Nitrate (N)	mg/L	0.10				<0.10	-
Petroleum Hydrocarbons							
Total Oil & Grease	mg/L	0.50	Note 3		30	1.6	-
Metals							
Total Arsenic (As)	ug/L	1	100	5		<1.0	-
Total Cadmium (Cd)	ug/L	0.1	0.2	0.1-0.5[5d]		<0.09	-
Dissolved Calcium (Ca)	mg/L	0.05				120	-
Total Calcium (Ca)	ug/L	200				110000	-
Total Chromium (Cr)	ug/L	5	1-89[5e]			<5.0	-
Total Copper (Cu)	ug/L	1	5	1-5[5f]		1.8	-
Total Iron (Fe)	ug/L	100	300			140	-
Total Lead (Pb)	ug/L	0.5	5-25[5g]	1-5[5h]		<0.50	-
Dissolved Magnesium (Mg)	mg/L	0.05				9.1	-
Total Magnesium (Mg)	ug/L	50				8600	-
Total Manganese (Mn)	ug/L	2				20	-
Total Nickel (Ni)	ug/L	1	25			<1.0	-
Dissolved Potassium (K)	mg/L	1				1.4	-
Total Potassium (K)	ug/L	200				1300	-
Dissolved Sodium (Na)	mg/L	0.5				6.1	-
Total Sodium (Na)	ug/L	100				5100	-
Total Zinc (Zn)	ug/L	5	30	20		<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.

2. Interim Provincial Water Quality Objectives (Interim PWQO); *shaded cells and italics denote Interim PWQO exceedance*; some PWQOs are dependent on other water quality parameters hence the range in guideline values, refer to PQWO notes.

3. The PWQO for Oil and Grease indicates that oil or petrochemicals should not be present in concentrations that: can be detected as a visible film, sheen or discolouration on the surface, can be detected by odour, can cause tainting of edible organisms, can form detectable deposits on shorelines and bottom sediments.

4. Results that are preceeded by "<" denote concentrations that are below the laboratory Reportable Detection Limit (RDL).

5a. Aluminum (Interim):

- At pH 4.5 to 5.5 the Interim PWQO is 15 ug/L based on inorganic monomeric aluminum measured in clay-free samples.
- 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.
- At pH >6.5 to 9.0, the Interim PWQO is 75 ug/L based on total aluminum measured in clay-free samples.
- 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.

5b. Phosphorus (Interim):

- Current scientific evidence is insufficient to develop a firm Objective at this time.
- Accordingly, the following phosphorus concentrations should be considered as general guidelines which should be supplemented by site-specific studies:

(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

5c. Beryllium:	If Hardness <75 mg/L (CaCO3), use 11 ug/L If Hardness >75 mg/L (CaCO3), use 1100 ug/L
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
5e. Chromium	1 ug/L for hexavalent chromium (Cr VI) 8.9 ug/L for trivalent chromium (Cr III)
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 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**
01-Jan-24	NO PUMP		0	0	-	-	-
02-Jan-24	NO PUMP		0	0	-	-	-
03-Jan-24	NO PUMP		0	0	-	-	-
04-Jan-24	NO PUMP		0	0	-	-	-
05-Jan-24	NO PUMP		0	0	-	-	-
06-Jan-24	NO PUMP		0	0	-	-	-
07-Jan-24	NO PUMP		0	0	-	-	-
08-Jan-24	NO PUMP		0	0	-	-	-
09-Jan-24	7:30 AM	4:30 PM	32400	540	765,180	24	1,417
10-Jan-24	7:30 AM	4:30 PM	32400	540	765,180	24	1,417
11-Jan-24	7:30 AM	4:30 PM	32400	540	765,180	24	1,417
12-Jan-24	NO PUMP		0	0	-	-	-
13-Jan-24	NO PUMP		0	0	-	-	-
14-Jan-24	NO PUMP		0	0	-	-	-
15-Jan-24	NO PUMP		0	0	-	-	-
16-Jan-24	NO PUMP		0	0	-	-	-
17-Jan-24	NO PUMP		0	0	-	-	-
18-Jan-24	NO PUMP		0	0	-	-	-
19-Jan-24	NO PUMP		0	0	-	-	-
20-Jan-24	NO PUMP		0	0	-	-	-
21-Jan-24	NO PUMP		0	0	-	-	-
22-Jan-24	NO PUMP		0	0	-	-	-
23-Jan-24	NO PUMP		0	0	-	-	-
24-Jan-24	NO PUMP		0	0	-	-	-
25-Jan-24	NO PUMP		0	0	-	-	-
26-Jan-24	NO PUMP		0	0	-	-	-
27-Jan-24	NO PUMP		0	0	-	-	-
28-Jan-24	NO PUMP		0	0	-	-	-
29-Jan-24	7:30 AM	4:30 PM	32400	540	765,180	24	1,417
30-Jan-24	NO PUMP		0	0	-	-	-
31-Jan-24	NO PUMP		0	0	-	-	-
1-Feb-24	NO PUMP		0	0	-	-	-
2-Feb-24	NO PUMP		0	0	-	-	-
3-Feb-24	NO PUMP		0	0	-	-	-
4-Feb-24	NO PUMP		0	0	-	-	-
5-Feb-24	NO PUMP		0	0	-	-	-
6-Feb-24	7:00 AM	4:00 PM	32400	540	765,180	24	1,417
7-Feb-24	7:00 AM	4:00 PM	32400	540	765,180	24	1,417
8-Feb-24	NO PUMP		0	0	-	-	-
9-Feb-24	NO PUMP		0	0	-	-	-
10-Feb-24	NO PUMP		0	0	-	-	-
11-Feb-24	NO PUMP		0	0	-	-	-
12-Feb-24	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-24	NO PUMP		0	0	-	-	-
14-Feb-24	NO PUMP		0	0	-	-	-
15-Feb-24	NO PUMP		0	0	-	-	-
16-Feb-24	NO PUMP		0	0	-	-	-
17-Feb-24	NO PUMP		0	0	-	-	-
18-Feb-24	NO PUMP		0	0	-	-	-
19-Feb-24	NO PUMP		0	0	-	-	-
20-Feb-24	NO PUMP		0	0	-	-	-
21-Feb-24	NO PUMP		0	0	-	-	-
22-Feb-24	NO PUMP		0	0	-	-	-
23-Feb-24	7:00 AM	4:00 PM	32400	540	765,180	24	1,417
24-Feb-24	NO PUMP		0	0	-	-	-
25-Feb-24	NO PUMP		0	0	-	-	-
26-Feb-24	NO PUMP		0	0	-	-	-
27-Feb-24	NO PUMP		0	0	-	-	-
28-Feb-24	NO PUMP		0	0	-	-	-
29-Feb-24	NO PUMP		0	0	-	-	-
1-Mar-24	NO PUMP		0	0	-	-	-
2-Mar-24	NO PUMP		0	0	-	-	-
3-Mar-24	NO PUMP		0	0	-	-	-
4-Mar-24	NO PUMP		0	0	-	-	-
5-Mar-24	NO PUMP		0	0	-	-	-
6-Mar-24	NO PUMP		0	0	-	-	-
7-Mar-24	NO PUMP		0	0	-	-	-
8-Mar-24	NO PUMP		0	0	-	-	-
9-Mar-24	NO PUMP		0	0	-	-	-
10-Mar-24	NO PUMP		0	0	-	-	-
11-Mar-24	NO PUMP		0	0	-	-	-
12-Mar-24	7:00 AM	4:00 PM	32400	540	765,180	24	1,417
13-Mar-24	7:00 AM	4:00 PM	32400	540	765,180	24	1,417
14-Mar-24	7:00 AM	4:00 PM	32400	540	765,180	24	1,417
15-Mar-24	NO PUMP		0	0	-	-	-
16-Mar-24	NO PUMP		0	0	-	-	-
17-Mar-24	NO PUMP		0	0	-	-	-
18-Mar-24	NO PUMP		0	0	-	-	-
19-Mar-24	NO PUMP		0	0	-	-	-
20-Mar-24	NO PUMP		0	0	-	-	-
21-Mar-24	NO PUMP		0	0	-	-	-
22-Mar-24	NO PUMP		0	0	-	-	-
23-Mar-24	NO PUMP		0	0	-	-	-
24-Mar-24	NO PUMP		0	0	-	-	-
25-Mar-24	NO PUMP		0	0	-	-	-
26-Mar-24	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**
27-Mar-24	NO PUMP		0	0	-	-	-
28-Mar-24	NO PUMP		0	0	-	-	-
29-Mar-24	NO PUMP		0	0	-	-	-
30-Mar-24	NO PUMP		0	0	-	-	-
31-Mar-24	NO PUMP		0	0	-	-	-
1-Apr-24	NO PUMP		0	0	-	-	-
2-Apr-24	NO PUMP		0	0	-	-	-
3-Apr-24	NO PUMP		0	0	-	-	-
4-Apr-24	NO PUMP		0	0	-	-	-
5-Apr-24	NO PUMP		0	0	-	-	-
6-Apr-24	NO PUMP		0	0	-	-	-
7-Apr-24	NO PUMP		0	0	-	-	-
8-Apr-24	NO PUMP		0	0	-	-	-
9-Apr-24	NO PUMP		0	0	-	-	-
10-Apr-24	NO PUMP		0	0	-	-	-
11-Apr-24	NO PUMP		0	0	-	-	-
12-Apr-24	NO PUMP		0	0	-	-	-
13-Apr-24	NO PUMP		0	0	-	-	-
14-Apr-24	NO PUMP		0	0	-	-	-
15-Apr-24	NO PUMP		0	0	-	-	-
16-Apr-24	NO PUMP		0	0	-	-	-
17-Apr-24	NO PUMP		0	0	-	-	-
18-Apr-24	NO PUMP		0	0	-	-	-
19-Apr-24	NO PUMP		0	0	-	-	-
20-Apr-24	NO PUMP		0	0	-	-	-
21-Apr-24	NO PUMP		0	0	-	-	-
22-Apr-24	NO PUMP		0	0	-	-	-
23-Apr-24	NO PUMP		0	0	-	-	-
24-Apr-24	NO PUMP		0	0	-	-	-
25-Apr-24	NO PUMP		0	0	-	-	-
26-Apr-24	NO PUMP		0	0	-	-	-
27-Apr-24	NO PUMP		0	0	-	-	-
28-Apr-24	NO PUMP		0	0	-	-	-
29-Apr-24	7:00 AM	4:00 PM	32400	540	765,180	24	1,417
30-Apr-24	7:00 AM	4:00 PM	32400	540	765,180	24	1,417
1-May-24	NO PUMP		0	0	-	-	-
2-May-24	NO PUMP		0	0	-	-	-
3-May-24	NO PUMP		0	0	-	-	-
4-May-24	NO PUMP		0	0	-	-	-
5-May-24	NO PUMP		0	0	-	-	-
6-May-24	NO PUMP		0	0	-	-	-
7-May-24	NO PUMP		0	0	-	-	-
8-May-24	7:00 AM	4:00 PM	32400	540	765,180	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**
9-May-24	NO PUMP		0	0	-	-	-
10-May-24	NO PUMP		0	0	-	-	-
11-May-24	NO PUMP		0	0	-	-	-
12-May-24	NO PUMP		0	0	-	-	-
13-May-24	NO PUMP		0	0	-	-	-
14-May-24	NO PUMP		0	0	-	-	-
15-May-24	NO PUMP		0	0	-	-	-
16-May-24	NO PUMP		0	0	-	-	-
17-May-24	NO PUMP		0	0	-	-	-
18-May-24	NO PUMP		0	0	-	-	-
19-May-24	NO PUMP		0	0	-	-	-
20-May-24	NO PUMP		0	0	-	-	-
21-May-24	7:00 AM	4:00 PM	32400	540	765,180	24	1,417
22-May-24	NO PUMP		0	0	-	-	-
23-May-24	NO PUMP		0	0	-	-	-
24-May-24	NO PUMP		0	0	-	-	-
25-May-24	NO PUMP		0	0	-	-	-
26-May-24	NO PUMP		0	0	-	-	-
27-May-24	NO PUMP		0	0	-	-	-
28-May-24	NO PUMP		0	0	-	-	-
29-May-24	7:00 AM	4:00 PM	32400	540	765,180	24	1,417
30-May-24	NO PUMP		0	0	-	-	-
31-May-24	NO PUMP		0	0	-	-	-
1-Jun-24	NO PUMP		0	0	-	-	-
2-Jun-24	NO PUMP		0	0	-	-	-
3-Jun-24	NO PUMP		0	0	-	-	-
4-Jun-24	NO PUMP		0	0	-	-	-
5-Jun-24	7:00 AM	4:00 PM	32400	540	765,180	24	1,417
6-Jun-24	NO PUMP		0	0	-	-	-
7-Jun-24	NO PUMP		0	0	-	-	-
8-Jun-24	NO PUMP		0	0	-	-	-
9-Jun-24	NO PUMP		0	0	-	-	-
10-Jun-24	NO PUMP		0	0	-	-	-
11-Jun-24	NO PUMP		0	0	-	-	-
12-Jun-24	NO PUMP		0	0	-	-	-
13-Jun-24	NO PUMP		0	0	-	-	-
14-Jun-24	7:00 AM	4:00 PM	32400	540	765,180	24	1,417
15-Jun-24	NO PUMP		0	0	-	-	-
16-Jun-24	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**
17-Jun-24	NO PUMP		0	0	-	-	-
18-Jun-24	NO PUMP		0	0	-	-	-
19-Jun-24	7:00 AM	4:00 PM	32400	540	765,180	24	1,417
20-Jun-24	NO PUMP		0	0	-	-	-
21-Jun-24	NO PUMP		0	0	-	-	-
22-Jun-24	NO PUMP		0	0	-	-	-
23-Jun-24	NO PUMP		0	0	-	-	-
24-Jun-24	NO PUMP		0	0	-	-	-
25-Jun-24	7:00 AM	4:00 PM	32400	540	765,180	24	1,417
26-Jun-24	NO PUMP		0	0	-	-	-
27-Jun-24	NO PUMP		0	0	-	-	-
28-Jun-24	NO PUMP		0	0	-	-	-
29-Jun-24	NO PUMP		0	0	-	-	-
30-Jun-24	7:00 AM	4:00 PM	32400	540	765,180	24	1,417
1-Jul-24	NO PUMP		0	0	-	-	-
2-Jul-24	NO PUMP		0	0	-	-	-
3-Jul-24	7:00 AM	4:00 PM	32400	540	765,180	24	1,417
4-Jul-24	NO PUMP		0	0	-	-	-
5-Jul-24	NO PUMP		0	0	-	-	-
6-Jul-24	NO PUMP		0	0	-	-	-
7-Jul-24	NO PUMP		0	0	-	-	-
8-Jul-24	NO PUMP		0	0	-	-	-
9-Jul-24	NO PUMP		0	0	-	-	-
10-Jul-24	NO PUMP		0	0	-	-	-
11-Jul-24	NO PUMP		0	0	-	-	-
12-Jul-24	NO PUMP		0	0	-	-	-
13-Jul-24	NO PUMP		0	0	-	-	-
14-Jul-24	NO PUMP		0	0	-	-	-
15-Jul-24	NO PUMP		0	0	-	-	-
16-Jul-24	NO PUMP		0	0	-	-	-
17-Jul-24	NO PUMP		0	0	-	-	-
18-Jul-24	NO PUMP		0	0	-	-	-
19-Jul-24	7:00 AM	4:00 PM	32400	540	765,180	24	1,417
20-Jul-24	NO PUMP		0	0	-	-	-
21-Jul-24	NO PUMP		0	0	-	-	-
22-Jul-24	NO PUMP		0	0	-	-	-
23-Jul-24	NO PUMP		0	0	-	-	-
24-Jul-24	NO PUMP		0	0	-	-	-
25-Jul-24	7:00 AM	4:00 PM	32400	540	765,180	24	1,417
26-Jul-24	NO PUMP		0	0	-	-	-
27-Jul-24	NO PUMP		0	0	-	-	-
28-Jul-24	NO PUMP		0	0	-	-	-
29-Jul-24	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**
30-Jul-24	NO PUMP		0	0	-	-	-
31-Jul-24	NO PUMP		0	0	-	-	-
1-Aug-24	NO PUMP		0	0	-	-	-
2-Aug-24	7:00 AM	2:00 PM	25200	420	595,140	24	1,417
3-Aug-24	NO PUMP		0	0	-	-	-
4-Aug-24	NO PUMP		0	0	-	-	-
5-Aug-24	NO PUMP		0	0	-	-	-
6-Aug-24	NO PUMP		0	0	-	-	-
7-Aug-24	NO PUMP		0	0	-	-	-
8-Aug-24	NO PUMP		0	0	-	-	-
9-Aug-24	NO PUMP		0	0	-	-	-
10-Aug-24	NO PUMP		0	0	-	-	-
11-Aug-24	NO PUMP		0	0	-	-	-
12-Aug-24	NO PUMP		0	0	-	-	-
13-Aug-24	NO PUMP		0	0	-	-	-
14-Aug-24	NO PUMP		0	0	-	-	-
15-Aug-24	NO PUMP		0	0	-	-	-
16-Aug-24	NO PUMP		0	0	-	-	-
17-Aug-24	NO PUMP		0	0	-	-	-
18-Aug-24	NO PUMP		0	0	-	-	-
19-Aug-24	NO PUMP		0	0	-	-	-
20-Aug-24	NO PUMP		0	0	-	-	-
21-Aug-24	7:00 AM	5:00 PM	36000	600	850,200	24	1,417
22-Aug-24	NO PUMP		0	0	-	-	-
23-Aug-24	NO PUMP		0	0	-	-	-
24-Aug-24	NO PUMP		0	0	-	-	-
25-Aug-24	NO PUMP		0	0	-	-	-
26-Aug-24	NO PUMP		0	0	-	-	-
27-Aug-24	NO PUMP		0	0	-	-	-
28-Aug-24	NO PUMP		0	0	-	-	-
29-Aug-24	7:00 AM	4:00 PM	32400	540	765,180	24	1,417
30-Aug-24	7:00 AM	4:00 PM	32400	540	765,180	24	1,417
31-Aug-24	NO PUMP		0	0	-	-	-
1-Sep-24	NO PUMP		0	0	-	-	-
2-Sep-24	NO PUMP		0	0	-	-	-
3-Sep-24	NO PUMP		0	0	-	-	-
4-Sep-24	NO PUMP		0	0	-	-	-
5-Sep-24	NO PUMP		0	0	-	-	-
6-Sep-24	NO PUMP		0	0	-	-	-
7-Sep-24	NO PUMP		0	0	-	-	-
8-Sep-24	NO PUMP		0	0	-	-	-
9-Sep-24	NO PUMP		0	0	-	-	-
10-Sep-24	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**
11-Sep-24	7:00 AM	2:00 PM	25200	420	595,140	24	1,417
12-Sep-24	NO PUMP		0	0	-	-	-
13-Sep-24	NO PUMP		0	0	-	-	-
14-Sep-24	NO PUMP		0	0	-	-	-
15-Sep-24	NO PUMP		0	0	-	-	-
16-Sep-24	NO PUMP		0	0	-	-	-
17-Sep-24	NO PUMP		0	0	-	-	-
18-Sep-24	NO PUMP		0	0	-	-	-
19-Sep-24	NO PUMP		0	0	-	-	-
20-Sep-24	NO PUMP		0	0	-	-	-
21-Sep-24	NO PUMP		0	0	-	-	-
22-Sep-24	NO PUMP		0	0	-	-	-
23-Sep-24	NO PUMP		0	0	-	-	-
24-Sep-24	NO PUMP		0	0	-	-	-
25-Sep-24	7:00 AM	5:00 PM	36000	600	850,200	24	1,417
26-Sep-24	NO PUMP		0	0	-	-	-
27-Sep-24	NO PUMP		0	0	-	-	-
28-Sep-24	NO PUMP		0	0	-	-	-
29-Sep-24	NO PUMP		0	0	-	-	-
30-Sep-24	NO PUMP		0	0	-	-	-
1-Oct-24	NO PUMP		0	0	-	-	-
2-Oct-24	NO PUMP		0	0	-	-	-
3-Oct-24	NO PUMP		0	0	-	-	-
4-Oct-24	NO PUMP		0	0	-	-	-
5-Oct-24	NO PUMP		0	0	-	-	-
6-Oct-24	NO PUMP		0	0	-	-	-
7-Oct-24	NO PUMP		0	0	-	-	-
8-Oct-24	NO PUMP		0	0	-	-	-
9-Oct-24	NO PUMP		0	0	-	-	-
10-Oct-24	NO PUMP		0	0	-	-	-
11-Oct-24	7:00 AM	3:00 PM	28800	480	680,160	24	1,417
12-Oct-24	NO PUMP		0	0	-	-	-
13-Oct-24	NO PUMP		0	0	-	-	-
14-Oct-24	NO PUMP		0	0	-	-	-
15-Oct-24	NO PUMP		0	0	-	-	-
16-Oct-24	NO PUMP		0	0	-	-	-
17-Oct-24	NO PUMP		0	0	-	-	-
18-Oct-24	NO PUMP		0	0	-	-	-
19-Oct-24	NO PUMP		0	0	-	-	-
20-Oct-24	NO PUMP		0	0	-	-	-
21-Oct-24	NO PUMP		0	0	-	-	-
22-Oct-24	NO PUMP		0	0	-	-	-
23-Oct-24	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**
24-Oct-24	NO PUMP		0	0	-	-	-
25-Oct-24	7:00 AM	5:00 PM	36000	600	850,200	24	1,417
26-Oct-24	NO PUMP		0	0	-	-	-
27-Oct-24	NO PUMP		0	0	-	-	-
28-Oct-24	NO PUMP		0	0	-	-	-
29-Oct-24	NO PUMP		0	0	-	-	-
30-Oct-24	NO PUMP		0	0	-	-	-
31-Oct-24	NO PUMP		0	0	-	-	-
1-Nov-24	NO PUMP		0	0	-	-	-
2-Nov-24	7:00 AM	2:00 PM	25200	420	595,140	24	1,417
3-Nov-24	NO PUMP		0	0	-	-	-
4-Nov-24	NO PUMP		0	0	-	-	-
5-Nov-24	NO PUMP		0	0	-	-	-
6-Nov-24	NO PUMP		0	0	-	-	-
7-Nov-24	NO PUMP		0	0	-	-	-
8-Nov-24	NO PUMP		0	0	-	-	-
9-Nov-24	NO PUMP		0	0	-	-	-
10-Nov-24	NO PUMP		0	0	-	-	-
11-Nov-24	NO PUMP		0	0	-	-	-
12-Nov-24	NO PUMP		0	0	-	-	-
13-Nov-24	NO PUMP		0	0	-	-	-
14-Nov-24	NO PUMP		0	0	-	-	-
15-Nov-24	NO PUMP		0	0	-	-	-
16-Nov-24	NO PUMP		0	0	-	-	-
17-Nov-24	NO PUMP		0	0	-	-	-
18-Nov-24	NO PUMP		0	0	-	-	-
19-Nov-24	NO PUMP		0	0	-	-	-
20-Nov-24	NO PUMP		0	0	-	-	-
21-Nov-24	7:00 AM	5:00 PM	36000	600	850,200	24	1,417
22-Nov-24	NO PUMP		0	0	-	-	-
23-Nov-24	NO PUMP		0	0	-	-	-
24-Nov-24	NO PUMP		0	0	-	-	-
25-Nov-24	NO PUMP		0	0	-	-	-
26-Nov-24	NO PUMP		0	0	-	-	-
27-Nov-24	NO PUMP		0	0	-	-	-
28-Nov-24	NO PUMP		0	0	-	-	-
29-Nov-24	7:00 AM	4:00 PM	32400	540	765,180	24	1,417
30-Nov-24	7:00 AM	4:00 PM	32400	540	765,180	24	1,417
1-Dec-24	NO PUMP		0	0	-	-	-
2-Dec-24	NO PUMP		0	0	-	-	-
3-Dec-24	NO PUMP		0	0	-	-	-
4-Dec-24	7:00 AM	4:00 PM	32400	540	765,180	24	1,417
5-Dec-24	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**
6-Dec-24	NO PUMP		0	0	-	-	-
7-Dec-24	NO PUMP		0	0	-	-	-
8-Dec-24	NO PUMP		0	0	-	-	-
9-Dec-24	NO PUMP		0	0	-	-	-
10-Dec-24	NO PUMP		0	0	-	-	-
11-Dec-24	NO PUMP		0	0	-	-	-
12-Dec-24	NO PUMP		0	0	-	-	-
13-Dec-24	NO PUMP		0	0	-	-	-
14-Dec-24	NO PUMP		0	0	-	-	-
15-Dec-24	NO PUMP		0	0	-	-	-
16-Dec-24	NO PUMP		0	0	-	-	-
17-Dec-24	NO PUMP		0	0	-	-	-
18-Dec-24	NO PUMP		0	0	-	-	-
19-Dec-24	NO PUMP		0	0	-	-	-
20-Dec-24	NO PUMP		0	0	-	-	-
21-Dec-24	NO PUMP		0	0	-	-	-
22-Dec-24	NO PUMP		0	0	-	-	-
23-Dec-24	NO PUMP		0	0	-	-	-
24-Dec-24	NO PUMP		0	0	-	-	-
25-Dec-24	NO PUMP		0	0	-	-	-
26-Dec-24	NO PUMP		0	0	-	-	-
27-Dec-24	NO PUMP		0	0	-	-	-
28-Dec-24	NO PUMP		0	0	-	-	-
29-Dec-24	NO PUMP		0	0	-	-	-
30-Dec-24	NO PUMP		0	0	-	-	-
31-Dec-24	NO PUMP		0	0	-	-	-

APPENDIX A

ECA No. 7737-BH6QEA

Ontario

Ministry of the Environment, Conservation and Parks
Ministère de l'Environnement, de la Protection de la nature et des Parcs

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.

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. 0721-DDKR57

PERMIT TO TAKE WATER
Ground Water
NUMBER 0721-DDKR57

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 Industrial Inc.
100 Commerce Valley Dr W
Markham, Ontario, L3T 0A1
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. 0721-DDKR57 including its Schedules, if any, issued in accordance with Section 34.1 of the OWRA.

(f) "Permit Holder" means GIP Industrial 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 November 1, 2024 and signed by Gerald Quinlan, 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.

2.2.1 No water taken under the authority of this Permit may be discharged directly to the natural environment without prior treatment in accordance with an Ontario Water Resources Act, R.S.O. 1990, Section 53, Industrial Sewage Works Approval.

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, 2035**. 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 651324 4933188
						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.

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

4. Monitoring

4.1 The Permit Holder shall maintain a record of all water takings. The daily volume of water taken shall be measured by a flow meter or calculated in accordance with the method described in the application for this Permit, or as otherwise accepted by the Director. This record shall include the dates and times of water takings, the rates of pumping, and the total measured amounts of water pumped per day for each day that water is taken under the authorization of this Permit. A separate record shall be maintained for each source. 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. The Permit Holder shall submit, on or before March 31st in every year, the daily water taking data collected and recorded for the previous year to the Ministry's Water Taking Reporting System.

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 (CaCO3)	Magnesium	Colour	Iron
Bicarbonate	Calcium	Turbidity	Lead
Conductivity	Sodium	Aluminium	Manganese
Fluoride	Potassium	Arsenic	Selenium
Chloride	Ammonia (N)	Barium	Zinc
Nitrate	Phosphate	Boron	Hardness (CaCO3)
Nitrite	Phosphorus	Cadmium	TDS (iron sum calc.)
Chromium	Anion Sum	Ion Ratio	Langelier Index

Tannins	Cation Sum	% Difference	

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

4.6 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 submit an annual monitoring report to the Director **by no later than March 1 of 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.

4.9 The Permit Holder shall make available on a publicly-accessible site on the internet all water quality and quantity data that is required 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.

4.10 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.

4.11 Any request for an amendment or renewal of this Permit shall 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.

4.12 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.

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
Registrar
Ontario Land Tribunal
655 Bay Street, Suite 1500
Toronto, Ontario
M5G 1E5
OLT.Registrar@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
Floor 1, 135 St Clair Ave W
Toronto, ON
M4V 1P5

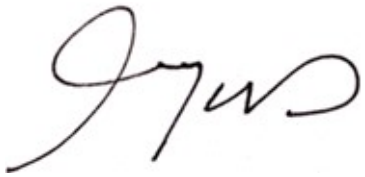
Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from the Tribunal:

by Telephone at	by Fax at	by e-mail at
(416) 212-6349	(416) 326-5370	www.ert.gov.on.ca
Toll Free 1(866) 448-2248	Toll Free 1(844) 213-3474	

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 5184-CQ7MQS, issued on 2023/03/27.

Dated at Toronto this 12th day of March, 2025.



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 0721-DDKR57, dated March 12, 2025.

1. Permit to Take Water Application, signed by Gerald Quinlan, dated November 1, 2024.
2. WSP Canada Inc. 2024. Hydrogeological Assessment, Permit to Take Water Renewal, McCarthy Quarry, report signed by Colin Imrie, GIT and Sean McFarland, P.Geo., dated November 2024.

APPENDIX C

Water Quality Results

Your Project #: CA-CLD-22579526
Site#: MCCARTHY QUARRY
Site Location: GIP BREACHER
Your C.O.C. #: C#934508-02-01

Attention: Colin Imrie

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

Report Date: 2024/03/14
Report #: R8065500
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C470239
Received: 2024/03/08, 09:23

Sample Matrix: Water
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Animal and Vegetable Oil and Grease	1	N/A	2024/03/13	CAM SOP-00326	EPA1664B m,SM5520B m
Total Oil and Grease	1	2024/03/13	2024/03/13	CAM SOP-00326	EPA1664B m,SM5520B m
pH (1)	1	2024/03/09	2024/03/11	CAM SOP-00413	SM 24th - 4500H+ B
Phenols (4AAP)	1	N/A	2024/03/11	CAM SOP-00444	OMOE E3179 m
Mineral/Synthetic O & G (TPH Heavy Oil) (2)	1	2024/03/13	2024/03/13	CAM SOP-00326	EPA1664B m,SM5520F m
Low Level Total Suspended Solids	1	2024/03/11	2024/03/12	CAM SOP-00428	SM 24 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, EPA, APHA or the Quebec Ministry of Environment.

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.

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) "The CCME method and Analytical Protocol (O. Reg 153/04, O. Reg. 406/19) requires pH to be analyzed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the CCME and Analytical Protocol (O. Reg 153/04, O. Reg. 406/19) holding time. Bureau Veritas endeavors to analyze samples as soon as possible after receipt."

Your Project #: CA-CLD-22579526
Site#: MCCARTHY QUARRY
Site Location: GIP BREACHER
Your C.O.C. #: C#934508-02-01

Attention: Colin Imrie

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

Report Date: 2024/03/14
Report #: R8065500
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C470239
Received: 2024/03/08, 09:23
(2) 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
==========
This report has been generated and distributed using a secure automated process.
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.

Bureau Veritas Job #: C470239
Report Date: 2024/03/14

Golder Associates Ltd
Client Project #: CA-CLD-22579526
Site Location: GIP BREACHER
Sampler Initials: JM

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		YOQ216		
Sampling Date		2024/03/07 02:00		
COC Number		C#934508-02-01		
	UNITS	**POND**	**RDL**	**QC Batch**
Calculated Parameters				
Total Animal/Vegetable Oil and Grease	mg/L	<0.50	0.50	9263459
Inorganics				
pH	pH	7.70	N/A	9265734
Phenols-4AAP	mg/L	<0.0010	0.0010	9266797
Total Suspended Solids	mg/L	4	1	9266717
Petroleum Hydrocarbons				
Total Oil & Grease	mg/L	<0.50	0.50	9271690
Total Oil & Grease Mineral/Synthetic	mg/L	<0.50	0.50	9271715

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

GENERAL COMMENTS

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

Package 1	15.0°C

Results relate only to the items tested.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Bureau Veritas Job #: C470239
Report Date: 2024/03/14

Golder Associates Ltd
Client Project #: CA-CLD-22579526
Site Location: GIP BREACHER
Sampler Initials: JM

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
9265734	GTK	Spiked Blank	pH	2024/03/11		102	%	98 - 103
9265734	GTK	RPD	pH	2024/03/11	0.10		%	N/A
9266717	RTB	Spiked Blank	Total Suspended Solids	2024/03/12		100	%	80 - 120
9266717	RTB	Method Blank	Total Suspended Solids	2024/03/12	<1		mg/L	
9266717	RTB	RPD	Total Suspended Solids	2024/03/12	11		%	20
9266797	CPO	Matrix Spike	Phenols-4AAP	2024/03/11		104	%	80 - 120
9266797	CPO	Spiked Blank	Phenols-4AAP	2024/03/11		101	%	80 - 120
9266797	CPO	Method Blank	Phenols-4AAP	2024/03/11	<0.0010		mg/L	
9266797	CPO	RPD	Phenols-4AAP	2024/03/11	0		%	20
9271690	K1P	Spiked Blank	Total Oil & Grease	2024/03/13		99	%	80 - 110
9271690	K1P	RPD	Total Oil & Grease	2024/03/13	0.25		%	25
9271690	K1P	Method Blank	Total Oil & Grease	2024/03/13	<0.50		mg/L	
9271715	K1P	Spiked Blank	Total Oil & Grease Mineral/Synthetic	2024/03/13		96	%	65 - 130
9271715	K1P	RPD	Total Oil & Grease Mineral/Synthetic	2024/03/13	0.52		%	25
9271715	K1P	Method Blank	Total Oil & Grease Mineral/Synthetic	2024/03/13	<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.

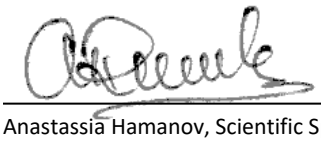
Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Bureau Veritas Job #: C470239
Report Date: 2024/03/14

Golder Associates Ltd
Client Project #: CA-CLD-22579526
Site Location: GIP BREACHER
Sampler Initials: JM

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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Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Your Project #: 21508089
Site#: McCarthy
Site Location: MCCARTHY QUARRY
Your C.O.C. #: C#901523-03-01

Attention: Colin Imrie

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

Report Date: 2024/11/22
Report #: R8416331
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C4AA321
Received: 2024/11/15, 09:17

Sample Matrix: Water
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Animal and Vegetable Oil and Grease	1	N/A	2024/11/20	CAM SOP-00326	EPA1664B m,SM5520B m
Total Oil and Grease	1	2024/11/20	2024/11/20	CAM SOP-00326	EPA1664B m,SM5520B m
pH (1)	1	2024/11/19	2024/11/19	CAM SOP-00413	SM 24th - 4500H+ B
Phenols (4AAP)	1	N/A	2024/11/21	CAM SOP-00444	OMOE E3179 m
Mineral/Synthetic O & G (TPH Heavy Oil) (2)	1	2024/11/20	2024/11/20	CAM SOP-00326	EPA1664B m,SM5520F m
Low Level Total Suspended Solids	1	2024/11/20	2024/11/21	CAM SOP-00428	SM 24 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, EPA, APHA or the Quebec Ministry of Environment.

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.

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) "The CCME method and Analytical Protocol (O. Reg 153/04, O. Reg. 406/19) requires pH to be analyzed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the CCME and Analytical Protocol (O. Reg 153/04, O. Reg. 406/19) holding time. Bureau Veritas endeavors to analyze samples as soon as possible after receipt."

Your Project #: 21508089
Site#: McCarthy
Site Location: MCCARTHY QUARRY
Your C.O.C. #: C#901523-03-01

Attention: Colin Imrie

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

Report Date: 2024/11/22
Report #: R8416331
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C4AA321
Received: 2024/11/15, 09:17
(2) 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 #: C4AA321
Report Date: 2024/11/22

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

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		AIYR30		
Sampling Date		2024/11/14		
COC Number		C#901523-03-01		
	UNITS	**POND**	**RDL**	**QC Batch**
Calculated Parameters				
Total Animal/Vegetable Oil and Grease	mg/L	<0.50	0.50	9770590
Inorganics				
pH	pH	7.45	N/A	9775484
Phenols-4AAP	mg/L	<0.0010	0.0010	9779554
Total Suspended Solids	mg/L	7	1	9774802
Petroleum Hydrocarbons				
Total Oil & Grease	mg/L	<0.50	0.50	9777224
Total Oil & Grease Mineral/Synthetic	mg/L	<0.50	0.50	9777227

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

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Bureau Veritas Job #: C4AA321
Report Date: 2024/11/22

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

GENERAL COMMENTS

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

Package 1	16.3°C

Results relate only to the items tested.

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Bureau Veritas Job #: C4AA321
Report Date: 2024/11/22

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

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
9774802	RTB	Spiked Blank	Total Suspended Solids	2024/11/21		98	%	80 - 120
9774802	RTB	Method Blank	Total Suspended Solids	2024/11/21	<1		mg/L	
9774802	RTB	RPD	Total Suspended Solids	2024/11/21	9.5		%	20
9775484	KIT	Spiked Blank	pH	2024/11/19		102	%	98 - 103
9775484	KIT	RPD	pH	2024/11/19	0.070		%	N/A
9777224	K1P	Spiked Blank	Total Oil & Grease	2024/11/20		98	%	80 - 110
9777224	K1P	RPD	Total Oil & Grease	2024/11/20	1.3		%	25
9777224	K1P	Method Blank	Total Oil & Grease	2024/11/20	<0.50		mg/L	
9777227	K1P	Spiked Blank	Total Oil & Grease Mineral/Synthetic	2024/11/20		96	%	65 - 130
9777227	K1P	RPD	Total Oil & Grease Mineral/Synthetic	2024/11/20	1.6		%	25
9777227	K1P	Method Blank	Total Oil & Grease Mineral/Synthetic	2024/11/20	<0.50		mg/L	
9779554	SPC	Matrix Spike	Phenols-4AAP	2024/11/21		103	%	80 - 120
9779554	SPC	Spiked Blank	Phenols-4AAP	2024/11/21		100	%	80 - 120
9779554	SPC	Method Blank	Phenols-4AAP	2024/11/21	<0.0010		mg/L	
9779554	SPC	RPD	Phenols-4AAP	2024/11/21	NC		%	20

N/A = Not Applicable

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

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

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

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

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

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Bureau Veritas Job #: C4AA321
Report Date: 2024/11/22

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

VALIDATION SIGNATURE PAGE

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

Louise Harding, Scientific Specialist

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Your Project #: CA0023633.8620
Site Location: MCCARTHY QUARRY
Your C.O.C. #: C#837180-02-01

Attention: Colin Imrie

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

Report Date: 2024/05/06
Report #: R8137693
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C4C7907
Received: 2024/04/30, 09:07

Sample Matrix: Water
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Animal and Vegetable Oil and Grease	1	N/A	2024/05/01	CAM SOP-00326	EPA1664B m,SM5520B m
Total Oil and Grease	1	2024/05/01	2024/05/01	CAM SOP-00326	EPA1664B m,SM5520B m
pH (1)	1	2024/05/01	2024/05/01	CAM SOP-00413	SM 24th - 4500H+ B
Phenols (4AAP)	1	N/A	2024/05/03	CAM SOP-00444	OMOE E3179 m
Mineral/Synthetic O & G (TPH Heavy Oil) (2)	1	2024/05/01	2024/05/01	CAM SOP-00326	EPA1664B m,SM5520F m
Low Level Total Suspended Solids	1	2024/05/02	2024/05/06	CAM SOP-00428	SM 24 2540D m

Remarks:

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Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.

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

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

(1) "The CCME method and Analytical Protocol (O. Reg 153/04, O. Reg. 406/19) requires pH to be analyzed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the CCME and Analytical Protocol (O. Reg 153/04, O. Reg. 406/19) holding time. Bureau Veritas endeavors to analyze samples as soon as possible after receipt."

Your Project #: CA0023633.8620
Site Location: MCCARTHY QUARRY
Your C.O.C. #: C#837180-02-01

Attention: Colin Imrie

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

Report Date: 2024/05/06
Report #: R8137693
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C4C7907
Received: 2024/04/30, 09:07
(2) 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 #: C4C7907
Report Date: 2024/05/06

Golder Associates Ltd
Client Project #: CA0023633.8620
Site Location: MCCARTHY QUARRY
Sampler Initials: JM

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		ZAN725		
Sampling Date		2024/04/29 14:00		
COC Number		C#837180-02-01		
	UNITS	**24494 POND**	**RDL**	**QC Batch**
Calculated Parameters				
Total Animal/Vegetable Oil and Grease	mg/L	0.70	0.50	9363515
Inorganics				
pH	pH	7.49	N/A	9367260
Phenols-4AAP	mg/L	<0.0010	0.0010	9373551
Total Suspended Solids	mg/L	4	1	9368599
Petroleum Hydrocarbons				
Total Oil & Grease	mg/L	0.70	0.50	9365955
Total Oil & Grease Mineral/Synthetic	mg/L	<0.50	0.50	9365962

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

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Bureau Veritas Job #: C4C7907
Report Date: 2024/05/06

Golder Associates Ltd
Client Project #: CA0023633.8620
Site Location: MCCARTHY QUARRY
Sampler Initials: JM

GENERAL COMMENTS

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

Package 1	15.7°C

Results relate only to the items tested.

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Bureau Veritas Job #: C4C7907
Report Date: 2024/05/06

Golder Associates Ltd
Client Project #: CA0023633.8620
Site Location: MCCARTHY QUARRY
Sampler Initials: JM

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
9365955	NDM	Spiked Blank	Total Oil & Grease	2024/05/01		98	%	80 - 110
9365955	NDM	RPD	Total Oil & Grease	2024/05/01	0.25		%	25
9365955	NDM	Method Blank	Total Oil & Grease	2024/05/01	<0.50		mg/L	
9365962	NDM	Spiked Blank	Total Oil & Grease Mineral/Synthetic	2024/05/01		96	%	65 - 130
9365962	NDM	RPD	Total Oil & Grease Mineral/Synthetic	2024/05/01	0.52		%	25
9365962	NDM	Method Blank	Total Oil & Grease Mineral/Synthetic	2024/05/01	<0.50		mg/L	
9367260	KIT	Spiked Blank	pH	2024/05/01		102	%	98 - 103
9367260	KIT	RPD	pH	2024/05/01	0.79		%	N/A
9368599	MV1	Spiked Blank	Total Suspended Solids	2024/05/06		98	%	80 - 120
9368599	MV1	Method Blank	Total Suspended Solids	2024/05/06	<1		mg/L	
9368599	MV1	RPD	Total Suspended Solids	2024/05/06	NC		%	20
9373551	C_N	Matrix Spike	Phenols-4AAP	2024/05/03		97	%	80 - 120
9373551	C_N	Spiked Blank	Phenols-4AAP	2024/05/03		97	%	80 - 120
9373551	C_N	Method Blank	Phenols-4AAP	2024/05/03	<0.0010		mg/L	
9373551	C_N	RPD	Phenols-4AAP	2024/05/03	NC		%	20

N/A = Not Applicable

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

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).

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Bureau Veritas Job #: C4C7907
Report Date: 2024/05/06

Golder Associates Ltd
Client Project #: CA0023633.8620
Site Location: MCCARTHY QUARRY
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 #: CA0023633.8620
Your C.O.C. #: 990796-01-01

Attention: Colin Imrie

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

Report Date: 2024/05/27
Report #: R8165753
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C4E9011
Received: 2024/05/17, 11:58

Sample Matrix: Water
Samples Received: 4

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Alkalinity	4	N/A	2024/05/23	CAM SOP-00448	SM 24 2320 B m
Carbonate, Bicarbonate and Hydroxide	4	N/A	2024/05/24	CAM SOP-00102	APHA 4500-CO2 D
Chloride by Automated Colourimetry	4	N/A	2024/05/24	CAM SOP-00463	SM 24 4500-Cl E m
Conductivity	4	N/A	2024/05/23	CAM SOP-00414	SM 24 2510 m
Dissolved Organic Carbon (DOC) (1)	4	N/A	2024/05/22	CAM SOP-00446	SM 24 5310 B m
Fluoride	4	2024/05/18	2024/05/23	CAM SOP-00449	SM 24 4500-F C m
Hardness (calculated as CaCO3)	4	N/A	2024/05/22	CAM SOP 00102/00408/00447	SM 2340 B
Lab Filtered Metals by ICPMS	4	2024/05/21	2024/05/22	CAM SOP-00447	EPA 6020B m
Total Metals Analysis by ICPMS	4	2024/05/22	2024/05/22	CAM SOP-00447	EPA 6020B m
Anion and Cation Sum	4	N/A	2024/05/24		
Total Ammonia-N	1	N/A	2024/05/23	CAM SOP-00441	USGS I-2522-90 m
Total Ammonia-N	3	N/A	2024/05/27	CAM SOP-00441	USGS I-2522-90 m
Nitrate & Nitrite as Nitrogen in Water (2)	4	N/A	2024/05/24	CAM SOP-00440	SM 24 4500-NO3I/NO2B
Animal and Vegetable Oil and Grease	4	N/A	2024/05/21	CAM SOP-00326	EPA1664B m,SM5520B m
Total Oil and Grease	4	2024/05/19	2024/05/21	CAM SOP-00326	EPA1664B m,SM5520B m
pH (3)	4	2024/05/18	2024/05/23	CAM SOP-00413	SM 24th - 4500H+ B
Phenols (4AAP)	4	N/A	2024/05/23	CAM SOP-00444	OMOE E3179 m
Orthophosphate	4	N/A	2024/05/21	CAM SOP-00461	SM 24 4500-P E
Sat. pH and Langelier Index (@ 20C)	4	N/A	2024/05/24		Auto Calc
Sat. pH and Langelier Index (@ 4C)	4	N/A	2024/05/24		Auto Calc
Sulphate by Automated Turbidimetry	4	N/A	2024/05/24	CAM SOP-00464	SM 24 4500-SO42- E m
Total Dissolved Solids	4	2024/05/23	2024/05/24	CAM SOP-00428	SM 24 2540C m
Total Kjeldahl Nitrogen in Water	4	2024/05/21	2024/05/22	CAM SOP-00938	OMOE E3516 m
Total Phosphorus (Colourimetric)	4	2024/05/21	2024/05/23	CAM SOP-00407	SM 24 4500-P I
Mineral/Synthetic O & G (TPH Heavy Oil) (4)	4	2024/05/19	2024/05/21	CAM SOP-00326	EPA1664B m,SM5520F m
Total Suspended Solids	1	2024/05/23	2024/05/23	CAM SOP-00428	SM 24 2540D m
Total Suspended Solids	3	2024/05/23	2024/05/24	CAM SOP-00428	SM 24 2540D m
Turbidity	4	N/A	2024/05/18	CAM SOP-00417	SM 24 2130 B

Your Project #: CA0023633.8620
Your C.O.C. #: 990796-01-01

Attention: Colin Imrie

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

Report Date: 2024/05/27
Report #: R8165753
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C4E9011
Received: 2024/05/17, 11:58

Remarks:

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

Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) 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) "The CCME method and Analytical Protocol (O. Reg 153/04, O. Reg. 406/19) requires pH to be analyzed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the CCME and Analytical Protocol (O. Reg 153/04, O. Reg. 406/19) holding time. Bureau Veritas endeavors to analyze samples as soon as possible after receipt."

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

Your Project #: CA0023633.8620
Your C.O.C. #: 990796-01-01

Attention: Colin Imrie

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

Report Date: 2024/05/27
Report #: R8165753
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C4E9011
Received: 2024/05/17, 11:58

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 #: C4E9011
Report Date: 2024/05/27

WSP Canada Inc.
Client Project #: CA0023633.8620
Sampler Initials: CL

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

Bureau Veritas ID			ZEW772	ZEW773	ZEW774	ZEW775		
Sampling Date			2024/05/16 12:45	2024/05/16 12:20	2024/05/16 03:15	2024/05/16		
COC Number			990796-01-01	990796-01-01	990796-01-01	990796-01-01		
	UNITS	Criteria	POND	SW1	SW2	DUP3	RDL	QC Batch
Calculated Parameters								
Total Animal/Vegetable Oil and Grease	mg/L	-	<0.50	<0.50	1.6	<0.50	0.50	9399780
Petroleum Hydrocarbons								
Total Oil & Grease	mg/L	-	<0.50	<0.50	1.6	<0.50	0.50	9402916
Total Oil & Grease Mineral/Synthetic	mg/L	0.5	<0.50	<0.50	<0.50	<0.50	0.50	9402917

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: Ontario Provincial Water Quality Objectives
Ref. to MOEE Water Management document dated Feb.1999

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Bureau Veritas Job #: C4E9011
Report Date: 2024/05/27

WSP Canada Inc.
Client Project #: CA0023633.8620
Sampler Initials: CL

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID			ZEW772			ZEW772		
Sampling Date			2024/05/16 12:45			2024/05/16 12:45		
COC Number			990796-01-01			990796-01-01		
	UNITS	Criteria	POND	RDL	QC Batch	POND Lab-Dup	RDL	QC Batch
Calculated Parameters								
Anion Sum	me/L	-	6.86	N/A	9399778			
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	-	82	1.0	9399781			
Carb. Alkalinity (calc. as CaCO3)	mg/L	-	<1.0	1.0	9399781			
Cation Sum	me/L	-	7.25	N/A	9399778			
Hardness (CaCO3)	mg/L	-	230	1.0	9399785			
Langelier Index (@ 20C)	N/A	-	0.213		9399783			
Langelier Index (@ 4C)	N/A	-	-0.0350		9399784			
Saturation pH (@ 20C)	N/A	-	7.83		9399783			
Saturation pH (@ 4C)	N/A	-	8.07		9399784			
Inorganics								
Total Ammonia-N	mg/L	-	<0.050	0.050	9403839			
Conductivity	umho/cm	-	740	1.0	9402437	740	1.0	9402437
Total Dissolved Solids	mg/L	-	450	10	9408778			
Fluoride (F-)	mg/L	-	0.27	0.10	9402431	0.25	0.10	9402431
Total Kjeldahl Nitrogen (TKN)	mg/L	-	0.37	0.10	9403930			
Dissolved Organic Carbon	mg/L	-	6.0	0.40	9402789			
Orthophosphate (P)	mg/L	-	<0.010	0.010	9402465			
pH	pH	6.5:8.5	8.04		9402438	8.05		9402438
Phenols-4AAP	mg/L	0.001	<0.0010	0.0010	9409799	<0.0010	0.0010	9409799
Total Phosphorus	mg/L	0.01	0.010	0.004	9404368	0.008	0.004	9404368
Total Suspended Solids	mg/L	-	<10	10	9407845			
Dissolved Sulphate (SO4)	mg/L	-	130	1.0	9402464			
Turbidity	NTU	-	3.4	0.1	9401958			
Alkalinity (Total as CaCO3)	mg/L	-	83	1.0	9402436	83	1.0	9402436
Dissolved Chloride (Cl-)	mg/L	-	91	1.0	9402463			
Nitrite (N)	mg/L	-	<0.010	0.010	9402435			
Nitrate (N)	mg/L	-	<0.10	0.10	9402435			

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

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Bureau Veritas Job #: C4E9011
Report Date: 2024/05/27

WSP Canada Inc.
Client Project #: CA0023633.8620
Sampler Initials: CL

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID			ZEW773		ZEW774		ZEW775		
Sampling Date			2024/05/16 12:20		2024/05/16 03:15		2024/05/16		
COC Number			990796-01-01		990796-01-01		990796-01-01		
	UNITS	Criteria	SW1	QC Batch	SW2	QC Batch	DUP3	RDL	QC Batch
Calculated Parameters									
Anion Sum	me/L	-	10.0	9399778	6.51	9399778	9.91	N/A	9399778
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	-	260	9399781	300	9399781	260	1.0	9399781
Carb. Alkalinity (calc. as CaCO3)	mg/L	-	2.9	9399781	3.0	9399781	4.0	1.0	9399781
Cation Sum	me/L	-	9.20	9399778	6.94	9399778	10.3	N/A	9399778
Hardness (CaCO3)	mg/L	-	340	9399785	330	9399785	380	1.0	9399785
Langelier Index (@ 20C)	N/A	-	1.04	9399783	1.15	9399783	1.24		9399783
Langelier Index (@ 4C)	N/A	-	0.797	9399784	0.896	9399784	0.990		9399784
Saturation pH (@ 20C)	N/A	-	7.03	9399783	6.88	9399783	6.97		9399783
Saturation pH (@ 4C)	N/A	-	7.27	9399784	7.13	9399784	7.22		9399784
Inorganics									
Total Ammonia-N	mg/L	-	0.13	9403839	<0.050	9403790	0.13	0.050	9403839
Conductivity	umho/cm	-	960	9402444	580	9402437	950	1.0	9402444
Total Dissolved Solids	mg/L	-	575	9408778	345	9409509	575	10	9409509
Fluoride (F-)	mg/L	-	0.21	9402445	<0.10	9402431	0.22	0.10	9402445
Total Kjeldahl Nitrogen (TKN)	mg/L	-	0.58	9403930	0.34	9403930	0.59	0.10	9403930
Dissolved Organic Carbon	mg/L	-	11	9402788	7.9	9402789	11	0.40	9402788
Orthophosphate (P)	mg/L	-	<0.010	9402465	<0.010	9402465	<0.010	0.010	9402465
pH	pH	6.5:8.5	8.07	9402448	8.03	9402438	8.21		9402448
Phenols-4AAP	mg/L	0.001	<0.0010	9409799	<0.0010	9409799	<0.0010	0.0010	9409799
Total Phosphorus	mg/L	0.01	**0.012**	9404368	**0.012**	9404368	0.010	0.004	9404368
Total Suspended Solids	mg/L	-	<10	9406490	<10	9406490	<10	10	9406490
Dissolved Sulphate (SO4)	mg/L	-	86	9402464	20	9402464	81	1.0	9402464
Turbidity	NTU	-	3.6	9401958	1.7	9401958	3.5	0.1	9401958
Alkalinity (Total as CaCO3)	mg/L	-	270	9402442	300	9402436	270	1.0	9402442
Dissolved Chloride (Cl-)	mg/L	-	100	9402463	3.2	9402463	100	1.0	9402463
Nitrite (N)	mg/L	-	0.111	9402435	<0.010	9402435	0.110	0.010	9402435
Nitrate (N)	mg/L	-	0.24	9402435	<0.10	9402435	0.24	0.10	9402435

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: Ontario Provincial Water Quality Objectives
Ref. to MOEE Water Management document dated Feb.1999
N/A = Not Applicable

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ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID			ZEW772	ZEW773			ZEW773		
Sampling Date			2024/05/16 12:45	2024/05/16 12:20			2024/05/16 12:20		
COC Number			990796-01-01	990796-01-01			990796-01-01		
	UNITS	Criteria	POND	SW1	RDL	QC Batch	SW1 Lab-Dup	RDL	QC Batch
Metals									
Total Arsenic (As)	ug/L	100	<1.0	<1.0	1.0	9405905			
Total Cadmium (Cd)	ug/L	0.2	<0.090	<0.090	0.090	9405905			
Dissolved Calcium (Ca)	ug/L	-	52000	110000	200	9404877	130000	200	9404877
Total Calcium (Ca)	ug/L	-	51000	120000	200	9405905			
Total Chromium (Cr)	ug/L	-	<5.0	<5.0	5.0	9405905			
Total Copper (Cu)	ug/L	5	1.3	1.5	0.90	9405905			
Total Iron (Fe)	ug/L	300	140	**340**	100	9405905			
Total Lead (Pb)	ug/L	5	<0.50	<0.50	0.50	9405905			
Dissolved Magnesium (Mg)	ug/L	-	23000	18000	50	9404877	20000	50	9404877
Total Magnesium (Mg)	ug/L	-	22000	18000	50	9405905			
Total Manganese (Mn)	ug/L	-	22	52	2.0	9405905			
Total Nickel (Ni)	ug/L	25	<1.0	1.4	1.0	9405905			
Dissolved Potassium (K)	ug/L	-	6500	4200	200	9404877	5000	200	9404877
Total Potassium (K)	ug/L	-	6300	4500	200	9405905			
Dissolved Sodium (Na)	ug/L	-	59000	52000	100	9404877	59000	100	9404877
Total Sodium (Na)	ug/L	-	55000	53000	100	9405905			
Total Zinc (Zn)	ug/L	30	<5.0	<5.0	5.0	9405905			

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

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ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID			ZEW774	ZEW775		
Sampling Date			2024/05/16 03:15	2024/05/16		
COC Number			990796-01-01	990796-01-01		
	UNITS	Criteria	SW2	DUP3	RDL	QC Batch
Metals						
Total Arsenic (As)	ug/L	100	<1.0	<1.0	1.0	9405905
Total Cadmium (Cd)	ug/L	0.2	<0.090	<0.090	0.090	9405905
Dissolved Calcium (Ca)	ug/L	-	120000	120000	200	9404877
Total Calcium (Ca)	ug/L	-	110000	120000	200	9405905
Total Chromium (Cr)	ug/L	-	<5.0	<5.0	5.0	9405905
Total Copper (Cu)	ug/L	5	1.8	1.3	0.90	9405905
Total Iron (Fe)	ug/L	300	140	**340**	100	9405905
Total Lead (Pb)	ug/L	5	<0.50	<0.50	0.50	9405905
Dissolved Magnesium (Mg)	ug/L	-	9100	20000	50	9404877
Total Magnesium (Mg)	ug/L	-	8600	18000	50	9405905
Total Manganese (Mn)	ug/L	-	20	51	2.0	9405905
Total Nickel (Ni)	ug/L	25	<1.0	1.3	1.0	9405905
Dissolved Potassium (K)	ug/L	-	1400	4700	200	9404877
Total Potassium (K)	ug/L	-	1300	4500	200	9405905
Dissolved Sodium (Na)	ug/L	-	6100	57000	100	9404877
Total Sodium (Na)	ug/L	-	5100	52000	100	9405905
Total Zinc (Zn)	ug/L	30	<5.0	<5.0	5.0	9405905

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: Ontario Provincial Water Quality Objectives
Ref. to MOEE Water Management document dated Feb.1999

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TEST SUMMARY

Bureau Veritas ID: ZEW772
Sample ID: POND
Matrix: Water

Collected: 2024/05/16
Shipped:
Received: 2024/05/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	9402436	N/A	2024/05/23	Nachiketa Gohil
Carbonate, Bicarbonate and Hydroxide	CALC	9399781	N/A	2024/05/24	Automated Statchk
Chloride by Automated Colourimetry	SKAL	9402463	N/A	2024/05/24	Geetee Noorzaad
Conductivity	AT	9402437	N/A	2024/05/23	Nachiketa Gohil
Dissolved Organic Carbon (DOC)	TOCV/NDIR	9402789	N/A	2024/05/22	Gyulshen Idriz
Fluoride	ISE	9402431	2024/05/18	2024/05/23	Surinder Rai
Hardness (calculated as CaCO3)		9399785	N/A	2024/05/22	Automated Statchk
Lab Filtered Metals by ICPMS	ICP/MS	9404877	2024/05/21	2024/05/22	Nan Raykha
Total Metals Analysis by ICPMS	ICP/MS	9405905	2024/05/22	2024/05/22	Thuy Linh Nguyen
Anion and Cation Sum	CALC	9399778	N/A	2024/05/24	Automated Statchk
Total Ammonia-N	LACH/NH4	9403839	N/A	2024/05/27	Massarat Jan
Nitrate & Nitrite as Nitrogen in Water	LACH	9402435	N/A	2024/05/24	Jinal Chavda
Animal and Vegetable Oil and Grease	BAL	9399780	N/A	2024/05/21	Automated Statchk
Total Oil and Grease	BAL	9402916	2024/05/19	2024/05/21	Navneet Singh
pH	AT	9402438	2024/05/18	2024/05/23	Nachiketa Gohil
Phenols (4AAP)	TECH/PHEN	9409799	N/A	2024/05/23	Chandra Nandlal
Orthophosphate	KONE	9402465	N/A	2024/05/21	Alina Dobreanu
Sat. pH and Langelier Index (@ 20C)	CALC	9399783	N/A	2024/05/24	Automated Statchk
Sat. pH and Langelier Index (@ 4C)	CALC	9399784	N/A	2024/05/24	Automated Statchk
Sulphate by Automated Turbidimetry	SKAL	9402464	N/A	2024/05/24	Geetee Noorzaad
Total Dissolved Solids	BAL	9408778	2024/05/23	2024/05/24	Madhav Somani
Total Kjeldahl Nitrogen in Water	SKAL	9403930	2024/05/21	2024/05/22	Rajni Tyagi
Total Phosphorus (Colourimetric)	SKAL/P	9404368	2024/05/21	2024/05/23	Muskan
Mineral/Synthetic O & G (TPH Heavy Oil)	BAL	9402917	2024/05/19	2024/05/21	Navneet Singh
Total Suspended Solids	BAL	9407845	2024/05/23	2024/05/23	Madhav Somani
Turbidity	AT	9401958	N/A	2024/05/18	Kien Tran

Bureau Veritas ID: ZEW772 Dup
Sample ID: POND
Matrix: Water

Collected: 2024/05/16
Shipped:
Received: 2024/05/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	9402436	N/A	2024/05/23	Nachiketa Gohil
Conductivity	AT	9402437	N/A	2024/05/23	Nachiketa Gohil
Fluoride	ISE	9402431	2024/05/18	2024/05/23	Surinder Rai
pH	AT	9402438	2024/05/18	2024/05/23	Nachiketa Gohil
Phenols (4AAP)	TECH/PHEN	9409799	N/A	2024/05/23	Chandra Nandlal
Total Phosphorus (Colourimetric)	SKAL/P	9404368	2024/05/21	2024/05/23	Muskan

Bureau Veritas ID: ZEW773
Sample ID: SW1
Matrix: Water

Collected: 2024/05/16
Shipped:
Received: 2024/05/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	9402442	N/A	2024/05/23	Nachiketa Gohil

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TEST SUMMARY

Bureau Veritas ID: ZEW773
Sample ID: SW1
Matrix: Water

Collected: 2024/05/16
Shipped:
Received: 2024/05/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Carbonate, Bicarbonate and Hydroxide	CALC	9399781	N/A	2024/05/24	Automated Statchk
Chloride by Automated Colourimetry	SKAL	9402463	N/A	2024/05/24	Geetee Noorzaad
Conductivity	AT	9402444	N/A	2024/05/23	Nachiketa Gohil
Dissolved Organic Carbon (DOC)	TOCV/NDIR	9402788	N/A	2024/05/22	Gyulshen Idriz
Fluoride	ISE	9402445	2024/05/18	2024/05/23	Nachiketa Gohil
Hardness (calculated as CaCO3)		9399785	N/A	2024/05/22	Automated Statchk
Lab Filtered Metals by ICPMS	ICP/MS	9404877	2024/05/21	2024/05/22	Nan Raykha
Total Metals Analysis by ICPMS	ICP/MS	9405905	2024/05/22	2024/05/22	Thuy Linh Nguyen
Anion and Cation Sum	CALC	9399778	N/A	2024/05/24	Automated Statchk
Total Ammonia-N	LACH/NH4	9403839	N/A	2024/05/27	Massarat Jan
Nitrate & Nitrite as Nitrogen in Water	LACH	9402435	N/A	2024/05/24	Jinal Chavda
Animal and Vegetable Oil and Grease	BAL	9399780	N/A	2024/05/21	Automated Statchk
Total Oil and Grease	BAL	9402916	2024/05/19	2024/05/21	Navneet Singh
pH	AT	9402448	2024/05/18	2024/05/23	Nachiketa Gohil
Phenols (4AAP)	TECH/PHEN	9409799	N/A	2024/05/23	Chandra Nandlal
Orthophosphate	KONE	9402465	N/A	2024/05/21	Alina Dobreanu
Sat. pH and Langelier Index (@ 20C)	CALC	9399783	N/A	2024/05/24	Automated Statchk
Sat. pH and Langelier Index (@ 4C)	CALC	9399784	N/A	2024/05/24	Automated Statchk
Sulphate by Automated Turbidimetry	SKAL	9402464	N/A	2024/05/24	Geetee Noorzaad
Total Dissolved Solids	BAL	9408778	2024/05/23	2024/05/24	Madhav Somani
Total Kjeldahl Nitrogen in Water	SKAL	9403930	2024/05/21	2024/05/22	Rajni Tyagi
Total Phosphorus (Colourimetric)	SKAL/P	9404368	2024/05/21	2024/05/23	Muskan
Mineral/Synthetic O & G (TPH Heavy Oil)	BAL	9402917	2024/05/19	2024/05/21	Navneet Singh
Total Suspended Solids	BAL	9406490	2024/05/23	2024/05/24	Darshan Patel
Turbidity	AT	9401958	N/A	2024/05/18	Kien Tran

Bureau Veritas ID: ZEW773 Dup
Sample ID: SW1
Matrix: Water

Collected: 2024/05/16
Shipped:
Received: 2024/05/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Lab Filtered Metals by ICPMS	ICP/MS	9404877	2024/05/21	2024/05/22	Nan Raykha

Bureau Veritas ID: ZEW774
Sample ID: SW2
Matrix: Water

Collected: 2024/05/16
Shipped:
Received: 2024/05/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	9402436	N/A	2024/05/23	Nachiketa Gohil
Carbonate, Bicarbonate and Hydroxide	CALC	9399781	N/A	2024/05/24	Automated Statchk
Chloride by Automated Colourimetry	SKAL	9402463	N/A	2024/05/24	Geetee Noorzaad
Conductivity	AT	9402437	N/A	2024/05/23	Nachiketa Gohil
Dissolved Organic Carbon (DOC)	TOCV/NDIR	9402789	N/A	2024/05/22	Gyulshen Idriz
Fluoride	ISE	9402431	2024/05/18	2024/05/23	Surinder Rai
Hardness (calculated as CaCO3)		9399785	N/A	2024/05/22	Automated Statchk

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TEST SUMMARY

Bureau Veritas ID: ZEW774
Sample ID: SW2
Matrix: Water

Collected: 2024/05/16
Shipped:
Received: 2024/05/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Lab Filtered Metals by ICPMS	ICP/MS	9404877	2024/05/21	2024/05/22	Nan Raykha
Total Metals Analysis by ICPMS	ICP/MS	9405905	2024/05/22	2024/05/22	Thuy Linh Nguyen
Anion and Cation Sum	CALC	9399778	N/A	2024/05/24	Automated Statchk
Total Ammonia-N	LACH/NH4	9403790	N/A	2024/05/23	Massarat Jan
Nitrate & Nitrite as Nitrogen in Water	LACH	9402435	N/A	2024/05/24	Jinal Chavda
Animal and Vegetable Oil and Grease	BAL	9399780	N/A	2024/05/21	Automated Statchk
Total Oil and Grease	BAL	9402916	2024/05/19	2024/05/21	Navneet Singh
pH	AT	9402438	2024/05/18	2024/05/23	Nachiketa Gohil
Phenols (4AAP)	TECH/PHEN	9409799	N/A	2024/05/23	Chandra Nandlal
Orthophosphate	KONE	9402465	N/A	2024/05/21	Alina Dobreanu
Sat. pH and Langelier Index (@ 20C)	CALC	9399783	N/A	2024/05/24	Automated Statchk
Sat. pH and Langelier Index (@ 4C)	CALC	9399784	N/A	2024/05/24	Automated Statchk
Sulphate by Automated Turbidimetry	SKAL	9402464	N/A	2024/05/24	Geetee Noorzaad
Total Dissolved Solids	BAL	9409509	2024/05/23	2024/05/24	Darshan Patel
Total Kjeldahl Nitrogen in Water	SKAL	9403930	2024/05/21	2024/05/22	Rajni Tyagi
Total Phosphorus (Colourimetric)	SKAL/P	9404368	2024/05/21	2024/05/23	Muskan
Mineral/Synthetic O & G (TPH Heavy Oil)	BAL	9402917	2024/05/19	2024/05/21	Navneet Singh
Total Suspended Solids	BAL	9406490	2024/05/23	2024/05/24	Darshan Patel
Turbidity	AT	9401958	N/A	2024/05/18	Kien Tran

Bureau Veritas ID: ZEW775
Sample ID: DUP3
Matrix: Water

Collected: 2024/05/16
Shipped:
Received: 2024/05/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	9402442	N/A	2024/05/23	Nachiketa Gohil
Carbonate, Bicarbonate and Hydroxide	CALC	9399781	N/A	2024/05/24	Automated Statchk
Chloride by Automated Colourimetry	SKAL	9402463	N/A	2024/05/24	Geetee Noorzaad
Conductivity	AT	9402444	N/A	2024/05/23	Nachiketa Gohil
Dissolved Organic Carbon (DOC)	TOCV/NDIR	9402788	N/A	2024/05/22	Gyulshen Idriz
Fluoride	ISE	9402445	2024/05/18	2024/05/23	Nachiketa Gohil
Hardness (calculated as CaCO3)		9399785	N/A	2024/05/22	Automated Statchk
Lab Filtered Metals by ICPMS	ICP/MS	9404877	2024/05/21	2024/05/22	Nan Raykha
Total Metals Analysis by ICPMS	ICP/MS	9405905	2024/05/22	2024/05/22	Thuy Linh Nguyen
Anion and Cation Sum	CALC	9399778	N/A	2024/05/24	Automated Statchk
Total Ammonia-N	LACH/NH4	9403839	N/A	2024/05/27	Massarat Jan
Nitrate & Nitrite as Nitrogen in Water	LACH	9402435	N/A	2024/05/24	Jinal Chavda
Animal and Vegetable Oil and Grease	BAL	9399780	N/A	2024/05/21	Automated Statchk
Total Oil and Grease	BAL	9402916	2024/05/19	2024/05/21	Navneet Singh
pH	AT	9402448	2024/05/18	2024/05/23	Nachiketa Gohil
Phenols (4AAP)	TECH/PHEN	9409799	N/A	2024/05/23	Chandra Nandlal
Orthophosphate	KONE	9402465	N/A	2024/05/21	Alina Dobreanu
Sat. pH and Langelier Index (@ 20C)	CALC	9399783	N/A	2024/05/24	Automated Statchk
Sat. pH and Langelier Index (@ 4C)	CALC	9399784	N/A	2024/05/24	Automated Statchk
Sulphate by Automated Turbidimetry	SKAL	9402464	N/A	2024/05/24	Geetee Noorzaad

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Bureau Veritas Job #: C4E9011
Report Date: 2024/05/27

WSP Canada Inc.
Client Project #: CA0023633.8620
Sampler Initials: CL

TEST SUMMARY

Bureau Veritas ID: ZEW775
Sample ID: DUP3
Matrix: Water

Collected: 2024/05/16
Shipped:
Received: 2024/05/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Total Dissolved Solids	BAL	9409509	2024/05/23	2024/05/24	Darshan Patel
Total Kjeldahl Nitrogen in Water	SKAL	9403930	2024/05/21	2024/05/22	Rajni Tyagi
Total Phosphorus (Colourimetric)	SKAL/P	9404368	2024/05/21	2024/05/23	Muskan
Mineral/Synthetic O & G (TPH Heavy Oil)	BAL	9402917	2024/05/19	2024/05/21	Navneet Singh
Total Suspended Solids	BAL	9406490	2024/05/23	2024/05/24	Darshan Patel
Turbidity	AT	9401958	N/A	2024/05/18	Kien Tran

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GENERAL COMMENTS

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

Package 1	7.3°C

Results relate only to the items tested.

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QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
9401958	KIT	Spiked Blank	Turbidity	2024/05/18		100	%	80 - 120
9401958	KIT	Method Blank	Turbidity	2024/05/18	<0.1		NTU	
9401958	KIT	RPD	Turbidity	2024/05/18	15		%	20
9402431	SAU	Matrix Spike [ZEW772-02]	Fluoride (F-)	2024/05/23		102	%	80 - 120
9402431	SAU	Spiked Blank	Fluoride (F-)	2024/05/23		101	%	80 - 120
9402431	SAU	Method Blank	Fluoride (F-)	2024/05/23	<0.10		mg/L	
9402431	SAU	RPD [ZEW772-02]	Fluoride (F-)	2024/05/23	7.1		%	20
9402435	J1C	Matrix Spike	Nitrite (N)	2024/05/24		96	%	80 - 120
			Nitrate (N)	2024/05/24		83	%	80 - 120
9402435	J1C	Spiked Blank	Nitrite (N)	2024/05/24		100	%	80 - 120
			Nitrate (N)	2024/05/24		87	%	80 - 120
9402435	J1C	Method Blank	Nitrite (N)	2024/05/24	<0.010		mg/L	
			Nitrate (N)	2024/05/24	<0.10		mg/L	
9402435	J1C	RPD	Nitrite (N)	2024/05/24	NC		%	20
			Nitrate (N)	2024/05/24	NC		%	20
9402436	NGI	Spiked Blank	Alkalinity (Total as CaCO3)	2024/05/23		96	%	85 - 115
9402436	NGI	Method Blank	Alkalinity (Total as CaCO3)	2024/05/23	<1.0		mg/L	
9402436	NGI	RPD [ZEW772-02]	Alkalinity (Total as CaCO3)	2024/05/23	0.81		%	20
9402437	NGI	Spiked Blank	Conductivity	2024/05/23		100	%	85 - 115
9402437	NGI	Method Blank	Conductivity	2024/05/23	<1.0		umho/cm	
9402437	NGI	RPD [ZEW772-02]	Conductivity	2024/05/23	0.14		%	10
9402438	NGI	Spiked Blank	pH	2024/05/23		102	%	98 - 103
9402438	NGI	RPD [ZEW772-02]	pH	2024/05/23	0.13		%	N/A
9402442	NGI	Spiked Blank	Alkalinity (Total as CaCO3)	2024/05/23		96	%	85 - 115
9402442	NGI	Method Blank	Alkalinity (Total as CaCO3)	2024/05/23	<1.0		mg/L	
9402442	NGI	RPD	Alkalinity (Total as CaCO3)	2024/05/23	0.64		%	20
9402444	NGI	Spiked Blank	Conductivity	2024/05/23		100	%	85 - 115
9402444	NGI	Method Blank	Conductivity	2024/05/23	<1.0		umho/cm	
9402444	NGI	RPD	Conductivity	2024/05/23	0.63		%	10
9402445	NGI	Matrix Spike	Fluoride (F-)	2024/05/23		100	%	80 - 120
9402445	NGI	Spiked Blank	Fluoride (F-)	2024/05/23		99	%	80 - 120
9402445	NGI	Method Blank	Fluoride (F-)	2024/05/23	<0.10		mg/L	
9402445	NGI	RPD	Fluoride (F-)	2024/05/23	2.4		%	20
9402448	NGI	Spiked Blank	pH	2024/05/23		102	%	98 - 103
9402448	NGI	RPD	pH	2024/05/23	0.076		%	N/A
9402463	GNO	Matrix Spike	Dissolved Chloride (Cl-)	2024/05/24		101	%	80 - 120
9402463	GNO	Spiked Blank	Dissolved Chloride (Cl-)	2024/05/24		102	%	80 - 120
9402463	GNO	Method Blank	Dissolved Chloride (Cl-)	2024/05/24	<1.0		mg/L	
9402463	GNO	RPD	Dissolved Chloride (Cl-)	2024/05/24	NC		%	20
9402464	GNO	Matrix Spike	Dissolved Sulphate (SO4)	2024/05/24		103	%	75 - 125
9402464	GNO	Spiked Blank	Dissolved Sulphate (SO4)	2024/05/24		98	%	80 - 120
9402464	GNO	Method Blank	Dissolved Sulphate (SO4)	2024/05/24	<1.0		mg/L	
9402464	GNO	RPD	Dissolved Sulphate (SO4)	2024/05/24	6.1		%	20
9402465	ADB	Matrix Spike	Orthophosphate (P)	2024/05/21		92	%	75 - 125
9402465	ADB	Spiked Blank	Orthophosphate (P)	2024/05/21		91	%	80 - 120
9402465	ADB	Method Blank	Orthophosphate (P)	2024/05/21	<0.010		mg/L	
9402465	ADB	RPD	Orthophosphate (P)	2024/05/21	NC		%	20
9402788	GID	Matrix Spike	Dissolved Organic Carbon	2024/05/22		92	%	80 - 120
9402788	GID	Spiked Blank	Dissolved Organic Carbon	2024/05/22		98	%	80 - 120
9402788	GID	Method Blank	Dissolved Organic Carbon	2024/05/22	<0.40		mg/L	
9402788	GID	RPD	Dissolved Organic Carbon	2024/05/22	5.2		%	20

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
9402789	GID	Matrix Spike	Dissolved Organic Carbon	2024/05/22		94	%	80 - 120
9402789	GID	Spiked Blank	Dissolved Organic Carbon	2024/05/22		97	%	80 - 120
9402789	GID	Method Blank	Dissolved Organic Carbon	2024/05/22	<0.40		mg/L	
9402789	GID	RPD	Dissolved Organic Carbon	2024/05/22	8.0		%	20
9402916	NSG	Spiked Blank	Total Oil & Grease	2024/05/21		99	%	80 - 110
9402916	NSG	RPD	Total Oil & Grease	2024/05/21	0		%	25
9402916	NSG	Method Blank	Total Oil & Grease	2024/05/21	<0.50		mg/L	
9402917	NSG	Spiked Blank	Total Oil & Grease Mineral/Synthetic	2024/05/21		97	%	65 - 130
9402917	NSG	RPD	Total Oil & Grease Mineral/Synthetic	2024/05/21	0		%	25
9402917	NSG	Method Blank	Total Oil & Grease Mineral/Synthetic	2024/05/21	<0.50		mg/L	
9403790	MJ1	Matrix Spike	Total Ammonia-N	2024/05/23		106	%	75 - 125
9403790	MJ1	Spiked Blank	Total Ammonia-N	2024/05/23		102	%	80 - 120
9403790	MJ1	Method Blank	Total Ammonia-N	2024/05/23	<0.050		mg/L	
9403790	MJ1	RPD	Total Ammonia-N	2024/05/23	NC		%	20
9403839	MJ1	Matrix Spike	Total Ammonia-N	2024/05/27		109	%	75 - 125
9403839	MJ1	Spiked Blank	Total Ammonia-N	2024/05/27		103	%	80 - 120
9403839	MJ1	Method Blank	Total Ammonia-N	2024/05/27	<0.050		mg/L	
9403839	MJ1	RPD	Total Ammonia-N	2024/05/27	4.9		%	20
9403930	RTY	Matrix Spike	Total Kjeldahl Nitrogen (TKN)	2024/05/22		102	%	80 - 120
9403930	RTY	QC Standard	Total Kjeldahl Nitrogen (TKN)	2024/05/22		100	%	80 - 120
9403930	RTY	Spiked Blank	Total Kjeldahl Nitrogen (TKN)	2024/05/22		101	%	80 - 120
9403930	RTY	Method Blank	Total Kjeldahl Nitrogen (TKN)	2024/05/22	<0.10		mg/L	
9403930	RTY	RPD	Total Kjeldahl Nitrogen (TKN)	2024/05/22	5.9		%	20
9404368	MUM	Matrix Spike [ZEW772-04]	Total Phosphorus	2024/05/23		91	%	80 - 120
9404368	MUM	QC Standard	Total Phosphorus	2024/05/23		98	%	80 - 120
9404368	MUM	Spiked Blank	Total Phosphorus	2024/05/23		93	%	80 - 120
9404368	MUM	Method Blank	Total Phosphorus	2024/05/23	<0.004		mg/L	
9404368	MUM	RPD [ZEW772-04]	Total Phosphorus	2024/05/23	NC		%	20
9404877	N_R	Matrix Spike [ZEW773-02]	Dissolved Calcium (Ca)	2024/05/22		NC	%	80 - 120
			Dissolved Magnesium (Mg)	2024/05/22		109	%	80 - 120
			Dissolved Potassium (K)	2024/05/22		113	%	80 - 120
			Dissolved Sodium (Na)	2024/05/22		NC	%	80 - 120
9404877	N_R	Spiked Blank	Dissolved Calcium (Ca)	2024/05/22		104	%	80 - 120
			Dissolved Magnesium (Mg)	2024/05/22		104	%	80 - 120
			Dissolved Potassium (K)	2024/05/22		104	%	80 - 120
			Dissolved Sodium (Na)	2024/05/22		102	%	80 - 120
9404877	N_R	Method Blank	Dissolved Calcium (Ca)	2024/05/22	<200		ug/L	
			Dissolved Magnesium (Mg)	2024/05/22	<50		ug/L	
			Dissolved Potassium (K)	2024/05/22	<200		ug/L	
			Dissolved Sodium (Na)	2024/05/22	130, RDL=100 (1)		ug/L	
9404877	N_R	RPD [ZEW773-02]	Dissolved Calcium (Ca)	2024/05/22	17		%	20
			Dissolved Magnesium (Mg)	2024/05/22	12		%	20
			Dissolved Potassium (K)	2024/05/22	18		%	20
			Dissolved Sodium (Na)	2024/05/22	14		%	20
9405905	TLG	Matrix Spike	Total Arsenic (As)	2024/05/22		99	%	80 - 120
			Total Cadmium (Cd)	2024/05/22		99	%	80 - 120
			Total Calcium (Ca)	2024/05/22		NC	%	80 - 120
			Total Chromium (Cr)	2024/05/22		95	%	80 - 120
			Total Copper (Cu)	2024/05/22		100	%	80 - 120

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Total Iron (Fe)	2024/05/22		99	%	80 - 120
			Total Lead (Pb)	2024/05/22		100	%	80 - 120
			Total Magnesium (Mg)	2024/05/22		92	%	80 - 120
			Total Manganese (Mn)	2024/05/22		95	%	80 - 120
			Total Nickel (Ni)	2024/05/22		92	%	80 - 120
			Total Potassium (K)	2024/05/22		95	%	80 - 120
			Total Sodium (Na)	2024/05/22		NC	%	80 - 120
			Total Zinc (Zn)	2024/05/22		98	%	80 - 120
9405905	TLG	Spiked Blank	Total Arsenic (As)	2024/05/22		99	%	80 - 120
			Total Cadmium (Cd)	2024/05/22		97	%	80 - 120
			Total Calcium (Ca)	2024/05/22		100	%	80 - 120
			Total Chromium (Cr)	2024/05/22		95	%	80 - 120
			Total Copper (Cu)	2024/05/22		102	%	80 - 120
			Total Iron (Fe)	2024/05/22		100	%	80 - 120
			Total Lead (Pb)	2024/05/22		98	%	80 - 120
			Total Magnesium (Mg)	2024/05/22		95	%	80 - 120
			Total Manganese (Mn)	2024/05/22		95	%	80 - 120
			Total Nickel (Ni)	2024/05/22		93	%	80 - 120
			Total Potassium (K)	2024/05/22		98	%	80 - 120
			Total Sodium (Na)	2024/05/22		94	%	80 - 120
			Total Zinc (Zn)	2024/05/22		100	%	80 - 120
9405905	TLG	Method Blank	Total Arsenic (As)	2024/05/22	<1.0		ug/L	
			Total Cadmium (Cd)	2024/05/22	<0.090		ug/L	
			Total Calcium (Ca)	2024/05/22	<200		ug/L	
			Total Chromium (Cr)	2024/05/22	<5.0		ug/L	
			Total Copper (Cu)	2024/05/22	<0.90		ug/L	
			Total Iron (Fe)	2024/05/22	<100		ug/L	
			Total Lead (Pb)	2024/05/22	<0.50		ug/L	
			Total Magnesium (Mg)	2024/05/22	<50		ug/L	
			Total Manganese (Mn)	2024/05/22	<2.0		ug/L	
			Total Nickel (Ni)	2024/05/22	<1.0		ug/L	
			Total Potassium (K)	2024/05/22	<200		ug/L	
			Total Sodium (Na)	2024/05/22	<100		ug/L	
			Total Zinc (Zn)	2024/05/22	<5.0		ug/L	
9405905	TLG	RPD	Total Arsenic (As)	2024/05/22	NC		%	20
			Total Cadmium (Cd)	2024/05/22	NC		%	20
			Total Calcium (Ca)	2024/05/22	2.3		%	20
			Total Chromium (Cr)	2024/05/22	NC		%	20
			Total Copper (Cu)	2024/05/22	3.7		%	20
			Total Iron (Fe)	2024/05/22	NC		%	20
			Total Lead (Pb)	2024/05/22	NC		%	20
			Total Magnesium (Mg)	2024/05/22	3.2		%	20
			Total Manganese (Mn)	2024/05/22	NC		%	20
			Total Nickel (Ni)	2024/05/22	NC		%	20
			Total Potassium (K)	2024/05/22	0.55		%	20
			Total Sodium (Na)	2024/05/22	2.5		%	20
			Total Zinc (Zn)	2024/05/22	NC		%	20
9406490	DPC	Spiked Blank	Total Suspended Solids	2024/05/24		98	%	80 - 120
9406490	DPC	Method Blank	Total Suspended Solids	2024/05/24	<10		mg/L	
9406490	DPC	RPD	Total Suspended Solids	2024/05/24	NC		%	20
9407845	MV1	Spiked Blank	Total Suspended Solids	2024/05/23		98	%	80 - 120
9407845	MV1	Method Blank	Total Suspended Solids	2024/05/23	<10		mg/L	

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
9407845	MV1	RPD	Total Suspended Solids	2024/05/23	NC		%	20
9408778	MV1	Spiked Blank	Total Dissolved Solids	2024/05/24		97	%	80 - 120
9408778	MV1	Method Blank	Total Dissolved Solids	2024/05/24	<10		mg/L	
9408778	MV1	RPD	Total Dissolved Solids	2024/05/24	3.0		%	20
9409509	DPC	Spiked Blank	Total Dissolved Solids	2024/05/24		95	%	80 - 120
9409509	DPC	Method Blank	Total Dissolved Solids	2024/05/24	<10		mg/L	
9409509	DPC	RPD	Total Dissolved Solids	2024/05/24	5.1		%	20
9409799	C_N	Matrix Spike [ZEW772-06]	Phenols-4AAP	2024/05/23		101	%	80 - 120
9409799	C_N	Spiked Blank	Phenols-4AAP	2024/05/23		103	%	80 - 120
9409799	C_N	Method Blank	Phenols-4AAP	2024/05/23	<0.0010		mg/L	
9409799	C_N	RPD [ZEW772-06]	Phenols-4AAP	2024/05/23	NC		%	20

N/A = Not Applicable

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

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

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

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

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

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

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

(1) Analyte was detected in the method blank at a level marginally above the detection limit. Sample results have not been blank corrected. Those results at or near the detection limit may be biased high.

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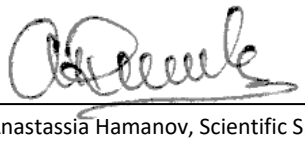
VALIDATION SIGNATURE PAGE

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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Exceedance Summary Table – Prov. Water Quality Obj.

Result Exceedances

Sample ID	Bureau Veritas ID	Parameter	Criteria	Result	DL	UNITS
SW1	ZEW773-08	Total Iron (Fe)	300	340	100	ug/L
SW1	ZEW773-04	Total Phosphorus	0.01	0.012	0.004	mg/L
SW2	ZEW774-04	Total Phosphorus	0.01	0.012	0.004	mg/L
DUP3	ZEW775-08	Total Iron (Fe)	300	340	100	ug/L

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

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Your Project #: CA0023633.8620
Your C.O.C. #: C#1017698-01-01

Attention: Colin Imrie

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

Report Date: 2024/10/30
Report #: R8382919
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C4X3362
Received: 2024/10/23, 12:00

Sample Matrix: Water
Samples Received: 3

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Alkalinity	3	N/A	2024/10/28	CAM SOP-00448	SM 24 2320 B m
Carbonate, Bicarbonate and Hydroxide	3	N/A	2024/10/29	CAM SOP-00102	APHA 4500-CO2 D
Chloride by Automated Colourimetry	3	N/A	2024/10/25	CAM SOP-00463	SM 24 4500-Cl E m
Conductivity	3	N/A	2024/10/28	CAM SOP-00414	SM 24 2510 m
Dissolved Organic Carbon (DOC) (1)	3	N/A	2024/10/24	CAM SOP-00446	SM 24 5310 B m
Fluoride	3	2024/10/24	2024/10/28	CAM SOP-00449	SM 24 4500-F C m
Hardness (calculated as CaCO3)	3	N/A	2024/10/25	CAM SOP 00102/00408/00447	SM 2340 B
Lab Filtered Metals by ICPMS	3	2024/10/24	2024/10/25	CAM SOP-00447	EPA 6020B m
Total Metals Analysis by ICPMS	2	2024/10/25	2024/10/25	CAM SOP-00447	EPA 6020B m
Total Metals Analysis by ICPMS	1	2024/10/29	2024/10/29	CAM SOP-00447	EPA 6020B m
Anion and Cation Sum	3	N/A	2024/10/29		
Total Ammonia-N	3	N/A	2024/10/28	CAM SOP-00441	USGS I-2522-90 m
Nitrate & Nitrite as Nitrogen in Water (2)	3	N/A	2024/10/25	CAM SOP-00440	SM 24 4500-NO3I/NO2B
Animal and Vegetable Oil and Grease	3	N/A	2024/10/27	CAM SOP-00326	EPA1664B m,SM5520B m
Total Oil and Grease	3	2024/10/27	2024/10/27	CAM SOP-00326	EPA1664B m,SM5520B m
pH (3)	3	2024/10/24	2024/10/28	CAM SOP-00413	SM 24th - 4500H+ B
Phenols (4AAP)	3	N/A	2024/10/28	CAM SOP-00444	OMOE E3179 m
Orthophosphate	3	N/A	2024/10/25	CAM SOP-00461	SM 24 4500-P E
Sat. pH and Langelier Index (@ 20C)	3	N/A	2024/10/29		Auto Calc
Sat. pH and Langelier Index (@ 4C)	3	N/A	2024/10/29		Auto Calc
Sulphate by Automated Turbidimetry	3	N/A	2024/10/28	CAM SOP-00464	SM 24 4500-SO42- E m
Total Dissolved Solids	3	2024/10/24	2024/10/25	CAM SOP-00428	SM 24 2540C m
Total Kjeldahl Nitrogen in Water	3	2024/10/25	2024/10/28	CAM SOP-00938	OMOE E3516 m
Total Phosphorus (Colourimetric)	3	2024/10/28	2024/10/29	CAM SOP-00407	SM 24 4500-P I
Mineral/Synthetic O & G (TPH Heavy Oil) (4)	3	2024/10/27	2024/10/27	CAM SOP-00326	EPA1664B m,SM5520F m
Total Suspended Solids	3	2024/10/24	2024/10/25	CAM SOP-00428	SM 24 2540D m
Turbidity	3	N/A	2024/10/24	CAM SOP-00417	SM 24 2130 B

Remarks:

Your Project #: CA0023633.8620
Your C.O.C. #: C#1017698-01-01

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Report Date: 2024/10/30
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CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C4X3362

Received: 2024/10/23, 12:00

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, EPA, APHA or the Quebec Ministry of Environment.

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.

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) "The CCME method and Analytical Protocol (O. Reg 153/04, O. Reg. 406/19) requires pH to be analyzed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the CCME and Analytical Protocol (O. Reg 153/04, O. Reg. 406/19) holding time. Bureau Veritas endeavors to analyze samples as soon as possible after receipt."

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

Your Project #: CA0023633.8620
Your C.O.C. #: C#1017698-01-01

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Report Date: 2024/10/30
Report #: R8382919
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C4X3362
Received: 2024/10/23, 12:00

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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Bureau Veritas Job #: C4X3362
Report Date: 2024/10/30

WSP Canada Inc.
Client Project #: CA0023633.8620
Sampler Initials: CI

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

Bureau Veritas ID			AGSM07	AGSM08	AGSM10		
Sampling Date			2024/10/22 12:30	2024/10/22 12:40	2024/10/22		
COC Number			C#1017698-01-01	C#1017698-01-01	C#1017698-01-01		
	UNITS	Criteria	POND	SW 1	DUP 3	RDL	QC Batch
Calculated Parameters							
Total Animal/Vegetable Oil and Grease	mg/L	-	<0.50	<0.50	<0.50	0.50	9718404
Petroleum Hydrocarbons							
Total Oil & Grease	mg/L	-	<0.50	<0.50	<0.50	0.50	9727409
Total Oil & Grease Mineral/Synthetic	mg/L	0.5	<0.50	<0.50	<0.50	0.50	9727410

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: Ontario Provincial Water Quality Objectives
Ref. to MOEE Water Management document dated Feb.1999

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Bureau Veritas Job #: C4X3362
Report Date: 2024/10/30

WSP Canada Inc.
Client Project #: CA0023633.8620
Sampler Initials: CI

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID			AGSM07	AGSM08			AGSM08		
Sampling Date			2024/10/22 12:30	2024/10/22 12:40			2024/10/22 12:40		
COC Number			C#1017698-01-01	C#1017698-01-01			C#1017698-01-01		
	UNITS	Criteria	POND	SW 1	RDL	QC Batch	SW 1 Lab-Dup	RDL	QC Batch
Calculated Parameters									
Anion Sum	me/L	-	16.6	21.3	N/A	9719775			
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	-	81	210	1.0	9719147			
Carb. Alkalinity (calc. as CaCO3)	mg/L	-	<1.0	1.0	1.0	9719147			
Cation Sum	me/L	-	16.4	21.6	N/A	9719775			
Hardness (CaCO3)	mg/L	-	420	640	1.0	9720555			
Langelier Index (@ 20C)	N/A	-	0.213	0.645		9719777			
Langelier Index (@ 4C)	N/A	-	-0.0330	0.401		9719778			
Saturation pH (@ 20C)	N/A	-	7.70	7.06		9719777			
Saturation pH (@ 4C)	N/A	-	7.95	7.31		9719778			
Inorganics									
Total Ammonia-N	mg/L	-	0.079	0.87	0.050	9726353			
Conductivity	umho/cm	-	1800	2200	1.0	9722448	2200	1.0	9722448
Total Dissolved Solids	mg/L	-	1110	1400	10	9721577			
Fluoride (F-)	mg/L	-	0.44	0.48	0.10	9722449	0.47	0.10	9722449
Total Kjeldahl Nitrogen (TKN)	mg/L	-	0.78	1.7	0.10	9725417			
Dissolved Organic Carbon	mg/L	-	8.4	7.9	0.40	9722510			
Orthophosphate (P)	mg/L	-	<0.010	0.016	0.010	9723733			
pH	pH	6.5:8.5	7.91	7.71		9722451	7.71		9722451
Phenols-4AAP	mg/L	0.001	<0.0010	**0.0013**	0.0010	9728474			
Total Phosphorus	mg/L	0.01	**0.013**	**0.089**	0.004	9728180			
Total Suspended Solids	mg/L	-	19	20	10	9721849			
Dissolved Sulphate (SO4)	mg/L	-	270	310	2.0	9723732			
Turbidity	NTU	-	8.3	49	0.1	9722367			
Alkalinity (Total as CaCO3)	mg/L	-	81	210	1.0	9722445	210	1.0	9722445
Dissolved Chloride (Cl-)	mg/L	-	330	380	3.0	9723731			
Nitrite (N)	mg/L	-	<0.010	0.012	0.010	9722394			
Nitrate (N)	mg/L	-	<0.10	<0.10	0.10	9722394			

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

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RESULTS OF ANALYSES OF WATER

Bureau Veritas ID			AGSM10		
Sampling Date			2024/10/22		
COC Number			C#1017698-01-01		
	UNITS	Criteria	DUP 3	RDL	QC Batch
Calculated Parameters					
Anion Sum	me/L	-	21.2	N/A	9719775
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	-	210	1.0	9719147
Carb. Alkalinity (calc. as CaCO3)	mg/L	-	1.0	1.0	9719147
Cation Sum	me/L	-	22.5	N/A	9719775
Hardness (CaCO3)	mg/L	-	670	1.0	9720555
Langelier Index (@ 20C)	N/A	-	0.663		9719777
Langelier Index (@ 4C)	N/A	-	0.418		9719778
Saturation pH (@ 20C)	N/A	-	7.04		9719777
Saturation pH (@ 4C)	N/A	-	7.29		9719778
Inorganics					
Total Ammonia-N	mg/L	-	0.90	0.050	9726353
Conductivity	umho/cm	-	2200	1.0	9722448
Total Dissolved Solids	mg/L	-	1380	10	9721577
Fluoride (F-)	mg/L	-	0.48	0.10	9722449
Total Kjeldahl Nitrogen (TKN)	mg/L	-	1.8	0.10	9725417
Dissolved Organic Carbon	mg/L	-	7.9	0.40	9722510
Orthophosphate (P)	mg/L	-	0.024	0.010	9723733
pH	pH	6.5:8.5	7.70		9722451
Phenols-4AAP	mg/L	0.001	**0.0017**	0.0010	9728474
Total Phosphorus	mg/L	0.01	**0.14**	0.004	9728180
Total Suspended Solids	mg/L	-	110	10	9721849
Dissolved Sulphate (SO4)	mg/L	-	300	2.0	9723732
Turbidity	NTU	-	130	0.1	9722367
Alkalinity (Total as CaCO3)	mg/L	-	210	1.0	9722445
Dissolved Chloride (Cl-)	mg/L	-	380	3.0	9723731
Nitrite (N)	mg/L	-	0.019	0.010	9722394
Nitrate (N)	mg/L	-	<0.10	0.10	9722394

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: Ontario Provincial Water Quality Objectives
Ref. to MOEE Water Management document dated Feb.1999
N/A = Not Applicable

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Bureau Veritas Job #: C4X3362
Report Date: 2024/10/30

WSP Canada Inc.
Client Project #: CA0023633.8620
Sampler Initials: CI

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID			AGSM07	AGSM08		AGSM10		
Sampling Date			2024/10/22 12:30	2024/10/22 12:40		2024/10/22		
COC Number			C#1017698-01-01	C#1017698-01-01		C#1017698-01-01		
	UNITS	Criteria	POND	SW 1	QC Batch	DUP 3	RDL	QC Batch
Metals								
Total Arsenic (As)	ug/L	100	<1.0	<1.0	9724109	<1.0	1.0	9730516
Total Cadmium (Cd)	ug/L	0.2	<0.090	<0.090	9724109	<0.090	0.090	9730516
Dissolved Calcium (Ca)	ug/L	-	90000	160000	9722708	170000	200	9722708
Total Calcium (Ca)	ug/L	-	96000	160000	9724109	180000	200	9730516
Total Chromium (Cr)	ug/L	-	<5.0	<5.0	9724109	<5.0	5.0	9730516
Total Copper (Cu)	ug/L	5	<0.90	1.2	9724109	2.4	0.90	9730516
Total Iron (Fe)	ug/L	300	260	**490**	9724109	**1500**	100	9730516
Total Lead (Pb)	ug/L	5	<0.50	<0.50	9724109	0.80	0.50	9730516
Dissolved Magnesium (Mg)	ug/L	-	48000	57000	9722708	59000	50	9722708
Total Magnesium (Mg)	ug/L	-	49000	57000	9724109	57000	50	9730516
Total Manganese (Mn)	ug/L	-	39	180	9724109	210	2.0	9730516
Total Nickel (Ni)	ug/L	25	1.4	1.7	9724109	2.5	1.0	9730516
Dissolved Potassium (K)	ug/L	-	15000	15000	9722708	16000	200	9722708
Total Potassium (K)	ug/L	-	16000	16000	9724109	17000	200	9730516
Dissolved Sodium (Na)	ug/L	-	170000	190000	9722708	200000	100	9722708
Total Sodium (Na)	ug/L	-	180000	190000	9724109	190000	100	9730516
Total Zinc (Zn)	ug/L	30	<5.0	<5.0	9724109	9.0	5.0	9730516

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: Ontario Provincial Water Quality Objectives
Ref. to MOEE Water Management document dated Feb.1999

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TEST SUMMARY

Bureau Veritas ID: AGSM07 **Collected:** 2024/10/22
Sample ID: POND **Shipped:**
Matrix: Water **Received:** 2024/10/23

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	9722445	N/A	2024/10/28	Nachiketa Gohil
Carbonate, Bicarbonate and Hydroxide	CALC	9719147	N/A	2024/10/29	Automated Statchk
Chloride by Automated Colourimetry	SKAL	9723731	N/A	2024/10/25	Alina Dobreanu
Conductivity	AT	9722448	N/A	2024/10/28	Nachiketa Gohil
Dissolved Organic Carbon (DOC)	TOCV/NDIR	9722510	N/A	2024/10/24	Gyulshen Idriz
Fluoride	ISE	9722449	2024/10/24	2024/10/28	Nachiketa Gohil
Hardness (calculated as CaCO3)		9720555	N/A	2024/10/25	Automated Statchk
Lab Filtered Metals by ICPMS	ICP/MS	9722708	2024/10/24	2024/10/25	Nan Raykha
Total Metals Analysis by ICPMS	ICP/MS	9724109	2024/10/25	2024/10/25	Nan Raykha
Anion and Cation Sum	CALC	9719775	N/A	2024/10/29	Automated Statchk
Total Ammonia-N	SKAL/NH4	9726353	N/A	2024/10/28	Muskan
Nitrate & Nitrite as Nitrogen in Water	LACH	9722394	N/A	2024/10/25	Chandra Nandlal
Animal and Vegetable Oil and Grease	BAL	9718404	N/A	2024/10/27	Automated Statchk
Total Oil and Grease	BAL	9727409	2024/10/27	2024/10/27	Navneet Singh
pH	AT	9722451	2024/10/24	2024/10/28	Nachiketa Gohil
Phenols (4AAP)	TECH/PHEN	9728474	N/A	2024/10/28	Sachi Patel
Orthophosphate	SKAL	9723733	N/A	2024/10/25	Alina Dobreanu
Sat. pH and Langelier Index (@ 20C)	CALC	9719777	N/A	2024/10/29	Automated Statchk
Sat. pH and Langelier Index (@ 4C)	CALC	9719778	N/A	2024/10/29	Automated Statchk
Sulphate by Automated Turbidimetry	SKAL	9723732	N/A	2024/10/28	Massarat Jan
Total Dissolved Solids	BAL	9721577	2024/10/24	2024/10/25	Razieh Tabesh
Total Kjeldahl Nitrogen in Water	SKAL	9725417	2024/10/25	2024/10/28	Kruti Jitesh Patel
Total Phosphorus (Colourimetric)	SKAL/P	9728180	2024/10/28	2024/10/29	Vidhi Khatri
Mineral/Synthetic O & G (TPH Heavy Oil)	BAL	9727410	2024/10/27	2024/10/27	Navneet Singh
Total Suspended Solids	BAL	9721849	2024/10/24	2024/10/25	Razieh Tabesh
Turbidity	AT	9722367	N/A	2024/10/24	Gurparteek KAUR

Bureau Veritas ID: AGSM08 **Collected:** 2024/10/22
Sample ID: SW 1 **Shipped:**
Matrix: Water **Received:** 2024/10/23

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	9722445	N/A	2024/10/28	Nachiketa Gohil
Carbonate, Bicarbonate and Hydroxide	CALC	9719147	N/A	2024/10/29	Automated Statchk
Chloride by Automated Colourimetry	SKAL	9723731	N/A	2024/10/25	Alina Dobreanu
Conductivity	AT	9722448	N/A	2024/10/28	Nachiketa Gohil
Dissolved Organic Carbon (DOC)	TOCV/NDIR	9722510	N/A	2024/10/24	Gyulshen Idriz
Fluoride	ISE	9722449	2024/10/24	2024/10/28	Nachiketa Gohil
Hardness (calculated as CaCO3)		9720555	N/A	2024/10/25	Automated Statchk
Lab Filtered Metals by ICPMS	ICP/MS	9722708	2024/10/24	2024/10/25	Nan Raykha
Total Metals Analysis by ICPMS	ICP/MS	9724109	2024/10/25	2024/10/25	Nan Raykha
Anion and Cation Sum	CALC	9719775	N/A	2024/10/29	Automated Statchk
Total Ammonia-N	SKAL/NH4	9726353	N/A	2024/10/28	Muskan
Nitrate & Nitrite as Nitrogen in Water	LACH	9722394	N/A	2024/10/25	Chandra Nandlal
Animal and Vegetable Oil and Grease	BAL	9718404	N/A	2024/10/27	Automated Statchk

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TEST SUMMARY

Bureau Veritas ID: AGSM08 **Collected:** 2024/10/22
Sample ID: SW 1 **Shipped:**
Matrix: Water **Received:** 2024/10/23

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Total Oil and Grease	BAL	9727409	2024/10/27	2024/10/27	Navneet Singh
pH	AT	9722451	2024/10/24	2024/10/28	Nachiketa Gohil
Phenols (4AAP)	TECH/PHEN	9728474	N/A	2024/10/28	Sachi Patel
Orthophosphate	SKAL	9723733	N/A	2024/10/25	Alina Dobreanu
Sat. pH and Langelier Index (@ 20C)	CALC	9719777	N/A	2024/10/29	Automated Statchk
Sat. pH and Langelier Index (@ 4C)	CALC	9719778	N/A	2024/10/29	Automated Statchk
Sulphate by Automated Turbidimetry	SKAL	9723732	N/A	2024/10/28	Massarat Jan
Total Dissolved Solids	BAL	9721577	2024/10/24	2024/10/25	Razieh Tabesh
Total Kjeldahl Nitrogen in Water	SKAL	9725417	2024/10/25	2024/10/28	Kruti Jitesh Patel
Total Phosphorus (Colourimetric)	SKAL/P	9728180	2024/10/28	2024/10/29	Vidhi Khatri
Mineral/Synthetic O & G (TPH Heavy Oil)	BAL	9727410	2024/10/27	2024/10/27	Navneet Singh
Total Suspended Solids	BAL	9721849	2024/10/24	2024/10/25	Razieh Tabesh
Turbidity	AT	9722367	N/A	2024/10/24	Gurparteek KAUR

Bureau Veritas ID: AGSM08 Dup **Collected:** 2024/10/22
Sample ID: SW 1 **Shipped:**
Matrix: Water **Received:** 2024/10/23

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	9722445	N/A	2024/10/28	Nachiketa Gohil
Conductivity	AT	9722448	N/A	2024/10/28	Nachiketa Gohil
Fluoride	ISE	9722449	2024/10/24	2024/10/28	Nachiketa Gohil
pH	AT	9722451	2024/10/24	2024/10/28	Nachiketa Gohil

Bureau Veritas ID: AGSM10 **Collected:** 2024/10/22
Sample ID: DUP 3 **Shipped:**
Matrix: Water **Received:** 2024/10/23

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	9722445	N/A	2024/10/28	Nachiketa Gohil
Carbonate, Bicarbonate and Hydroxide	CALC	9719147	N/A	2024/10/29	Automated Statchk
Chloride by Automated Colourimetry	SKAL	9723731	N/A	2024/10/25	Alina Dobreanu
Conductivity	AT	9722448	N/A	2024/10/28	Nachiketa Gohil
Dissolved Organic Carbon (DOC)	TOCV/NDIR	9722510	N/A	2024/10/24	Gyulshen Idriz
Fluoride	ISE	9722449	2024/10/24	2024/10/28	Nachiketa Gohil
Hardness (calculated as CaCO3)		9720555	N/A	2024/10/25	Automated Statchk
Lab Filtered Metals by ICPMS	ICP/MS	9722708	2024/10/24	2024/10/25	Nan Raykha
Total Metals Analysis by ICPMS	ICP/MS	9730516	2024/10/29	2024/10/29	Prempal Bhatti
Anion and Cation Sum	CALC	9719775	N/A	2024/10/29	Automated Statchk
Total Ammonia-N	SKAL/NH4	9726353	N/A	2024/10/28	Muskan
Nitrate & Nitrite as Nitrogen in Water	LACH	9722394	N/A	2024/10/25	Chandra Nandlal
Animal and Vegetable Oil and Grease	BAL	9718404	N/A	2024/10/27	Automated Statchk
Total Oil and Grease	BAL	9727409	2024/10/27	2024/10/27	Navneet Singh
pH	AT	9722451	2024/10/24	2024/10/28	Nachiketa Gohil
Phenols (4AAP)	TECH/PHEN	9728474	N/A	2024/10/28	Sachi Patel

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Bureau Veritas Job #: C4X3362
Report Date: 2024/10/30

WSP Canada Inc.
Client Project #: CA0023633.8620
Sampler Initials: CI

TEST SUMMARY

Bureau Veritas ID: AGSM10
Sample ID: DUP 3
Matrix: Water

Collected: 2024/10/22
Shipped:
Received: 2024/10/23

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Orthophosphate	SKAL	9723733	N/A	2024/10/25	Alina Dobreanu
Sat. pH and Langelier Index (@ 20C)	CALC	9719777	N/A	2024/10/29	Automated Statchk
Sat. pH and Langelier Index (@ 4C)	CALC	9719778	N/A	2024/10/29	Automated Statchk
Sulphate by Automated Turbidimetry	SKAL	9723732	N/A	2024/10/28	Massarat Jan
Total Dissolved Solids	BAL	9721577	2024/10/24	2024/10/25	Razieh Tabesh
Total Kjeldahl Nitrogen in Water	SKAL	9725417	2024/10/25	2024/10/28	Kruti Jitesh Patel
Total Phosphorus (Colourimetric)	SKAL/P	9728180	2024/10/28	2024/10/29	Vidhi Khatri
Mineral/Synthetic O & G (TPH Heavy Oil)	BAL	9727410	2024/10/27	2024/10/27	Navneet Singh
Total Suspended Solids	BAL	9721849	2024/10/24	2024/10/25	Razieh Tabesh
Turbidity	AT	9722367	N/A	2024/10/24	Gurparteek KAUR

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GENERAL COMMENTS

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

Package 1	7.7°C

Sample AGSM08 [SW 1] : Total Phosphorus < ortho-Phosphate: Both values fall within the method uncertainty for duplicates and are likely equivalent.

Results relate only to the items tested.

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QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
9721577	RTB	Spiked Blank	Total Dissolved Solids	2024/10/25		98	%	80 - 120
9721577	RTB	Method Blank	Total Dissolved Solids	2024/10/25	<10		mg/L	
9721577	RTB	RPD	Total Dissolved Solids	2024/10/25	0.12		%	20
9721849	RTB	Spiked Blank	Total Suspended Solids	2024/10/25		100	%	80 - 120
9721849	RTB	Method Blank	Total Suspended Solids	2024/10/25	<10		mg/L	
9721849	RTB	RPD	Total Suspended Solids	2024/10/25	NC		%	20
9722367	GTK	Spiked Blank	Turbidity	2024/10/24		102	%	80 - 120
9722367	GTK	Method Blank	Turbidity	2024/10/24	<0.1		NTU	
9722367	GTK	RPD	Turbidity	2024/10/24	15		%	20
9722394	C_N	Matrix Spike	Nitrite (N)	2024/10/25		110	%	80 - 120
			Nitrate (N)	2024/10/25		99	%	80 - 120
9722394	C_N	Spiked Blank	Nitrite (N)	2024/10/25		104	%	80 - 120
			Nitrate (N)	2024/10/25		98	%	80 - 120
9722394	C_N	Method Blank	Nitrite (N)	2024/10/25	<0.010		mg/L	
			Nitrate (N)	2024/10/25	<0.10		mg/L	
9722394	C_N	RPD	Nitrate (N)	2024/10/25	0.57		%	20
9722445	NGI	Spiked Blank	Alkalinity (Total as CaCO3)	2024/10/28		94	%	85 - 115
9722445	NGI	Method Blank	Alkalinity (Total as CaCO3)	2024/10/28	<1.0		mg/L	
9722445	NGI	RPD [AGSM08-02]	Alkalinity (Total as CaCO3)	2024/10/28	0.53		%	20
9722448	NGI	Spiked Blank	Conductivity	2024/10/28		101	%	85 - 115
9722448	NGI	Method Blank	Conductivity	2024/10/28	<1.0		umho/cm	
9722448	NGI	RPD [AGSM08-02]	Conductivity	2024/10/28	0.94		%	10
9722449	NGI	Matrix Spike [AGSM08-02]	Fluoride (F-)	2024/10/28		109	%	80 - 120
9722449	NGI	Spiked Blank	Fluoride (F-)	2024/10/28		103	%	80 - 120
9722449	NGI	Method Blank	Fluoride (F-)	2024/10/28	<0.10		mg/L	
9722449	NGI	RPD [AGSM08-02]	Fluoride (F-)	2024/10/28	3.3		%	20
9722451	NGI	Spiked Blank	pH	2024/10/28		102	%	98 - 103
9722451	NGI	RPD [AGSM08-02]	pH	2024/10/28	0.082		%	N/A
9722510	GID	Matrix Spike	Dissolved Organic Carbon	2024/10/24		93	%	80 - 120
9722510	GID	Spiked Blank	Dissolved Organic Carbon	2024/10/24		96	%	80 - 120
9722510	GID	Method Blank	Dissolved Organic Carbon	2024/10/24	<0.40		mg/L	
9722510	GID	RPD	Dissolved Organic Carbon	2024/10/24	3.1		%	20
9722708	N_R	Matrix Spike	Dissolved Calcium (Ca)	2024/10/25		NC	%	80 - 120
			Dissolved Magnesium (Mg)	2024/10/25		NC	%	80 - 120
			Dissolved Potassium (K)	2024/10/25		98	%	80 - 120
			Dissolved Sodium (Na)	2024/10/25		94	%	80 - 120
9722708	N_R	Spiked Blank	Dissolved Calcium (Ca)	2024/10/25		99	%	80 - 120
			Dissolved Magnesium (Mg)	2024/10/25		100	%	80 - 120
			Dissolved Potassium (K)	2024/10/25		97	%	80 - 120
			Dissolved Sodium (Na)	2024/10/25		99	%	80 - 120
9722708	N_R	Method Blank	Dissolved Calcium (Ca)	2024/10/25	<200		ug/L	
			Dissolved Magnesium (Mg)	2024/10/25	<50		ug/L	
			Dissolved Potassium (K)	2024/10/25	<200		ug/L	
			Dissolved Sodium (Na)	2024/10/25	<100		ug/L	
9722708	N_R	RPD	Dissolved Calcium (Ca)	2024/10/25	0.92		%	20
			Dissolved Magnesium (Mg)	2024/10/25	1.2		%	20
			Dissolved Potassium (K)	2024/10/25	0.064		%	20
			Dissolved Sodium (Na)	2024/10/25	2.7		%	20
9723731	ADB	Matrix Spike	Dissolved Chloride (Cl-)	2024/10/25		NC	%	80 - 120
9723731	ADB	Spiked Blank	Dissolved Chloride (Cl-)	2024/10/25		104	%	80 - 120
9723731	ADB	Method Blank	Dissolved Chloride (Cl-)	2024/10/25	<1.0		mg/L	

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
9723731	ADB	RPD	Dissolved Chloride (Cl-)	2024/10/25	2.1		%	20
9723732	MJ1	Matrix Spike	Dissolved Sulphate (SO4)	2024/10/29		NC	%	75 - 125
9723732	MJ1	Spiked Blank	Dissolved Sulphate (SO4)	2024/10/29		102	%	80 - 120
9723732	MJ1	Method Blank	Dissolved Sulphate (SO4)	2024/10/29	<1.0		mg/L	
9723732	MJ1	RPD	Dissolved Sulphate (SO4)	2024/10/29	0.85		%	20
9723733	ADB	Matrix Spike	Orthophosphate (P)	2024/10/25		92	%	75 - 125
9723733	ADB	Spiked Blank	Orthophosphate (P)	2024/10/25		98	%	80 - 120
9723733	ADB	Method Blank	Orthophosphate (P)	2024/10/25	<0.010		mg/L	
9723733	ADB	RPD	Orthophosphate (P)	2024/10/25	NC		%	20
9724109	N_R	Matrix Spike [AGSM10-04]	Total Arsenic (As)	2024/10/25		103	%	80 - 120
			Total Cadmium (Cd)	2024/10/25		98	%	80 - 120
			Total Calcium (Ca)	2024/10/25		NC	%	80 - 120
			Total Chromium (Cr)	2024/10/25		96	%	80 - 120
			Total Copper (Cu)	2024/10/25		98	%	80 - 120
			Total Iron (Fe)	2024/10/25		98	%	80 - 120
			Total Lead (Pb)	2024/10/25		95	%	80 - 120
			Total Magnesium (Mg)	2024/10/25		NC	%	80 - 120
			Total Manganese (Mn)	2024/10/25		96	%	80 - 120
			Total Nickel (Ni)	2024/10/25		94	%	80 - 120
			Total Potassium (K)	2024/10/25		98	%	80 - 120
			Total Sodium (Na)	2024/10/25		NC	%	80 - 120
			Total Zinc (Zn)	2024/10/25		98	%	80 - 120
9724109	N_R	Spiked Blank	Total Arsenic (As)	2024/10/25		102	%	80 - 120
			Total Cadmium (Cd)	2024/10/25		99	%	80 - 120
			Total Calcium (Ca)	2024/10/25		96	%	80 - 120
			Total Chromium (Cr)	2024/10/25		96	%	80 - 120
			Total Copper (Cu)	2024/10/25		97	%	80 - 120
			Total Iron (Fe)	2024/10/25		99	%	80 - 120
			Total Lead (Pb)	2024/10/25		98	%	80 - 120
			Total Magnesium (Mg)	2024/10/25		98	%	80 - 120
			Total Manganese (Mn)	2024/10/25		97	%	80 - 120
			Total Nickel (Ni)	2024/10/25		96	%	80 - 120
			Total Potassium (K)	2024/10/25		99	%	80 - 120
			Total Sodium (Na)	2024/10/25		98	%	80 - 120
			Total Zinc (Zn)	2024/10/25		104	%	80 - 120
9724109	N_R	Method Blank	Total Arsenic (As)	2024/10/25	<1.0		ug/L	
			Total Cadmium (Cd)	2024/10/25	<0.090		ug/L	
			Total Calcium (Ca)	2024/10/25	<200		ug/L	
			Total Chromium (Cr)	2024/10/25	<5.0		ug/L	
			Total Copper (Cu)	2024/10/25	<0.90		ug/L	
			Total Iron (Fe)	2024/10/25	<100		ug/L	
			Total Lead (Pb)	2024/10/25	<0.50		ug/L	
			Total Magnesium (Mg)	2024/10/25	<50		ug/L	
			Total Manganese (Mn)	2024/10/25	<2.0		ug/L	
			Total Nickel (Ni)	2024/10/25	<1.0		ug/L	
			Total Potassium (K)	2024/10/25	<200		ug/L	
			Total Sodium (Na)	2024/10/25	<100		ug/L	
			Total Zinc (Zn)	2024/10/25	<5.0		ug/L	
9725417	KJP	Matrix Spike	Total Kjeldahl Nitrogen (TKN)	2024/10/28		105	%	80 - 120
9725417	KJP	QC Standard	Total Kjeldahl Nitrogen (TKN)	2024/10/28		97	%	80 - 120
9725417	KJP	Spiked Blank	Total Kjeldahl Nitrogen (TKN)	2024/10/28		100	%	80 - 120

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
9725417	KJP	Method Blank	Total Kjeldahl Nitrogen (TKN)	2024/10/28	<0.10		mg/L	
9725417	KJP	RPD	Total Kjeldahl Nitrogen (TKN)	2024/10/28	1.8		%	20
9726353	MUM	Matrix Spike	Total Ammonia-N	2024/10/28		95	%	75 - 125
9726353	MUM	Spiked Blank	Total Ammonia-N	2024/10/28		97	%	80 - 120
9726353	MUM	Method Blank	Total Ammonia-N	2024/10/28	<0.050		mg/L	
9726353	MUM	RPD	Total Ammonia-N	2024/10/28	0.27		%	20
9727409	NSG	Spiked Blank	Total Oil & Grease	2024/10/27		98	%	80 - 110
9727409	NSG	RPD	Total Oil & Grease	2024/10/27	0.25		%	25
9727409	NSG	Method Blank	Total Oil & Grease	2024/10/27	<0.50		mg/L	
9727410	NSG	Spiked Blank	Total Oil & Grease Mineral/Synthetic	2024/10/27		96	%	65 - 130
9727410	NSG	RPD	Total Oil & Grease Mineral/Synthetic	2024/10/27	0.52		%	25
9727410	NSG	Method Blank	Total Oil & Grease Mineral/Synthetic	2024/10/27	<0.50		mg/L	
9728180	VKH	Matrix Spike	Total Phosphorus	2024/10/29		116	%	80 - 120
9728180	VKH	QC Standard	Total Phosphorus	2024/10/29		110	%	80 - 120
9728180	VKH	Spiked Blank	Total Phosphorus	2024/10/29		90	%	80 - 120
9728180	VKH	Method Blank	Total Phosphorus	2024/10/29	<0.004		mg/L	
9728180	VKH	RPD	Total Phosphorus	2024/10/29	0.37		%	20
9728474	SPC	Matrix Spike	Phenols-4AAP	2024/10/29		102	%	80 - 120
9728474	SPC	Spiked Blank	Phenols-4AAP	2024/10/28		101	%	80 - 120
9728474	SPC	Method Blank	Phenols-4AAP	2024/10/28	<0.0010		mg/L	
9728474	SPC	RPD	Phenols-4AAP	2024/10/28	NC		%	20
9730516	PBA	Matrix Spike	Total Arsenic (As)	2024/10/29		99	%	80 - 120
			Total Cadmium (Cd)	2024/10/29		98	%	80 - 120
			Total Calcium (Ca)	2024/10/29		NC	%	80 - 120
			Total Chromium (Cr)	2024/10/29		98	%	80 - 120
			Total Copper (Cu)	2024/10/29		97	%	80 - 120
			Total Iron (Fe)	2024/10/29		99	%	80 - 120
			Total Lead (Pb)	2024/10/29		98	%	80 - 120
			Total Magnesium (Mg)	2024/10/29		97	%	80 - 120
			Total Manganese (Mn)	2024/10/29		96	%	80 - 120
			Total Nickel (Ni)	2024/10/29		94	%	80 - 120
			Total Potassium (K)	2024/10/29		99	%	80 - 120
			Total Sodium (Na)	2024/10/29		NC	%	80 - 120
			Total Zinc (Zn)	2024/10/29		97	%	80 - 120
9730516	PBA	Spiked Blank	Total Arsenic (As)	2024/10/29		99	%	80 - 120
			Total Cadmium (Cd)	2024/10/29		98	%	80 - 120
			Total Calcium (Ca)	2024/10/29		102	%	80 - 120
			Total Chromium (Cr)	2024/10/29		97	%	80 - 120
			Total Copper (Cu)	2024/10/29		97	%	80 - 120
			Total Iron (Fe)	2024/10/29		99	%	80 - 120
			Total Lead (Pb)	2024/10/29		97	%	80 - 120
			Total Magnesium (Mg)	2024/10/29		99	%	80 - 120
			Total Manganese (Mn)	2024/10/29		98	%	80 - 120
			Total Nickel (Ni)	2024/10/29		95	%	80 - 120
			Total Potassium (K)	2024/10/29		99	%	80 - 120
			Total Sodium (Na)	2024/10/29		100	%	80 - 120
			Total Zinc (Zn)	2024/10/29		99	%	80 - 120
9730516	PBA	Method Blank	Total Arsenic (As)	2024/10/29	<1.0		ug/L	
			Total Cadmium (Cd)	2024/10/29	<0.090		ug/L	
			Total Calcium (Ca)	2024/10/29	<200		ug/L	
			Total Chromium (Cr)	2024/10/29	<5.0		ug/L	
			Total Copper (Cu)	2024/10/29	<0.90		ug/L	

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Total Iron (Fe)	2024/10/29	<100		ug/L	
			Total Lead (Pb)	2024/10/29	<0.50		ug/L	
			Total Magnesium (Mg)	2024/10/29	<50		ug/L	
			Total Manganese (Mn)	2024/10/29	<2.0		ug/L	
			Total Nickel (Ni)	2024/10/29	<1.0		ug/L	
			Total Potassium (K)	2024/10/29	<200		ug/L	
			Total Sodium (Na)	2024/10/29	<100		ug/L	
			Total Zinc (Zn)	2024/10/29	<5.0		ug/L	
9730516	PBA	RPD	Total Arsenic (As)	2024/10/29	5.3		%	20
			Total Cadmium (Cd)	2024/10/29	NC		%	20
			Total Calcium (Ca)	2024/10/29	0.15		%	20
			Total Chromium (Cr)	2024/10/29	NC		%	20
			Total Copper (Cu)	2024/10/29	1.4		%	20
			Total Iron (Fe)	2024/10/29	0.82		%	20
			Total Lead (Pb)	2024/10/29	2.1		%	20
			Total Magnesium (Mg)	2024/10/29	1.7		%	20
			Total Manganese (Mn)	2024/10/29	1.5		%	20
			Total Nickel (Ni)	2024/10/29	1.1		%	20
			Total Potassium (K)	2024/10/29	1.7		%	20
			Total Sodium (Na)	2024/10/29	2.5		%	20
			Total Zinc (Zn)	2024/10/29	0.75		%	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).

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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

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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Exceedance Summary Table – Prov. Water Quality Obj.

Result Exceedances

Sample ID	Bureau Veritas ID	Parameter	Criteria	Result	DL	UNITS
POND	AGSM07-07	Total Phosphorus	0.01	0.013	0.004	mg/L
SW 1	AGSM08-04	Total Iron (Fe)	300	490	100	ug/L
SW 1	AGSM08-06	Phenols-4AAP	0.001	0.0013	0.0010	mg/L
SW 1	AGSM08-07	Total Phosphorus	0.01	0.089	0.004	mg/L
DUP 3	AGSM10-04	Total Iron (Fe)	300	1500	100	ug/L
DUP 3	AGSM10-06	Phenols-4AAP	0.001	0.0017	0.0010	mg/L
DUP 3	AGSM10-07	Total Phosphorus	0.01	0.14	0.004	mg/L

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

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