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REPORT

MCCARTHY QUARRY

2021 Permit To Take Water Compliance Report

Submitted to:

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Barrie District Office
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Submitted by:

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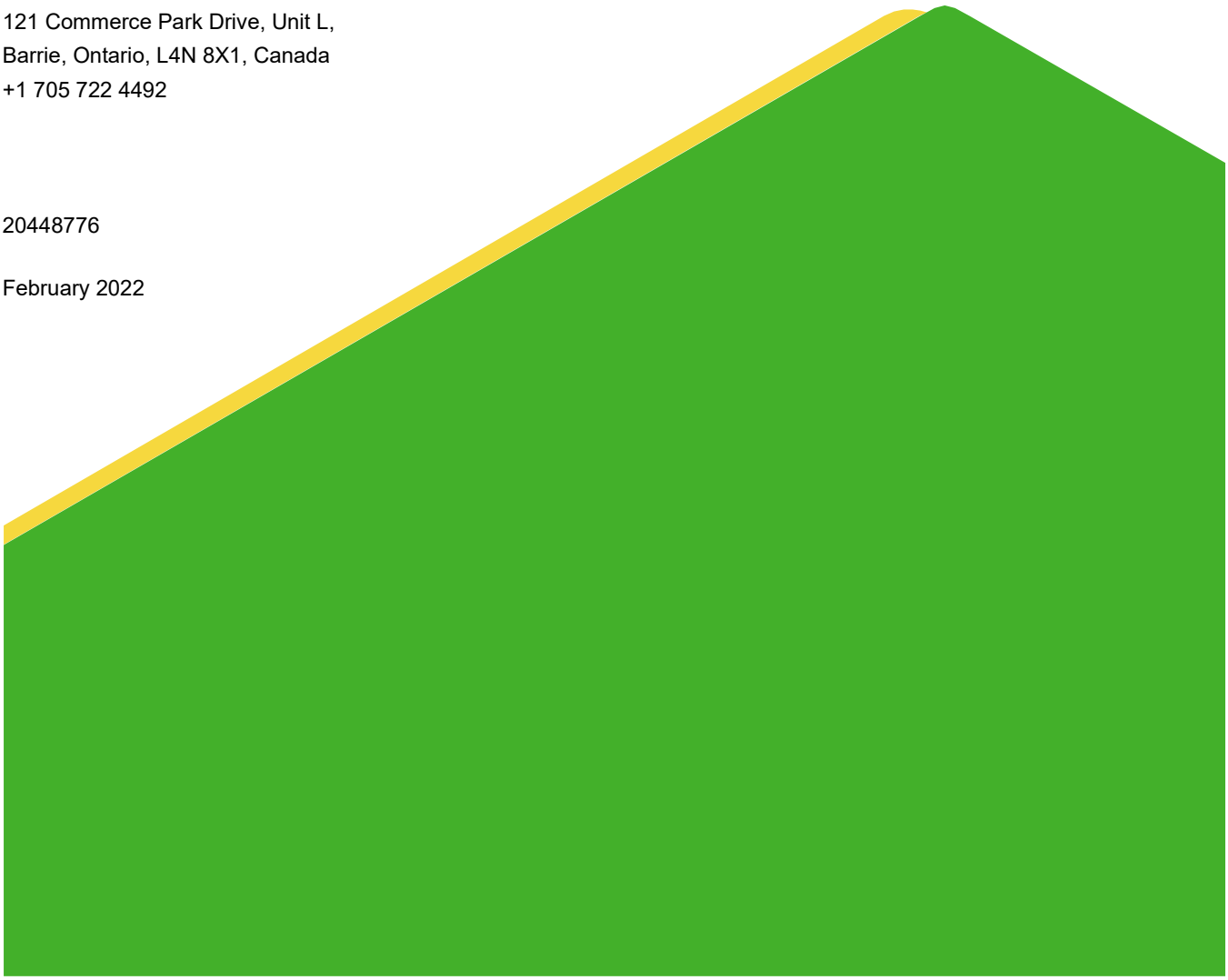

20448776

February 2022

Distribution List

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1.0 INTRODUCTION

Golder Associates Ltd. (Golder) was retained by QBJR/Coco Aggregates Inc. (Coco) to prepare the annual Permit To Take Water (PTTW) report for the McCarthy Quarry (the Site) located in the Township of Ramara, County of Simcoe (Figure 1). The monitoring activities documented in this report were conducted as a requirement of Permit To Take Water (PTTW) No. 1603-BKTPQH (the 'Permit'; Appendix A). The Permit is in place from January 31, 2020 to January 31, 2025. Disposal of water from the Site is governed by Environmental Compliance Approval (ECA) No. ECA No. 7737-BH6QEA, issued on October 22, 2019.

2.0 PHYSICAL SETTING

2.1 Site Development and Land Use

The Site is located approximately six kilometres south-east of the Community of Brechin at Lot 1, Concession 1, Township of Ramara former Mara, Simcoe County (Figure 1). The Site began operations with the advancement of the sinking cut on March 15, 2013. Currently, the quarry floor is approximately 22 metres below (historic) ground level (mbgl) or 233 metres above sea level (masl). The current quarry footprint is approximately 430 m by 260 m (11.2 ha) (Figure 2). The ultimate quarry extent is expected to be approximately 30 ha.

Land use surrounding the Site is primarily rural, consisting of woodlots, pasture and scattered single-family homes. To the south and east along the Talbot River and Canal Lake are seasonal and year-round residences.

2.2 Geology

The elevation of the land the vicinity of the Site ranges from 250 masl to 255 masl, with the higher elevations on the western potion of the property. The overburden thickness on the Site ranges from 0.3 m in the north (OW9) to approximately 8 m in the south (OW4) (Figure 3 and Figure 4).

The quarry is located in a broad, arching, low relief upland area within a clay and limestone plain typical of the physiography to the east of Lake Simcoe (Chapman & Putman, 1984). Underlying the overburden material are Middle Ordovician aged limestone deposits including, from bedrock surface down: Verulam, Bobcaygeon and Gull River Formations.

The Verulam Formation consists of thinly bedded limestone and shale or shaley limestone and is relatively thin at the Site (0 to 4 m in thickness).

The Bobcaygeon Formation consists of thin to medium bedded limestones and ranges in thickness from approximately 31 m (OW6) to 40 m (OW9) (Figures 3 and 4). Quarrying at the Site is primarily within the Bobcaygeon Formation.

The Gull River Formation consists of fine-grained limestone with minor interbeds of shale or shaley limestone with an approximate thickness of 16 m. The Gull River Formation remains intact at the Site.

2.3 Aquifers and Local Water Use

Overburden aquifer deposits within the vicinity of the Site, where sufficiently thick, likely provide sufficient water for domestic purposes as evidenced by the presence of dug and bored wells in the area. A review of measured overburden water levels suggest the flow system approximately mimics topographic trends and thus flow in a generally south to southeast direction towards the Talbot River.

Wells constructed in the bedrock are generally completed within the Bobcaygeon or Gull River Formations. As indicated above, quarrying at the Site is primarily within the Bobcaygeon Formation. The regional groundwater flow direction in the Bobcaygeon Formation is generally to the southwest towards Lake Simcoe (Figure 5).

The Ministry of Environment, Conservation and Parks (MECP) water well database was reviewed to identify accessible private water wells located in the vicinity of the Site. Nine wells, three dug and six drilled, were located within 1,000 m of Site. Seven wells are on Concession Road 1 and two wells are on the Mara-Eldon Boundary Road (Figure 1).

2.4 Quarry Dewatering

The Permit authorizes a maximum daily water taking volume of 6,544,800 L/day with a maximum of 250 days of taking. The maximum annual water taking is capped at 196,500,000 L/year.

Groundwater and precipitation entering the quarry is collected in a sump in the quarry floor. The sump is equipped with a pump with a maximum discharge rate of 35 L/sec which is attached to a 4-inch (101 mm) diameter discharge line. The water is pumped from the quarry floor up the quarry face via the discharge line to a 4-inch (101 mm) diameter pipeline that directs the water to a ditch that runs southward through the McCarthy property to the 14,000 m^3 settling pond. The water in the settling pond discharges 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.

3.0 MONITORING PROGRAM AND RESULTS

The monitoring program for the Site, which is outlined in Section 4 of the Permit (Appendix A), directs Coco to record daily water takings, monitor groundwater levels in 22 monitoring wells and seven residential wells and analyze groundwater quality in select monitoring and residential wells. Coco is also required to maintain a publicly accessible internet site containing the required monitoring data and reporting and to establish a Public Liaison Committee (PLC) that is to meet once every four months.

3.1 Quarry Operations Update

The current quarry footprint is approximately 430 m by 260 m (11.2 hectares) with the ultimate limit of extraction (30 ha) shown in Figure 2. Coco staff reported there they resumed aggregate extraction in 2021 after no extraction was completed in 2020.

3.2 Monitoring Condition 4.1: Water Level Monitoring of Sump

Condition 4.1 of the Permit stipulates that the water level in the quarry cannot be lowered below an elevation of 232.0 masl. Coco staff indicated the sump pump is installed such that water level in the quarry remains above 232.0 masl.

3.3 Monitoring Condition 4.2, 4.3 and 4.4: Groundwater Elevations

Water level monitoring has been ongoing at the Site since the early stages of quarry development in 2002. Both on-Site observation wells and off-Site residential wells have been incorporated into the monitoring program in order to meet the requirements of Conditions 4.2, 4.3 and 4.4 of the Permit. Groundwater elevation readings at the Site are collected though a combination of monthly manual water level measurements at all the wells, and

pressure transducers installed in select wells for automated daily monitoring. The wells included in the 2021 monitoring program are listed in Table 1 and shown on Figure 1 and Figure 2.

Table 1: Groundwater Monitoring Locations and Measurement Frequency

	Daily Monitoring **	Monthly Monitoring
Monitoring Wells	OW4-1, OW4-2, OW5-1, OW6-1, OW6-2, OW9-1, OW9-2, Bored, CKL-1 and CKL-2	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, Bored, CKL-1 and CKL-2
Residential Wells	-	DW3, DW1, DW2, DW4, DW6*, DW7* and DW8*

*Monitored at least once every two months
**Daily monitoring completed with a pressure transducer

Table 3 presents the manual groundwater level readings collected at each of the monitoring locations. Groundwater hydrographs are presented in Figures 6 through 10 and include data from 2014 through 2021. Appendix B provides groundwater hydrographs at each of the wells over the period from 2006 through 2021. Due to the Covid-19 pandemic, private residential wells were not monitored between April and July of 2020. Starting in August of 2020, Golder attempted to contact each homeowner to confirm they still wanted to be included in the monitoring program during the Covid-19 pandemic. As of the start of 2021, Golder has been unable to reach the homeowners of DW3 and DW7. The homeowner of DW3 had previously requested they be contacted via telephone before each monitoring round. Multiple unreturned voice mails were left for the resident and the resident was not home at the time of each monitoring round. Permission to continue monitoring at DW7 was received in April 2021 and permission to continue monitoring at DW3 was received in June 2021.

In 2021 most of the monitoring wells displayed a pattern of rising groundwater levels through the spring period with subsequent decline in the summer. This pattern is consistent with historical behaviour at the Site. In addition, the measured maxima and minima of 2021 groundwater elevations were generally within historical ranges for most wells. Exceptions to historical trends include:

- Well DW4 (Overburden): The groundwater levels at DW4 have decreased slightly since 2018 in comparison to historical norms. It is noted the decline in water levels is most significant in the summer months. Water levels increased at DW4 towards the end of 2021 and the water level in December 2021 was similar to historical water levels recorded in the winter months;
- Well AMx-R (Verulam Formation): Well AMx was monitored until April 2015 when it was removed due to the advance of the south quarry face. Well AMx-R was installed as a replacement for AMx along the western property boundary between the quarry face and OW4 in late 2017; water level monitoring started in April 2018. Groundwater levels at AMx-R rose by approximately 10 m between April 2018 and August 2021; thereafter groundwater levels appeared to stabilize (Figure 6);

- Wells OW9-1 and OW9-2 (Bobcaygeon Formation): The groundwater level at OW9-1 has declined approximately 12 m since 2014 and this location is now generally dry. The water level at OW9-2 has declined approximately 15 m since 2014 (Figure 7). The groundwater level at this location has almost declined below the bottom of the well;
- Well OW6-3 (Gull River Formation): Groundwater levels have risen by approximately 10 m since the start of 2014 (Figure 9); and
- Well OW8-3 (Gull River Formation): Groundwater levels have declined by approximately 4 m at OW8-3 since the start of 2017 (Figure 9). Following this decline, water levels fluctuated in 2019 and 2020, but appear to have stabilized since July of 2020, albeit below the historic levels reported before 2017.

A review of the results described above provides for the following inferences:

- Wells where the 2021 groundwater levels were consistent with historical trends are inferred to be beyond the influence of dewatering activities at the quarry. It is particularly noted that no private wells displayed evidence of quarry impact. Based on the water level monitoring results, drawdown is currently limited to a distance of not more than 150 m from the quarry face (see below comments on OW9);
- Well DW4: Given that this well is located approximately 850 m from the current quarry face, the transitory lower water levels noted during the summer months since 2018 are not considered to be related to quarrying operations;
- Well AMx-R: The gradual rise and stabilization of the groundwater levels at this well is attributed to the water level reaching “static” conditions following installation. The relatively long time period for stabilization is assumed to be due to the low conductivity of the surrounding bedrock;
- Well OW9-1 and OW9-2: the decline in water levels at both OW9-1 and OW9-2 is attributed to the on-going dewatering operations at the Site. OW9 was installed after extraction had begun at the quarry; therefore, there are no pre-extraction water level data; however water levels were stable until the quarry face reached approximately 150 m from OW9. The OW9 wells are currently approximately 10 m from the working face of the quarry and the water levels in the lower screen have declined approximately 15 m since 2014 in response to the lowering of the groundwater table in the quarry footprint; and
- Wells OW6-3 and OW8-3: each of these wells are completed in the Gull River Formation, which is located more than 30 m below the current quarry bottom. Based on the vertical separation and the presence of (thin) shale and shaley limestone layers within the formation it is assumed that the Gull River Formation is hydraulically isolated from the quarry dewatering operations and the measured water level fluctuations are unrelated to quarry development.

3.4 Monitoring Condition 4.5 and 4.6: Groundwater Quality

Groundwater quality sampling is typically conducted on a semi-annual basis at both on-Site monitoring wells and off-Site residential wells. No sampling was completed at OW5-2 in 2020 (and until June 2021) as a result of a suspected pipe offset. Coco staff had planned to repair this OW5-2 before the end of 2020, however access to well was limited due to implement weather and repair of OW5-2. The repair was completed in the June 2021 and two samples at OW5-2 were collected in 2021. A summary of the sampled parameters and the wells included in the sampling program are provided in Table 2.

Table 2: Groundwater Quality Sampling Program

	Monitoring Locations	Water Quality Parameters
Monitoring Wells	AM1b, AMx, TW1-1, Bored, OW4-1, OW4-2, OW5-1, OW5-2, OW5-3, OW6-2, OW7-1, OW7-2, OW8-1, OW8-2, OW9-1, and OW9-2	pH, alkalinity, bicarbonate, fluoride, chloride, magnesium, calcium, sodium, potassium, ammonia, sulphate, nitrate, nitrite, phosphate, phosphorous, conductivity, DOC, colour, TDS, hardness
Residential Wells	DW1, DW2 and DW3	pH, alkalinity (CaCO3), bicarbonate, conductivity, fluoride, chloride, nitrate, nitrite, chromium, tannins, sulphate, magnesium, calcium, sodium, potassium, ammonia (N), phosphate, phosphorous, anion sum, cation sum, DOC, colour, turbidity, aluminium, arsenic, barium, boron, cadmium, ion ratio, % difference, copper, iron, lead, manganese, selenium, zinc, hardness (CaCO3), TDS (iron sum calc.), Langelier Index

The laboratory analytical results for the 2021 sampling events are provided in Appendix C, and the results are summarized in Table 4 (Residential Wells) and Table 5 (Monitoring Wells). Tables 4 and 5 provide a comparison of the laboratory results to Ontario Drinking Water Standards (ODWS).

The water quality at residential wells DW1, DW2 and DW3 met the ODWS for the 2021 sampling events for the parameters tested with the exception of total dissolved solids (TDS) and hardness (as $CaCO_3$). None of these exceedances are attributed to the effects of the dewatering activities but are instead considered a reflection of background water quality (see below).

The water quality at the on-Site monitoring wells for the 2021 sampling events, notably elevated hardness and TDS, was consistent with the pre-quarry conditions (Whitewater Hydrogeology Ltd., 2013).

3.5 Monitoring Condition 4.8 Water Taking Measurements and Reporting

The rate and volume of groundwater extraction and discharge from the quarry are provided to Golder by McCarthy Quarry staff. The pumping records for January 2021 to December 2021 are presented in Table 6. The daily discharge rate (L/min) between January 1, 2021 and December 31, 2021, ranged from 0 to 648,000 L/day (Table 6). These water taking rates were below the permitted rate of 4,545 L/min (6,544,800 L/day). The total volume of water removed (109,296,000 L) was less than the maximum taking of 196,500,000 L/year. Pumping was conducted on a total of 175 days in 2021, which was less than the maximum of 250 days per year. The predicted dewatering activities over the next twelve months are expected to remain consistent with those in 2021.

The proportion of surface water and groundwater contributions to quarry inflow may be inferred by performing a simple water budget. First, the total surface water contribution to the quarry is estimated by calculating the direct surplus contribution over the 11.2 ha quarry area plus the additional contributing runoff from the surrounding 5 ha catchment area (i.e., the stripped area). A surplus value of 501 mm/yr for the quarry footprint and runoff value of 250 mm/yr for the stripped area was applied based on meteorological data from the Meteorological Service of Canada Thornthwaite water budgets (Orillia Brain MET station in Orillia, Ontario between 1993 to 2016).

The volume of water entering the quarry from direct surplus was calculated as 56,111,200 L and the volume of water entering the quarry from surrounding runoff was calculated as 12,500,000 L; thus the total contribution of surface water to the overall water taking was approximately 68,611,200 L. As the total volume of water pumped

form the quarry from January 1 to December 31, 2021 was 109,296,000 L, the remaining 40,684,800 was inferred to be sourced from groundwater contributions.

3.6 Condition 4.11 Publicly Accessible Internet Site

The water quality and quantity monitoring data that is required by the PTTW is available at: www.cocoaggregates.com

To access the reports for the McCarthy Quarry click “Documents” on the homepage.

3.7 Condition 4.12 Public Liaison Committee

A Public Liaison Committee have been maintained in previous years and there was a single meeting held in 2021 due to the Covid-19 pandemic; the meeting was held on August 6, 2021.

4.0 CONCLUSIONS

Based on the 2021 Monitoring Program established under PTTW No. 1603-BKTPQH, the following is concluded:

- In 2021. most of the monitoring wells displayed a pattern of rising groundwater levels through the spring period with subsequent decline in the summer. This pattern is consistent with historical behaviour at the Site.
- Wells where the 2021 groundwater levels were consistent with historical trends are inferred to be beyond the influence of dewatering activities at the quarry. It is particularly noted that no private wells displayed evidence of quarry impact. Based on the water level monitoring results, drawdown is currently limited to a distance of not more than 150 m from the quarry face.
- The daily discharge rate between January 1, 2021 and December 31, 2021, ranged from 0 to 648,000 L/day, which is below the permitted rate of 6,544,800 L/day. The total volume of water removed (109,296,000 L) was less than the maximum taking of 196,500,000 L/year.

5.0 LIMITATIONS AND USE OF REPORT

The services performed as described in this report were conducted in a manner consistent with the level of care and skill normally exercised by other members of the engineering and science professions currently practicing under similar conditions, subject to the time limits and financial and physical constraints applicable to the services.

Any use which a third party makes this report, or any reliance on, or decisions to be made based on it, are the responsibilities of such third parties. Golder accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

This report is based on data and information collected during the hydrogeological and hydrological assessment of the Site conducted by Golder. The assessment is based solely on the Site conditions encountered at the time of the assessment, supplemented by other information and data obtained by Golder as described in this report. No assurance is made regarding changes in conditions at the Site subsequent to the time of the assessment. Furthermore, and as with all subsurface investigations, this study necessarily utilizes information at a relatively small number of discrete locations (for example, monitoring wells) to infer geologic and groundwater conditions across the Site and for areas where no such information exists.

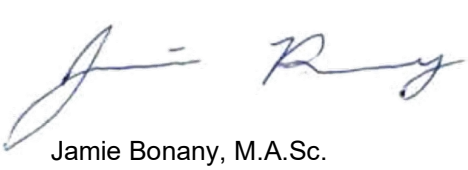
In evaluating the Site, Golder has, in part, relied in good faith on information provided by Coco and their agents. Golder has assumed that the information is factual and accurate. No responsibility is accepted by Golder for any deficiencies, misstatements or inaccuracies contained in this report as a result of errors, omissions, misinterpretations or misrepresentations related to the information provided by Coco and their agents.

6.0 CLOSURE

In closure, we recommend that the groundwater monitoring continue as outlined in PTTW No. 1603-BKTPQH. We trust that this report meets your needs at the present time. If you have any questions or require clarification, please do not hesitate to contact the undersigned.

Signature Page

Golder Associates Ltd.



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Project Scientist

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

JEB/SM/lb

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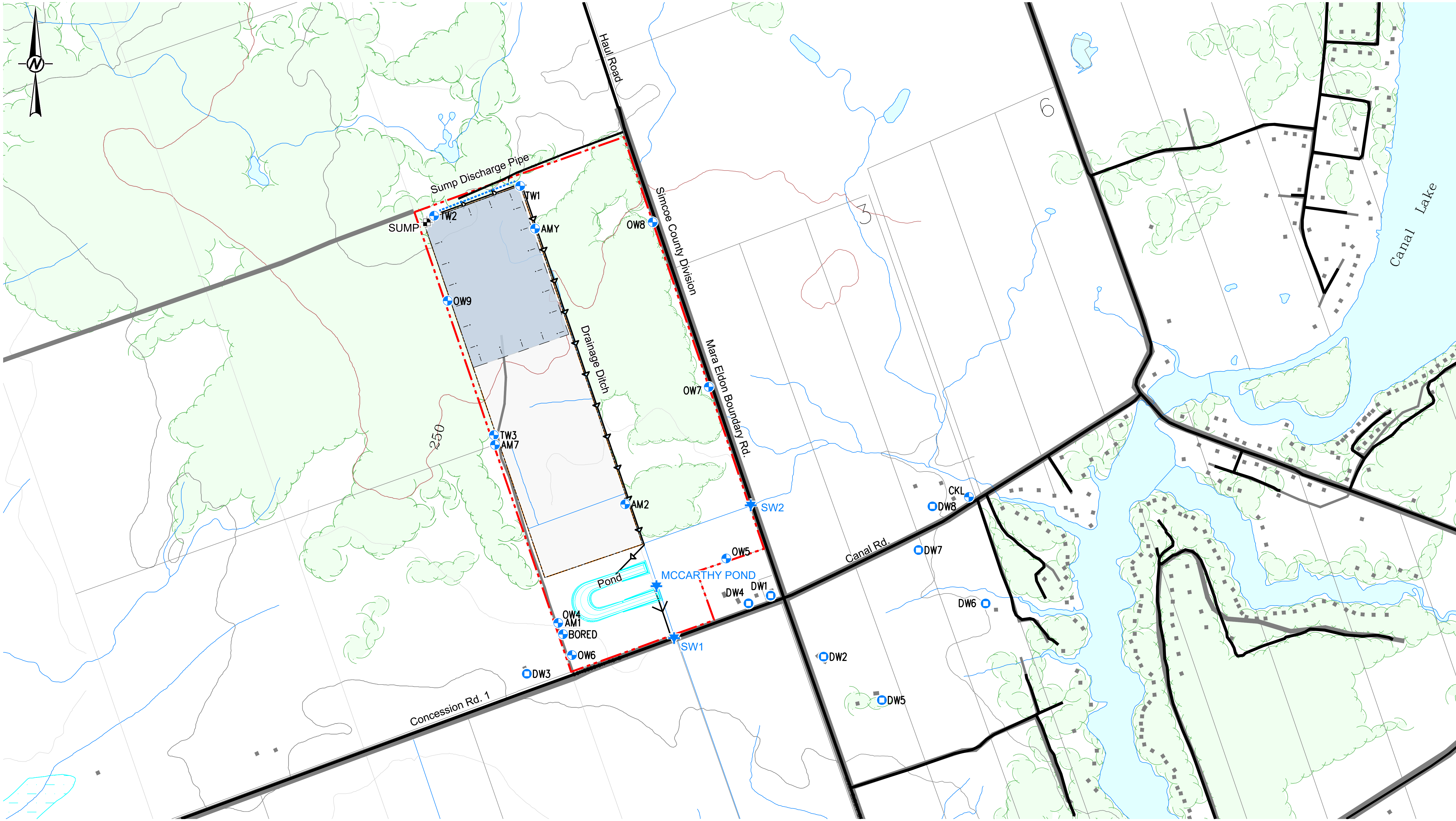
REFERENCES

Chapman, L.J., Putnam D.F., 1984. Physiography of Southern Ontario; Ontario Geological Survey, Map P.2715 (coloured.) Scale 1:600,000.

Whitewater Hydrogeology Ltd., 2013. 2012 Compliance Report #2, Stan McCarthy Quarry. Whitewater Hydrogeology Ltd., Collingwood, Ontario, January 2013.

FIGURES



LEGEND

- Property Boundary
- Approximate Licenced Boundary
- Approximate Extent of Quarry
- Private Well Monitoring Location
- Observation Well Monitoring Location
- Surface Water Sampling Location

REFERENCES AND NOTES

1. Projection UTM NAD83 Zone 17
2. Mapping based on ESRI Geography Network OBM Features and 2012 Road Network
3. All Mapped features are Approximate and Not to Scale

0 250 500
1:10,000 METRES

CLIENT
COCO / QBJR AGGREGATES INC.

CONSULTANT
WSP GOLDER

YYYY-MM-DD	2022-02-18
PREPARED	JPR
DESIGN	
REVIEW	JEB
APPROVED	DEH

PROJECT
STAN McCARTHY QUARRY
2021 ANNUAL MONITORING REPORT

TITLE
LOCATION MAP

PROJECT No.	CONTROL	Rev.	FIGURE
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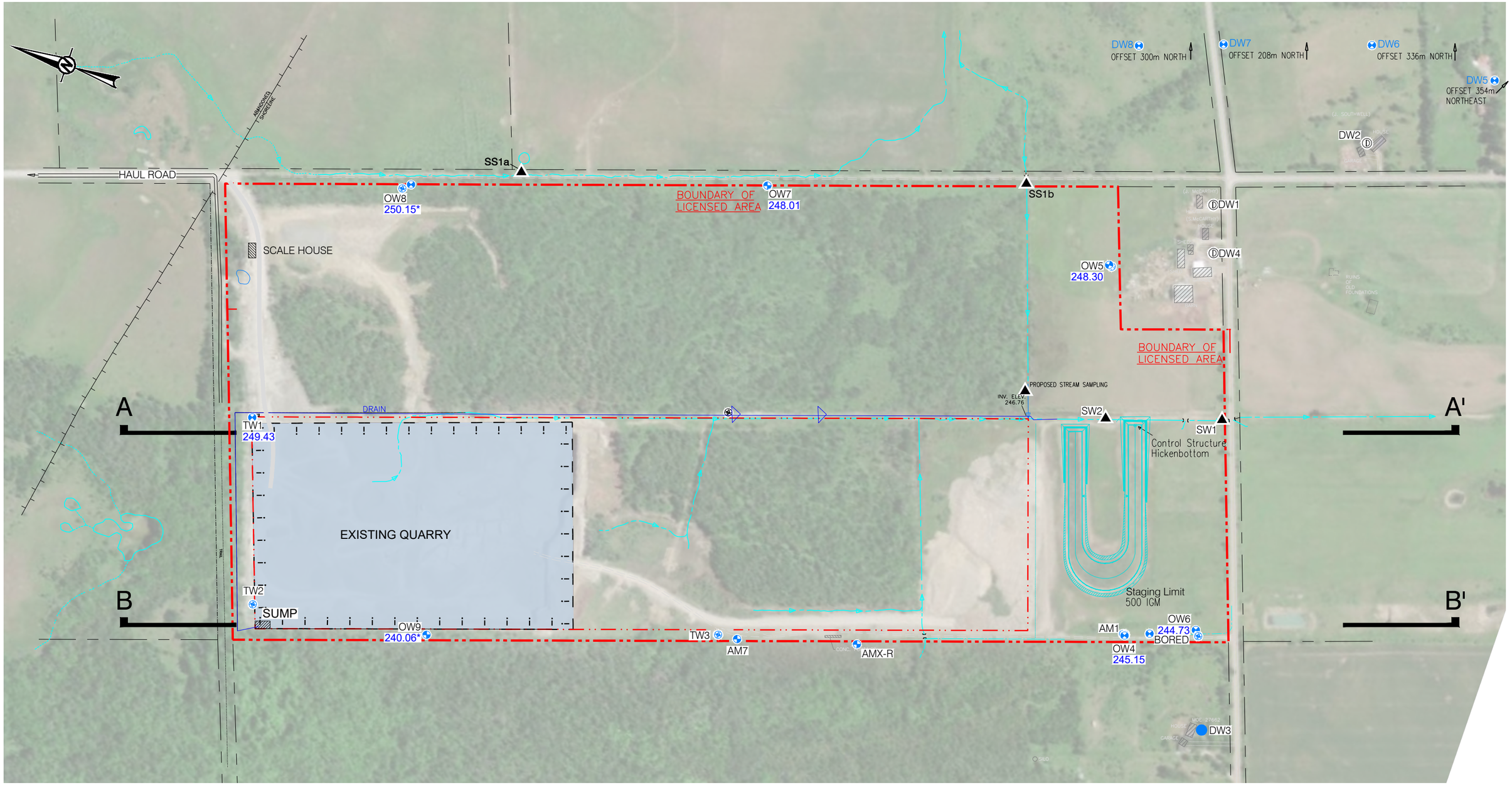

Site Digital Mapping Licenced from KIRBY & ASSOCIATES LTD, BING Imagery 2018

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LEGEND

- Property Boundary
- Limit of Extraction
- Swales and Drainage Plan
- Approximate Extent of Quarry
- Surface Water Sampling Location
- Private Dug Well
- Private Drilled Well
- Standpipe
- Observation Well

NOTES

1. Test Well AM7 inaccessible
2. DW1 Formally Degroot
3. DW2 Formally Southwell
4. DW3 Formally Lamarre
5. DW4 Formally McCarthy
6. AMX decommissioned replaced with AMX-R

CLIENT
COCO / QBJR AGGREGATES INC.

CONSULTANT
WSP GOLDER

YYYY-MM-DD	2022-02-18
DESIGNED	
PREPARED	JPR
REVIEWED	JEB
APPROVED	DEH

PROJECT
STAN McCARTHY QUARRY
2021 ANNUAL MONITORING REPORT

TITLE
SITE PLAN

PROJECT NO.	CONTROL	REV.	FIGURE
20448776	0003	----	2

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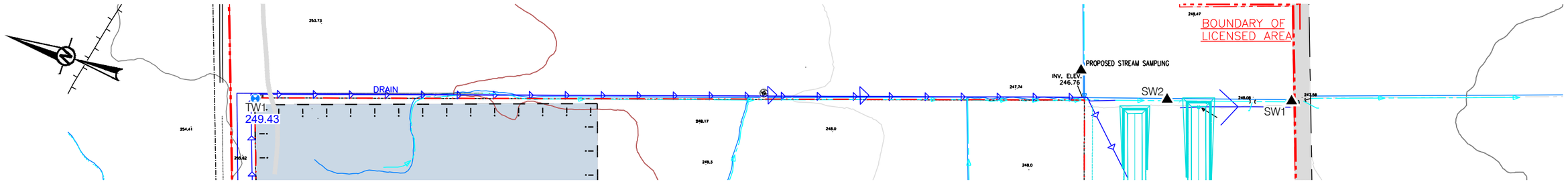


A

A'

N

S

TW1

AMx-R

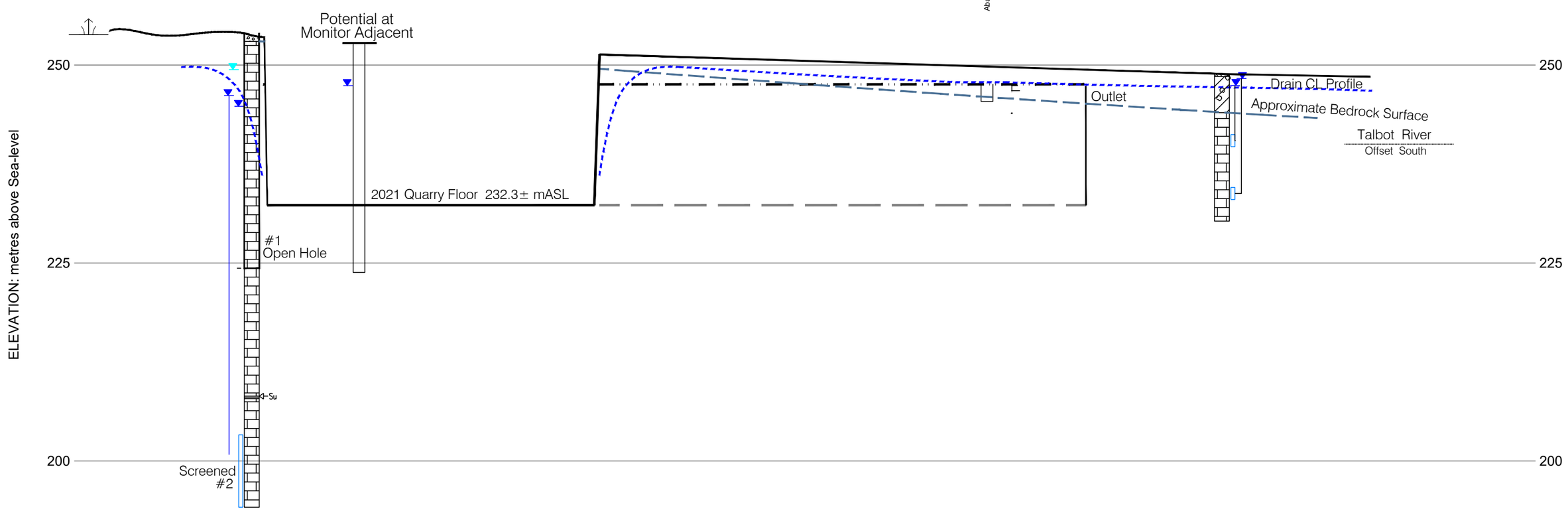
AM2

Abandoned

OW5

Offset East

Extraction Area



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On all sections, boundaries between soil strata have been determined only at well and test well locations. Between the wells and test wells, boundaries are not proven but are assumed from geological evidence.

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PROJECT
STAN McCARTHY QUARRY
2021 ANNUAL MONITORING REPORT

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TITLE
SITE SECTION A - A'

PROJECT NO.	CONTROL	REV.	FIGURE
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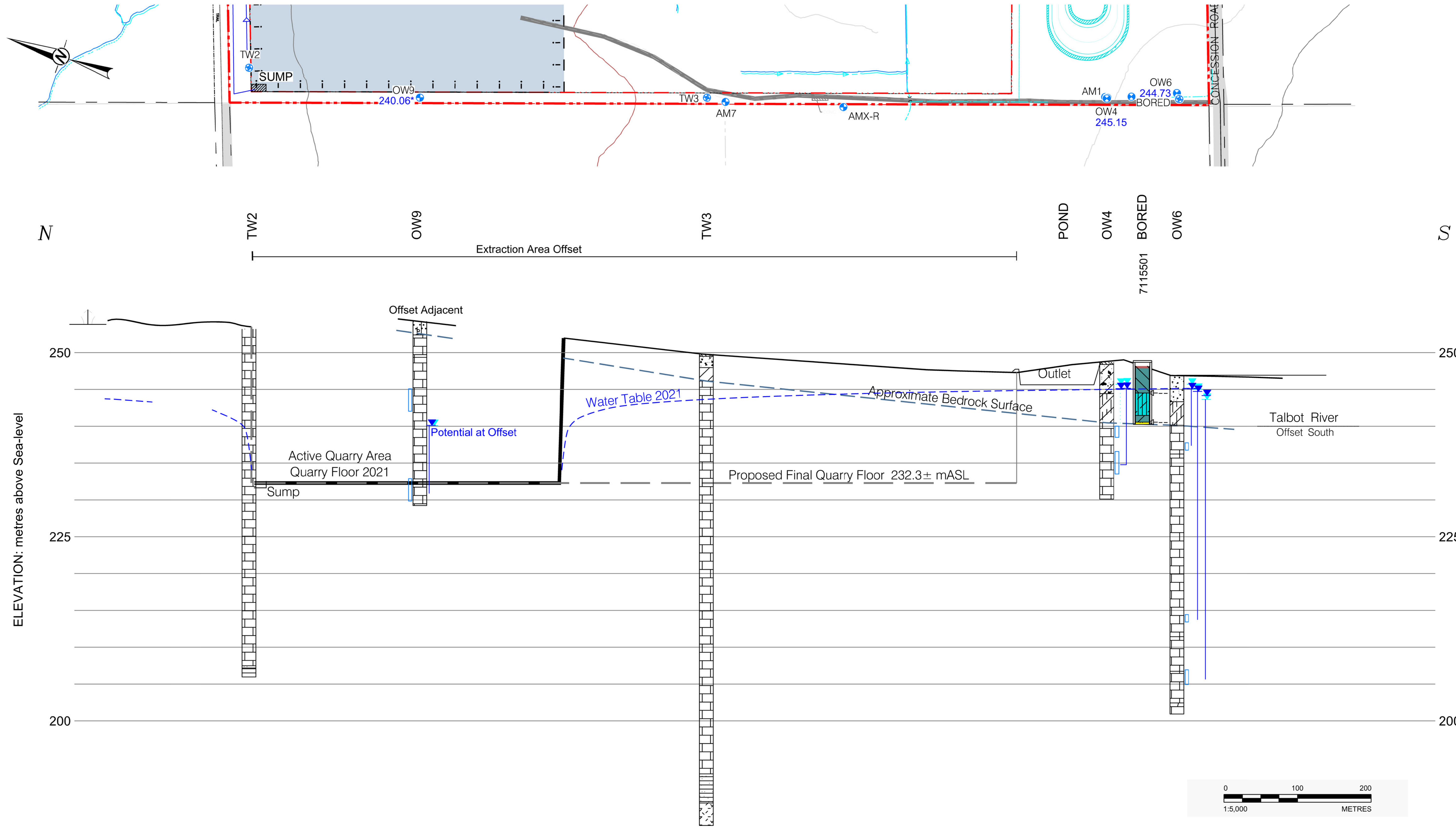

On all sections, boundaries between soil strata have been determined only at well and test well locations. Between the wells and test wells, boundaries are not proven but are assumed from geological evidence.

Depth of Quarry measured in offset Blast Hole drilling 2014 and reflecting maximum depth

CLIENT COCO / QBJR AGGREGATES INC.		PROJECT STAN McCARTHY QUARRY 2021 ANNUAL MONITORING REPORT	
CONSULTANT WSP GOLDER	YYYY-MM-DD: 2022-02-18 DESIGNED: PREPARED: JPR REVIEWED: JEB APPROVED: DEH	TITLE **SITE SECTION B - B'**	
		PROJECT NO. 20448776	CONTROL 0003 / REV. ---- / FIGURE 4

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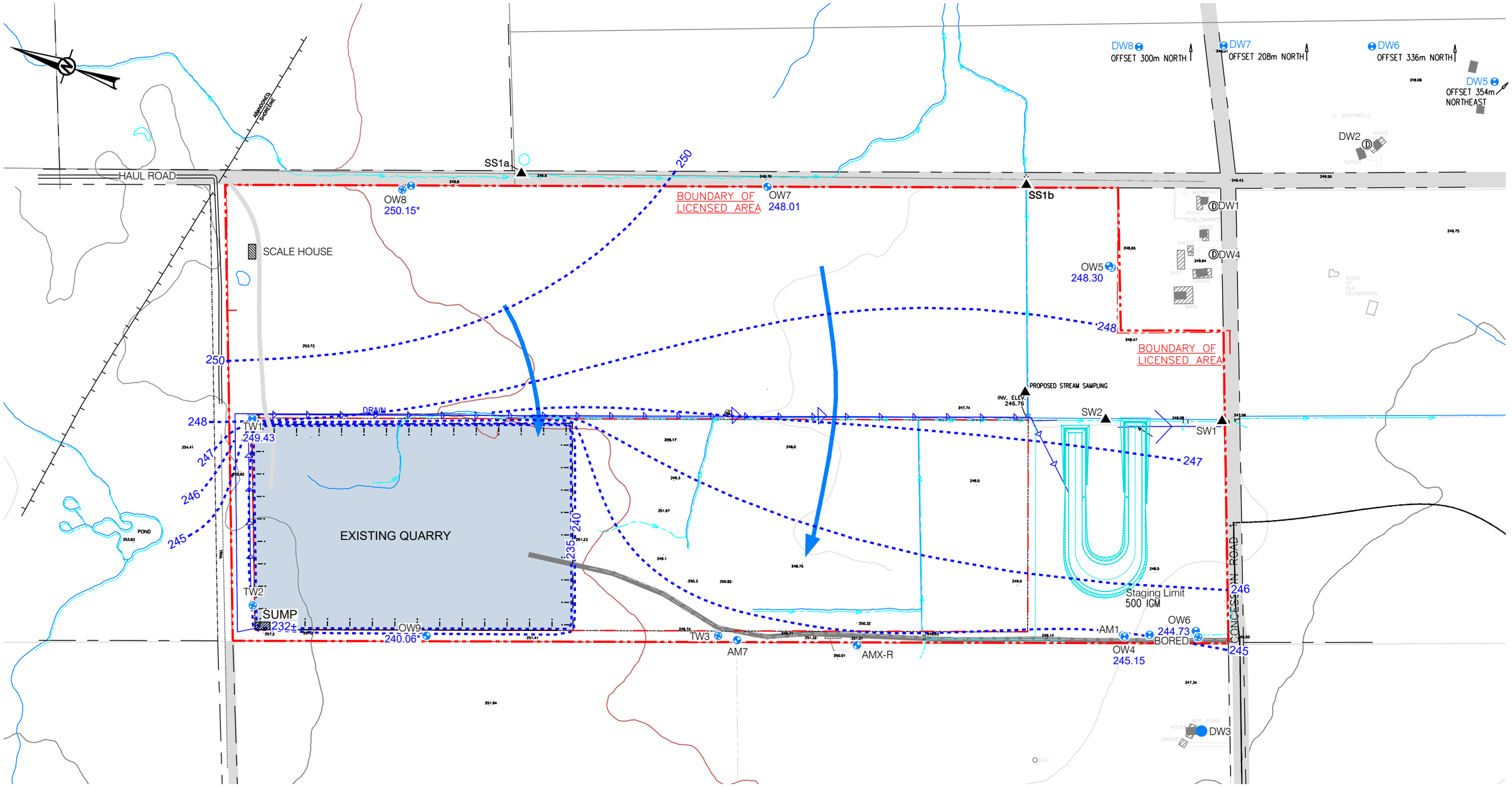

Site Digital Mapping Licenced from KIRBY & ASSOCIATES LTD

- Quarry Boundary
- Limit of Extraction
- Swales and Drainage Plan
- 245.67 Static Water Level (September 2021)
- Equipotential Line (masl)
- Inferred Groundwater Flow (Upper Bobcaygeon)
- Surface Water Sampling Location
- Private Dug Well
- Private Drilled Well
- Standpipe
- Test Well

NOTES:

1. Test Well AM7 inaccessible
2. DW1 Formally Degroot
3. DW2 Formally Southwell
4. DW3 Formally Lamarre
5. DW4 Formally McCarthy
6. AMX decommissioned replaced with AMX-R
7. Static levels taken September 2021, October*

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APPROVED	DEH

PROJECT
STAN McCARTHY QUARRY
2021 ANNUAL MONITORING REPORT

TITLE
GROUNDWATER FLOW - BOBCAYGEON FORMATION

PROJECT NO.	CONTROL	REV.	FIGURE
20448776	0003	----	5

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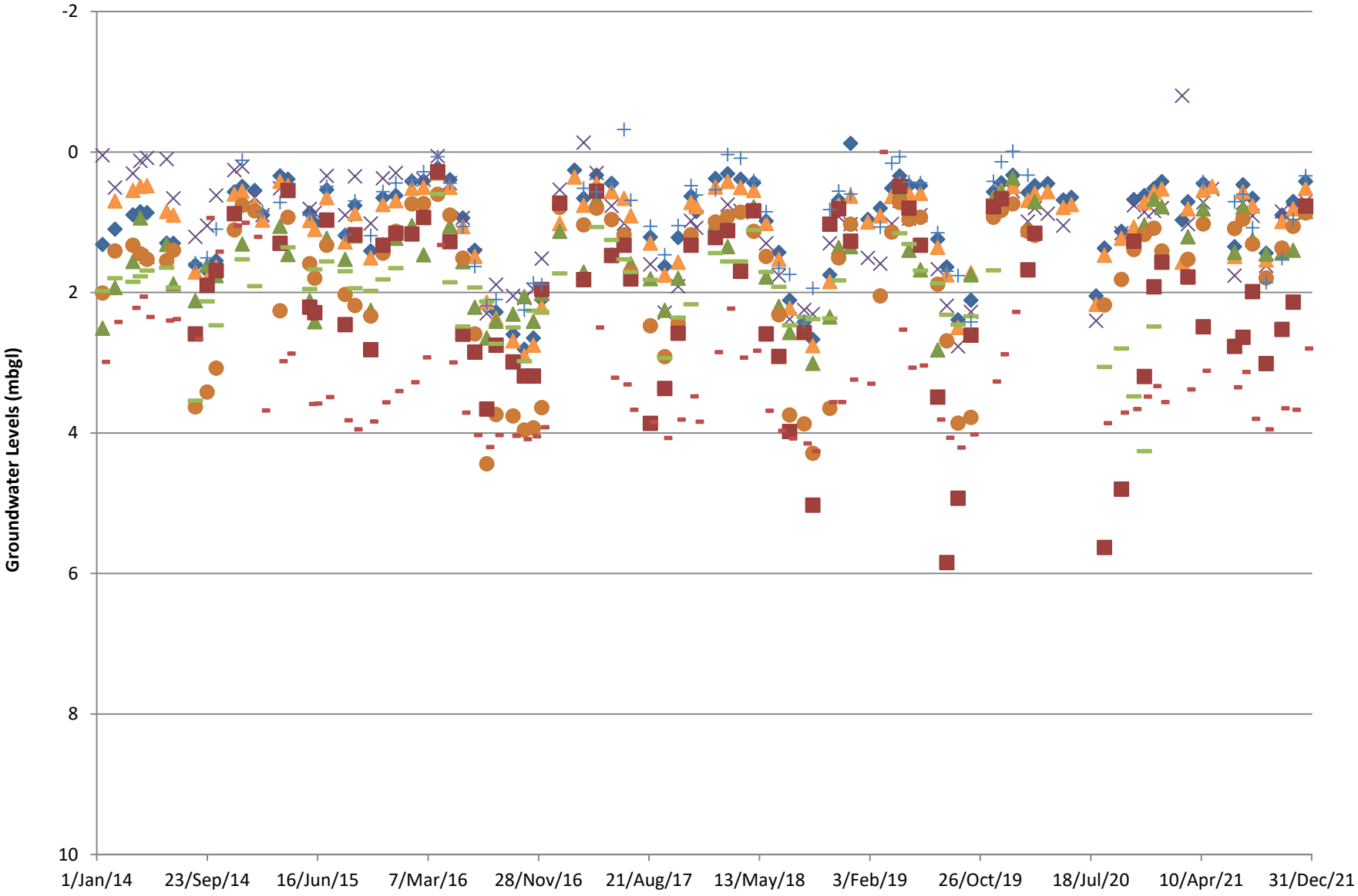


Bored OW5-1 AM1b
DW1 DW2 DW4
DW6 DW7 DW8

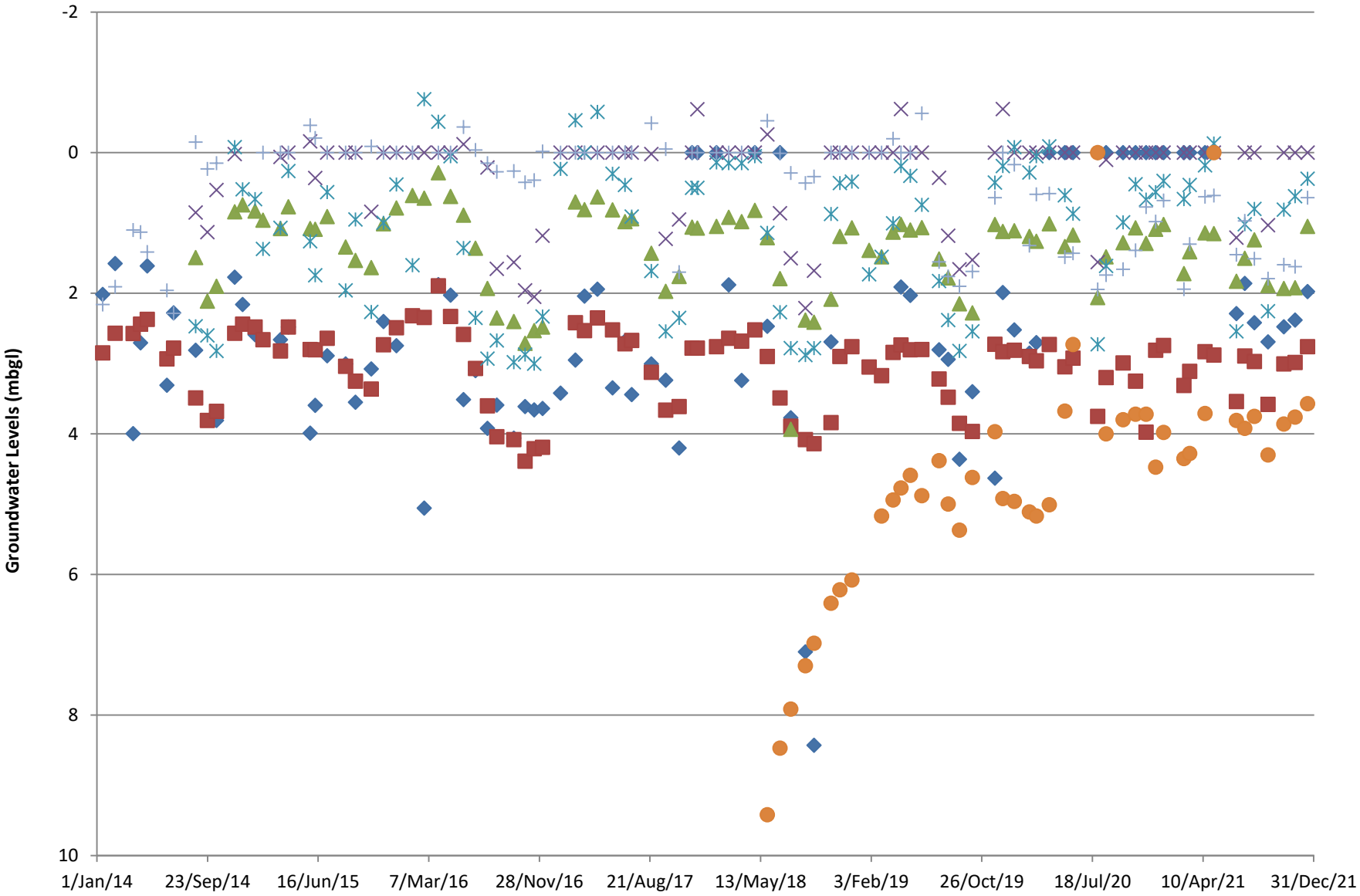
GOLDER
MEMBER OF WSP

SCALE:	NTS
DATE:	11-Feb-22
CAD:	JEB
FILE No.	
TEST:	
PROJECT No.	20448776
REVIEW:	SM

McCarthy Quarry
Overburden Monitoring Wells
Groundwater Levels

QBJR/Coco Aggregates Inc.
2021 Annual Monitoring Report

FIGURE No
6



DW3 OW4-1 OW6-1
OW7-1 OW8-1 Amx-R
CKL-1

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SCALE:	NTS
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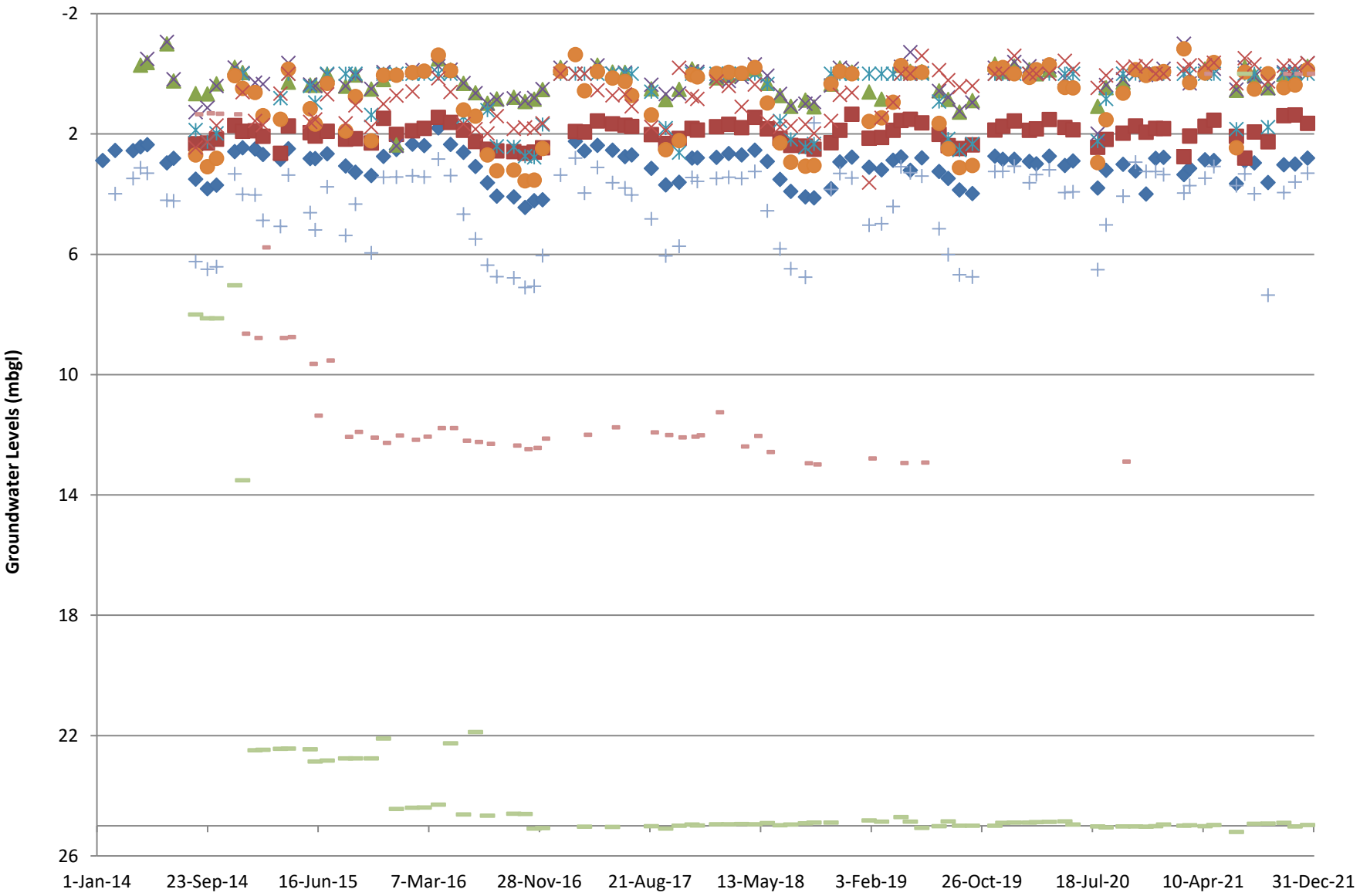
McCarthy Quarry
Verulam Monitoring Wells
Groundwater Levels

QBJR/Coco Aggregates Inc.
2021 Annual Monitoring Report

FIGURE No
7



OW4-2 OW6-2 OW5-2
OW5-3 OW7-2 OW8-2
TW1-1 OW9-1 OW9-2
CLK-2

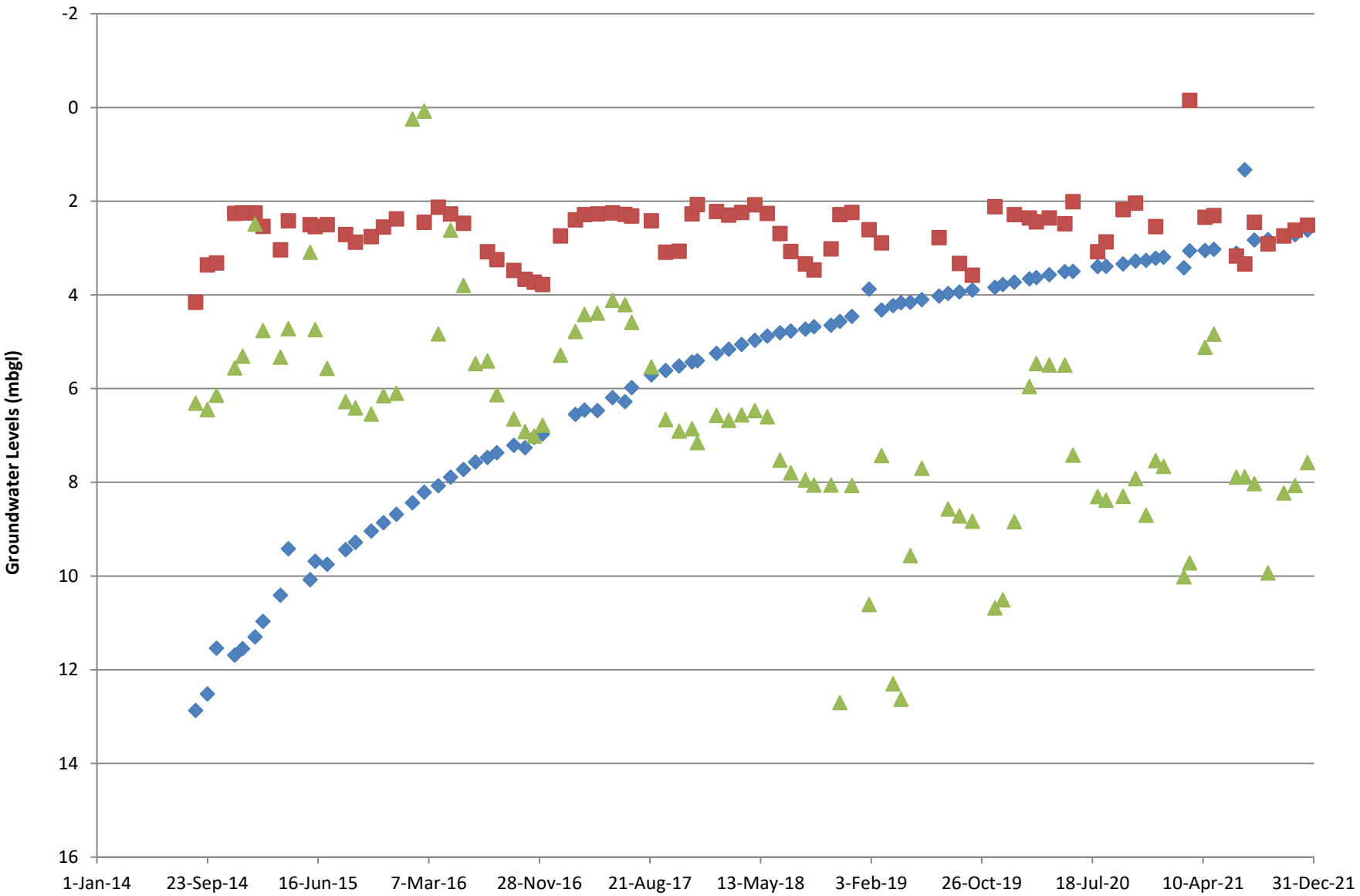
GOLDER
MEMBER OF WSP

SCALE:	NTS
DATE:	11-Feb-22
CAD:	JEB
FILE No.	
TEST:	
PROJECT No.	20448776
REVIEW:	SM

McCarthy Quarry
Bobcaygeon Monitoring Wells
Groundwater Level

QBJR/Coco Aggregates Inc.
2021 Annual Monitoring Report

FIGURE No
8



OW6-3
OW7-3
OW8-3

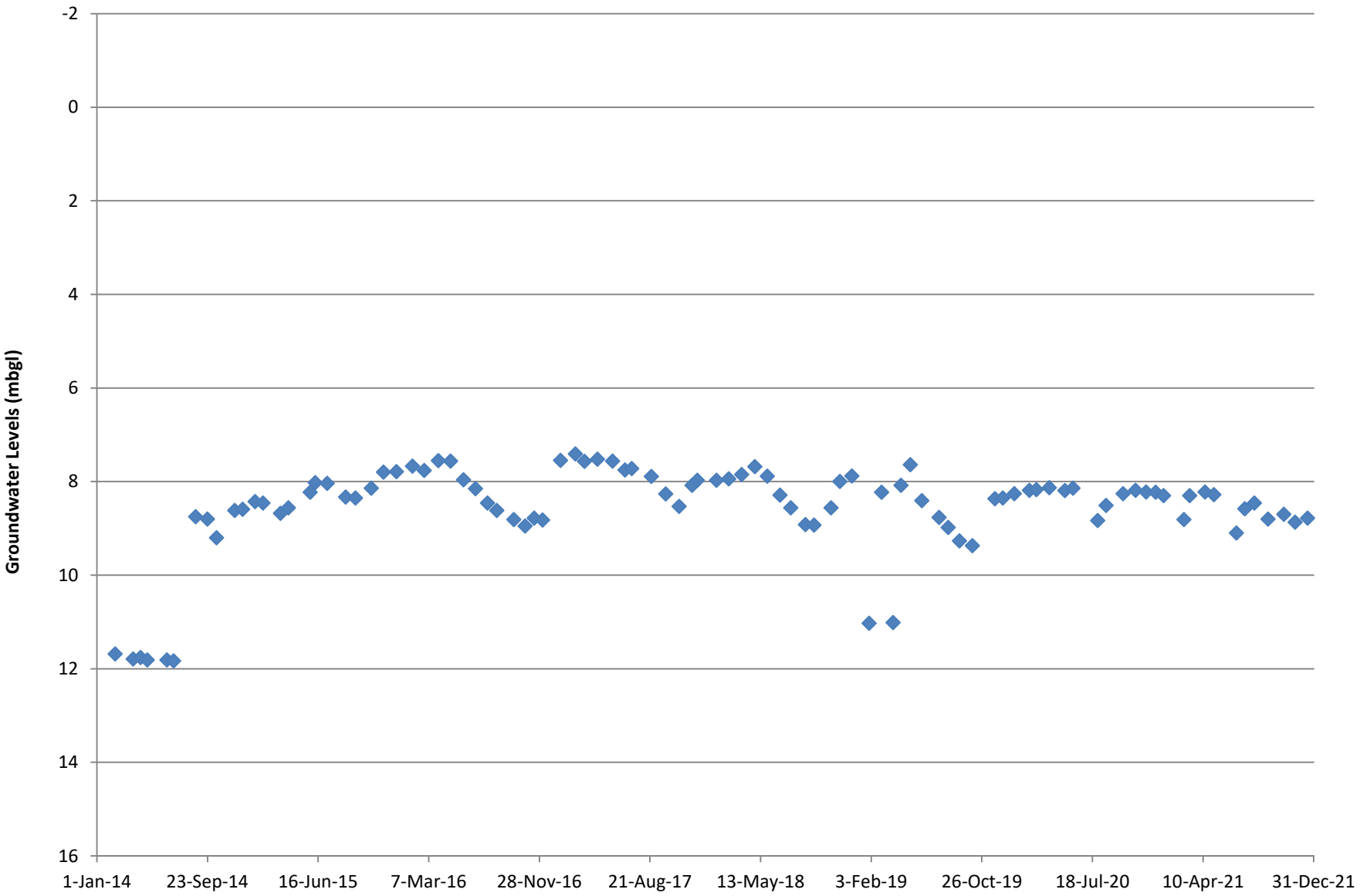
GOLDER
MEMBER OF WSP

SCALE:	NTS
DATE:	22-Feb-22
CAD:	JEB
FILE No.	
TEST:	
PROJECT No.	20448776
REVIEW:	SM

McCarthy Quarry
Gull River Monitoring Wells
Groundwater Level

QBJR/Coco Aggregates Inc.
2021 Annual Monitoring Report

FIGURE No
9



GOLDER MEMBER OF WSP	SCALE: NTS	McCarthy Quarry Precambrian Monitoring Wells Groundwater Level	
	DATE: 11-Feb-22		
	CAD: JEB		
FILE No.	TEST:	QBJR/Coco Aggregates Inc. 2021 Annual Monitoring Report	FIGURE No 10
PROJECT No. 20448776	REVIEW: SM		

TABLES

Well	Unit	Elevation (masl)	Stick up (m)	05-Jan-21	23-Feb-21	09-Mar-21	15-Apr-21	06-May-21	29-Jun-21	19-Jul-21	11-Aug-21	13-Sep-21	21-Oct-21	17-Nov-21	17-Dec-21
				Water Levels (mbgl)											
DW3	Verulam	246.52	0.46	NA	NA	NA	NA	NA	2.29	1.86	2.42	2.69	2.48	2.38	1.98
OW4-1	Verulam	249.57	0.88	2.74	3.31	3.11	2.83	2.88	3.54	2.89	2.97	3.58	3.00	2.99	2.76
OW4-2	Bobcaygeon	249.62	0.86	2.78	3.35	3.14	2.85	2.88	3.65	2.90	2.96	3.61	3.03	3.00	2.80
Bored	Overburden	248.86	0.66	0.42	0.97	0.71	0.45	NM	1.35	0.47	0.66	1.44	0.90	0.71	0.42
OW6-1	Verulam	247.60	0.61	1.02	1.72	1.41	1.14	1.15	1.83	1.50	1.24	1.89	1.93	1.92	1.05
OW6-2	Bobcaygeon	247.52	0.53	1.82	2.75	2.07	1.74	1.54	2.08	2.81	1.93	2.26	1.39	1.37	1.65
OW6-3	Gull River	247.46	0.47	3.20	3.42	3.06	3.05	3.03	3.11	1.33	2.83	2.82	2.74	2.72	2.62
DW4	Overburden	250.19	0.24	1.57	frozen	1.78	2.49	NM	2.77	2.64	1.99	3.02	2.53	2.14	0.77
DW1	Overburden	249.83	0.3	0.78	frozen	1.21	0.81	NM	1.43	0.79	1.25	1.46	1.44	1.40	0.85
OW5-1	Overburden	249.84	0.8	0.80	-0.80	1.03	0.72	0.53	1.76	0.73	0.91	1.62	0.85	0.83	0.71
OW5-2	Bobcaygeon	249.76	1.0	broken	broken	broken	-0.16	broken	0.55	-0.23	0.05	0.46	0.01	-0.04	-0.25
OW5-3	Bobcaygeon	249.70	1.0	-0.17	-1.00	0.32	-0.10	-0.17	0.52	-0.21	0.09	0.48	-0.05	-0.08	-0.35
DW2	Overburden	247.50	0.8	1.41	frozen	1.53	1.03	NM	1.09	0.96	1.31	1.80	1.37	1.06	0.87
DW7	Overburden		0.32	NA	NA	NA	0.43	NM	0.71	0.60	1.08	1.86	1.52	0.96	0.34
DW8	Overburden			3.56	frozen	3.38	3.12	NM	3.35	3.13	3.80	3.95	3.65	3.67	2.80
DW6	Overburden		0.5	2.56	frozen	2.95	3.11	NM	3.04	2.76	2.39	2.38	2.06	1.94	1.56
OW7-1	Verulam	249.80	0.62	flowing	flowing	flowing	flowing	flowing	1.21	flowing	flowing	1.03	flowing	flowing	flowing
OW7-2	Bobcaygeon	249.78		flowing	flowing	flowing	flowing	flowing	1.84	flowing	flowing	1.77	flowing	flowing	flowing
OW7-3	Gull River	249.74	0.61	frozen	frozen	-0.15	2.35	2.31	3.17	3.34	2.45	2.91	2.74	2.62	2.51
OW8-1	Verulam	251.47	0.76	0.40	0.66	0.46	0.18	-0.13	2.54	1.02	0.80	2.26	0.81	0.62	0.37
OW8-2	Bobcaygeon	251.44	0.83	-0.07	-0.83	0.29	-0.03	-0.38	2.46	-0.05	0.51	dry	0.46	0.37	-0.14
OW8-3	Gull River	251.40	0.8	7.66	10.02	9.72	5.12	4.84	7.89	7.88	8.03	9.94	8.23	8.07	7.58
TW1-1	Bobcaygeon	254.10	0.6	3.35	3.96	3.72	3.47	3.08	3.72	3.33	3.99	7.36	3.95	3.60	3.30
TW1-2	Precambrian	254.10	0.52	8.30	8.81	8.30	8.23	8.28	9.10	8.58	8.46	8.80	8.70	8.87	8.78
OW9-1	Bobcaygeon	253.40	0.41	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
OW9-2	Bobcaygeon	253.31	0.35	24.96	25.00	24.98	25.02	24.97	25.20	dry	24.93	24.93	24.90	25.02	24.97
CKL-1	Verulam		0.6	0.68	1.94	1.30	0.63	0.61	1.45	0.97	1.51	1.79	1.60	1.62	0.64
CKL-2	Bobcaygeon		0.65	frozen	-0.16	-0.28	-0.29	-0.37	0.32	-0.52	-0.31	0.26	-0.26	-0.27	-0.35
AM1b	Overburden	249.45	0.2	0.53	1.57	0.81	0.55	0.49	1.49	0.57	0.77	1.54	0.99	0.81	0.52
AMX-R	Verulam			3.98	4.35	4.28	3.71	NM	3.81	3.92	3.75	4.30	3.86	3.76	3.57

Notes:

1. Highlighted cells represent groundwater measurements in terms of meters above sea level (masl)

2. Not Accessible (NA)

3. Not Measured (NM)

		Sample	DW1									DW2								
		Date	30-May-16	25-Oct-16	23-May-17	30-Oct-17	30-May-18	31-Oct-18	09-May-19	04-Oct-19	30-Oct-20	30-May-16	25-Oct-16	23-May-17	30-Oct-17	30-May-18	31-Oct-18	09-May-19	04-Oct-19	30-Oct-20
		ODWS																		
Anion Sum	Sum		12.6	12.3	12.3	9.78	12.7	12.1	10.7	12.6	12.8	8.62	11.2	7.76	9.18	8.33	11.6	7.59	11.2	8.5
Bicarb. Alkalinity (calc. as CaCO3)	mg/L		330	340	310	350	320	320	340	320	320	340	330	340	340	350	330	320	310	330
Calculated TDS	mg/L	500 (AO)	**700**	**640**	**660**	**530**	**690**	**650**	**570**	**690**	**700**	470	**570**	400	470	430	**610**	390	**590**	460
Cation Sum	Sum		13.8	11.5	12.4	10.5	13.2	12.2	10.8	13.2	13.7	9.22	10.3	7.36	8.51	7.65	11.3	7.11	11.4	8.93
Hardness (CaCO3)	mg/L	80-100 (OG)	**600**	**500**	**540**	**460**	**560**	**510**	**470**	**550**	**580**	**400**	**450**	**340**	**380**	**340**	**480**	**330**	**490**	**400**
Ion Balance (% Difference)	%		4.69	3.23	0.37	3.6	1.80	0.410	0.440	2.31	3.33	3.37	4.12	2.61	3.8	4.21	1.32	3.24	1.02	2.43
Langelier Index (@ 20C)	NA		0.917	1.10	0.778	1.08	1.06	0.725	0.874	0.847	0.977	1.01	0.923	0.905	1.04	1.04	0.665	0.920	0.821	0.989
Langelier Index (@ 4C)	NA		0.670	0.848	0.531	0.835	0.815	0.478	0.627	0.600	0.73	0.757	0.675	0.657	0.792	0.791	0.418	0.671	0.574	0.741
Saturation pH (@ 20C)	NA		6.71	6.77	6.8	6.75	6.76	6.84	6.81	6.79	6.76	6.81	7.01	6.84	6.9	6.85	6.99	6.87	6.98	6.83
Saturation pH (@ 4C)	NA		6.96	7.02	7.05	6.99	7.01	7.09	7.05	7.04	7.01	7.06	7.26	7.09	7.15	7.09	7.23	7.12	7.22	7.08
Total Ammonia-N	mg/L		<0.050	<0.050	<0.050	<0.050	0.086	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.084	<0.050	<0.050	<0.050	<0.050
Colour	TCU	5 (AO)	<2	<2	<2	4	<2	3	2	<2	<2	<2	<2	<2	<2	<2	3	4	<2	3
Conductivity	uS/cm		1300	1200	1300	910	1400	1200	1000	1300	1300	810	1100	730	840	780	1100	720	1100	820
Fluoride (F-)	mg/L	1.5	0.10	<0.10	<0.10	<0.10	<0.10	0.12	<0.10	<0.10	0.12	0.10	0.17	0.11	0.1	<0.10	0.18	<0.10	0.13	<0.10
Dissolved Organic Carbon	mg/L	5 (AO)	1.1	1.5	1.4	2.0	1.1	0.93	2.0	1.0	1.2	3.6	1.9	3.2	2	3.0	2.0	3.2	1.6	2.8
Orthophosphate (P)	mg/L		<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
pH	units	6.5-8.5 (OG)	7.62	7.86	7.58	7.83	7.83	7.57	7.68	7.64	7.74	7.81	7.94	7.75	7.94	7.88	7.65	7.79	7.80	7.82
Dissolved Sulphate (SO4)	mg/L	500 (AO)	35	32	30	21	32	32	20	33	29	32	47	18	29	25	54	19	40	31
Tannins & Lignins	mg/L		<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Turbidity	NTU	5	0.2	1.7	0.2	0.1	0.1	<0.1	<0.1	<0.1	0.2	0.6	<0.1	0.3	0.3	0.6	<0.1	<0.1	2.3	0.5
Alkalinity (Total as CaCO3)	mg/L	30-500 (OG)	330	350	310	360	320	320	340	320	320	340	330	340	340	350	330	320	310	340
Dissolved Chloride (Cl)	mg/L	250 (OG)	190	170	200	77	200	180	120	200	200	38	130	22	63	27	140	26	140	41
Nitrite (N)	mg/L	1	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.025	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Nitrate (N)	mg/L	10	0.29	0.16	0.13	0.43	0.40	0.24	0.83	<0.10	<0.10	<0.10	1.39	<0.10	0.14	<0.10	2.05	0.13	1.77	<0.10
Nitrate + Nitrite	mg/L	10	0.29	0.16	0.13	0.43	0.40	0.24	0.83	0.12	<0.10	<0.10	1.39	<0.10	0.14	<0.10	2.05	0.13	1.77	<0.10
Dissolved Aluminum (Al)	mg/L	0.1 (OG)	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0056	<0.005
Dissolved Antimony (Sb)	ug/L	6	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dissolved Arsenic (As)	ug/L	25	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Dissolved Barium (Ba)	ug/L	1000	170	110	170	90	190	170	150	190	180	85	170	51	69	71	220	50	230	69
Dissolved Beryllium (Be)	ug/L		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.40	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.40
Dissolved Boron (B)	ug/L	5000	25	30	36	40	25	40	27	37	39	30	33	44	17	37	33	55	26	19
Dissolved Cadmium (Cd)	ug/L	5	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.090	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.090
Dissolved Calcium (Ca)	mg/L		190	150	160	150	170	140	140	160	170	130	89	120	110	120	98	110	100	130
Dissolved Chromium (Cr)	ug/L	50	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Dissolved Cobalt (Co)	ug/L		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dissolved Copper (Cu)	ug/L	1000 (AO)	110	1.6	130	<1.0	100	62	69	42	44	1.3	1.9	1.5	<1.0	3.7	5.0	3.5	1.5	<0.90
Dissolved Iron (Fe)	mg/L	0.3 (AO)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dissolved Lead (Pb)	ug/L	10	2.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dissolved Magnesium (Mg)	mg/L		30	29	32	21	32	37	28	37	36	19	55	10	26	12	58	10	56	20
Dissolved Manganese (Mn)	ug/L	50 (AO)	3.1	34	4.1	32	<2.0	<2.0	<2.0	31	**240**	32	6.6	15	<2.0	9.5	5.1	<2.0	7.7	4.8
Dissolved Molybdenum (Mo)	ug/L		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0.60	0.64	<0.50	1.4	<0.50	<0.50	<0.50	1.0	<0.50	1.0	0.71
Dissolved Nickel (Ni)	ug/L		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.3	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Dissolved Phosphorus (P)	mg/L		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dissolved Potassium (K)	mg/L		1.6	2.0	1.8	1.6	2.0	2.3	1.6	2	2.2	8.6	3.3	4.3	3.2	11.0	3.4	5.2	3.2	4.4
Dissolved Selenium (Se)	ug/L	50	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Dissolved Silicon (Si)	mg/L		7.2	8.0	7.0	8.4	7.0	8.9	7.2	9	8.8	5.0	9.1	3.9	7.6	4.6	9.0	3.4	9.4	6.1
Dissolved Silver (Ag)	ug/L		<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.090	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.090
Dissolved Sodium (Na)	mg/L	200 (OG)	41	33	38	29	45	46	33	48	47	22	30	12	21	14	36	11	35	19
Dissolved Strontium (Sr)	mg/L		0.580	0.520	0.630	0.390	0.620	0.570	0.510	0.620	0.68	0.350	0.630	0.280	0.340	0.300	0.590	0.270	0.580	0.350
Dissolved Thallium (Tl)	mg/L		<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Dissolved Titanium (Ti)	ug/L		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Dissolved Uranium (U)	mg/L	0.02	0.0015	0.00088	0.0014	0.00076	0.0015	0.0015	0.0013	0.0016	0.0015	0.00072	0.0029	0.00031	0.00071	0.00030	0.00260	0.00028	0.00260	0.00043
Dissolved Vanadium (V)	ug/L		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0.77	<0.50	0.56	<0.50	0.65	<0.50	0.64	<0.50
Dissolved Zinc (Zn)	ug/L	5000 (AO)	36	<5.0	14	<5.0	17	16	5.6	7.7	18	19	<5.0	5.1	<5.0	10	7.0	<5.0	<5.0	<5.0

		Sample	MOE 5727662 (DW3)							
		Date	30-May-16	25-Oct-16	23-May-17	30-Oct-17	30-May-18	31-Oct-18	09-May-19	08-Oct-19
		ODWS								
Anion Sum	Sum		8.90	9.10	8.79	8.57	8.77	10.7	8.73	9.01
Bicarb. Alkalinity (calc. as CaCO3)	mg/L		240	230	240	230	230	230	220	220
Calculated TDS	mg/L	500 (AO)	490	490	480	460	470	**580**	480	490
Cation Sum	Sum		9.05	8.86	8.74	8.6	8.68	10.7	8.97	8.86
Hardness (CaCO3)	mg/L	80-100 (OG)	**200**	**180**	**180**	**180**	**190**	**190**	**200**	**190**
Ion Balance (% Difference)	%		0.820	1.34	0.29	0.16	0.520	0.310	1.33	0.820
Langelier Index (@ 20C)	NA		0.439	0.548	0.368	0.48	0.393	0.404	0.358	0.512
Langelier Index (@ 4C)	NA		0.191	0.300	0.12	0.232	0.145	0.157	0.110	0.264
Saturation pH (@ 20C)	NA		7.53	7.59	7.57	7.61	7.56	7.58	7.57	7.59
Saturation pH (@ 4C)	NA		7.78	7.83	7.82	7.85	7.81	7.83	7.82	7.84
Total Ammonia-N	mg/L		<0.050	0.46	<0.050	0.41	0.51	<0.050	<0.050	0.33
Colour	TCU	5 (AO)	<2	<2	<2	<2	<2	5	<2	<2
Conductivity	uS/cm		900	960	900	860	880	1100	930	970
Fluoride (F-)	mg/L	1.5	0.75	0.79	0.75	0.77	0.70	0.73	0.71	0.69
Dissolved Organic Carbon	mg/L	5 (AO)	0.23	1.1	0.38	<0.50	<0.50	0.67	0.50	0.69
Orthophosphate (P)	mg/L		<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
pH	units	6.5-8.5 (OG)	7.97	8.13	7.94	8.08	7.95	7.99	7.93	8.10
Dissolved Sulphate (SO4)	mg/L	500 (AO)	6.9	1.5	6	2.4	5.0	<1.0	7.3	1.2
Tannins & Lignins	mg/L		<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Turbidity	NTU	5	0.1	0.3	0.4	2.4	1.3	<0.1	<0.1	0.2
Alkalinity (Total as CaCO3)	mg/L	30-500 (OG)	240	230	240	230	240	240	230	220
Dissolved Chloride (Cl)	mg/L	250 (OG)	140	160	140	140	140	210	140	160
Nitrite (N)	mg/L	1	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Nitrate (N)	mg/L	10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Nitrate + Nitrite	mg/L	10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Dissolved Aluminum (Al)	mg/L	0.1 (OG)	<0.005	<0.005	0.006	<0.005	<0.005	<0.005	<0.005	<5.0
Dissolved Antimony (Sb)	ug/L	6	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dissolved Arsenic (As)	ug/L	25	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Dissolved Barium (Ba)	ug/L	1000	190	210	190	190	200	200	200	220
Dissolved Beryllium (Be)	ug/L		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dissolved Boron (B)	ug/L	5000	730	760	820	790	780	610	840	730
Dissolved Cadmium (Cd)	ug/L	5	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Dissolved Calcium (Ca)	mg/L		36	33	33	31	34	34	34	34
Dissolved Chromium (Cr)	ug/L	50	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Dissolved Cobalt (Co)	ug/L		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dissolved Copper (Cu)	ug/L	1000 (AO)	9.5	<1.0	<1.0	<1.0	2.6	43	13	23
Dissolved Iron (Fe)	mg/L	0.3 (AO)	<0.1	0.1	<0.1	<0.1	0.190	<0.1	<0.1	<0.1
Dissolved Lead (Pb)	ug/L	10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	1.1
Dissolved Magnesium (Mg)	mg/L		26	24	25	25	26	26	27	25
Dissolved Manganese (Mn)	ug/L	50 (AO)	<2.0	4.3	3.9	4.9	5.5	<2.0	<2.0	3.3
Dissolved Molybdenum (Mo)	ug/L		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dissolved Nickel (Ni)	ug/L		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Dissolved Phosphorus (P)	mg/L		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dissolved Potassium (K)	mg/L		6.9	7.6	7.1	7.2	7.2	7.2	7.1	7.1
Dissolved Selenium (Se)	ug/L	50	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Dissolved Silicon (Si)	mg/L		5.60	5.00	5.50	5.30	5.6	5.0	5.6	4.8
Dissolved Silver (Ag)	ug/L		<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Dissolved Sodium (Na)	mg/L	200 (OG)	110	120	110	110	110	150	110	110
Dissolved Strontium (Sr)	mg/L		2.5	2.5	2.2	2.3	2.3	2.6	2.5	3
Dissolved Thallium (Tl)	mg/L		<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Dissolved Titanium (Ti)	ug/L		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Dissolved Uranium (U)	mg/L	0.02	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Dissolved Vanadium (V)	ug/L		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dissolved Zinc (Zn)	ug/L	5000 (AO)	210	<5.0	6.9	180	8.9	630	130	170

		Sample	AM1B										BORED WELL									
		Date	23-May-17	26-Oct-17	30-May-18	30-Oct-18	08-May-19	04-Oct-19	14-May-20	30-Oct-20	06-May-21	21-Oct-21	23-May-17	26-Oct-17	30-May-18	31-Oct-18	08-May-19	04-Oct-19	14-May-20	30-Oct-20	06-May-21	21-Oct-21
Parameter	Units	ODWS																				
Bicarb. Alkalinity (calc. as $CaCO_3$)	mg/L		210	220	220	240	230	250	230	240	220	250	230	220	260	240	260	250	280	270	270	230
Total Ammonia-N	mg/L		0.12	0.16	0.17	0.098	0.11	0.12	0.11	0.088	<0.050	0.19	<0.050	<0.050	0.084	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Colour	TCU	**5 (AO)**	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Conductivity	uS/cm		470	490	480	480	480	510	500	499	496	448	490	490	540	500	550	520	570	562	551	461
Total Dissolved Solids	mg/L	**500 (AO)**	280	270	290	290	340	300	290	300	300	320	300	280	310	300	320	310	330	330	320	290
Fluoride (F-)	mg/L	**1.5**	0.25	0.27	0.21	0.20	0.23	0.22	0.23	0.22	0.21	0.24	0.15	0.15	0.15	0.14	0.13	0.13	0.13	0.13	0.15	0.13
Dissolved Organic Carbon	mg/L	**5 (AO)**	0.82	0.72	0.75	0.75	0.71	0.69	0.7	1.2	0.62	0.80	1	1	1.1	0.99	0.88	1.0	0.92	1.0	1.0	1.1
Hardness	mg/L	**80-100 (OG)**	240	220	250	260	340	260	240	250	250	260	220	170	250	230	270	240	270	270	270	220
Phosphate	mg/L		<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
pH	units	**6.5-8.5 (OG)**	7.92	7.99	8.02	8.08	7.98	8.09	7.97	7.85	8.09	7.90	8.17	8.19	8.07	8.25	8.12	8.26	7.98	8.00	8.18	8.24
Dissolved Sulphate (SO_4)	mg/L	**500 (AO)**	41	37	41	30	44	32	39	40	43	43	32	30	28	28	28	26	28	28	31	28
Alkalinity (Total as $CaCO_3$)	mg/L	**30-500 (OG)**	210	220	220	240	230	250	230	240	220	250	230	230	260	240	270	260	290	280	270	240
Dissolved Chloride (Cl)	mg/L	**250 (AO)**	3.2	2.7	2.3	2.4	2.0	1.9	1.5	2.5	1.8	2.2	3.5	3.1	2.1	2.3	2.1	1.7	1.4	1.9	2.5	2.4
Nitrite (N)	mg/L	**1**	0.012	<0.010	<0.010	<0.010	0.011	<0.010	<0.010	<0.010	0.010	0.023	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Nitrate (N)	mg/L	**10**	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.38	0.45	0.33	0.29	0.30	0.32	0.25	0.26	0.22	0.35
Nitrate + Nitrite	mg/L	**10**	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.38	0.45	0.33	0.29	0.30	0.32	0.25	0.26	0.22	0.35
Dissolved Calcium (Ca)	mg/L		45	42	47	53	84	52	47	47	49	52	48	35	56	52	64	54	63	62	62	47
Dissolved Magnesium (Mg)	mg/L		31	29	31	31	32	32	31	32	32	32	25	21	26	25	28	25	28	28	29	25
Dissolved Phosphorus (P)	mg/L		<0.1	<0.1	<0.1	<0.1	0.13	0.12	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.11	<0.1	<0.1	<0.1	<0.1
Dissolved Potassium (K)	mg/L		2.4	2.3	2.3	2.4	2.4	2.2	2.2	2.3	2.3	2.4	13	13	7.1	8.8	6.0	7.6	5.0	6.2	5.4	8.7
Dissolved Sodium (Na)	mg/L	**200 (AO)**	7.6	6.4	6.7	6.3	6.8	6.2	6.0	7.0	6.8	7.0	19	20	15	16	14	19	12	16	13	21

Notes:
AO: aesthetic objective
OG: operational guideline
Exceedances of the OWDS (operational guidelines excluded) are shown in bold.

		Sample	OW4-I										OW4-II									
		Date	23-May-17	26-Oct-17	30-May-18	30-Oct-18	08-May-19	04-Oct-19	14-May-20	30-Oct-20	06-May-21	21-Oct-21	23-May-17	26-Oct-17	30-May-18	30-Oct-18	08-May-19	04-Oct-19	14-May-20	30-Oct-20	06-May-21	30-Oct-20
Parameter	Units	ODWS																				
Bicarb. Alkalinity (calc. as $CaCO_3$)	mg/L		260	250	240	240	210	230	220	220	220	260	230	230	250	230	230	230	240	240	250	250
Total Ammonia-N	mg/L		0.77	1.3	1.2	1.3	1.0	1.4	0.98	1.3	1.2	1.2	1.1	1.1	1.2	1.2	1.2	1.2	1	1.1	0.95	0.94
Colour	TCU	**5 (AO)**	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Conductivity	uS/cm		1200	1600	1400	1300	1300	1400	1300	1390	1220	1160	1800	1900	1600	1800	1600	1800	1500	1740	1470	1280
Total Dissolved Solids	mg/L	**500 (AO)**	**630**	**780**	**690**	**700**	**630**	**680**	**670**	**720**	**630**	**670**	**910**	**910**	**810**	**920**	**840**	**920**	**740**	**880**	**780**	**770**
Fluoride (F-)	mg/L	**1.5**	1.2	0.99	1.0	1.1	1.0	0.99	1	0.99	1.1	1.1	0.95	0.91	0.98	0.90	0.96	0.88	1	0.91	1.0	1.0
Dissolved Organic Carbon	mg/L	**5 (AO)**	2.2	1.9	1.7	2.7	2.4	1.8	1.7	1.6	1.1	2.0	1.1	1.1	1.1	1.2	1.0	1.1	0.99	1.1	1.1	0.97
Hardness	mg/L	**80-100 (OG)**	130	170	140	170	140	140	150	160	150	150	250	230	210	240	230	260	180	230	200	200
Phosphate	mg/L		<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
pH	units	**6.5-8.5 (OG)**	8.16	8.06	8.19	8.42	8.40	8.39	8.11	8.11	8.51	8.22	7.94	7.96	8.05	8.29	8.03	8.21	8	7.94	8.13	8.07
Dissolved Sulphate (SO_4)	mg/L	**500 (AO)**	6.7	2.9	7.5	2.8	2.9	6.9	2.6	2.9	2.7	2.9	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Alkalinity (Total as $CaCO_3$)	mg/L	**30-500 (OG)**	260	260	240	250	220	240	220	220	220	260	230	240	250	240	240	230	250	240	250	250
Dissolved Chloride (Cl)	mg/L	**250 (AO)**	210	**330**	**270**	**260**	250	**260**	**260**	**300**	230	230	**400**	**430**	**340**	**430**	**350**	**400**	**290**	**390**	**310**	**300**
Nitrite (N)	mg/L	**1**	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	<0.010	<0.010	<0.010	0.025	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Nitrate (N)	mg/L	**10**	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Nitrate + Nitrite	mg/L	**10**	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.12	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Dissolved Calcium (Ca)	mg/L		24	32	28	33	27	27	30	30	29	28	47	42	39	47	43	49	35	45	38	37
Dissolved Magnesium (Mg)	mg/L		17	22	18	21	18	18	19	21	19	19	33	31	27	31	30	34	24	30	25	26
Dissolved Phosphorus (P)	mg/L		<0.1	<0.1	<0.1	<0.1	<0.1	0.13	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.13	<0.1	<0.1	<0.1	<0.1
Dissolved Potassium (K)	mg/L		6.7	7.5	7.0	7.8	6.4	6.8	7.7	7.2	7.4	7.7	11	9.8	9.3	9.8	9.7	11	8.7	9.8	9.5	9.1
Dissolved Sodium (Na)	mg/L	**200 (AO)**	190	**210**	200	**220**	180	200	**210**	**210**	200	**210**	**260**	**250**	**230**	**260**	**250**	**270**	**220**	**250**	**240**	**230**

Notes:
AO: aesthetic objective
OG: operational guideline
Exceedances of the OWDS (operational guidelines excluded) are shown in bold.

		Sample	OW5-I										OW5-II							
		Date	23-May-17	26-Oct-17	30-May-18	30-Oct-18	08-May-19	04-Oct-19	14-May-20	29-Oct-20	06-May-21	21-Oct-21	23-May-17	26-Oct-17	30-May-18	30-Oct-18	08-May-19	04-Oct-19	19-Jul-21	21-Oct-21
Parameter	Units	ODWS																		
Bicarb. Alkalinity (calc. as $CaCO_3$)	mg/L		230	250	260	260	270	260	280	320	290	320	110	110	110	110	110	120	120	130
Total Ammonia-N	mg/L		0.81	0.78	0.75	0.72	0.54	0.62	0.39	0.52	0.46	0.59	9.4	9.6	12	9.9	8.6	9.1	15	8.1
Colour	TCU	**5 (AO)**	<2	<2	<2	2	<2	<2	<2	<2	<2	<2	**51**	**9**	**6**	**34**	<2	**12**	**12**	**48**
Conductivity	uS/cm		600	690	710	690	740	620	740	737	728	635	28000	28000	28000	25000	27000	26000	32000	18100
Total Dissolved Solids	mg/L	**500 (AO)**	340	360	390	390	460	360	410	430	420	440	**16000**	**16000**	**18000**	**16000**	**16000**	**15000**	**17000**	**14000**
Fluoride (F-)	mg/L	**1.5**	0.82	0.8	0.65	0.73	0.56	0.70	0.56	0.63	0.55	0.62	0.44	0.47	0.42	0.44	0.40	0.41	0.40	0.44
Dissolved Organic Carbon	mg/L	**5 (AO)**	1.4	1.3	1.3	1.3	1.2	1.5	1	1.4	1.3	1.5	0.7	0.49	0.51	0.62	0.57	<0.50	0.99	23
Hardness	mg/L	**80-100 (OG)**	170	160	210	200	330	190	260	230	240	250	6300	5200	7900	6300	6000	5800	5900	5200
Phosphate	mg/L		<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.031
pH	units	**6.5-8.5 (OG)**	8.01	8.02	8.01	8.28	7.97	8.20	7.93	7.87	8.04	8.12	7.27	7.34	7.31	7.69	7.35	7.58	7.12	7.02
Dissolved Sulphate (SO_4)	mg/L	**500 (AO)**	28	31	35	35	44	36	45	41	47	48	<1.0	<1.0	<1.0	<1.0	5.3	5.3	14	<1.0
Alkalinity (Total as $CaCO_3$)	mg/L	**30-500 (OG)**	230	250	260	260	270	260	280	320	300	320	110	110	110	110	110	120	130	130
Dissolved Chloride (Cl)	mg/L	**250 (AO)**	37	44	46	43	52	26	39	34	31	26	**10000**	**11000**	**10000**	**9700**	**10000**	**9400**	**10000**	**8600**
Nitrite (N)	mg/L	**1**	0.033	0.055	<0.010	0.086	<0.010	0.046	0.046	0.057	0.011	0.025	<0.050	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Nitrate (N)	mg/L	**10**	<0.10	0.39	0.43	0.26	0.59	0.26	0.46	0.29	0.46	0.51	<0.50	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Nitrate + Nitrite	mg/L	**10**	<0.10	0.45	0.43	0.34	0.59	0.31	0.5	0.35	0.47	0.53	<0.50	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Dissolved Calcium (Ca)	mg/L		29	29	39	37	84	33	50	44	45	48	1200	1000	1600	1300	1200	1200	1200	1100
Dissolved Magnesium (Mg)	mg/L		22	22	27	25	29	25	32	29	31	32	780	640	920	750	720	690	720	630
Dissolved Phosphorus (P)	mg/L		<0.1	<0.1	<0.1	<0.1	0.17	0.12	<0.1	<0.1	<0.1	<0.1	<0.5	<1	<0.5	<0.5	<0.5	0.56	<0.5	0.87
Dissolved Potassium (K)	mg/L		6.9	7.4	6.9	7.5	6.6	6.8	6.5	7.7	6.6	8	74	62	77	70	66	67	67	74
Dissolved Sodium (Na)	mg/L	**200 (AO)**	64	64	66	70	66	59	59	65	62	63	**3900**	**3300**	**4400**	**4000**	**3400**	**3800**	**4100**	**3300**

Notes:
AO: aesthetic objective
OG: operational guideline
Exceedances of the OWDS (operational guidelines excluded) are shown in bold.

		Sample	OW5-III										OW6-II									
		Date	23-May-17	26-Oct-17	30-May-18	30-Oct-18	08-May-19	04-Oct-19	14-May-20	29-Oct-20	06-May-21	21-Oct-21	23-May-17	30-Oct-17	30-May-18	30-Oct-18	08-May-19	04-Oct-19	14-May-20	29-Oct-20	29-Jun-21	21-Oct-21
Parameter	Units	ODWS																				
Bicarb. Alkalinity (calc. as $CaCO_3$)	mg/L		110	130	130	100	110	110	88	120	110	120	150	150	150	150	140	150	140	160	150	160
Total Ammonia-N	mg/L		9.6	10	9.6	9.4	9.7	9.5	8.2	10	9.0	9.3	0.059	0.96	0.12	1.2	<0.050	1.4	<0.050	1.8	0.88	1.4
Colour	TCU	**5 (AO)**	2	5	3	**12**	<2	4	**32**	**16**	<2	3	<2	<2	<2	3	<2	<2	<2	<2	<2	3
Conductivity	uS/cm		29000	33000	31000	21000	29000	28000	21000	31600	25700	18000	6400	6300	6500	6100	6500	6400	6400	6670	6500	4710
Total Dissolved Solids	mg/L	**500 (AO)**	**17000**	**20000**	**18000**	**13000**	**17000**	**16000**	**13000**	**18000**	**15000**	**15000**	**4000**	**3700**	**4100**	**4000**	**4000**	**4000**	**4000**	**4100**	**3900**	**3800**
Fluoride (F-)	mg/L	**1.5**	0.44	0.43	0.39	0.34	0.40	0.39	0.35	0.41	0.42	0.43	0.51	0.52	0.57	0.60	0.62	0.63	0.69	0.76	0.97	0.85
Dissolved Organic Carbon	mg/L	**5 (AO)**	0.78	1.1	0.85	2.8	0.99	0.79	1.3	1.2	0.90	1.2	0.77	0.82	0.58	0.66	0.58	0.57	0.56	0.83	1.8	0.44
Hardness	mg/L	**80-100 (OG)**	6500	6400	6300	5300	6700	6200	5900	7500	6600	6600	1600	1400	1600	1600	1600	1700	1700	1700	1600	1700
Phosphate	mg/L		<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
pH	units	**6.5-8.5 (OG)**	7.33	7.36	7.35	7.17	7.39	7.53	7.22	7.21	7.50	7.22	7.6	7.67	7.67	8.00	7.69	7.86	7.66	7.69	7.48	7.69
Dissolved Sulphate (SO_4)	mg/L	**500 (AO)**	14	83	79	2.8	34	11	<1.0	79	8.7	41	**1100**	**990**	**1100**	**990**	**960**	**930**	**960**	**1000**	**980**	**870**
Alkalinity (Total as $CaCO_3$)	mg/L	**30-500 (OG)**	110	130	130	100	110	110	88	120	110	120	150	150	150	160	140	150	140	170	150	160
Dissolved Chloride (Cl)	mg/L	**250 (AO)**	**10000**	**13000**	**12000**	**7500**	**10000**	**10000**	**7300**	**11000**	**9200**	**8800**	**1500**	**1400**	**1600**	**1600**	**1500**	**1600**	**1600**	**1600**	**1500**	**1400**
Nitrite (N)	mg/L	**1**	<0.050	<0.010	<0.010	0.180	<0.010	<0.010	<0.010	0.021	<0.010	<0.010	0.019	0.114	0.164	0.077	<0.010	0.072	<0.010	0.024	0.425	0.034
Nitrate (N)	mg/L	**10**	<0.50	<0.10	<0.10	0.64	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	1.24	0.18	0.80	0.20	0.95	<0.10	1.34	<0.10	0.44	<0.10
Nitrate + Nitrite	mg/L	**10**	<0.50	<0.10	<0.10	0.82	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	1.26	0.29	0.97	0.27	0.95	<0.10	1.34	<0.10	0.86	<0.10
Dissolved Calcium (Ca)	mg/L		1300	1300	1300	1100	1400	1300	1200	1600	1300	1400	310	280	320	330	340	330	340	360	310	340
Dissolved Magnesium (Mg)	mg/L		790	780	760	630	770	730	700	880	790	770	200	180	200	190	190	200	200	210	190	200
Dissolved Phosphorus (P)	mg/L		<0.5	<1	<0.5	<0.5	<1	0.62	<1	0.57	<0.5	<0.5	<0.1	<0.5	<0.1	<0.1	<0.1	0.10	<0.1	0.11	<0.1	<0.5
Dissolved Potassium (K)	mg/L		76	67	69	59	68	68	59	71	74	73	18	15	17	17	18	19	18	20	79	19
Dissolved Sodium (Na)	mg/L	**200 (AO)**	**4200**	**4200**	**3800**	**3300**	**4000**	**3800**	**3800**	**4600**	**4000**	**4100**	**790**	**720**	**760**	**800**	**810**	**800**	**780**	**840**	**740**	**800**

Notes:
AO: aesthetic objective
OG: operational guideline
Exceedances of the OWDS (operational guidelines excluded) are shown in bold.

		Sample	OW7-I										OW7-II									
		Date	23-May-17	30-Oct-17	30-May-18	30-Oct-18	08-May-19	04-Oct-19	14-May-20	29-Oct-20	06-May-21	21-Oct-21	23-May-17	26-Oct-17	30-May-18	30-Oct-18	08-May-19	04-Oct-19	14-May-20	29-Oct-20	06-May-21	21-Oct-21
Parameter	Units	ODWS																				
Bicarb. Alkalinity (calc. as $CaCO_3$)	mg/L		310	230	280	260	290	210	300	290	300	250	320	250	280	230	290	270	300	290	290	260
Total Ammonia-N	mg/L		2.8	4.7	3.0	3.1	2.0	1.8	2.4	2.4	2.3	3.0	1.6	3.6	2.2	2.8	2.4	1.6	2.1	2.3	2.0	2.6
Colour	TCU	**5 (AO)**	**23**	**90**	**190**	**17**	<2	**17**	**33**	**27**	2	**61**	3	<2	<2	<2	<2	<2	<2	<2	<2	2
Conductivity	uS/cm		5300	11000	6400	6500	6400	720	6400	6810	6190	7180	5600	15000	6800	7300	6200	2200	6500	7300	6350	6630
Total Dissolved Solids	mg/L	**500 (AO)**	**2800**	**5600**	**3400**	**3800**	**3500**	430	**3400**	**4000**	**3400**	**5000**	**3000**	**8300**	**3800**	**4300**	**3400**	**1100**	**3400**	**3900**	**3300**	**4600**
Fluoride (F-)	mg/L	**1.5**	**2.8**	1.2	**2.2**	1.1	**2.1**	0.46	**2.1**	**1.9**	**2.1**	1.5	**2.8**	1.4	**2.1**	1.1	**2.1**	0.75	**2.2**	**1.9**	**2.0**	**1.6**
Dissolved Organic Carbon	mg/L	**5 (AO)**	0.98	0.92	1.0	1.3	0.84	1.9	0.56	0.86	0.66	0.88	1	1	1.0	1.4	0.77	2.4	0.56	0.81	0.69	0.68
Hardness	mg/L	**80-100 (OG)**	710	1900	830	1300	910	320	860	1000	860	1600	800	3000	1100	1400	830	500	910	1000	800	1600
Phosphate	mg/L		<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.050	<0.010	<0.010	<0.010	<0.010	<0.010
pH	units	**6.5-8.5 (OG)**	7.86	7.72	7.85	7.98	7.83	8.05	7.78	7.74	7.87	7.62	7.87	7.66	7.74	7.77	7.89	8.07	7.78	7.76	7.83	7.69
Dissolved Sulphate (SO_4)	mg/L	**500 (AO)**	37	32	14	32	25	73	20	28	15	22	24	7	28	28	20	43	21	26	31	25
Alkalinity (Total as $CaCO_3$)	mg/L	**30-500 (OG)**	310	230	280	260	290	210	300	290	300	250	320	250	280	230	300	270	300	290	290	260
Dissolved Chloride (Cl)	mg/L	**250 (AO)**	**1500**	**3600**	**2000**	**2200**	**1900**	47	**1900**	**2300**	**1800**	**2800**	**1600**	**5300**	**2200**	**2600**	**1900**	**490**	**2000**	**2200**	**1900**	**2400**
Nitrite (N)	mg/L	**1**	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.012	<0.010	<0.010	<0.010	<0.010
Nitrate (N)	mg/L	**10**	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Nitrate + Nitrite	mg/L	**10**	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Dissolved Calcium (Ca)	mg/L		140	390	160	270	190	63	180	200	180	340	160	600	220	290	180	100	180	210	170	340
Dissolved Magnesium (Mg)	mg/L		86	230	100	150	100	39	100	120	100	190	97	360	130	160	95	60	110	120	94	180
Dissolved Phosphorus (P)	mg/L		<0.1	<0.1	<0.1	<0.1	<0.1	0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.1	0.11	<0.1	0.10	<0.1	<0.1	<0.1	<0.1
Dissolved Potassium (K)	mg/L		13	26	14	22	16	13	15	18	18	24	14	29	16	22	15	12	17	18	16	23
Dissolved Sodium (Na)	mg/L	**200 (AO)**	**790**	**1200**	**890**	**950**	**1000**	50	**980**	**1100**	**1000**	**1500**	**850**	**1900**	**1000**	**1100**	**960**	**250**	**950**	**1100**	**980**	**1500**

Notes:
AO: aesthetic objective
OG: operational guideline
Exceedances of the OWDS (operational guidelines excluded) are shown in bold.

		Sample	OW8-I										OW8-II							
		Date	23-May-17	30-Oct-17	29-May-18	30-Oct-18	08-May-19	04-Oct-19	14-May-20	29-Oct-20	06-May-21	29-Oct-20	23-May-17	26-Oct-17	29-May-18	30-Oct-18	08-May-19	04-Oct-19	06-May-21	21-Oct-21
Parameter	Units	ODWS																		
Bicarb. Alkalinity (calc. as $CaCO_3$)	mg/L		310	300	290	300	250	300	310	300	290	300	320	300	300	290	300	310	290	290
Total Ammonia-N	mg/L		0.63	1.4	0.84	0.43	1.1	0.84	0.55	0.37	0.31	0.49	0.48	1.1	0.51	0.95	0.39	0.87	0.28	0.26
Colour	TCU	**5 (AO)**	<2	<2	**7**	<2	<2	<2	<2	<2	<2	2	<2	<2	4	<2	<2	<2	<2	2
Conductivity	uS/cm		980	2400	1300	770	2000	1600	1000	847	733	818	800	3000	810	2500	760	2100	722	648
Total Dissolved Solids	mg/L	**500 (AO)**	**600**	**1200**	**780**	450	**1200**	**880**	**560**	470	440	**520**	470	**1500**	450	**1400**	440	**1100**	430	420
Fluoride (F-)	mg/L	**1.5**	**1.6**	0.89	0.91	0.69	1.1	0.86	1.3	0.95	0.57	0.91	0.71	0.79	0.47	0.90	0.60	0.94	0.49	0.49
Dissolved Organic Carbon	mg/L	**5 (AO)**	1.5	1.4	1.5	1.5	1.5	1.5	1.5	1.6	1.5	1.5	1.9	1.4	1.7	1.4	1.7	1.4	1.9	1.7
Hardness	mg/L	**80-100 (OG)**	240	520	500	290	450	390	300	290	330	290	260	660	320	480	300	430	330	330
Phosphate	mg/L		<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
pH	units	**6.5-8.5 (OG)**	7.96	7.86	7.85	7.81	8.04	7.98	7.88	7.8	7.69	7.75	7.73	7.67	7.76	7.96	7.85	7.99	7.71	8.03
Dissolved Sulphate (SO_4)	mg/L	**500 (AO)**	53	45	46	54	58	38	38	45	57	52	52	37	60	22	51	22	55	53
Alkalinity (Total as $CaCO_3$)	mg/L	**30-500 (OG)**	310	300	290	300	250	300	310	300	290	300	330	300	310	300	300	310	290	290
Dissolved Chloride (Cl)	mg/L	**250 (AO)**	110	**540**	240	36	**470**	**310**	110	65	31	93	36	**770**	44	**630**	33	**460**	28	27
Nitrite (N)	mg/L	**1**	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Nitrate (N)	mg/L	**10**	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	<0.10
Nitrate + Nitrite	mg/L	**10**	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	<0.10
Dissolved Calcium (Ca)	mg/L		62	140	140	86	120	100	85	86	100	83	70	170	96	130	89	110	100	100
Dissolved Magnesium (Mg)	mg/L		22	44	39	18	39	34	22	19	19	20	20	58	18	41	18	38	18	18
Dissolved Phosphorus (P)	mg/L		<0.1	<0.1	<0.1	<0.1	<0.1	0.13	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.11	<0.1	<0.1
Dissolved Potassium (K)	mg/L		5.5	8.4	5.7	4.3	8.5	7.0	4.6	4.1	3.9	4.6	4.9	9.0	3.9	8.5	4.0	7.2	3.7	3.7
Dissolved Sodium (Na)	mg/L	**200 (AO)**	150	**250**	130	57	**330**	200	96	68	36	80	84	**300**	36	**340**	51	**250**	34	31

Notes:
AO: aesthetic objective
OG: operational guideline
Exceedances of the OWDS (operational guidelines excluded) are shown in bold.

		Sample	OW9-I			OW9-II		
		Date	23-May-17	26-Oct-17	29-May-18	08-May-19	14-May-20	21-Oct-21
Parameter	Units	ODWS						
Bicarb. Alkalinity (calc. as $CaCO_3$)	mg/L		170	130	200	170	160	140
Total Ammonia-N	mg/L		18	21	18	0.11	0.27	0.15
Colour	TCU	**5 (AO)**	**110**	**49**	**14**	3	3	**6**
Conductivity	uS/cm		81000	88000	73000	39000	50000	62200
Total Dissolved Solids	mg/L	**500 (AO)**	**58000**	**57000**	**46000**	**23000**	**32000**	**39000**
Fluoride (F-)	mg/L	**1.5**	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Dissolved Organic Carbon	mg/L	**5 (AO)**	**12**	**9.1**	**8.7**	**7.8**	**8.1**	**8.5**
Hardness	mg/L	**80-100 (OG)**	27000	25000	22000	12000	17000	21000
Phosphate	mg/L		<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
pH	units	**6.5-8.5 (OG)**	6.73	6.95	6.93	7.09	7.13	7.15
Dissolved Sulphate (SO_4)	mg/L	**500 (AO)**	180	160	120	**880**	**1000**	**1200**
Alkalinity (Total as $CaCO_3$)	mg/L	**30-500 (OG)**	170	130	200	170	160	140
Dissolved Chloride (Cl)	mg/L	**250 (AO)**	**37000**	**39000**	**30000**	**13000**	**20000**	**24000**
Nitrite (N)	mg/L	**1**	<0.10	<0.010	<0.050	0.013	0.033	<0.010
Nitrate (N)	mg/L	**10**	<1.0	<0.10	<0.50	0.51	0.99	2.19
Nitrate + Nitrite	mg/L	**10**	<1.0	<0.10	<0.50	0.52	1.02	2.19
Dissolved Calcium (Ca)	mg/L		5700	5000	4600	2900	3800	4800
Dissolved Magnesium (Mg)	mg/L		3200	3100	2500	1200	1700	2100
Dissolved Phosphorus (P)	mg/L		<2	<1	<1	<0.1	<1	<1
Dissolved Potassium (K)	mg/L		140	140	120	69	92	110
Dissolved Sodium (Na)	mg/L	**200 (AO)**	**11000**	**10000**	**9000**	**4200**	**5800**	**6600**

Notes:
AO: aesthetic objective
OG: operational guideline
Exceedances of the OWDS (operational guidelines excluded) are shown in bold.

Table 5 - Onsite Observation Well Water Quality Results

		Sample	TW1-1										AMx-R						
		Date	23-May-17	26-Oct-17	30-May-18	31-Oct-18	08-May-19	04-Oct-19	14-May-20	29-Oct-20	06-May-21	21-Oct-21	31-Oct-18	08-May-19	04-Oct-19	14-May-20	30-Oct-20	06-May-21	21-Oct-21
Parameter	Units	ODWS																	
Bicarb. Alkalinity (calc. as $CaCO_3$)	mg/L		290	290	290	280	280	280	280	260	280	250	100	66	39	1.6	22	14	5.1
Total Ammonia-N	mg/L		0.47	1.2	0.80	0.62	0.68	1.2	0.95	0.73	0.79	0.63	6.4	6.0	5.8	5.7	5.4	6.0	5.3
Colour	TCU	**5 (AO)**	<2	<2	<2	2	<2	<2	<2	<2	<2	3	<2	<2	**18**	<2	**260**	<2	**22**
Conductivity	uS/cm		1300	2300	1900	1800	1900	3100	2800	2460	2530	2260	22000	20000	21000	18000	18500	22500	12600
Total Dissolved Solids	mg/L	**500 (AO)**	**670**	**1300**	**950**	**930**	**1000**	**1700**	**1400**	**1300**	**1300**	**1400**	**14000**	**11000**	**12000**	**10000**	**9800**	**12000**	**9500**
Fluoride (F-)	mg/L	**1.5**	0.5	0.5	0.49	0.49	0.51	0.50	0.5	0.47	0.48	0.56	0.61	0.58	0.57	0.56	0.6	0.61	0.62
Dissolved Organic Carbon	mg/L	**5 (AO)**	1.8	1.7	1.6	1.8	1.6	1.6	1.6	1.7	1.5	1.6	3.6	2.7	2.6	2	2.2	1.9	2.1
Hardness	mg/L	**80-100 (OG)**	410	760	450	490	490	830	610	540	580	630	5700	4800	4700	3800	3600	4900	3800
Phosphate	mg/L		<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
pH	units	**6.5-8.5 (OG)**	7.71	7.78	7.83	8.10	7.78	7.99	7.84	7.91	8.00	7.89	7.66	7.13	7.12	6.06	6.39	6.43	5.82
Dissolved Sulphate (SO_4)	mg/L	**500 (AO)**	22	20	27	24	28	33	30	29	38	39	53	29	37	<1.0	4.8	35	<1.0
Alkalinity (Total as $CaCO_3$)	mg/L	**30-500 (OG)**	290	290	290	280	280	280	290	260	280	260	100	67	39	1.6	22	14	5.1
Dissolved Chloride (Cl)	mg/L	**250 (AO)**	**220**	**510**	**420**	**390**	**420**	**830**	**660**	**610**	**600**	**700**	**9200**	**7200**	**7800**	**6300**	**6400**	**7400**	**6000**
Nitrite (N)	mg/L	**1**	<0.010	<0.010	<0.010	<0.010	<0.010	0.030	<0.010	0.023	<0.010	0.039	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.024
Nitrate (N)	mg/L	**10**	<0.10	<0.10	<0.10	<0.10	0.18	0.14	<0.10	0.25	<0.10	0.46	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Nitrate + Nitrite	mg/L	**10**	<0.10	<0.10	<0.10	<0.10	0.18	0.17	<0.10	0.27	<0.10	0.50	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Dissolved Calcium (Ca)	mg/L		96	160	100	120	110	180	130	100	130	130	1100	920	910	680	690	920	710
Dissolved Magnesium (Mg)	mg/L		41	86	48	50	52	91	68	68	64	73	720	610	600	510	460	620	480
Dissolved Phosphorus (P)	mg/L		<0.1	<0.1	<0.1	<0.1	<0.1	0.11	<0.1	<0.1	<0.1	<0.1	<0.5	<0.5	0.64	<0.5	0.54	<0.5	<0.1
Dissolved Potassium (K)	mg/L		6.1	10	7.7	7.1	8.6	13	10	11	11	13	56	49	50	48	42	56	45
Dissolved Sodium (Na)	mg/L	**200 (AO)**	100	**320**	160	160	**210**	**400**	**290**	**290**	**280**	**320**	**3200**	**2600**	**2600**	**2400**	**2200**	**2900**	**2200**

Notes:
AO: aesthetic objective
OG: operational guideline
Exceedances of the OWDS (operational guidelines excluded) are shown in bold.

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

Date	Start	Stop	Total Sec.	Total Min.	Total Litres	Rate of Taking (L/sec)	Rate of Taking (L/min)
ECA Permitted Rate					**6,544,800**	**76**	**4,545**
1-Jan-21	NO PUMP		0	0	-	-	-
2-Jan-21	NO PUMP		0	0	-	-	-
3-Jan-21	NO PUMP		0	0	-	-	-
4-Jan-21	NO PUMP		0	0	-	-	-
5-Jan-21	NO PUMP		0	0	-	-	-
6-Jan-21	NO PUMP		0	0	-	-	-
7-Jan-21	NO PUMP		0	0	-	-	-
8-Jan-21	NO PUMP		0	0	-	-	-
9-Jan-21	NO PUMP		0	0	-	-	-
10-Jan-21	NO PUMP		0	0	-	-	-
11-Jan-21	NO PUMP		0	0	-	-	-
12-Jan-21	NO PUMP		0	0	-	-	-
13-Jan-21	NO PUMP		0	0	-	-	-
14-Jan-21	NO PUMP		0	0	-	-	-
15-Jan-21	NO PUMP		0	0	-	-	-
16-Jan-21	NO PUMP		0	0	-	-	-
17-Jan-21	NO PUMP		0	0	-	-	-
18-Jan-21	7AM	4PM	32400	540	648,000	20	1,200
19-Jan-21	7AM	4PM	32400	540	648,000	20	1,200
20-Jan-21	7AM	4PM	32400	540	648,000	20	1,200
21-Jan-21	7AM	4PM	32400	540	648,000	20	1,200
22-Jan-21	7AM	4PM	32400	540	648,000	20	1,200
23-Jan-21	NO PUMP		0	0	-	-	-
24-Jan-21	NO PUMP		0	0	-	-	-
25-Jan-21	7AM	4PM	32400	540	648,000	20	1,200
26-Jan-21	7AM	4PM	32400	540	648,000	20	1,200
27-Jan-21	7AM	4PM	32400	540	648,000	20	1,200
28-Jan-21	7AM	4PM	32400	540	648,000	20	1,200
29-Jan-21	7AM	4PM	32400	540	648,000	20	1,200
30-Jan-21	NO PUMP		0	0	-	-	-
31-Jan-21	NO PUMP		0	0	-	-	-
1-Feb-21	7AM	4PM	32400	540	648,000	20	1,200
2-Feb-21	7AM	4PM	32400	540	648,000	20	1,200
3-Feb-21	7AM	4PM	32400	540	648,000	20	1,200
4-Feb-21	7AM	4PM	32400	540	648,000	20	1,200
5-Feb-21	7AM	4PM	32400	540	648,000	20	1,200
6-Feb-21	NO PUMP		0	0	-	-	-
7-Feb-21	NO PUMP		0	0	-	-	-
8-Feb-21	7AM	4PM	32400	540	648,000	20	1,200
9-Feb-21	7AM	4PM	32400	540	648,000	20	1,200
10-Feb-21	7AM	4PM	32400	540	648,000	20	1,200
11-Feb-21	7AM	4PM	32400	540	648,000	20	1,200
12-Feb-21	7AM	4PM	32400	540	648,000	20	1,200

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

Date	Start	Stop	Total Sec.	Total Min.	Total Litres	Rate of Taking (L/sec)	Rate of Taking (L/min)
ECA Permitted Rate					**6,544,800**	**76**	**4,545**
13-Feb-21	NO PUMP		0	0	-	-	-
14-Feb-21	NO PUMP		0	0	-	-	-
15-Feb-21	7AM	4PM	32400	540	648,000	20	1,200
16-Feb-21	7AM	4PM	32400	540	648,000	20	1,200
17-Feb-21	7AM	4PM	32400	540	648,000	20	1,200
18-Feb-21	7AM	4PM	32400	540	648,000	20	1,200
19-Feb-21	7AM	4PM	32400	540	648,000	20	1,200
20-Feb-21	NO PUMP		0	0	-	-	-
21-Feb-21	NO PUMP		0	0	-	-	-
22-Feb-21	7AM	4PM	32400	540	648,000	20	1,200
23-Feb-21	7AM	4PM	32400	540	648,000	20	1,200
24-Feb-21	7AM	4PM	32400	540	648,000	20	1,200
25-Feb-21	7AM	4PM	32400	540	648,000	20	1,200
26-Feb-21	7AM	4PM	32400	540	648,000	20	1,200
27-Feb-21	NO PUMP		0	0	-	-	-
28-Feb-21	NO PUMP		0	0	-	-	-
1-Mar-21	7AM	4PM	32400	540	648,000	20	1,200
2-Mar-21	7AM	4PM	32400	540	648,000	20	1,200
3-Mar-21	7AM	4PM	32400	540	648,000	20	1,200
4-Mar-21	7AM	4PM	32400	540	648,000	20	1,200
5-Mar-21	7AM	4PM	32400	540	648,000	20	1,200
6-Mar-21	NO PUMP		0	0	-	-	-
7-Mar-21	NO PUMP		0	0	-	-	-
8-Mar-21	7AM	4PM	32400	540	648,000	20	1,200
9-Mar-21	7AM	4PM	32400	540	648,000	20	1,200
10-Mar-21	7AM	4PM	32400	540	648,000	20	1,200
11-Mar-21	7AM	4PM	32400	540	648,000	20	1,200
12-Mar-21	7AM	4PM	32400	540	648,000	20	1,200
13-Mar-21	NO PUMP		0	0	-	-	-
14-Mar-21	NO PUMP		0	0	-	-	-
15-Mar-21	7AM	4PM	32400	540	648,000	20	1,200
16-Mar-21	7AM	4PM	32400	540	648,000	20	1,200
17-Mar-21	7AM	4PM	32400	540	648,000	20	1,200
18-Mar-21	7AM	4PM	32400	540	648,000	20	1,200
19-Mar-21	7AM	4PM	32400	540	648,000	20	1,200
20-Mar-21	NO PUMP		0	0	-	-	-
21-Mar-21	NO PUMP		0	0	-	-	-
22-Mar-21	7AM	4PM	32400	540	648,000	20	1,200
23-Mar-21	7AM	4PM	32400	540	648,000	20	1,200
24-Mar-21	7AM	4PM	32400	540	648,000	20	1,200
25-Mar-21	7AM	4PM	32400	540	648,000	20	1,200
26-Mar-21	7AM	4PM	32400	540	648,000	20	1,200
27-Mar-21	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**
28-Mar-21	NO PUMP		0	0	-	-	-
29-Mar-21	NO PUMP		0	0	-	-	-
30-Mar-21	NO PUMP		0	0	-	-	-
31-Mar-21	NO PUMP		0	0	-	-	-
1-Apr-21	NO PUMP		0	0	-	-	-
2-Apr-21	NO PUMP		0	0	-	-	-
3-Apr-21	NO PUMP		0	0	-	-	-
4-Apr-21	NO PUMP		0	0	-	-	-
5-Apr-21	NO PUMP		0	0	-	-	-
6-Apr-21	NO PUMP		0	0	-	-	-
7-Apr-21	NO PUMP		0	0	-	-	-
8-Apr-21	NO PUMP		0	0	-	-	-
9-Apr-21	NO PUMP		0	0	-	-	-
10-Apr-21	NO PUMP		0	0	-	-	-
11-Apr-21	7AM	4PM	32400	540	648,000	20	1,200
12-Apr-21	7AM	4PM	32400	540	648,000	20	1,200
13-Apr-21	7AM	4PM	32400	540	648,000	20	1,200
14-Apr-21	7AM	4PM	32400	540	648,000	20	1,200
15-Apr-21	7AM	4PM	32400	540	648,000	20	1,200
16-Apr-21	NO PUMP		0	0	-	-	-
17-Apr-21	NO PUMP		0	0	-	-	-
18-Apr-21	7AM	4PM	32400	540	648,000	20	1,200
19-Apr-21	7AM	4PM	32400	540	648,000	20	1,200
20-Apr-21	7AM	4PM	32400	540	648,000	20	1,200
21-Apr-21	7AM	4PM	32400	540	648,000	20	1,200
22-Apr-21	7AM	4PM	32400	540	648,000	20	1,200
23-Apr-21	NO PUMP		0	0	-	-	-
24-Apr-21	NO PUMP		0	0	-	-	-
25-Apr-21	NO PUMP		0	0	-	-	-
26-Apr-21	NO PUMP		0	0	-	-	-
27-Apr-21	NO PUMP		0	0	-	-	-
28-Apr-21	NO PUMP		0	0	-	-	-
29-Apr-21	NO PUMP		0	0	-	-	-
30-Apr-21	NO PUMP		0	0	-	-	-
1-May-21	NO PUMP		0	0	-	-	-
2-May-21	NO PUMP		0	0	-	-	-
3-May-21	NO PUMP		0	0	-	-	-
4-May-21	NO PUMP		0	0	-	-	-
5-May-21	NO PUMP		0	0	-	-	-
6-May-21	NO PUMP		0	0	-	-	-
7-May-21	NO PUMP		0	0	-	-	-
8-May-21	NO PUMP		0	0	-	-	-
9-May-21	NO PUMP		0	0	-	-	-

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

Date	Start	Stop	Total Sec.	Total Min.	Total Litres	Rate of Taking (L/sec)	Rate of Taking (L/min)
ECA Permitted Rate					**6,544,800**	**76**	**4,545**
10-May-21	NO PUMP		0	0	-	-	-
11-May-21	NO PUMP		0	0	-	-	-
12-May-21	7AM	4PM	32400	540	648,000	20	1,200
13-May-21	7AM	4PM	32400	540	648,000	20	1,200
14-May-21	7AM	4PM	32400	540	648,000	20	1,200
15-May-21	7AM	4PM	32400	540	648,000	20	1,200
16-May-21	7AM	4PM	32400	540	648,000	20	1,200
17-May-21	NO PUMP		0	0	-	-	-
18-May-21	NO PUMP		0	0	-	-	-
19-May-21	7AM	4PM	32400	540	648,000	20	1,200
20-May-21	7AM	4PM	32400	540	648,000	20	1,200
21-May-21	7AM	4PM	32400	540	648,000	20	1,200
22-May-21	7AM	4PM	32400	540	648,000	20	1,200
23-May-21	7AM	4PM	32400	540	648,000	20	1,200
24-May-21	NO PUMP		0	0	-	-	-
25-May-21	NO PUMP		0	0	-	-	-
26-May-21	NO PUMP		0	0	-	-	-
27-May-21	NO PUMP		0	0	-	-	-
28-May-21	NO PUMP		0	0	-	-	-
29-May-21	NO PUMP		0	0	-	-	-
30-May-21	NO PUMP		0	0	-	-	-
31-May-21	NO PUMP		0	0	-	-	-
1-Jun-21	NO PUMP		0	0	-	-	-
2-Jun-21	NO PUMP		0	0	-	-	-
3-Jun-21	NO PUMP		0	0	-	-	-
4-Jun-21	NO PUMP		0	0	-	-	-
5-Jun-21	NO PUMP		0	0	-	-	-
6-Jun-21	NO PUMP		0	0	-	-	-
7-Jun-21	NO PUMP		0	0	-	-	-
8-Jun-21	NO PUMP		0	0	-	-	-
9-Jun-21	NO PUMP		0	0	-	-	-
10-Jun-21	NO PUMP		0	0	-	-	-
11-Jun-21	NO PUMP		0	0	-	-	-
12-Jun-21	NO PUMP		0	0	-	-	-
13-Jun-21	NO PUMP		0	0	-	-	-
14-Jun-21	NO PUMP		0	0	-	-	-
15-Jun-21	NO PUMP		0	0	-	-	-
16-Jun-21	NO PUMP		0	0	-	-	-
17-Jun-21	7AM	4PM	32400	540	648,000	20	1,200

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

Date	Start	Stop	Total Sec.	Total Min.	Total Litres	Rate of Taking (L/sec)	Rate of Taking (L/min)
ECA Permitted Rate					**6,544,800**	**76**	**4,545**
18-Jun-21	7AM	4PM	32400	540	648,000	20	1,200
19-Jun-21	NO PUMP		0	0	-	-	-
20-Jun-21	NO PUMP		0	0	-	-	-
21-Jun-21	7AM	4PM	32400	540	648,000	20	1,200
22-Jun-21	7AM	4PM	32400	540	648,000	20	1,200
23-Jun-21	7AM	4PM	32400	540	648,000	20	1,200
24-Jun-21	7AM	4PM	32400	540	648,000	20	1,200
25-Jun-21	7AM	4PM	32400	540	648,000	20	1,200
26-Jun-21	NO PUMP		0	0	-	-	-
27-Jun-21	NO PUMP		0	0	-	-	-
28-Jun-21	7AM	4PM	32400	540	648,000	20	1,200
29-Jun-21	7AM	4PM	32400	540	648,000	20	1,200
30-Jun-21	7AM	4PM	32400	540	648,000	20	1,200
1-Jul-21	7AM	4PM	32400	540	648,000	20	1,200
2-Jul-21	7AM	4PM	32400	540	648,000	20	1,200
3-Jul-21	NO PUMP		0	0	-	-	-
4-Jul-21	NO PUMP		0	0	-	-	-
5-Jul-21	NO PUMP		0	0	-	-	-
6-Jul-21	NO PUMP		0	0	-	-	-
7-Jul-21	NO PUMP		0	0	-	-	-
8-Jul-21	NO PUMP		0	0	-	-	-
9-Jul-21	NO PUMP		0	0	-	-	-
10-Jul-21	NO PUMP		0	0	-	-	-
11-Jul-21	NO PUMP		0	0	-	-	-
12-Jul-21	NO PUMP		0	0	-	-	-
13-Jul-21	NO PUMP		0	0	-	-	-
14-Jul-21	NO PUMP		0	0	-	-	-
15-Jul-21	7AM	4PM	32400	540	648,000	20	1,200
16-Jul-21	7AM	4PM	32400	540	648,000	20	1,200
17-Jul-21	NO PUMP		0	0	-	-	-
18-Jul-21	NO PUMP		0	0	-	-	-
19-Jul-21	7AM	4PM	32400	540	648,000	20	1,200
20-Jul-21	7AM	4PM	32400	540	648,000	20	1,200
21-Jul-21	7AM	4PM	32400	540	648,000	20	1,200
22-Jul-21	7AM	4PM	32400	540	648,000	20	1,200
23-Jul-21	7AM	4PM	32400	540	648,000	20	1,200
24-Jul-21	NO PUMP		0	0	-	-	-
25-Jul-21	NO PUMP		0	0	-	-	-
26-Jul-21	7AM	4PM	32400	540	648,000	20	1,200
27-Jul-21	7AM	4PM	32400	540	648,000	20	1,200
28-Jul-21	7AM	4PM	32400	540	648,000	20	1,200
29-Jul-21	7AM	4PM	32400	540	648,000	20	1,200
30-Jul-21	7AM	4PM	32400	540	648,000	20	1,200

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

Date	Start	Stop	Total Sec.	Total Min.	Total Litres	Rate of Taking (L/sec)	Rate of Taking (L/min)
ECA Permitted Rate					**6,544,800**	**76**	**4,545**
31-Jul-21	NO PUMP		0	0	-	-	-
1-Aug-21	NO PUMP		0	0	-	-	-
2-Aug-21	NO PUMP		0	0	-	-	-
3-Aug-21	7AM	4PM	32400	540	648,000	20	1,200
4-Aug-21	7AM	4PM	32400	540	648,000	20	1,200
5-Aug-21	7AM	4PM	32400	540	648,000	20	1,200
6-Aug-21	7AM	4PM	32400	540	648,000	20	1,200
7-Aug-21	NO PUMP		0	0	-	-	-
8-Aug-21	NO PUMP		0	0	-	-	-
9-Aug-21	7AM	4PM	32400	540	648,000	20	1,200
10-Aug-21	7AM	4PM	32400	540	648,000	20	1,200
11-Aug-21	7AM	4PM	32400	540	648,000	20	1,200
12-Aug-21	7AM	4PM	32400	540	648,000	20	1,200
13-Aug-21	7AM	4PM	32400	540	648,000	20	1,200
14-Aug-21	NO PUMP		0	0	-	-	-
15-Aug-21	NO PUMP		0	0	-	-	-
16-Aug-21	7AM	4PM	32400	540	648,000	20	1,200
17-Aug-21	7AM	4PM	32400	540	648,000	20	1,200
18-Aug-21	7AM	4PM	32400	540	648,000	20	1,200
19-Aug-21	NO PUMP		0	0	-	-	-
20-Aug-21	NO PUMP		0	0	-	-	-
21-Aug-21	NO PUMP		0	0	-	-	-
22-Aug-21	NO PUMP		0	0	-	-	-
23-Aug-21	NO PUMP		0	0	-	-	-
24-Aug-21	NO PUMP		0	0	-	-	-
25-Aug-21	NO PUMP		0	0	-	-	-
26-Aug-21	NO PUMP		0	0	-	-	-
27-Aug-21	NO PUMP		0	0	-	-	-
28-Aug-21	NO PUMP		0	0	-	-	-
29-Aug-21	NO PUMP		0	0	-	-	-
30-Aug-21	7AM	4PM	32400	540	648,000	20	1,200
31-Aug-21	7AM	4PM	32400	540	648,000	20	1,200
1-Sep-21	7AM	4PM	32400	540	648,000	20	1,200
2-Sep-21	7AM	4PM	32400	540	648,000	20	1,200
3-Sep-21	7AM	4PM	32400	540	648,000	20	1,200
4-Sep-21	NO PUMP		0	0	-	-	-
5-Sep-21	NO PUMP		0	0	-	-	-
6-Sep-21	NO PUMP		0	0	-	-	-
7-Sep-21	NO PUMP		0	0	-	-	-
8-Sep-21	7AM	4PM	32400	540	648,000	20	1,200
9-Sep-21	7AM	4PM	32400	540	648,000	20	1,200
10-Sep-21	7AM	4PM	32400	540	648,000	20	1,200
11-Sep-21	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**
12-Sep-21	NO PUMP		0	0	-	-	-
13-Sep-21	7AM	4PM	32400	540	648,000	20	1,200
14-Sep-21	7AM	4PM	32400	540	648,000	20	1,200
15-Sep-21	7AM	4PM	32400	540	648,000	20	1,200
16-Sep-21	7AM	4PM	32400	540	648,000	20	1,200
17-Sep-21	7AM	4PM	32400	540	648,000	20	1,200
18-Sep-21	NO PUMP		0	0	-	-	-
19-Sep-21	NO PUMP		0	0	-	-	-
20-Sep-21	7AM	4PM	32400	540	648,000	20	1,200
21-Sep-21	7AM	4PM	32400	540	648,000	20	1,200
22-Sep-21	7AM	4PM	32400	540	648,000	20	1,200
23-Sep-21	7AM	4PM	32400	540	648,000	20	1,200
24-Sep-21	7AM	4PM	32400	540	648,000	20	1,200
25-Sep-21	NO PUMP		0	0	-	-	-
26-Sep-21	NO PUMP		0	0	-	-	-
27-Sep-21	7AM	4PM	32400	540	648,000	20	1,200
28-Sep-21	7AM	4PM	32400	540	648,000	20	1,200
29-Sep-21	NO PUMP		0	0	-	-	-
30-Sep-21	NO PUMP		0	0	-	-	-
1-Oct-21	7AM	4PM	32400	540	648,000	20	1,200
2-Oct-21	NO PUMP		0	0	-	-	-
3-Oct-21	NO PUMP		0	0	-	-	-
4-Oct-21	7AM	4PM	32400	540	648,000	20	1,200
5-Oct-21	7AM	4PM	32400	540	648,000	20	1,200
6-Oct-21	7AM	4PM	32400	540	648,000	20	1,200
7-Oct-21	7AM	4PM	32400	540	648,000	20	1,200
8-Oct-21	7AM	4PM	32400	540	648,000	20	1,200
9-Oct-21	NO PUMP		0	0	-	-	-
10-Oct-21	NO PUMP		0	0	-	-	-
11-Oct-21	NO PUMP		0	0	-	-	-
12-Oct-21	7AM	4PM	32400	540	648,000	20	1,200
13-Oct-21	7AM	4PM	32400	540	648,000	20	1,200
14-Oct-21	7AM	4PM	32400	540	648,000	20	1,200
15-Oct-21	7AM	4PM	32400	540	648,000	20	1,200
16-Oct-21	NO PUMP		0	0	-	-	-
17-Oct-21	NO PUMP		0	0	-	-	-
18-Oct-21	7AM	4PM	32400	540	648,000	20	1,200
19-Oct-21	7AM	4PM	32400	540	648,000	20	1,200
20-Oct-21	7AM	4PM	32400	540	648,000	20	1,200
21-Oct-21	7AM	4PM	32400	540	648,000	20	1,200
22-Oct-21	7AM	4PM	32400	540	648,000	20	1,200
23-Oct-21	NO PUMP		0	0	-	-	-
24-Oct-21	NO PUMP		0	0	-	-	-

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

Date	Start	Stop	Total Sec.	Total Min.	Total Litres	Rate of Taking (L/sec)	Rate of Taking (L/min)
ECA Permitted Rate					**6,544,800**	**76**	**4,545**
25-Oct-21	7AM	4PM	32400	540	648,000	20	1,200
26-Oct-21	7AM	4PM	32400	540	648,000	20	1,200
27-Oct-21	7AM	4PM	32400	540	648,000	20	1,200
28-Oct-21	7AM	4PM	32400	540	648,000	20	1,200
29-Oct-21	7AM	4PM	32400	540	648,000	20	1,200
30-Oct-21	NO PUMP		0	0	-	-	-
31-Oct-21	NO PUMP		0	0	-	-	-
1-Nov-21	7AM	4PM	32400	540	648,000	20	1,200
2-Nov-21	7AM	4PM	32400	540	648,000	20	1,200
3-Nov-21	7AM	4PM	32400	540	648,000	20	1,200
4-Nov-21	7AM	4PM	32400	540	648,000	20	1,200
5-Nov-21	7AM	4PM	32400	540	648,000	20	1,200
6-Nov-21	NO PUMP		0	0	-	-	-
7-Nov-21	NO PUMP		0	0	-	-	-
8-Nov-21	7AM	4PM	32400	540	648,000	20	1,200
9-Nov-21	NO PUMP		0	0	-	-	-
10-Nov-21	7AM	4PM	32400	540	648,000	20	1,200
11-Nov-21	NO PUMP		0	0	-	-	-
12-Nov-21	NO PUMP		0	0	-	-	-
13-Nov-21	NO PUMP		0	0	-	-	-
14-Nov-21	NO PUMP		0	0	-	-	-
15-Nov-21	7AM	4PM	32400	540	648,000	20	1,200
16-Nov-21	7AM	4PM	32400	540	648,000	20	1,200
17-Nov-21	7AM	4PM	32400	540	648,000	20	1,200
18-Nov-21	NO PUMP		0	0	-	-	-
19-Nov-21	NO PUMP		0	0	-	-	-
20-Nov-21	NO PUMP		0	0	-	-	-
21-Nov-21	NO PUMP		0	0	-	-	-
22-Nov-21	7AM	4PM	32400	540	432,000	13	800
23-Nov-21	7AM	4PM	32400	540	432,000	13	800
24-Nov-21	7AM	4PM	32400	540	432,000	13	800
25-Nov-21	7AM	4PM	32400	540	432,000	13	800
26-Nov-21	7AM	4PM	32400	540	432,000	13	800
27-Nov-21	NO PUMP		0	0	-	-	-
28-Nov-21	NO PUMP		0	0	-	-	-
29-Nov-21	7AM	4PM	32400	540	432,000	13	800
30-Nov-21	7AM	4PM	32400	540	432,000	13	800
1-Dec-21	7AM	4PM	32400	540	432,000	13	800
2-Dec-21	7AM	4PM	32400	540	432,000	13	800
3-Dec-21	7AM	4PM	32400	540	432,000	13	800
4-Dec-21	NO PUMP		0	0	-	-	-
5-Dec-21	NO PUMP		0	0	-	-	-
6-Dec-21	7AM	4PM	32400	540	432,000	13	800

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

Date	Start	Stop	Total Sec.	Total Min.	Total Litres	Rate of Taking (L/sec)	Rate of Taking (L/min)
ECA Permitted Rate					**6,544,800**	**76**	**4,545**
7-Dec-21	7AM	4PM	32400	540	432,000	13	800
8-Dec-21	7AM	4PM	32400	540	432,000	13	800
9-Dec-21	7AM	4PM	32400	540	432,000	13	800
10-Dec-21	7AM	4PM	32400	540	432,000	13	800
11-Dec-21	NO PUMP		0	0	-	-	-
12-Dec-21	NO PUMP		0	0	-	-	-
13-Dec-21	7AM	4PM	32400	540	432,000	13	800
14-Dec-21	7AM	4PM	32400	540	432,000	13	800
15-Dec-21	7AM	4PM	32400	540	432,000	13	800
16-Dec-21	7AM	4PM	32400	540	432,000	13	800
17-Dec-21	NO PUMP		0	0	-	-	-
18-Dec-21	NO PUMP		0	0	-	-	-
19-Dec-21	NO PUMP		0	0	-	-	-
20-Dec-21	NO PUMP		0	0	-	-	-
21-Dec-21	NO PUMP		0	0	-	-	-
22-Dec-21	NO PUMP		0	0	-	-	-
23-Dec-21	NO PUMP		0	0	-	-	-
24-Dec-21	NO PUMP		0	0	-	-	-
25-Dec-21	NO PUMP		0	0	-	-	-
26-Dec-21	NO PUMP		0	0	-	-	-
27-Dec-21	NO PUMP		0	0	-	-	-
28-Dec-21	NO PUMP		0	0	-	-	-
29-Dec-21	NO PUMP		0	0	-	-	-
30-Dec-21	NO PUMP		0	0	-	-	-
31-Dec-21	NO PUMP		0	0	-	-	-

APPENDIX A

PTTW No. 1603-BKTPQH

PERMIT TO TAKE WATER
Ground Water
NUMBER 1603-BKTPQH

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

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

For the water taking from: Quarry Sump, McCarthy Quarry

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

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

DEFINITIONS

(a) "Director" means any person appointed in writing as a Director pursuant to section 5 of the OWRA for the purposes of section 34.1, OWRA.

(b) "Provincial Officer" means any person designated in writing by the Minister as a Provincial Officer pursuant to section 5 of the OWRA.

(c) "Ministry" means Ontario Ministry of the Environment, Conservation and Parks.

(d) "District Office" means the Barrie District Office.

(e) "Permit" means this Permit to Take Water No. 1603-BKTPQH including its Schedules, if any, issued in accordance with Section 34.1 of the OWRA.

(f) "Permit Holder" means QBJR Aggregates Inc..

(g) "OWRA " means the *Ontario Water Resources Act,* R.S.O. 1990, c. O. 40, as amended.

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

TERMS AND CONDITIONS

1. Compliance with Permit

1.1 Except where modified by this Permit, the water taking shall be in accordance with the application for this Permit To Take Water, dated October 23, 2019 and signed by Jenny Coco, CEO, and all Schedules included in this Permit.

1.2 The Permit Holder shall ensure that any person authorized by the Permit Holder to take water under this Permit is provided with a copy of this Permit and shall take all reasonable measures to ensure that any such person complies with the conditions of this Permit.

1.3 Any person authorized by the Permit Holder to take water under this Permit shall comply with the conditions of this Permit.

1.4 This Permit is not transferable to another person.

1.5 This Permit provides the Permit Holder with permission to take water in accordance with the conditions of this Permit, up to the date of the expiry of this Permit. This Permit does not constitute a legal right, vested or otherwise, to a water allocation, and the issuance of this Permit does not guarantee that, upon its expiry, it will be renewed.

1.6 The Permit Holder shall keep this Permit available at all times at or near the site of the taking, and shall produce this Permit immediately for inspection by a Provincial Officer upon his or her request.

1.7 The Permit Holder shall report any changes of address to the Director within thirty days of any such change. The Permit Holder shall report any change of ownership of the property for which this Permit is issued within thirty days of any such change. A change in ownership in the property shall cause this Permit to be cancelled.

2. General Conditions and Interpretation

2.1 Inspections

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

2.2 Other Approvals

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

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

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

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

2.3 Information

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

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

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

2.4 Rights of Action

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

2.5 Severability

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

2.6 Conflicts

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

3. Water Takings Authorized by This Permit

3.1 **Expiry**

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

3.2 Amounts of Taking Permitted

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

Table A

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

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

4. Monitoring

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

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

a) The residential well known by the MOE Water Well Record Number 5727662 and identified as well DW3 on Figure 2 in Item 2 of Schedule A of this Permit, if granted permission by the property owner.

b) The monitoring wells named OW4-1, OW4-2, OW5-1, OW6-1, OW6-2, OW8-3, OW9-2, and Bored Well (shown on Figure 2, in Item 2 of Schedule A of this Permit).

c) The City of Kwartha Lakes monitoring well CKL-1, if granted permission by the property owner .

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

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

a) The residential well known by the MOE Water Well Record Number 5727662 and identified as well DW3 on Figure 2 in Item 2 of Schedule A of this Permit, if granted permission by the property owner.

b) The residential wells named DW1, DW2, and DW4, if granted permission by the property owner (shown on Figure 2, in Item 2 of Schedule A of this Permit).

c) The monitoring wells named AM1b, AMX-R, TW1-1, OW4-1, OW4-2, OW5-1, OW5-2, OW5-3, OW6-1, OW6-2, OW6-3, OW7-1, OW7-2, OW7-3, OW8-1, OW8-2, OW8-3, OW9-1, OW9-2, and Bored Well (shown on Figure 2 in Item 2 of Schedule A of this Permit).

d) The City of Kwartha Lakes monitoring wells CKL-1 and CKL-2, if granted permission by the property owner .

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

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

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

Table 1: Water Quality Parameters for Residential Wells

pH	Sulphate	DOC	Copper
Alkalinity (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 maintain a record of all water takings. This record shall include the dates and times of water takings, and the total measured or calculated amounts for water pumped per day for each day that water is taken under the authorization of this Permit.

4.9 The Permit Holder shall keep all required records up to date and available at or near the site of the taking and shall produce the records immediately for inspection by a Provincial Officer upon his or her request.

4.10 The Permit Holder shall provide to the Director an annual monitoring report no later than March 1 each year during the life of this Permit. The annual monitoring report shall be prepared by an individual with P.Geo. or equivalent qualifications and shall include, at a minimum:

a) The review and assessment of all monitoring data required by this Permit.
b) An up-date of the quarry operations and predicted quarrying and dewatering for the next twelve (12) months.

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

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

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

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

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

a) The review and assessment of all monitoring data required by this Permit.
b) An up-date of the quarry operations and predicted quarrying and dewatering for the duration of the requested permit.
c) An assessment of the groundwater trends using the on-site on off-site monitoring data. This analysis should state the actual impact area of quarry dewatering and determine the potential for off-site impacts. If any impacts are predicted then a detailed mitigation plan shall be included within this report.
d) Analysis that includes amount of water pumped, precipitation data, and an estimate of how much groundwater was pumped versus surface water.

e) Figures that include site maps with current quarry depths, groundwater contour maps, impact area of quarry dewatering, groundwater elevation graphs, and geological cross-sections.
f) Any groundwater interference complaints.
g) Description of all communication with the public.
h) Conclusions and recommendations, if any, to improve the monitoring and reporting at the site.

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

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

5. Impacts of the Water Taking

5.1 Notification

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

5.2 For Groundwater Takings

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

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

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

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

a) Implement the McCarthy Quarry Complaint Resolution Process as described in Item 3 of Schedule A of this Permit.

b) In addition, appropriate notification and actions must be taken as described in conditions 5.1 and 5.2 of this Permit. The provisions of conditions 5.1 and 5.2 shall take precedence over the provisions of condition 5.3(a) if there is a conflict.

6. Director May Amend Permit

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

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

1. Condition 1 is included to ensure that the conditions in this Permit are complied with and can be enforced.

2. Condition 2 is included to clarify the legal interpretation of aspects of this Permit.

3. Conditions 3 through 6 are included to protect the quality of the natural environment so as to safeguard the ecosystem and human health and foster efficient use and conservation of waters. These conditions allow for the beneficial use of waters while ensuring the fair sharing, conservation and sustainable use of the waters of Ontario. The conditions also specify the water takings that are authorized by this Permit and the scope of this Permit.

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

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

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

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

This notice must be served upon:

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

AND

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

AND

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

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

by Telephone at	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 7818-9QJNL4, issued on 2014/12/30.

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

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

Schedule A

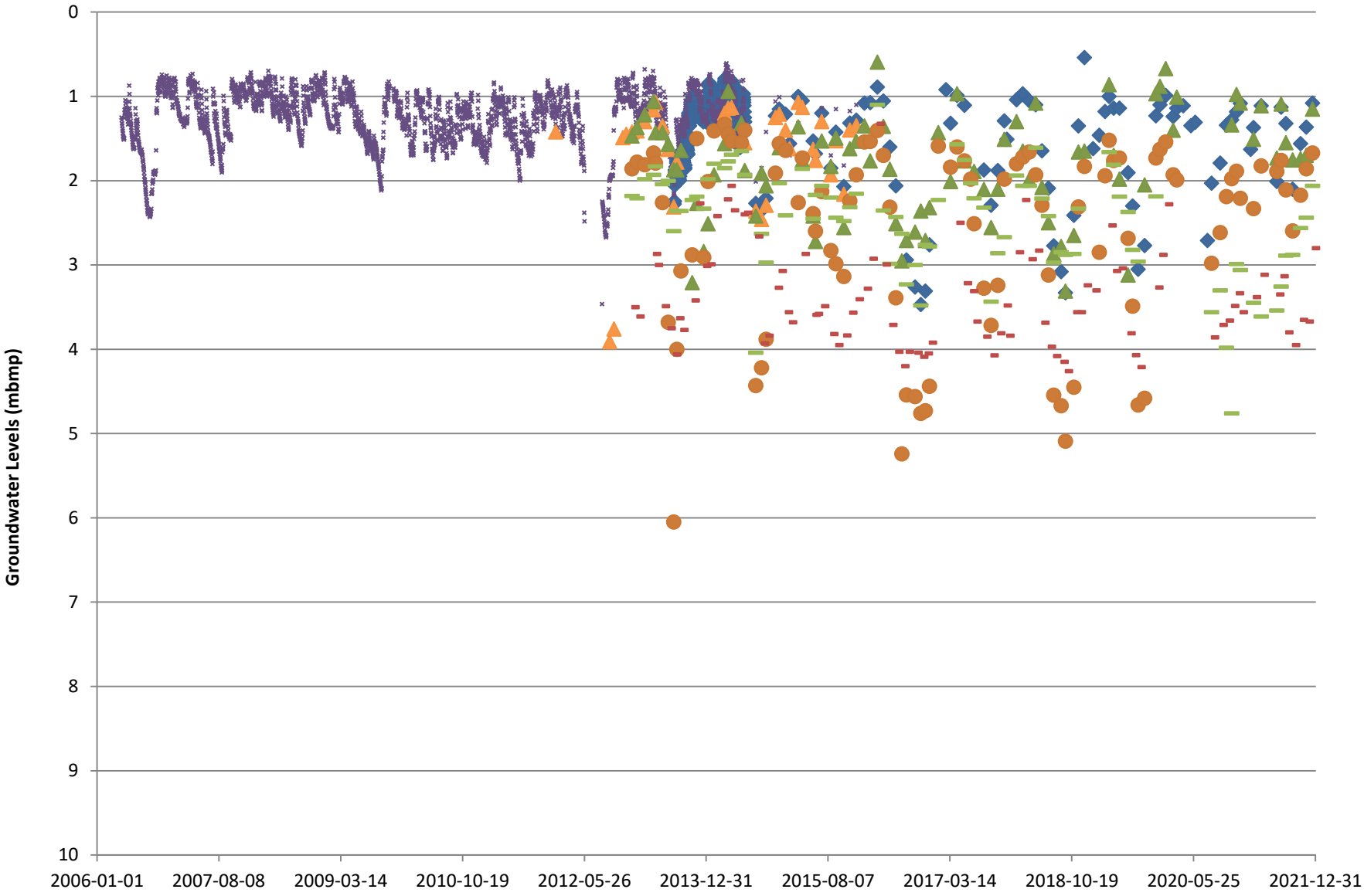
This Schedule "A" forms part of Permit To Take Water 1603-BKTPQH, dated January 31, 2020.

1. Permit to Take Water Application, dated October 23, 2019 and signed by Jenny Coco.

2. Golder Associates Ltd. (November 1, 2019). Hydrogeological Assessment, Permit to Take Water Renewal, McCarthy Quarry.

APPENDIX B

Hydrographs



Bored | OW5-1 | AM1b | DW1 | DW2 | DW6 | DW8

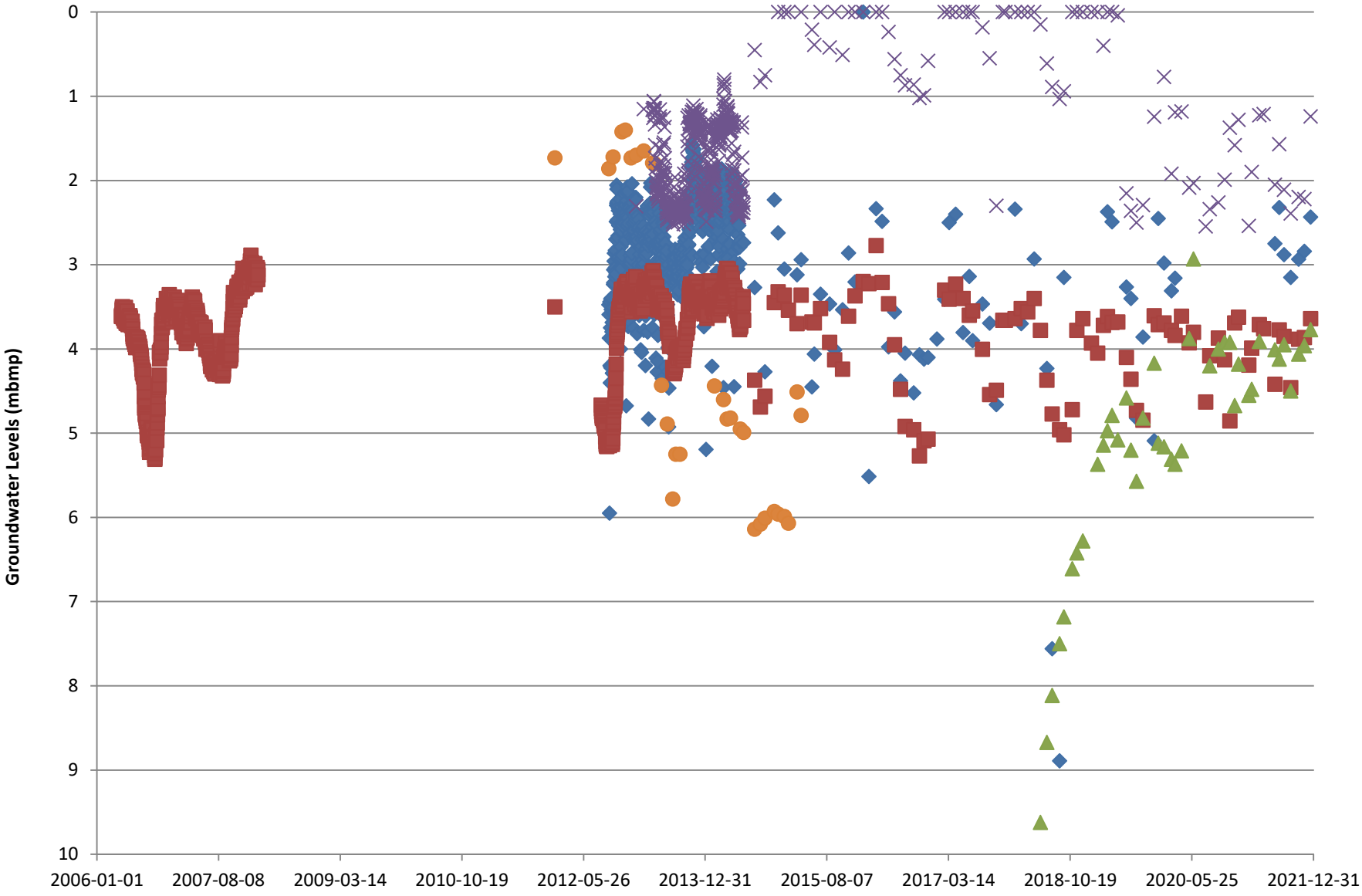
GOLDER
MEMBER OF WSP

SCALE:	NTS
DATE:	16-Feb-22
CAD:	JEB
FILE No.	
TEST:	
PROJECT No.	20448776
REVIEW:	SM

McCarthy Quarry
Overburden Monitoring Wells
GroundwaterLevel

QBJR/Coco Aggregates Inc.
2021 Annual Monitoring Report

FIGURE No
B-1



DW3 OW4-1 AMx Amx-R CLK-1

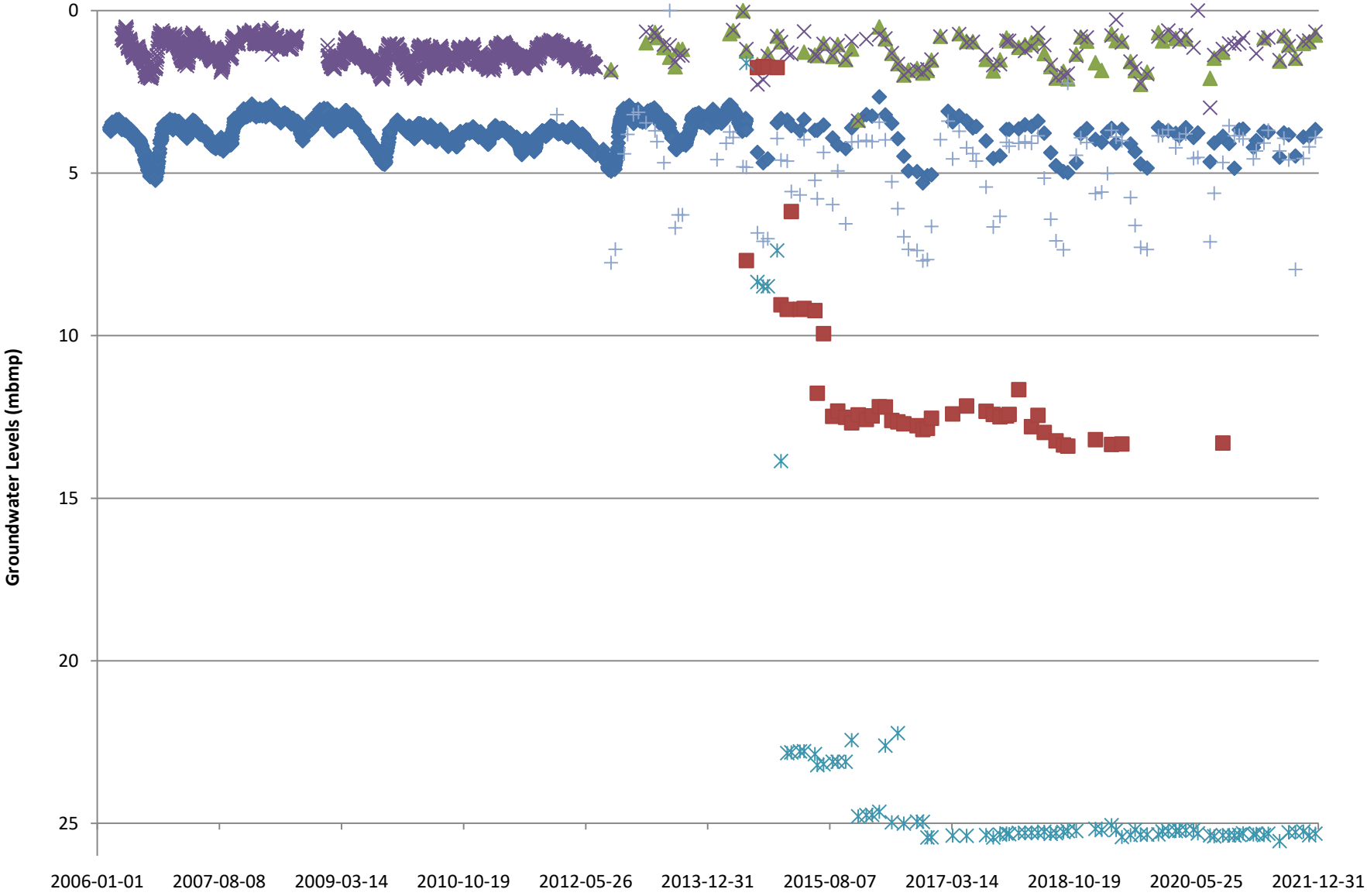
GOLDER
MEMBER OF WSP

SCALE:	NTS
DATE:	16-Feb-22
CAD:	JEB
FILE No.	
TEST:	
PROJECT No.	20448776
REVIEW:	SM

McCarthy Quarry
Verulam Monitoring Wells
Groundwater Level

QBJR/Coco Aggregates Inc.
2021 Annual Monitoring Report

FIGURE No
B-2



◆ OW4-2 ▲ OW5-2 × OW5-3

+ TW1-1 ■ OW9-I ✳ OW9-II

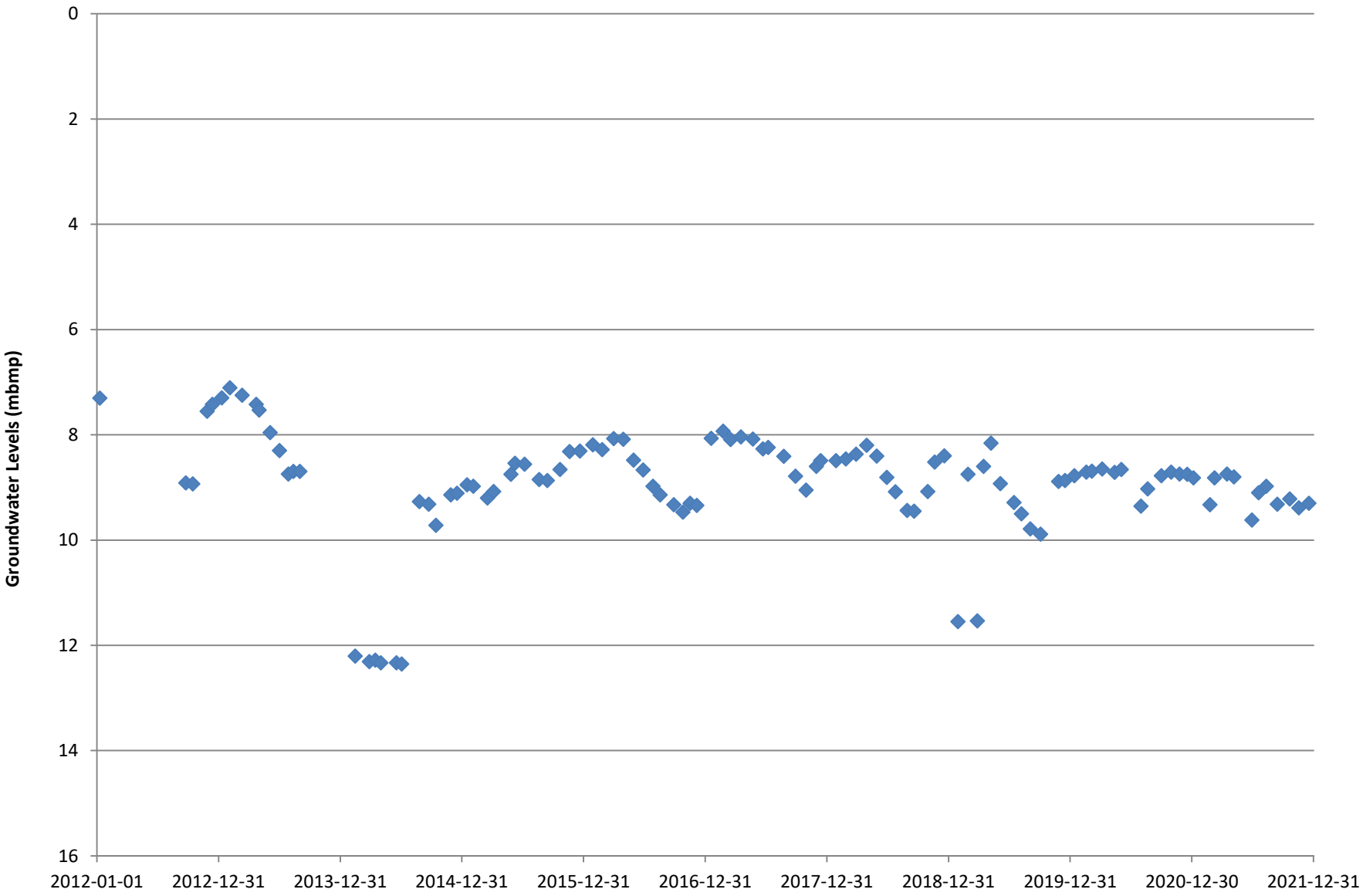
GOLDER
MEMBER OF WSP

SCALE:	NTS
DATE:	16-Feb-22
CAD:	JEB
FILE No.	
TEST:	
PROJECT No.	20448776
REVIEW:	SM

McCarthy Quarry
Bobcaygeon Monitoring Wells
Groundwater Level

QBJR/Coco Aggregates Inc.
2021 Annual Monitoring Report

FIGURE No
B-3



GOLDER
MEMBER OF WSP

SCALE:	NTS
DATE:	16-Feb-22
CAD:	JEB
FILE No.	
TEST:	
PROJECT No.	20448776
REVIEW:	SM

McCarthy Quarry
Precambrian Monitoring Wells
Groundwater Level

QBJR/Coco Aggregates Inc.
2021 Annual Monitoring Report

FIGURE No
B-4

APPENDIX C

Laboratory Certificates of Analysis

Your Project #: 20448776
Site Location: McCarthy
Your C.O.C. #: 825323-01-01

Attention: Dawn Hoyle

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

Report Date: 2021/05/13
Report #: R6632922
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: C1C4075
Received: 2021/05/08, 09:51

Sample Matrix: Water
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Alkalinity	2	N/A	2021/05/11	CAM SOP-00448	SM 23 2320 B m
Carbonate, Bicarbonate and Hydroxide	2	N/A	2021/05/11	CAM SOP-00102	APHA 4500-CO2 D
Chloride by Automated Colourimetry	2	N/A	2021/05/11	CAM SOP-00463	SM 23 4500-Cl E m
Colour	2	N/A	2021/05/12	CAM SOP-00412	SM 23 2120C m
Conductivity	2	N/A	2021/05/11	CAM SOP-00414	SM 23 2510 m
Dissolved Organic Carbon (DOC) (1)	2	N/A	2021/05/13	CAM SOP-00446	SM 23 5310 B m
Fluoride	2	2021/05/11	2021/05/11	CAM SOP-00449	SM 23 4500-F C m
Hardness (calculated as CaCO3)	2	N/A	2021/05/13	CAM SOP 00102/00408/00447	SM 2340 B
Metals Analysis by ICPMS (as received) (2)	2	N/A	2021/05/12	CAM SOP-00447	EPA 6020B m
Ion Balance (% Difference)	2	N/A	2021/05/13		
Anion and Cation Sum	2	N/A	2021/05/13		
Total Ammonia-N	2	N/A	2021/05/13	CAM SOP-00441	USGS I-2522-90 m
Nitrate (NO3) and Nitrite (NO2) in Water (3)	2	N/A	2021/05/11	CAM SOP-00440	SM 23 4500-NO3I/NO2B
pH	2	2021/05/11	2021/05/11	CAM SOP-00413	SM 4500H+ B m
Orthophosphate	2	N/A	2021/05/11	CAM SOP-00461	EPA 365.1 m
Sat. pH and Langelier Index (@ 20C)	2	N/A	2021/05/13		Auto Calc
Sat. pH and Langelier Index (@ 4C)	2	N/A	2021/05/13		Auto Calc
Sulphate by Automated Colourimetry	2	N/A	2021/05/11	CAM SOP-00464	EPA 375.4 m
Tannins & Lignins	2	N/A	2021/05/11	CAM SOP-00410	SM 23 5550 B m
Total Dissolved Solids (TDS calc)	2	N/A	2021/05/13		Auto Calc
Turbidity	2	N/A	2021/05/11	CAM SOP-00417	SM 23 2130 B m

Remarks:

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

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

Your Project #: 20448776
Site Location: McCarthy
Your C.O.C. #: 825323-01-01

Attention: Dawn Hoyle

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

Report Date: 2021/05/13
Report #: R6632922
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: C1C4075
Received: 2021/05/08, 09:51

Uncertainty has not been accounted for when stating conformity to the referenced standard.

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) Metals analysis was performed on the sample 'as received'.
(3) Values for calculated parameters may not appear to add up due to rounding of raw data and significant figures.

Encryption Key

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

==========

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

BV Labs Job #: C1C4075
Report Date: 2021/05/13

Golder Associates Ltd
Client Project #: 20448776
Site Location: McCarthy
Sampler Initials: SP

RCAP - COMPREHENSIVE (DRINKING WATER)

BV Labs ID		PND677	PND678			PND678		
Sampling Date		2021/05/07 01:00	2021/05/07 01:30			2021/05/07 01:30		
COC Number		825323-01-01	825323-01-01			825323-01-01		
	UNITS	DW1	DW2	RDL	QC Batch	DW2 Lab-Dup	RDL	QC Batch
Calculated Parameters								
Anion Sum	me/L	7.21	8.53	N/A	7341797			
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	260	340	1.0	7341791			
Calculated TDS	mg/L	380	450	1.0	7341792			
Carb. Alkalinity (calc. as CaCO3)	mg/L	2.2	2.2	1.0	7341791			
Cation Sum	me/L	7.12	8.48	N/A	7341797			
Hardness (CaCO3)	mg/L	320	390	1.0	7341794			
Ion Balance (% Difference)	%	0.630	0.320	N/A	7341795			
Langelier Index (@ 20C)	N/A	0.983	1.04		7341789			
Langelier Index (@ 4C)	N/A	0.734	0.794		7341790			
Saturation pH (@ 20C)	N/A	6.96	6.79		7341789			
Saturation pH (@ 4C)	N/A	7.21	7.04		7341790			
Inorganics								
Total Ammonia-N	mg/L	<0.050	<0.050	0.050	7343368			
Conductivity	umho/cm	680	780	1.0	7344723			
Dissolved Organic Carbon	mg/L	3.2	3.6	0.40	7347531			
Orthophosphate (P)	mg/L	<0.010	<0.010	0.010	7344708			
pH	pH	7.95	7.83		7344719			
Dissolved Sulphate (SO4)	mg/L	8.6	28	1.0	7344700			
Alkalinity (Total as CaCO3)	mg/L	270	340	1.0	7344716			
Dissolved Chloride (Cl-)	mg/L	59	41	1.0	7344707			
Nitrite (N)	mg/L	<0.010	<0.010	0.010	7345202			
Nitrate (N)	mg/L	0.47	<0.10	0.10	7345202			
Metals								
Aluminum (Al)	ug/L	14	6.7	4.9	7348536	7.7	4.9	7348536
Antimony (Sb)	ug/L	<0.50	<0.50	0.50	7348536	<0.50	0.50	7348536
Arsenic (As)	ug/L	<1.0	<1.0	1.0	7348536	<1.0	1.0	7348536
Barium (Ba)	ug/L	63	56	2.0	7348536	54	2.0	7348536
Beryllium (Be)	ug/L	<0.40	<0.40	0.40	7348536	<0.40	0.40	7348536
Boron (B)	ug/L	11	21	10	7348536	22	10	7348536

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

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BV Labs Job #: C1C4075
Report Date: 2021/05/13

Golder Associates Ltd
Client Project #: 20448776
Site Location: McCarthy
Sampler Initials: SP

RCAP - COMPREHENSIVE (DRINKING WATER)

BV Labs ID		PND677	PND678			PND678		
Sampling Date		2021/05/07 01:00	2021/05/07 01:30			2021/05/07 01:30		
COC Number		825323-01-01	825323-01-01			825323-01-01		
	UNITS	DW1	DW2	RDL	QC Batch	DW2 Lab-Dup	RDL	QC Batch
Cadmium (Cd)	ug/L	<0.090	<0.090	0.090	7348536	<0.090	0.090	7348536
Calcium (Ca)	ug/L	110000	140000	200	7348536	140000	200	7348536
Chromium (Cr)	ug/L	<5.0	<5.0	5.0	7348536	<5.0	5.0	7348536
Cobalt (Co)	ug/L	<0.50	<0.50	0.50	7348536	<0.50	0.50	7348536
Copper (Cu)	ug/L	1.7	<0.90	0.90	7348536	<0.90	0.90	7348536
Iron (Fe)	ug/L	<100	<100	100	7348536	<100	100	7348536
Lead (Pb)	ug/L	<0.50	<0.50	0.50	7348536	<0.50	0.50	7348536
Lithium (Li)	ug/L	<5.0	<5.0	5.0	7348536	<5.0	5.0	7348536
Magnesium (Mg)	ug/L	10000	11000	50	7348536	12000	50	7348536
Manganese (Mn)	ug/L	<2.0	3.7	2.0	7348536	3.7	2.0	7348536
Molybdenum (Mo)	ug/L	<0.50	<0.50	0.50	7348536	<0.50	0.50	7348536
Nickel (Ni)	ug/L	<1.0	<1.0	1.0	7348536	<1.0	1.0	7348536
Phosphorus (P)	ug/L	<100	<100	100	7348536	<100	100	7348536
Potassium (K)	ug/L	1300	5300	200	7348536	5400	200	7348536
Selenium (Se)	ug/L	<2.0	<2.0	2.0	7348536	<2.0	2.0	7348536
Silicon (Si)	ug/L	3900	3800	50	7348536	3700	50	7348536
Silver (Ag)	ug/L	<0.090	<0.090	0.090	7348536	<0.090	0.090	7348536
Sodium (Na)	ug/L	15000	13000	100	7348536	13000	100	7348536
Strontium (Sr)	ug/L	280	310	1.0	7348536	320	1.0	7348536
Thallium (Tl)	ug/L	<0.050	<0.050	0.050	7348536	<0.050	0.050	7348536
Titanium (Ti)	ug/L	<5.0	<5.0	5.0	7348536	<5.0	5.0	7348536
Uranium (U)	ug/L	0.64	0.31	0.10	7348536	0.33	0.10	7348536
Vanadium (V)	ug/L	<0.50	<0.50	0.50	7348536	<0.50	0.50	7348536
Zinc (Zn)	ug/L	<5.0	<5.0	5.0	7348536	<5.0	5.0	7348536

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate

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BV Labs Job #: C1C4075
Report Date: 2021/05/13

Golder Associates Ltd
Client Project #: 20448776
Site Location: McCarthy
Sampler Initials: SP

RESULTS OF ANALYSES OF WATER

BV Labs ID		PND677			PND677			PND678		
Sampling Date		2021/05/07 01:00			2021/05/07 01:00			2021/05/07 01:30		
COC Number		825323-01-01			825323-01-01			825323-01-01		
	UNITS	DW1	RDL	QC Batch	DW1 Lab-Dup	RDL	QC Batch	DW2	RDL	QC Batch
Inorganics										
Colour	TCU	8	2	7346985	8	2	7346985	4	2	7346985
Fluoride (F-)	mg/L	<0.10	0.10	7344724				<0.10	0.10	7344724
Tannins & Lignins	mg/L	<0.2	0.2	7344564	<0.2	0.2	7344564	<0.2	0.2	7344564
Turbidity	NTU	0.6	0.1	7343993				0.2	0.1	7343993

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate

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BV Labs Job #: C1C4075
Report Date: 2021/05/13

Golder Associates Ltd
Client Project #: 20448776
Site Location: McCarthy
Sampler Initials: SP

TEST SUMMARY

BV Labs ID: PND677
Sample ID: DW1
Matrix: Water

Collected: 2021/05/07
Shipped:
Received: 2021/05/08

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	7344716	N/A	2021/05/11	Surinder Rai
Carbonate, Bicarbonate and Hydroxide	CALC	7341791	N/A	2021/05/11	Automated Statchk
Chloride by Automated Colourimetry	KONE	7344707	N/A	2021/05/11	Deonarine Ramnarine
Colour	SPEC	7346985	N/A	2021/05/12	Viorica Rotaru
Conductivity	AT	7344723	N/A	2021/05/11	Surinder Rai
Dissolved Organic Carbon (DOC)	TOCV/NDIR	7347531	N/A	2021/05/13	Nimarta Singh
Fluoride	ISE	7344724	2021/05/11	2021/05/11	Surinder Rai
Hardness (calculated as CaCO3)		7341794	N/A	2021/05/13	Automated Statchk
Metals Analysis by ICPMS (as received)	ICP/MS	7348536	N/A	2021/05/12	Azita Fazaeli
Ion Balance (% Difference)	CALC	7341795	N/A	2021/05/13	Automated Statchk
Anion and Cation Sum	CALC	7341797	N/A	2021/05/13	Automated Statchk
Total Ammonia-N	LACH/NH4	7343368	N/A	2021/05/13	Amanpreet Sappal
Nitrate (NO3) and Nitrite (NO2) in Water	LACH	7345202	N/A	2021/05/11	Chandra Nandlal
pH	AT	7344719	2021/05/11	2021/05/11	Surinder Rai
Orthophosphate	KONE	7344708	N/A	2021/05/11	Avneet Kour Sudan
Sat. pH and Langelier Index (@ 20C)	CALC	7341789	N/A	2021/05/13	Automated Statchk
Sat. pH and Langelier Index (@ 4C)	CALC	7341790	N/A	2021/05/13	Automated Statchk
Sulphate by Automated Colourimetry	KONE	7344700	N/A	2021/05/11	Deonarine Ramnarine
Tannins & Lignins	SPEC	7344564	N/A	2021/05/11	Viorica Rotaru
Total Dissolved Solids (TDS calc)	CALC	7341792	N/A	2021/05/13	Automated Statchk
Turbidity	AT	7343993	N/A	2021/05/11	Khushbu Vijay kumar Patel

BV Labs ID: PND677 Dup
Sample ID: DW1
Matrix: Water

Collected: 2021/05/07
Shipped:
Received: 2021/05/08

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Colour	SPEC	7346985	N/A	2021/05/12	Viorica Rotaru
Tannins & Lignins	SPEC	7344564	N/A	2021/05/11	Viorica Rotaru

BV Labs ID: PND678
Sample ID: DW2
Matrix: Water

Collected: 2021/05/07
Shipped:
Received: 2021/05/08

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	7344716	N/A	2021/05/11	Surinder Rai
Carbonate, Bicarbonate and Hydroxide	CALC	7341791	N/A	2021/05/11	Automated Statchk
Chloride by Automated Colourimetry	KONE	7344707	N/A	2021/05/11	Deonarine Ramnarine
Colour	SPEC	7346985	N/A	2021/05/12	Viorica Rotaru
Conductivity	AT	7344723	N/A	2021/05/11	Surinder Rai
Dissolved Organic Carbon (DOC)	TOCV/NDIR	7347531	N/A	2021/05/13	Nimarta Singh
Fluoride	ISE	7344724	2021/05/11	2021/05/11	Surinder Rai
Hardness (calculated as CaCO3)		7341794	N/A	2021/05/13	Automated Statchk
Metals Analysis by ICPMS (as received)	ICP/MS	7348536	N/A	2021/05/12	Azita Fazaeli

BV Labs Job #: C1C4075
Report Date: 2021/05/13

Golder Associates Ltd
Client Project #: 20448776
Site Location: McCarthy
Sampler Initials: SP

TEST SUMMARY

BV Labs ID: PND678
Sample ID: DW2
Matrix: Water

Collected: 2021/05/07
Shipped:
Received: 2021/05/08

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Ion Balance (% Difference)	CALC	7341795	N/A	2021/05/13	Automated Statchk
Anion and Cation Sum	CALC	7341797	N/A	2021/05/13	Automated Statchk
Total Ammonia-N	LACH/NH4	7343368	N/A	2021/05/13	Amanpreet Sappal
Nitrate (NO3) and Nitrite (NO2) in Water	LACH	7345202	N/A	2021/05/11	Chandra Nandlal
pH	AT	7344719	2021/05/11	2021/05/11	Surinder Rai
Orthophosphate	KONE	7344708	N/A	2021/05/11	Avneet Kour Sudan
Sat. pH and Langelier Index (@ 20C)	CALC	7341789	N/A	2021/05/13	Automated Statchk
Sat. pH and Langelier Index (@ 4C)	CALC	7341790	N/A	2021/05/13	Automated Statchk
Sulphate by Automated Colourimetry	KONE	7344700	N/A	2021/05/11	Deonarine Ramnarine
Tannins & Lignins	SPEC	7344564	N/A	2021/05/11	Viorica Rotaru
Total Dissolved Solids (TDS calc)	CALC	7341792	N/A	2021/05/13	Automated Statchk
Turbidity	AT	7343993	N/A	2021/05/11	Khushbu Vijay kumar Patel

BV Labs ID: PND678 Dup
Sample ID: DW2
Matrix: Water

Collected: 2021/05/07
Shipped:
Received: 2021/05/08

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Metals Analysis by ICPMS (as received)	ICP/MS	7348536	N/A	2021/05/12	Azita Fazaeli

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BV Labs Job #: C1C4075
Report Date: 2021/05/13

Golder Associates Ltd
Client Project #: 20448776
Site Location: McCarthy
Sampler Initials: SP

GENERAL COMMENTS

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

Package 1	6.0°C
Package 2	3.3°C

Results relate only to the items tested.

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BV Labs Job #: C1C4075
Report Date: 2021/05/13

Golder Associates Ltd
Client Project #: 20448776
Site Location: McCarthy
Sampler Initials: SP

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
7343368	ASP	Matrix Spike	Total Ammonia-N	2021/05/13		99	%	75 - 125
7343368	ASP	Spiked Blank	Total Ammonia-N	2021/05/13		98	%	80 - 120
7343368	ASP	Method Blank	Total Ammonia-N	2021/05/13	<0.050		mg/L	
7343368	ASP	RPD	Total Ammonia-N	2021/05/13	8.5		%	20
7343993	KHP	Spiked Blank	Turbidity	2021/05/11		112	%	85 - 115
7343993	KHP	Method Blank	Turbidity	2021/05/11	<0.1		NTU	
7343993	KHP	RPD	Turbidity	2021/05/11	0.43		%	20
7344564	VRO	Matrix Spike [PND677-03]	Tannins & Lignins	2021/05/11		100	%	80 - 120
7344564	VRO	Spiked Blank	Tannins & Lignins	2021/05/11		98	%	80 - 120
7344564	VRO	Method Blank	Tannins & Lignins	2021/05/11	<0.2		mg/L	
7344564	VRO	RPD [PND677-03]	Tannins & Lignins	2021/05/11	NC		%	20
7344700	DRM	Matrix Spike	Dissolved Sulphate (SO4)	2021/05/11		NC	%	75 - 125
7344700	DRM	Spiked Blank	Dissolved Sulphate (SO4)	2021/05/11		107	%	80 - 120
7344700	DRM	Method Blank	Dissolved Sulphate (SO4)	2021/05/11	<1.0		mg/L	
7344700	DRM	RPD	Dissolved Sulphate (SO4)	2021/05/11	1.8		%	20
7344707	DRM	Matrix Spike	Dissolved Chloride (Cl-)	2021/05/11		NC	%	80 - 120
7344707	DRM	Spiked Blank	Dissolved Chloride (Cl-)	2021/05/11		103	%	80 - 120
7344707	DRM	Method Blank	Dissolved Chloride (Cl-)	2021/05/11	<1.0		mg/L	
7344707	DRM	RPD	Dissolved Chloride (Cl-)	2021/05/11	0.52		%	20
7344708	AKD	Matrix Spike	Orthophosphate (P)	2021/05/11		112	%	75 - 125
7344708	AKD	Spiked Blank	Orthophosphate (P)	2021/05/11		102	%	80 - 120
7344708	AKD	Method Blank	Orthophosphate (P)	2021/05/11	<0.010		mg/L	
7344708	AKD	RPD	Orthophosphate (P)	2021/05/11	NC		%	25
7344716	SAU	Spiked Blank	Alkalinity (Total as CaCO3)	2021/05/11		96	%	85 - 115
7344716	SAU	Method Blank	Alkalinity (Total as CaCO3)	2021/05/11	<1.0		mg/L	
7344716	SAU	RPD	Alkalinity (Total as CaCO3)	2021/05/11	1.3		%	20
7344719	SAU	Spiked Blank	pH	2021/05/11		102	%	98 - 103
7344719	SAU	RPD	pH	2021/05/11	0.32		%	N/A
7344723	SAU	Spiked Blank	Conductivity	2021/05/11		99	%	85 - 115
7344723	SAU	Method Blank	Conductivity	2021/05/11	<1.0		umho/cm	
7344723	SAU	RPD	Conductivity	2021/05/11	0.50		%	25
7344724	SAU	Matrix Spike	Fluoride (F-)	2021/05/11		91	%	80 - 120
7344724	SAU	Spiked Blank	Fluoride (F-)	2021/05/11		97	%	80 - 120
7344724	SAU	Method Blank	Fluoride (F-)	2021/05/11	<0.10		mg/L	
7344724	SAU	RPD	Fluoride (F-)	2021/05/11	3.2		%	20
7345202	C_N	Matrix Spike	Nitrite (N)	2021/05/11		106	%	80 - 120
			Nitrate (N)	2021/05/11		96	%	80 - 120
7345202	C_N	Spiked Blank	Nitrite (N)	2021/05/11		106	%	80 - 120
			Nitrate (N)	2021/05/11		96	%	80 - 120
7345202	C_N	Method Blank	Nitrite (N)	2021/05/11	<0.010		mg/L	
			Nitrate (N)	2021/05/11	<0.10		mg/L	
7345202	C_N	RPD	Nitrite (N)	2021/05/11	NC		%	20
			Nitrate (N)	2021/05/11	0.59		%	20
7346985	VRO	Spiked Blank	Colour	2021/05/12		99	%	80 - 120
7346985	VRO	Method Blank	Colour	2021/05/12	<2		TCU	
7346985	VRO	RPD [PND677-01]	Colour	2021/05/12	2.3		%	25
7347531	NS3	Matrix Spike	Dissolved Organic Carbon	2021/05/13		96	%	80 - 120
7347531	NS3	Spiked Blank	Dissolved Organic Carbon	2021/05/13		96	%	80 - 120
7347531	NS3	Method Blank	Dissolved Organic Carbon	2021/05/13	<0.40		mg/L	
7347531	NS3	RPD	Dissolved Organic Carbon	2021/05/13	0.65		%	20
7348536	AFZ	Matrix Spike [PND678-01]	Aluminum (Al)	2021/05/12		101	%	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
			Antimony (Sb)	2021/05/12		103	%	80 - 120
			Arsenic (As)	2021/05/12		99	%	80 - 120
			Barium (Ba)	2021/05/12		99	%	80 - 120
			Beryllium (Be)	2021/05/12		98	%	80 - 120
			Boron (B)	2021/05/12		99	%	80 - 120
			Cadmium (Cd)	2021/05/12		99	%	80 - 120
			Calcium (Ca)	2021/05/12		NC	%	80 - 120
			Chromium (Cr)	2021/05/12		97	%	80 - 120
			Cobalt (Co)	2021/05/12		95	%	80 - 120
			Copper (Cu)	2021/05/12		98	%	80 - 120
			Iron (Fe)	2021/05/12		95	%	80 - 120
			Lead (Pb)	2021/05/12		95	%	80 - 120
			Lithium (Li)	2021/05/12		100	%	80 - 120
			Magnesium (Mg)	2021/05/12		99	%	80 - 120
			Manganese (Mn)	2021/05/12		97	%	80 - 120
			Molybdenum (Mo)	2021/05/12		101	%	80 - 120
			Nickel (Ni)	2021/05/12		93	%	80 - 120
			Phosphorus (P)	2021/05/12		105	%	80 - 120
			Potassium (K)	2021/05/12		99	%	80 - 120
			Selenium (Se)	2021/05/12		98	%	80 - 120
			Silicon (Si)	2021/05/12		101	%	80 - 120
			Silver (Ag)	2021/05/12		97	%	80 - 120
			Sodium (Na)	2021/05/12		98	%	80 - 120
			Strontium (Sr)	2021/05/12		98	%	80 - 120
			Thallium (Tl)	2021/05/12		94	%	80 - 120
			Titanium (Ti)	2021/05/12		100	%	80 - 120
			Uranium (U)	2021/05/12		99	%	80 - 120
			Vanadium (V)	2021/05/12		98	%	80 - 120
			Zinc (Zn)	2021/05/12		97	%	80 - 120
7348536	AFZ	Spiked Blank	Aluminum (Al)	2021/05/12		103	%	80 - 120
			Antimony (Sb)	2021/05/12		101	%	80 - 120
			Arsenic (As)	2021/05/12		98	%	80 - 120
			Barium (Ba)	2021/05/12		101	%	80 - 120
			Beryllium (Be)	2021/05/12		98	%	80 - 120
			Boron (B)	2021/05/12		96	%	80 - 120
			Cadmium (Cd)	2021/05/12		98	%	80 - 120
			Calcium (Ca)	2021/05/12		104	%	80 - 120
			Chromium (Cr)	2021/05/12		98	%	80 - 120
			Cobalt (Co)	2021/05/12		95	%	80 - 120
			Copper (Cu)	2021/05/12		98	%	80 - 120
			Iron (Fe)	2021/05/12		96	%	80 - 120
			Lead (Pb)	2021/05/12		95	%	80 - 120
			Lithium (Li)	2021/05/12		100	%	80 - 120
			Magnesium (Mg)	2021/05/12		99	%	80 - 120
			Manganese (Mn)	2021/05/12		99	%	80 - 120
			Molybdenum (Mo)	2021/05/12		100	%	80 - 120
			Nickel (Ni)	2021/05/12		94	%	80 - 120
			Phosphorus (P)	2021/05/12		104	%	80 - 120
			Potassium (K)	2021/05/12		100	%	80 - 120
			Selenium (Se)	2021/05/12		99	%	80 - 120
			Silicon (Si)	2021/05/12		103	%	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
			Silver (Ag)	2021/05/12		97	%	80 - 120
			Sodium (Na)	2021/05/12		98	%	80 - 120
			Strontium (Sr)	2021/05/12		100	%	80 - 120
			Thallium (Tl)	2021/05/12		95	%	80 - 120
			Titanium (Ti)	2021/05/12		104	%	80 - 120
			Uranium (U)	2021/05/12		99	%	80 - 120
			Vanadium (V)	2021/05/12		98	%	80 - 120
			Zinc (Zn)	2021/05/12		96	%	80 - 120
7348536	AFZ	Method Blank	Aluminum (Al)	2021/05/12	<4.9		ug/L	
			Antimony (Sb)	2021/05/12	<0.50		ug/L	
			Arsenic (As)	2021/05/12	<1.0		ug/L	
			Barium (Ba)	2021/05/12	<2.0		ug/L	
			Beryllium (Be)	2021/05/12	<0.40		ug/L	
			Boron (B)	2021/05/12	<10		ug/L	
			Cadmium (Cd)	2021/05/12	<0.090		ug/L	
			Calcium (Ca)	2021/05/12	<200		ug/L	
			Chromium (Cr)	2021/05/12	<5.0		ug/L	
			Cobalt (Co)	2021/05/12	<0.50		ug/L	
			Copper (Cu)	2021/05/12	<0.90		ug/L	
			Iron (Fe)	2021/05/12	<100		ug/L	
			Lead (Pb)	2021/05/12	<0.50		ug/L	
			Lithium (Li)	2021/05/12	<5.0		ug/L	
			Magnesium (Mg)	2021/05/12	<50		ug/L	
			Manganese (Mn)	2021/05/12	<2.0		ug/L	
			Molybdenum (Mo)	2021/05/12	<0.50		ug/L	
			Nickel (Ni)	2021/05/12	<1.0		ug/L	
			Phosphorus (P)	2021/05/12	<100		ug/L	
			Potassium (K)	2021/05/12	<200		ug/L	
			Selenium (Se)	2021/05/12	<2.0		ug/L	
			Silicon (Si)	2021/05/12	<50		ug/L	
			Silver (Ag)	2021/05/12	<0.090		ug/L	
			Sodium (Na)	2021/05/12	<100		ug/L	
			Strontium (Sr)	2021/05/12	<1.0		ug/L	
			Thallium (Tl)	2021/05/12	<0.050		ug/L	
			Titanium (Ti)	2021/05/12	<5.0		ug/L	
			Uranium (U)	2021/05/12	<0.10		ug/L	
			Vanadium (V)	2021/05/12	<0.50		ug/L	
			Zinc (Zn)	2021/05/12	<5.0		ug/L	
7348536	AFZ	RPD [PND678-01]	Aluminum (Al)	2021/05/12	15		%	20
			Antimony (Sb)	2021/05/12	NC		%	20
			Arsenic (As)	2021/05/12	NC		%	20
			Barium (Ba)	2021/05/12	3.3		%	20
			Beryllium (Be)	2021/05/12	NC		%	20
			Boron (B)	2021/05/12	0.31		%	20
			Cadmium (Cd)	2021/05/12	NC		%	20
			Calcium (Ca)	2021/05/12	0.83		%	20
			Chromium (Cr)	2021/05/12	NC		%	20
			Cobalt (Co)	2021/05/12	NC		%	20
			Copper (Cu)	2021/05/12	NC		%	20
			Iron (Fe)	2021/05/12	NC		%	20
			Lead (Pb)	2021/05/12	NC		%	20

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BV Labs Job #: C1C4075
Report Date: 2021/05/13

Golder Associates Ltd
Client Project #: 20448776
Site Location: McCarthy
Sampler Initials: SP

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Lithium (Li)	2021/05/12	NC		%	20
			Magnesium (Mg)	2021/05/12	2.5		%	20
			Manganese (Mn)	2021/05/12	0.49		%	20
			Molybdenum (Mo)	2021/05/12	NC		%	20
			Nickel (Ni)	2021/05/12	NC		%	20
			Phosphorus (P)	2021/05/12	NC		%	20
			Potassium (K)	2021/05/12	1.5		%	20
			Selenium (Se)	2021/05/12	NC		%	20
			Silicon (Si)	2021/05/12	0.64		%	20
			Silver (Ag)	2021/05/12	NC		%	20
			Sodium (Na)	2021/05/12	1.8		%	20
			Strontium (Sr)	2021/05/12	2.2		%	20
			Thallium (Tl)	2021/05/12	NC		%	20
			Titanium (Ti)	2021/05/12	NC		%	20
			Uranium (U)	2021/05/12	6.5		%	20
			Vanadium (V)	2021/05/12	NC		%	20
			Zinc (Zn)	2021/05/12	NC		%	20

N/A = Not Applicable

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

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

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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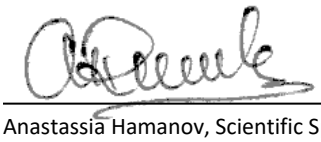
BV Labs Job #: C1C4075
Report Date: 2021/05/13

Golder Associates Ltd
Client Project #: 20448776
Site Location: McCarthy
Sampler Initials: SP

VALIDATION SIGNATURE PAGE

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



Anastassia Hamanov, Scientific Specialist

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Your Project #: 20448776
Site Location: McCarthy
Your C.O.C. #: 825326-01-01, 825326-02-01

Attention: Dawn Hoyle

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

Report Date: 2021/05/14
Report #: R6634375
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: C1C4085
Received: 2021/05/08, 09:51

Sample Matrix: Water
Samples Received: 14

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Alkalinity	5	N/A	2021/05/12	CAM SOP-00448	SM 23 2320 B m
Alkalinity	9	N/A	2021/05/13	CAM SOP-00448	SM 23 2320 B m
Carbonate, Bicarbonate and Hydroxide	5	N/A	2021/05/13	CAM SOP-00102	APHA 4500-CO2 D
Carbonate, Bicarbonate and Hydroxide	9	N/A	2021/05/14	CAM SOP-00102	APHA 4500-CO2 D
Chloride by Automated Colourimetry	5	N/A	2021/05/11	CAM SOP-00463	SM 23 4500-Cl E m
Chloride by Automated Colourimetry	9	N/A	2021/05/13	CAM SOP-00463	SM 23 4500-Cl E m
Colour	9	N/A	2021/05/10	CAM SOP-00412	SM 23 2120C m
Colour	5	N/A	2021/05/12	CAM SOP-00412	SM 23 2120C m
Conductivity	5	N/A	2021/05/12	CAM SOP-00414	SM 23 2510 m
Conductivity	9	N/A	2021/05/13	CAM SOP-00414	SM 23 2510 m
Dissolved Organic Carbon (DOC) (1)	14	N/A	2021/05/13	CAM SOP-00446	SM 23 5310 B m
Fluoride	5	2021/05/11	2021/05/12	CAM SOP-00449	SM 23 4500-F C m
Fluoride	9	2021/05/12	2021/05/13	CAM SOP-00449	SM 23 4500-F C m
Hardness (calculated as CaCO3)	14	N/A	2021/05/13	CAM SOP 00102/00408/00447	SM 2340 B
Dissolved Metals by ICPMS	7	N/A	2021/05/12	CAM SOP-00447	EPA 6020B m
Dissolved Metals by ICPMS	7	N/A	2021/05/13	CAM SOP-00447	EPA 6020B m
Total Ammonia-N	14	N/A	2021/05/13	CAM SOP-00441	USGS I-2522-90 m
Nitrate (NO3) and Nitrite (NO2) in Water (2)	1	N/A	2021/05/11	CAM SOP-00440	SM 23 4500-NO3I/NO2B
Nitrate (NO3) and Nitrite (NO2) in Water (2)	4	N/A	2021/05/12	CAM SOP-00440	SM 23 4500-NO3I/NO2B
Nitrate (NO3) and Nitrite (NO2) in Water (2)	9	N/A	2021/05/13	CAM SOP-00440	SM 23 4500-NO3I/NO2B
pH	5	2021/05/11	2021/05/12	CAM SOP-00413	SM 4500H+ B m
pH	9	2021/05/12	2021/05/13	CAM SOP-00413	SM 4500H+ B m
Orthophosphate	5	N/A	2021/05/11	CAM SOP-00461	EPA 365.1 m
Orthophosphate	9	N/A	2021/05/13	CAM SOP-00461	EPA 365.1 m
Sulphate by Automated Colourimetry	5	N/A	2021/05/11	CAM SOP-00464	EPA 375.4 m
Sulphate by Automated Colourimetry	9	N/A	2021/05/13	CAM SOP-00464	EPA 375.4 m
Total Dissolved Solids (TDS calc)	5	N/A	2021/05/13		Auto Calc
Total Dissolved Solids (TDS calc)	9	N/A	2021/05/14		Auto Calc

Your Project #: 20448776
Site Location: McCarthy
Your C.O.C. #: 825326-01-01, 825326-02-01

Attention: Dawn Hoyle

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

Report Date: 2021/05/14
Report #: R6634375
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: C1C4085
Received: 2021/05/08, 09:51
Remarks:

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

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

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

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

Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) Dissolved Organic Carbon (DOC) present in the sample should be considered as non-purgeable DOC.
(2) Values for calculated parameters may not appear to add up due to rounding of raw data and significant figures.

Encryption Key

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

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BV Labs Job #: C1C4085
Report Date: 2021/05/14

Golder Associates Ltd
Client Project #: 20448776
Site Location: McCarthy
Sampler Initials: SDP

RESULTS OF ANALYSES OF WATER

BV Labs ID		PND745			PND745			PND746		
Sampling Date		2021/05/06 04:50			2021/05/06 04:50			2021/05/06 02:00		
COC Number		825326-01-01			825326-01-01			825326-01-01		
	UNITS	AM1B	RDL	QC Batch	AM1B Lab-Dup	RDL	QC Batch	AMX-R	RDL	QC Batch
Calculated Parameters										
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	220	1.0	7341791				14	1.0	7341791
Calculated TDS	mg/L	300	1.0	7341792				12000	1.0	7341792
Carb. Alkalinity (calc. as CaCO3)	mg/L	2.5	1.0	7341791				<1.0	1.0	7341791
Hardness (CaCO3)	mg/L	250	1.0	7341977				4900	1.0	7341977
Hydrox. Alkalinity (calc. as CaCO3)	mg/L	<1.0	1.0	7341791				<1.0	1.0	7341791
Inorganics										
Total Ammonia-N	mg/L	<0.050	0.050	7343368				6.0	0.050	7343368
Colour	TCU	<2	2	7341803				<2	2	7341803
Conductivity	mS/cm	0.496	0.001	7348959				22.5	0.001	7348959
Fluoride (F-)	mg/L	0.21	0.10	7348790				0.61	0.10	7348790
Dissolved Organic Carbon	mg/L	0.62	0.40	7347531				1.9	0.40	7347531
Orthophosphate (P)	mg/L	<0.010	0.010	7349201				<0.010	0.010	7349201
pH	pH	8.09		7349202				6.43		7349202
Dissolved Sulphate (SO4)	mg/L	43	1.0	7349192				35	1.0	7349192
Alkalinity (Total as CaCO3)	mg/L	220	1.0	7348960				14	1.0	7348960
Dissolved Chloride (Cl-)	mg/L	1.8	1.0	7349195				7400	100	7349195
Nitrite (N)	mg/L	0.010	0.010	7348597	<0.010	0.010	7348597	<0.010	0.010	7348597
Nitrate (N)	mg/L	<0.10	0.10	7348597	<0.10	0.10	7348597	<0.10	0.10	7348597
Nitrate + Nitrite (N)	mg/L	<0.10	0.10	7348597	<0.10	0.10	7348597	<0.10	0.10	7348597

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate

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BV Labs Job #: C1C4085
Report Date: 2021/05/14

Golder Associates Ltd
Client Project #: 20448776
Site Location: McCarthy
Sampler Initials: SDP

RESULTS OF ANALYSES OF WATER

BV Labs ID		PND746			PND747			PND747		
Sampling Date		2021/05/06 02:00			2021/05/06 11:00			2021/05/06 11:00		
COC Number		825326-01-01			825326-01-01			825326-01-01		
	UNITS	AMX-R Lab-Dup	RDL	QC Batch	TW1-1	RDL	QC Batch	TW1-1 Lab-Dup	RDL	QC Batch
Calculated Parameters										
Bicarb. Alkalinity (calc. as CaCO3)	mg/L				280	1.0	7341791			
Calculated TDS	mg/L				1300	1.0	7341792			
Carb. Alkalinity (calc. as CaCO3)	mg/L				2.7	1.0	7341791			
Hardness (CaCO3)	mg/L				580	1.0	7341977			
Hydrox. Alkalinity (calc. as CaCO3)	mg/L				<1.0	1.0	7341791			
Inorganics										
Total Ammonia-N	mg/L				0.79	0.050	7343368			
Colour	TCU				<2	2	7341803			
Conductivity	mS/cm	22.6	0.001	7348959	2.53	0.001	7348959			
Fluoride (F-)	mg/L	0.60	0.10	7348790	0.48	0.10	7348790			
Dissolved Organic Carbon	mg/L				1.5	0.40	7347531	1.5	0.40	7347531
Orthophosphate (P)	mg/L				<0.010	0.010	7349201	<0.010	0.010	7349201
pH	pH	6.44		7349202	8.00		7349202			
Dissolved Sulphate (SO4)	mg/L				38	1.0	7349192	38	1.0	7349192
Alkalinity (Total as CaCO3)	mg/L	15	1.0	7348960	280	1.0	7348960			
Dissolved Chloride (Cl-)	mg/L				600	7.0	7349195	600	7.0	7349195
Nitrite (N)	mg/L				<0.010	0.010	7348597			
Nitrate (N)	mg/L				<0.10	0.10	7348597			
Nitrate + Nitrite (N)	mg/L				<0.10	0.10	7348597			

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BV Labs Job #: C1C4085
Report Date: 2021/05/14

Golder Associates Ltd
Client Project #: 20448776
Site Location: McCarthy
Sampler Initials: SDP

RESULTS OF ANALYSES OF WATER

BV Labs ID		PND748			PND749			PND750		
Sampling Date		2021/05/06 04:00			2021/05/06 04:11			2021/05/06 04:40		
COC Number		825326-01-01			825326-01-01			825326-01-01		
	UNITS	BORED	RDL	QC Batch	OW4-1	RDL	QC Batch	OW4-2	RDL	QC Batch
Calculated Parameters										
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	270	1.0	7341791	220	1.0	7341791	250	1.0	7341791
Calculated TDS	mg/L	320	1.0	7341792	630	1.0	7341792	780	1.0	7341792
Carb. Alkalinity (calc. as CaCO3)	mg/L	3.8	1.0	7341791	6.6	1.0	7341791	3.1	1.0	7341791
Hardness (CaCO3)	mg/L	270	1.0	7341977	150	1.0	7341977	200	1.0	7341977
Hydrox. Alkalinity (calc. as CaCO3)	mg/L	<1.0	1.0	7341791	<1.0	1.0	7341791	<1.0	1.0	7341791
Inorganics										
Total Ammonia-N	mg/L	<0.050	0.050	7343368	1.2	0.050	7343368	0.95	0.050	7343368
Colour	TCU	<2	2	7341803	<2	2	7341803	<2	2	7341803
Conductivity	mS/cm	0.551	0.001	7348959	1.22	0.001	7348959	1.47	0.001	7348959
Fluoride (F-)	mg/L	0.15	0.10	7348790	1.1	0.10	7348790	1.0	0.10	7348790
Dissolved Organic Carbon	mg/L	1.0	0.40	7348683	1.1	0.40	7347531	1.1	0.40	7348683
Orthophosphate (P)	mg/L	<0.010	0.010	7349201	<0.010	0.010	7349201	<0.010	0.010	7349201
pH	pH	8.18		7349202	8.51		7349202	8.13		7349202
Dissolved Sulphate (SO4)	mg/L	31	1.0	7349192	2.7	1.0	7349192	<1.0	1.0	7349192
Alkalinity (Total as CaCO3)	mg/L	270	1.0	7348960	220	1.0	7348960	250	1.0	7348960
Dissolved Chloride (Cl-)	mg/L	2.5	1.0	7349195	230	3.0	7349195	310	4.0	7349195
Nitrite (N)	mg/L	<0.010	0.010	7348597	<0.010	0.010	7348597	<0.010	0.010	7348597
Nitrate (N)	mg/L	0.22	0.10	7348597	<0.10	0.10	7348597	<0.10	0.10	7348597
Nitrate + Nitrite (N)	mg/L	0.22	0.10	7348597	<0.10	0.10	7348597	<0.10	0.10	7348597

RDL = Reportable Detection Limit
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BV Labs Job #: C1C4085
Report Date: 2021/05/14

Golder Associates Ltd
Client Project #: 20448776
Site Location: McCarthy
Sampler Initials: SDP

RESULTS OF ANALYSES OF WATER

BV Labs ID		PND751		PND752			PND753		
Sampling Date		2021/05/06 03:00		2021/05/06 05:00			2021/05/06 01:15		
COC Number		825326-01-01		825326-01-01			825326-02-01		
	UNITS	OW5-1	RDL	OW5-3	RDL	QC Batch	OW7-1	RDL	QC Batch
Calculated Parameters									
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	290	1.0	110	1.0	7341791	300	1.0	7341791
Calculated TDS	mg/L	420	1.0	15000	1.0	7341792	3400	1.0	7341792
Carb. Alkalinity (calc. as CaCO3)	mg/L	3.0	1.0	<1.0	1.0	7341791	2.1	1.0	7341791
Hardness (CaCO3)	mg/L	240	1.0	6600	1.0	7341977	860	1.0	7341977
Hydrox. Alkalinity (calc. as CaCO3)	mg/L	<1.0	1.0	<1.0	1.0	7341791	<1.0	1.0	7341791
Inorganics									
Total Ammonia-N	mg/L	0.46	0.050	9.0	0.050	7343368	2.3	0.050	7343368
Colour	TCU	<2	2	<2	2	7341803	2	2	7346985
Conductivity	mS/cm	0.728	0.001	25.7	0.001	7348959	6.19	0.001	7346329
Fluoride (F-)	mg/L	0.55	0.10	0.42	0.10	7348790	2.1	0.10	7346328
Dissolved Organic Carbon	mg/L	1.3	0.40	0.90	0.40	7347531	0.66	0.40	7347531
Orthophosphate (P)	mg/L	<0.010	0.010	<0.010	0.010	7349201	<0.010	0.010	7345363
pH	pH	8.04		7.50		7349202	7.87		7346332
Dissolved Sulphate (SO4)	mg/L	47	1.0	8.7	1.0	7349192	15	1.0	7345379
Alkalinity (Total as CaCO3)	mg/L	300	1.0	110	1.0	7348960	300	1.0	7346334
Dissolved Chloride (Cl-)	mg/L	31	1.0	9200	100	7349195	1800	15	7345378
Nitrite (N)	mg/L	0.011	0.010	<0.010	0.010	7348597	<0.010	0.010	7346367
Nitrate (N)	mg/L	0.46	0.10	<0.10	0.10	7348597	<0.10	0.10	7346367
Nitrate + Nitrite (N)	mg/L	0.47	0.10	<0.10	0.10	7348597	<0.10	0.10	7346367

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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BV Labs Job #: C1C4085
Report Date: 2021/05/14

Golder Associates Ltd
Client Project #: 20448776
Site Location: McCarthy
Sampler Initials: SDP

RESULTS OF ANALYSES OF WATER

BV Labs ID		PND754			PND755			PND755		
Sampling Date		2021/05/06 01:00			2021/05/06 12:15			2021/05/06 12:15		
COC Number		825326-02-01			825326-02-01			825326-02-01		
	UNITS	OW7-2	RDL	QC Batch	OW8-1	RDL	QC Batch	OW8-1 Lab-Dup	RDL	QC Batch
Calculated Parameters										
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	290	1.0	7341791	290	1.0	7341791			
Calculated TDS	mg/L	3300	1.0	7341792	440	1.0	7341792			
Carb. Alkalinity (calc. as CaCO3)	mg/L	1.9	1.0	7341791	1.3	1.0	7341791			
Hardness (CaCO3)	mg/L	800	1.0	7341977	330	1.0	7341977			
Hydrox. Alkalinity (calc. as CaCO3)	mg/L	<1.0	1.0	7341791	<1.0	1.0	7341791			
Inorganics										
Total Ammonia-N	mg/L	2.0	0.050	7343368	0.31	0.050	7343368	0.28	0.050	7343368
Colour	TCU	<2	2	7341803	<2	2	7346985			
Conductivity	mS/cm	6.35	0.001	7348959	0.733	0.001	7346329			
Fluoride (F-)	mg/L	2.0	0.10	7348790	0.57	0.10	7346328			
Dissolved Organic Carbon	mg/L	0.69	0.40	7347531	1.5	0.40	7347531			
Orthophosphate (P)	mg/L	<0.010	0.010	7349201	<0.010	0.010	7345363			
pH	pH	7.83		7349202	7.69		7346332			
Dissolved Sulphate (SO4)	mg/L	31	1.0	7349192	57	1.0	7345379			
Alkalinity (Total as CaCO3)	mg/L	290	1.0	7348960	290	1.0	7346334			
Dissolved Chloride (Cl-)	mg/L	1900	25	7349195	31	1.0	7345378			
Nitrite (N)	mg/L	<0.010	0.010	7348597	<0.010	0.010	7346367			
Nitrate (N)	mg/L	<0.10	0.10	7348597	<0.10	0.10	7346367			
Nitrate + Nitrite (N)	mg/L	<0.10	0.10	7348597	<0.10	0.10	7346367			

RDL = Reportable Detection Limit
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BV Labs Job #: C1C4085
Report Date: 2021/05/14

Golder Associates Ltd
Client Project #: 20448776
Site Location: McCarthy
Sampler Initials: SDP

RESULTS OF ANALYSES OF WATER

BV Labs ID		PND756			PND757			PND758		
Sampling Date		2021/05/06 12:00			2021/05/06 11:00			2021/05/06 03:00		
COC Number		825326-02-01			825326-02-01			825326-02-01		
	UNITS	OW8-2	RDL	QC Batch	DUP1	RDL	QC Batch	DUP2	RDL	QC Batch
Calculated Parameters										
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	290	1.0	7341791	280	1.0	7341791	290	1.0	7341791
Calculated TDS	mg/L	430	1.0	7341792	1300	1.0	7341792	420	1.0	7341792
Carb. Alkalinity (calc. as CaCO3)	mg/L	1.4	1.0	7341791	1.9	1.0	7341791	2.2	1.0	7341791
Hardness (CaCO3)	mg/L	330	1.0	7341977	620	1.0	7341977	250	1.0	7341977
Hydrox. Alkalinity (calc. as CaCO3)	mg/L	<1.0	1.0	7341791	<1.0	1.0	7341791	<1.0	1.0	7341791
Inorganics										
Total Ammonia-N	mg/L	0.28	0.050	7343368	0.79	0.050	7343368	0.45	0.050	7343368
Colour	TCU	<2	2	7346985	<2	2	7346985	<2	2	7346985
Conductivity	mS/cm	0.722	0.001	7346329	2.46	0.001	7346329	0.717	0.001	7346329
Fluoride (F-)	mg/L	0.49	0.10	7346328	0.50	0.10	7346328	0.58	0.10	7346328
Dissolved Organic Carbon	mg/L	1.9	0.40	7347531	1.6	0.40	7348683	1.3	0.40	7347531
Orthophosphate (P)	mg/L	<0.010	0.010	7345363	<0.010	0.010	7345363	<0.010	0.010	7345363
pH	pH	7.71		7346332	7.87		7346332	7.91		7346332
Dissolved Sulphate (SO4)	mg/L	55	1.0	7345379	37	1.0	7345379	44	1.0	7345379
Alkalinity (Total as CaCO3)	mg/L	290	1.0	7346334	280	1.0	7346334	290	1.0	7346334
Dissolved Chloride (Cl-)	mg/L	28	1.0	7345378	590	6.0	7345378	32	1.0	7345378
Nitrite (N)	mg/L	<0.010	0.010	7346367	<0.010	0.010	7346367	0.019	0.010	7345371
Nitrate (N)	mg/L	0.10	0.10	7346367	<0.10	0.10	7346367	0.33	0.10	7345371
Nitrate + Nitrite (N)	mg/L	0.10	0.10	7346367	<0.10	0.10	7346367	0.35	0.10	7345371

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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BV Labs Job #: C1C4085
Report Date: 2021/05/14

Golder Associates Ltd
Client Project #: 20448776
Site Location: McCarthy
Sampler Initials: SDP

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

BV Labs ID		PND745		PND746		PND747		PND748	PND749		
Sampling Date		2021/05/06 04:50		2021/05/06 02:00		2021/05/06 11:00		2021/05/06 04:00	2021/05/06 04:11		
COC Number		825326-01-01		825326-01-01		825326-01-01		825326-01-01	825326-01-01		
	UNITS	AM1B	RDL	AMX-R	RDL	TW1-1	RDL	BORED	OW4-1	RDL	QC Batch
Metals											
Dissolved Aluminum (Al)	ug/L	<4.9	4.9	<25	25	<4.9	4.9	<4.9	130	4.9	7344753
Dissolved Antimony (Sb)	ug/L	<0.50	0.50	<2.5	2.5	<0.50	0.50	<0.50	<0.50	0.50	7344753
Dissolved Arsenic (As)	ug/L	<1.0	1.0	<5.0	5.0	<1.0	1.0	<1.0	<1.0	1.0	7344753
Dissolved Barium (Ba)	ug/L	100	2.0	250	10	34	2.0	76	53	2.0	7344753
Dissolved Beryllium (Be)	ug/L	<0.40	0.40	<2.0	2.0	<0.40	0.40	<0.40	<0.40	0.40	7344753
Dissolved Bismuth (Bi)	ug/L	<1.0	1.0	<5.0	5.0	<1.0	1.0	<1.0	<1.0	1.0	7344753
Dissolved Boron (B)	ug/L	51	10	1600	50	490	10	19	890	10	7344753
Dissolved Cadmium (Cd)	ug/L	<0.090	0.090	<0.45	0.45	<0.090	0.090	<0.090	<0.090	0.090	7344753
Dissolved Calcium (Ca)	ug/L	49000	200	920000	5000	130000	400	62000	29000	200	7344753
Dissolved Chromium (Cr)	ug/L	<5.0	5.0	<25	25	<5.0	5.0	<5.0	<5.0	5.0	7344753
Dissolved Cobalt (Co)	ug/L	<0.50	0.50	<2.5	2.5	<0.50	0.50	<0.50	<0.50	0.50	7344753
Dissolved Copper (Cu)	ug/L	<0.90	0.90	<4.5	4.5	3.0	0.90	<0.90	<0.90	0.90	7344753
Dissolved Iron (Fe)	ug/L	280	100	28000	500	290	100	<100	500	100	7344753
Dissolved Lead (Pb)	ug/L	<0.50	0.50	<2.5	2.5	<0.50	0.50	<0.50	0.62	0.50	7344753
Dissolved Lithium (Li)	ug/L	14	5.0	1400	25	140	5.0	13	130	5.0	7344753
Dissolved Magnesium (Mg)	ug/L	32000	50	620000	250	64000	50	29000	19000	50	7344753
Dissolved Manganese (Mn)	ug/L	9.8	2.0	1400	10	78	2.0	<2.0	44	2.0	7344753
Dissolved Molybdenum (Mo)	ug/L	1.3	0.50	<2.5	2.5	<0.50	0.50	1.9	<0.50	0.50	7344753
Dissolved Nickel (Ni)	ug/L	<1.0	1.0	<5.0	5.0	<1.0	1.0	<1.0	<1.0	1.0	7344753
Dissolved Phosphorus (P)	ug/L	<100	100	<500	500	<100	100	<100	<100	100	7344753
Dissolved Potassium (K)	ug/L	2300	200	56000	1000	11000	200	5400	7400	200	7344753
Dissolved Selenium (Se)	ug/L	<2.0	2.0	<10	10	<2.0	2.0	<2.0	<2.0	2.0	7344753
Dissolved Silicon (Si)	ug/L	12000	50	770	250	3100	50	8100	4500	50	7344753
Dissolved Silver (Ag)	ug/L	<0.090	0.090	<0.45	0.45	<0.090	0.090	<0.090	<0.090	0.090	7344753
Dissolved Sodium (Na)	ug/L	6800	100	2900000	1000	280000	100	13000	200000	100	7344753
Dissolved Strontium (Sr)	ug/L	510	1.0	56000	5.0	6000	1.0	270	1500	1.0	7344753
Dissolved Tellurium (Te)	ug/L	<1.0	1.0	<5.0	5.0	<1.0	1.0	<1.0	<1.0	1.0	7344753
Dissolved Thallium (Tl)	ug/L	<0.050	0.050	<0.25	0.25	<0.050	0.050	<0.050	<0.050	0.050	7344753
Dissolved Tin (Sn)	ug/L	<1.0	1.0	<5.0	5.0	2.7	1.0	<1.0	<1.0	1.0	7344753
Dissolved Titanium (Ti)	ug/L	<5.0	5.0	<25	25	<5.0	5.0	<5.0	5.3	5.0	7344753
Dissolved Tungsten (W)	ug/L	<1.0	1.0	<5.0	5.0	<1.0	1.0	<1.0	<1.0	1.0	7344753

RDL = Reportable Detection Limit
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BV Labs Job #: C1C4085
Report Date: 2021/05/14

Golder Associates Ltd
Client Project #: 20448776
Site Location: McCarthy
Sampler Initials: SDP

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

BV Labs ID		PND745		PND746		PND747		PND748	PND749		
Sampling Date		2021/05/06 04:50		2021/05/06 02:00		2021/05/06 11:00		2021/05/06 04:00	2021/05/06 04:11		
COC Number		825326-01-01		825326-01-01		825326-01-01		825326-01-01	825326-01-01		
	UNITS	AM1B	RDL	AMX-R	RDL	TW1-1	RDL	BORED	OW4-1	RDL	QC Batch
Dissolved Uranium (U)	ug/L	<0.10	0.10	<0.50	0.50	<0.10	0.10	1.7	0.31	0.10	7344753
Dissolved Vanadium (V)	ug/L	<0.50	0.50	<2.5	2.5	<0.50	0.50	<0.50	<0.50	0.50	7344753
Dissolved Zinc (Zn)	ug/L	<5.0	5.0	<25	25	<5.0	5.0	<5.0	<5.0	5.0	7344753
Dissolved Zirconium (Zr)	ug/L	<1.0	1.0	<5.0	5.0	<1.0	1.0	<1.0	<1.0	1.0	7344753

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Report Date: 2021/05/14

Golder Associates Ltd
Client Project #: 20448776
Site Location: McCarthy
Sampler Initials: SDP

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

BV Labs ID		PND750	PND751		PND752		PND753		PND754		
Sampling Date		2021/05/06 04:40	2021/05/06 03:00		2021/05/06 05:00		2021/05/06 01:15		2021/05/06 01:00		
COC Number		825326-01-01	825326-01-01		825326-01-01		825326-02-01		825326-02-01		
	UNITS	OW4-2	OW5-1	RDL	OW5-3	RDL	OW7-1	RDL	OW7-2	RDL	QC Batch
Metals											
Dissolved Aluminum (Al)	ug/L	<4.9	<4.9	4.9	<25	25	<4.9	4.9	<4.9	4.9	7344753
Dissolved Antimony (Sb)	ug/L	<0.50	<0.50	0.50	<2.5	2.5	<0.50	0.50	<0.50	0.50	7344753
Dissolved Arsenic (As)	ug/L	<1.0	<1.0	1.0	<5.0	5.0	<1.0	1.0	<1.0	1.0	7344753
Dissolved Barium (Ba)	ug/L	54	96	2.0	800	10	52	2.0	51	2.0	7344753
Dissolved Beryllium (Be)	ug/L	<0.40	<0.40	0.40	<2.0	2.0	<0.40	0.40	<0.40	0.40	7344753
Dissolved Bismuth (Bi)	ug/L	<1.0	<1.0	1.0	<5.0	5.0	<1.0	1.0	<1.0	1.0	7344753
Dissolved Boron (B)	ug/L	950	570	10	2700	50	2200	10	2100	10	7344753
Dissolved Cadmium (Cd)	ug/L	<0.090	<0.090	0.090	<0.45	0.45	<0.090	0.090	<0.090	0.090	7344753
Dissolved Calcium (Ca)	ug/L	38000	45000	200	1300000	5000	180000	1000	170000	400	7344753
Dissolved Chromium (Cr)	ug/L	<5.0	<5.0	5.0	<25	25	<5.0	5.0	<5.0	5.0	7344753
Dissolved Cobalt (Co)	ug/L	<0.50	<0.50	0.50	<2.5	2.5	0.76	0.50	<0.50	0.50	7344753
Dissolved Copper (Cu)	ug/L	3.6	<0.90	0.90	<4.5	4.5	2.2	0.90	<0.90	0.90	7344753
Dissolved Iron (Fe)	ug/L	<100	<100	100	6000	500	1200	100	<100	100	7344753
Dissolved Lead (Pb)	ug/L	<0.50	<0.50	0.50	<2.5	2.5	<0.50	0.50	<0.50	0.50	7344753
Dissolved Lithium (Li)	ug/L	140	81	5.0	2200	25	370	5.0	360	5.0	7344753
Dissolved Magnesium (Mg)	ug/L	25000	31000	50	790000	250	100000	50	94000	50	7344753
Dissolved Manganese (Mn)	ug/L	<2.0	12	2.0	180	10	68	2.0	2.3	2.0	7344753
Dissolved Molybdenum (Mo)	ug/L	<0.50	<0.50	0.50	5.1	2.5	7.9	0.50	<0.50	0.50	7344753
Dissolved Nickel (Ni)	ug/L	<1.0	<1.0	1.0	<5.0	5.0	6.0	1.0	<1.0	1.0	7344753
Dissolved Phosphorus (P)	ug/L	<100	<100	100	<500	500	<100	100	<100	100	7344753
Dissolved Potassium (K)	ug/L	9500	6600	200	74000	1000	18000	200	16000	200	7344753
Dissolved Selenium (Se)	ug/L	<2.0	<2.0	2.0	<10	10	<2.0	2.0	8.1	2.0	7344753
Dissolved Silicon (Si)	ug/L	4700	6500	50	4300	250	3300	50	3100	50	7344753
Dissolved Silver (Ag)	ug/L	<0.090	<0.090	0.090	<0.45	0.45	<0.090	0.090	<0.090	0.090	7344753
Dissolved Sodium (Na)	ug/L	240000	62000	100	4000000	1000	1000000	500	980000	500	7344753
Dissolved Strontium (Sr)	ug/L	2700	1800	1.0	78000	5.0	10000	1.0	9600	1.0	7344753
Dissolved Tellurium (Te)	ug/L	<1.0	<1.0	1.0	<5.0	5.0	<1.0	1.0	<1.0	1.0	7344753
Dissolved Thallium (Tl)	ug/L	<0.050	<0.050	0.050	<0.25	0.25	<0.050	0.050	<0.050	0.050	7344753
Dissolved Tin (Sn)	ug/L	<1.0	<1.0	1.0	<5.0	5.0	<1.0	1.0	<1.0	1.0	7344753
Dissolved Titanium (Ti)	ug/L	<5.0	<5.0	5.0	<25	25	<5.0	5.0	<5.0	5.0	7344753
Dissolved Tungsten (W)	ug/L	<1.0	<1.0	1.0	<5.0	5.0	<1.0	1.0	<1.0	1.0	7344753

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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BV Labs Job #: C1C4085
Report Date: 2021/05/14

Golder Associates Ltd
Client Project #: 20448776
Site Location: McCarthy
Sampler Initials: SDP

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

BV Labs ID		PND750	PND751		PND752		PND753		PND754		
Sampling Date		2021/05/06 04:40	2021/05/06 03:00		2021/05/06 05:00		2021/05/06 01:15		2021/05/06 01:00		
COC Number		825326-01-01	825326-01-01		825326-01-01		825326-02-01		825326-02-01		
	UNITS	OW4-2	OW5-1	RDL	OW5-3	RDL	OW7-1	RDL	OW7-2	RDL	QC Batch
Dissolved Uranium (U)	ug/L	<0.10	0.28	0.10	3.5	0.50	<0.10	0.10	<0.10	0.10	7344753
Dissolved Vanadium (V)	ug/L	<0.50	<0.50	0.50	<2.5	2.5	1.6	0.50	<0.50	0.50	7344753
Dissolved Zinc (Zn)	ug/L	<5.0	<5.0	5.0	<25	25	<5.0	5.0	5.7	5.0	7344753
Dissolved Zirconium (Zr)	ug/L	<1.0	<1.0	1.0	<5.0	5.0	<1.0	1.0	<1.0	1.0	7344753

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

BV Labs ID		PND755	PND756		PND757		PND758		
Sampling Date		2021/05/06 12:15	2021/05/06 12:00		2021/05/06 11:00		2021/05/06 03:00		
COC Number		825326-02-01	825326-02-01		825326-02-01		825326-02-01		
	UNITS	OW8-1	OW8-2	RDL	DUP1	RDL	DUP2	RDL	QC Batch
Metals									
Dissolved Aluminum (Al)	ug/L	<4.9	<4.9	4.9	<4.9	4.9	<4.9	4.9	7344753
Dissolved Antimony (Sb)	ug/L	<0.50	<0.50	0.50	<0.50	0.50	<0.50	0.50	7344753
Dissolved Arsenic (As)	ug/L	<1.0	<1.0	1.0	<1.0	1.0	<1.0	1.0	7344753
Dissolved Barium (Ba)	ug/L	160	170	2.0	34	2.0	94	2.0	7344753
Dissolved Beryllium (Be)	ug/L	<0.40	<0.40	0.40	<0.40	0.40	<0.40	0.40	7344753
Dissolved Bismuth (Bi)	ug/L	<1.0	<1.0	1.0	<1.0	1.0	<1.0	1.0	7344753
Dissolved Boron (B)	ug/L	350	330	10	500	10	600	10	7344753
Dissolved Cadmium (Cd)	ug/L	<0.090	<0.090	0.090	<0.090	0.090	<0.090	0.090	7344753
Dissolved Calcium (Ca)	ug/L	100000	100000	200	140000	400	46000	200	7344753
Dissolved Chromium (Cr)	ug/L	<5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	7344753
Dissolved Cobalt (Co)	ug/L	<0.50	<0.50	0.50	<0.50	0.50	<0.50	0.50	7344753
Dissolved Copper (Cu)	ug/L	<0.90	<0.90	0.90	<0.90	0.90	<0.90	0.90	7344753
Dissolved Iron (Fe)	ug/L	930	<100	100	220	100	<100	100	7344753
Dissolved Lead (Pb)	ug/L	<0.50	<0.50	0.50	<0.50	0.50	<0.50	0.50	7344753
Dissolved Lithium (Li)	ug/L	32	29	5.0	130	5.0	82	5.0	7344753
Dissolved Magnesium (Mg)	ug/L	19000	18000	50	68000	50	33000	50	7344753
Dissolved Manganese (Mn)	ug/L	30	9.5	2.0	76	2.0	12	2.0	7344753
Dissolved Molybdenum (Mo)	ug/L	<0.50	<0.50	0.50	<0.50	0.50	<0.50	0.50	7344753
Dissolved Nickel (Ni)	ug/L	<1.0	<1.0	1.0	<1.0	1.0	<1.0	1.0	7344753
Dissolved Phosphorus (P)	ug/L	<100	<100	100	<100	100	<100	100	7344753
Dissolved Potassium (K)	ug/L	3900	3700	200	11000	200	7100	200	7344753
Dissolved Selenium (Se)	ug/L	<2.0	<2.0	2.0	<2.0	2.0	<2.0	2.0	7344753
Dissolved Silicon (Si)	ug/L	3600	3500	50	3400	50	6800	50	7344753
Dissolved Silver (Ag)	ug/L	<0.090	<0.090	0.090	<0.090	0.090	<0.090	0.090	7344753
Dissolved Sodium (Na)	ug/L	36000	34000	100	290000	100	69000	100	7344753
Dissolved Strontium (Sr)	ug/L	1500	1500	1.0	6000	1.0	1800	1.0	7344753
Dissolved Tellurium (Te)	ug/L	<1.0	<1.0	1.0	<1.0	1.0	<1.0	1.0	7344753
Dissolved Thallium (Tl)	ug/L	<0.050	<0.050	0.050	<0.050	0.050	<0.050	0.050	7344753
Dissolved Tin (Sn)	ug/L	<1.0	<1.0	1.0	2.4	1.0	<1.0	1.0	7344753
Dissolved Titanium (Ti)	ug/L	<5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	7344753
Dissolved Tungsten (W)	ug/L	<1.0	<1.0	1.0	<1.0	1.0	<1.0	1.0	7344753

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

BV Labs ID		PND755	PND756		PND757		PND758		
Sampling Date		2021/05/06 12:15	2021/05/06 12:00		2021/05/06 11:00		2021/05/06 03:00		
COC Number		825326-02-01	825326-02-01		825326-02-01		825326-02-01		
	UNITS	OW8-1	OW8-2	RDL	DUP1	RDL	DUP2	RDL	QC Batch
Dissolved Uranium (U)	ug/L	<0.10	<0.10	0.10	<0.10	0.10	0.28	0.10	7344753
Dissolved Vanadium (V)	ug/L	<0.50	<0.50	0.50	<0.50	0.50	<0.50	0.50	7344753
Dissolved Zinc (Zn)	ug/L	<5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	7344753
Dissolved Zirconium (Zr)	ug/L	<1.0	<1.0	1.0	<1.0	1.0	<1.0	1.0	7344753

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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BV Labs Job #: C1C4085
Report Date: 2021/05/14

Golder Associates Ltd
Client Project #: 20448776
Site Location: McCarthy
Sampler Initials: SDP

TEST SUMMARY

BV Labs ID: PND745
Sample ID: AM1B
Matrix: Water

Collected: 2021/05/06
Shipped:
Received: 2021/05/08

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	7348960	N/A	2021/05/13	Surinder Rai
Carbonate, Bicarbonate and Hydroxide	CALC	7341791	N/A	2021/05/14	Automated Statchk
Chloride by Automated Colourimetry	KONE	7349195	N/A	2021/05/13	Alina Dobreanu
Colour	SPEC	7341803	N/A	2021/05/10	Viorica Rotaru
Conductivity	AT	7348959	N/A	2021/05/13	Surinder Rai
Dissolved Organic Carbon (DOC)	TOCV/NDIR	7347531	N/A	2021/05/13	Nimarta Singh
Fluoride	ISE	7348790	2021/05/12	2021/05/13	Surinder Rai
Hardness (calculated as CaCO3)		7341977	N/A	2021/05/13	Automated Statchk
Dissolved Metals by ICPMS	ICP/MS	7344753	N/A	2021/05/13	Prempal Bhatti
Total Ammonia-N	LACH/NH4	7343368	N/A	2021/05/13	Amanpreet Sappal
Nitrate (NO3) and Nitrite (NO2) in Water	LACH	7348597	N/A	2021/05/13	Chandra Nandlal
pH	AT	7349202	2021/05/12	2021/05/13	Surinder Rai
Orthophosphate	KONE	7349201	N/A	2021/05/13	Avneet Kour Sudan
Sulphate by Automated Colourimetry	KONE	7349192	N/A	2021/05/13	Alina Dobreanu
Total Dissolved Solids (TDS calc)	CALC	7341792	N/A	2021/05/14	Automated Statchk

BV Labs ID: PND745 Dup
Sample ID: AM1B
Matrix: Water

Collected: 2021/05/06
Shipped:
Received: 2021/05/08

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Nitrate (NO3) and Nitrite (NO2) in Water	LACH	7348597	N/A	2021/05/13	Chandra Nandlal

BV Labs ID: PND746
Sample ID: AMX-R
Matrix: Water

Collected: 2021/05/06
Shipped:
Received: 2021/05/08

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	7348960	N/A	2021/05/13	Surinder Rai
Carbonate, Bicarbonate and Hydroxide	CALC	7341791	N/A	2021/05/14	Automated Statchk
Chloride by Automated Colourimetry	KONE	7349195	N/A	2021/05/13	Alina Dobreanu
Colour	SPEC	7341803	N/A	2021/05/10	Viorica Rotaru
Conductivity	AT	7348959	N/A	2021/05/13	Surinder Rai
Dissolved Organic Carbon (DOC)	TOCV/NDIR	7347531	N/A	2021/05/13	Nimarta Singh
Fluoride	ISE	7348790	2021/05/12	2021/05/13	Surinder Rai
Hardness (calculated as CaCO3)		7341977	N/A	2021/05/13	Automated Statchk
Dissolved Metals by ICPMS	ICP/MS	7344753	N/A	2021/05/13	Prempal Bhatti
Total Ammonia-N	LACH/NH4	7343368	N/A	2021/05/13	Amanpreet Sappal
Nitrate (NO3) and Nitrite (NO2) in Water	LACH	7348597	N/A	2021/05/13	Chandra Nandlal
pH	AT	7349202	2021/05/12	2021/05/13	Surinder Rai
Orthophosphate	KONE	7349201	N/A	2021/05/13	Avneet Kour Sudan
Sulphate by Automated Colourimetry	KONE	7349192	N/A	2021/05/13	Alina Dobreanu
Total Dissolved Solids (TDS calc)	CALC	7341792	N/A	2021/05/14	Automated Statchk

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TEST SUMMARY

BV Labs ID: PND746 Dup
Sample ID: AMX-R
Matrix: Water

Collected: 2021/05/06
Shipped:
Received: 2021/05/08

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	7348960	N/A	2021/05/13	Surinder Rai
Conductivity	AT	7348959	N/A	2021/05/13	Surinder Rai
Fluoride	ISE	7348790	2021/05/12	2021/05/13	Surinder Rai
pH	AT	7349202	2021/05/12	2021/05/13	Surinder Rai

BV Labs ID: PND747
Sample ID: TW1-1
Matrix: Water

Collected: 2021/05/06
Shipped:
Received: 2021/05/08

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	7348960	N/A	2021/05/13	Surinder Rai
Carbonate, Bicarbonate and Hydroxide	CALC	7341791	N/A	2021/05/14	Automated Statchk
Chloride by Automated Colourimetry	KONE	7349195	N/A	2021/05/13	Alina Dobreanu
Colour	SPEC	7341803	N/A	2021/05/10	Viorica Rotaru
Conductivity	AT	7348959	N/A	2021/05/13	Surinder Rai
Dissolved Organic Carbon (DOC)	TOCV/NDIR	7347531	N/A	2021/05/13	Nimarta Singh
Fluoride	ISE	7348790	2021/05/12	2021/05/13	Surinder Rai
Hardness (calculated as CaCO3)		7341977	N/A	2021/05/13	Automated Statchk
Dissolved Metals by ICPMS	ICP/MS	7344753	N/A	2021/05/12	Prempal Bhatti
Total Ammonia-N	LACH/NH4	7343368	N/A	2021/05/13	Amanpreet Sappal
Nitrate (NO3) and Nitrite (NO2) in Water	LACH	7348597	N/A	2021/05/13	Chandra Nandlal
pH	AT	7349202	2021/05/12	2021/05/13	Surinder Rai
Orthophosphate	KONE	7349201	N/A	2021/05/13	Avneet Kour Sudan
Sulphate by Automated Colourimetry	KONE	7349192	N/A	2021/05/13	Alina Dobreanu
Total Dissolved Solids (TDS calc)	CALC	7341792	N/A	2021/05/14	Automated Statchk

BV Labs ID: PND747 Dup
Sample ID: TW1-1
Matrix: Water

Collected: 2021/05/06
Shipped:
Received: 2021/05/08

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Chloride by Automated Colourimetry	KONE	7349195	N/A	2021/05/13	Alina Dobreanu
Dissolved Organic Carbon (DOC)	TOCV/NDIR	7347531	N/A	2021/05/13	Nimarta Singh
Orthophosphate	KONE	7349201	N/A	2021/05/13	Avneet Kour Sudan
Sulphate by Automated Colourimetry	KONE	7349192	N/A	2021/05/13	Alina Dobreanu

BV Labs ID: PND748
Sample ID: BORED
Matrix: Water

Collected: 2021/05/06
Shipped:
Received: 2021/05/08

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	7348960	N/A	2021/05/13	Surinder Rai
Carbonate, Bicarbonate and Hydroxide	CALC	7341791	N/A	2021/05/14	Automated Statchk
Chloride by Automated Colourimetry	KONE	7349195	N/A	2021/05/13	Alina Dobreanu

BV Labs Job #: C1C4085
Report Date: 2021/05/14

Golder Associates Ltd
Client Project #: 20448776
Site Location: McCarthy
Sampler Initials: SDP

TEST SUMMARY

BV Labs ID: PND748
Sample ID: BORED
Matrix: Water

Collected: 2021/05/06
Shipped:
Received: 2021/05/08

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Colour	SPEC	7341803	N/A	2021/05/10	Viorica Rotaru
Conductivity	AT	7348959	N/A	2021/05/13	Surinder Rai
Dissolved Organic Carbon (DOC)	TOCV/NDIR	7348683	N/A	2021/05/13	Anna-Kay Gooden
Fluoride	ISE	7348790	2021/05/12	2021/05/13	Surinder Rai
Hardness (calculated as CaCO3)		7341977	N/A	2021/05/13	Automated Statchk
Dissolved Metals by ICPMS	ICP/MS	7344753	N/A	2021/05/12	Prempal Bhatti
Total Ammonia-N	LACH/NH4	7343368	N/A	2021/05/13	Amanpreet Sappal
Nitrate (NO3) and Nitrite (NO2) in Water	LACH	7348597	N/A	2021/05/13	Chandra Nandlal
pH	AT	7349202	2021/05/12	2021/05/13	Surinder Rai
Orthophosphate	KONE	7349201	N/A	2021/05/13	Avneet Kour Sudan
Sulphate by Automated Colourimetry	KONE	7349192	N/A	2021/05/13	Alina Dobreanu
Total Dissolved Solids (TDS calc)	CALC	7341792	N/A	2021/05/14	Automated Statchk

BV Labs ID: PND749
Sample ID: OW4-1
Matrix: Water

Collected: 2021/05/06
Shipped:
Received: 2021/05/08

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	7348960	N/A	2021/05/13	Surinder Rai
Carbonate, Bicarbonate and Hydroxide	CALC	7341791	N/A	2021/05/14	Automated Statchk
Chloride by Automated Colourimetry	KONE	7349195	N/A	2021/05/13	Alina Dobreanu
Colour	SPEC	7341803	N/A	2021/05/10	Viorica Rotaru
Conductivity	AT	7348959	N/A	2021/05/13	Surinder Rai
Dissolved Organic Carbon (DOC)	TOCV/NDIR	7347531	N/A	2021/05/13	Nimarta Singh
Fluoride	ISE	7348790	2021/05/12	2021/05/13	Surinder Rai
Hardness (calculated as CaCO3)		7341977	N/A	2021/05/13	Automated Statchk
Dissolved Metals by ICPMS	ICP/MS	7344753	N/A	2021/05/12	Prempal Bhatti
Total Ammonia-N	LACH/NH4	7343368	N/A	2021/05/13	Amanpreet Sappal
Nitrate (NO3) and Nitrite (NO2) in Water	LACH	7348597	N/A	2021/05/13	Chandra Nandlal
pH	AT	7349202	2021/05/12	2021/05/13	Surinder Rai
Orthophosphate	KONE	7349201	N/A	2021/05/13	Avneet Kour Sudan
Sulphate by Automated Colourimetry	KONE	7349192	N/A	2021/05/13	Alina Dobreanu
Total Dissolved Solids (TDS calc)	CALC	7341792	N/A	2021/05/14	Automated Statchk

BV Labs ID: PND750
Sample ID: OW4-2
Matrix: Water

Collected: 2021/05/06
Shipped:
Received: 2021/05/08

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	7348960	N/A	2021/05/13	Surinder Rai
Carbonate, Bicarbonate and Hydroxide	CALC	7341791	N/A	2021/05/14	Automated Statchk
Chloride by Automated Colourimetry	KONE	7349195	N/A	2021/05/13	Alina Dobreanu
Colour	SPEC	7341803	N/A	2021/05/10	Viorica Rotaru
Conductivity	AT	7348959	N/A	2021/05/13	Surinder Rai

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BV Labs Job #: C1C4085
Report Date: 2021/05/14

Golder Associates Ltd
Client Project #: 20448776
Site Location: McCarthy
Sampler Initials: SDP

TEST SUMMARY

BV Labs ID: PND750
Sample ID: OW4-2
Matrix: Water

Collected: 2021/05/06
Shipped:
Received: 2021/05/08

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Dissolved Organic Carbon (DOC)	TOCV/NDIR	7348683	N/A	2021/05/13	Anna-Kay Gooden
Fluoride	ISE	7348790	2021/05/12	2021/05/13	Surinder Rai
Hardness (calculated as CaCO3)		7341977	N/A	2021/05/13	Automated Statchk
Dissolved Metals by ICPMS	ICP/MS	7344753	N/A	2021/05/12	Prempal Bhatti
Total Ammonia-N	LACH/NH4	7343368	N/A	2021/05/13	Amanpreet Sappal
Nitrate (NO3) and Nitrite (NO2) in Water	LACH	7348597	N/A	2021/05/13	Chandra Nandlal
pH	AT	7349202	2021/05/12	2021/05/13	Surinder Rai
Orthophosphate	KONE	7349201	N/A	2021/05/13	Avneet Kour Sudan
Sulphate by Automated Colourimetry	KONE	7349192	N/A	2021/05/13	Alina Dobreanu
Total Dissolved Solids (TDS calc)	CALC	7341792	N/A	2021/05/14	Automated Statchk

BV Labs ID: PND751
Sample ID: OW5-1
Matrix: Water

Collected: 2021/05/06
Shipped:
Received: 2021/05/08

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	7348960	N/A	2021/05/13	Surinder Rai
Carbonate, Bicarbonate and Hydroxide	CALC	7341791	N/A	2021/05/14	Automated Statchk
Chloride by Automated Colourimetry	KONE	7349195	N/A	2021/05/13	Alina Dobreanu
Colour	SPEC	7341803	N/A	2021/05/10	Viorica Rotaru
Conductivity	AT	7348959	N/A	2021/05/13	Surinder Rai
Dissolved Organic Carbon (DOC)	TOCV/NDIR	7347531	N/A	2021/05/13	Nimarta Singh
Fluoride	ISE	7348790	2021/05/12	2021/05/13	Surinder Rai
Hardness (calculated as CaCO3)		7341977	N/A	2021/05/13	Automated Statchk
Dissolved Metals by ICPMS	ICP/MS	7344753	N/A	2021/05/12	Prempal Bhatti
Total Ammonia-N	LACH/NH4	7343368	N/A	2021/05/13	Amanpreet Sappal
Nitrate (NO3) and Nitrite (NO2) in Water	LACH	7348597	N/A	2021/05/13	Chandra Nandlal
pH	AT	7349202	2021/05/12	2021/05/13	Surinder Rai
Orthophosphate	KONE	7349201	N/A	2021/05/13	Avneet Kour Sudan
Sulphate by Automated Colourimetry	KONE	7349192	N/A	2021/05/13	Alina Dobreanu
Total Dissolved Solids (TDS calc)	CALC	7341792	N/A	2021/05/14	Automated Statchk

BV Labs ID: PND752
Sample ID: OW5-3
Matrix: Water

Collected: 2021/05/06
Shipped:
Received: 2021/05/08

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	7348960	N/A	2021/05/13	Surinder Rai
Carbonate, Bicarbonate and Hydroxide	CALC	7341791	N/A	2021/05/14	Automated Statchk
Chloride by Automated Colourimetry	KONE	7349195	N/A	2021/05/13	Alina Dobreanu
Colour	SPEC	7341803	N/A	2021/05/10	Viorica Rotaru
Conductivity	AT	7348959	N/A	2021/05/13	Surinder Rai
Dissolved Organic Carbon (DOC)	TOCV/NDIR	7347531	N/A	2021/05/13	Nimarta Singh
Fluoride	ISE	7348790	2021/05/12	2021/05/13	Surinder Rai

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BV Labs Job #: C1C4085
Report Date: 2021/05/14

Golder Associates Ltd
Client Project #: 20448776
Site Location: McCarthy
Sampler Initials: SDP

TEST SUMMARY

BV Labs ID: PND752
Sample ID: OW5-3
Matrix: Water

Collected: 2021/05/06
Shipped:
Received: 2021/05/08

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Hardness (calculated as CaCO3)		7341977	N/A	2021/05/13	Automated Statchk
Dissolved Metals by ICPMS	ICP/MS	7344753	N/A	2021/05/13	Prempal Bhatti
Total Ammonia-N	LACH/NH4	7343368	N/A	2021/05/13	Amanpreet Sappal
Nitrate (NO3) and Nitrite (NO2) in Water	LACH	7348597	N/A	2021/05/13	Chandra Nandlal
pH	AT	7349202	2021/05/12	2021/05/13	Surinder Rai
Orthophosphate	KONE	7349201	N/A	2021/05/13	Avneet Kour Sudan
Sulphate by Automated Colourimetry	KONE	7349192	N/A	2021/05/13	Alina Dobreanu
Total Dissolved Solids (TDS calc)	CALC	7341792	N/A	2021/05/14	Automated Statchk

BV Labs ID: PND753
Sample ID: OW7-1
Matrix: Water

Collected: 2021/05/06
Shipped:
Received: 2021/05/08

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	7346334	N/A	2021/05/12	Surinder Rai
Carbonate, Bicarbonate and Hydroxide	CALC	7341791	N/A	2021/05/13	Automated Statchk
Chloride by Automated Colourimetry	KONE	7345378	N/A	2021/05/11	Avneet Kour Sudan
Colour	SPEC	7346985	N/A	2021/05/12	Viorica Rotaru
Conductivity	AT	7346329	N/A	2021/05/12	Surinder Rai
Dissolved Organic Carbon (DOC)	TOCV/NDIR	7347531	N/A	2021/05/13	Nimarta Singh
Fluoride	ISE	7346328	2021/05/11	2021/05/12	Surinder Rai
Hardness (calculated as CaCO3)		7341977	N/A	2021/05/13	Automated Statchk
Dissolved Metals by ICPMS	ICP/MS	7344753	N/A	2021/05/13	Prempal Bhatti
Total Ammonia-N	LACH/NH4	7343368	N/A	2021/05/13	Amanpreet Sappal
Nitrate (NO3) and Nitrite (NO2) in Water	LACH	7346367	N/A	2021/05/12	Chandra Nandlal
pH	AT	7346332	2021/05/11	2021/05/12	Surinder Rai
Orthophosphate	KONE	7345363	N/A	2021/05/11	Avneet Kour Sudan
Sulphate by Automated Colourimetry	KONE	7345379	N/A	2021/05/11	Avneet Kour Sudan
Total Dissolved Solids (TDS calc)	CALC	7341792	N/A	2021/05/13	Automated Statchk

BV Labs ID: PND754
Sample ID: OW7-2
Matrix: Water

Collected: 2021/05/06
Shipped:
Received: 2021/05/08

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	7348960	N/A	2021/05/13	Surinder Rai
Carbonate, Bicarbonate and Hydroxide	CALC	7341791	N/A	2021/05/14	Automated Statchk
Chloride by Automated Colourimetry	KONE	7349195	N/A	2021/05/13	Alina Dobreanu
Colour	SPEC	7341803	N/A	2021/05/10	Viorica Rotaru
Conductivity	AT	7348959	N/A	2021/05/13	Surinder Rai
Dissolved Organic Carbon (DOC)	TOCV/NDIR	7347531	N/A	2021/05/13	Nimarta Singh
Fluoride	ISE	7348790	2021/05/12	2021/05/13	Surinder Rai
Hardness (calculated as CaCO3)		7341977	N/A	2021/05/13	Automated Statchk
Dissolved Metals by ICPMS	ICP/MS	7344753	N/A	2021/05/13	Prempal Bhatti

TEST SUMMARY

BV Labs ID: PND754
Sample ID: OW7-2
Matrix: Water

Collected: 2021/05/06
Shipped:
Received: 2021/05/08

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Total Ammonia-N	LACH/NH4	7343368	N/A	2021/05/13	Amanpreet Sappal
Nitrate (NO3) and Nitrite (NO2) in Water	LACH	7348597	N/A	2021/05/13	Chandra Nandlal
pH	AT	7349202	2021/05/12	2021/05/13	Surinder Rai
Orthophosphate	KONE	7349201	N/A	2021/05/13	Avneet Kour Sudan
Sulphate by Automated Colourimetry	KONE	7349192	N/A	2021/05/13	Alina Dobreanu
Total Dissolved Solids (TDS calc)	CALC	7341792	N/A	2021/05/14	Automated Statchk

BV Labs ID: PND755
Sample ID: OW8-1
Matrix: Water

Collected: 2021/05/06
Shipped:
Received: 2021/05/08

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	7346334	N/A	2021/05/12	Surinder Rai
Carbonate, Bicarbonate and Hydroxide	CALC	7341791	N/A	2021/05/13	Automated Statchk
Chloride by Automated Colourimetry	KONE	7345378	N/A	2021/05/11	Avneet Kour Sudan
Colour	SPEC	7346985	N/A	2021/05/12	Viorica Rotaru
Conductivity	AT	7346329	N/A	2021/05/12	Surinder Rai
Dissolved Organic Carbon (DOC)	TOCV/NDIR	7347531	N/A	2021/05/13	Nimarta Singh
Fluoride	ISE	7346328	2021/05/11	2021/05/12	Surinder Rai
Hardness (calculated as CaCO3)		7341977	N/A	2021/05/13	Automated Statchk
Dissolved Metals by ICPMS	ICP/MS	7344753	N/A	2021/05/13	Prempal Bhatti
Total Ammonia-N	LACH/NH4	7343368	N/A	2021/05/13	Amanpreet Sappal
Nitrate (NO3) and Nitrite (NO2) in Water	LACH	7346367	N/A	2021/05/12	Chandra Nandlal
pH	AT	7346332	2021/05/11	2021/05/12	Surinder Rai
Orthophosphate	KONE	7345363	N/A	2021/05/11	Avneet Kour Sudan
Sulphate by Automated Colourimetry	KONE	7345379	N/A	2021/05/11	Avneet Kour Sudan
Total Dissolved Solids (TDS calc)	CALC	7341792	N/A	2021/05/13	Automated Statchk

BV Labs ID: PND755 Dup
Sample ID: OW8-1
Matrix: Water

Collected: 2021/05/06
Shipped:
Received: 2021/05/08

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Total Ammonia-N	LACH/NH4	7343368	N/A	2021/05/13	Amanpreet Sappal

BV Labs ID: PND756
Sample ID: OW8-2
Matrix: Water

Collected: 2021/05/06
Shipped:
Received: 2021/05/08

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	7346334	N/A	2021/05/12	Surinder Rai
Carbonate, Bicarbonate and Hydroxide	CALC	7341791	N/A	2021/05/13	Automated Statchk
Chloride by Automated Colourimetry	KONE	7345378	N/A	2021/05/11	Avneet Kour Sudan
Colour	SPEC	7346985	N/A	2021/05/12	Viorica Rotaru

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BV Labs Job #: C1C4085
Report Date: 2021/05/14

Golder Associates Ltd
Client Project #: 20448776
Site Location: McCarthy
Sampler Initials: SDP

TEST SUMMARY

BV Labs ID: PND756
Sample ID: OW8-2
Matrix: Water

Collected: 2021/05/06
Shipped:
Received: 2021/05/08

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Conductivity	AT	7346329	N/A	2021/05/12	Surinder Rai
Dissolved Organic Carbon (DOC)	TOCV/NDIR	7347531	N/A	2021/05/13	Nimarta Singh
Fluoride	ISE	7346328	2021/05/11	2021/05/12	Surinder Rai
Hardness (calculated as CaCO3)		7341977	N/A	2021/05/13	Automated Statchk
Dissolved Metals by ICPMS	ICP/MS	7344753	N/A	2021/05/12	Prempal Bhatti
Total Ammonia-N	LACH/NH4	7343368	N/A	2021/05/13	Amanpreet Sappal
Nitrate (NO3) and Nitrite (NO2) in Water	LACH	7346367	N/A	2021/05/12	Chandra Nandlal
pH	AT	7346332	2021/05/11	2021/05/12	Surinder Rai
Orthophosphate	KONE	7345363	N/A	2021/05/11	Avneet Kour Sudan
Sulphate by Automated Colourimetry	KONE	7345379	N/A	2021/05/11	Avneet Kour Sudan
Total Dissolved Solids (TDS calc)	CALC	7341792	N/A	2021/05/13	Automated Statchk

BV Labs ID: PND757
Sample ID: DUP1
Matrix: Water

Collected: 2021/05/06
Shipped:
Received: 2021/05/08

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	7346334	N/A	2021/05/12	Surinder Rai
Carbonate, Bicarbonate and Hydroxide	CALC	7341791	N/A	2021/05/13	Automated Statchk
Chloride by Automated Colourimetry	KONE	7345378	N/A	2021/05/11	Avneet Kour Sudan
Colour	SPEC	7346985	N/A	2021/05/12	Viorica Rotaru
Conductivity	AT	7346329	N/A	2021/05/12	Surinder Rai
Dissolved Organic Carbon (DOC)	TOCV/NDIR	7348683	N/A	2021/05/13	Anna-Kay Gooden
Fluoride	ISE	7346328	2021/05/11	2021/05/12	Surinder Rai
Hardness (calculated as CaCO3)		7341977	N/A	2021/05/13	Automated Statchk
Dissolved Metals by ICPMS	ICP/MS	7344753	N/A	2021/05/12	Prempal Bhatti
Total Ammonia-N	LACH/NH4	7343368	N/A	2021/05/13	Amanpreet Sappal
Nitrate (NO3) and Nitrite (NO2) in Water	LACH	7346367	N/A	2021/05/12	Chandra Nandlal
pH	AT	7346332	2021/05/11	2021/05/12	Surinder Rai
Orthophosphate	KONE	7345363	N/A	2021/05/11	Avneet Kour Sudan
Sulphate by Automated Colourimetry	KONE	7345379	N/A	2021/05/11	Avneet Kour Sudan
Total Dissolved Solids (TDS calc)	CALC	7341792	N/A	2021/05/13	Automated Statchk

BV Labs ID: PND758
Sample ID: DUP2
Matrix: Water

Collected: 2021/05/06
Shipped:
Received: 2021/05/08

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	7346334	N/A	2021/05/12	Surinder Rai
Carbonate, Bicarbonate and Hydroxide	CALC	7341791	N/A	2021/05/13	Automated Statchk
Chloride by Automated Colourimetry	KONE	7345378	N/A	2021/05/11	Avneet Kour Sudan
Colour	SPEC	7346985	N/A	2021/05/12	Viorica Rotaru
Conductivity	AT	7346329	N/A	2021/05/12	Surinder Rai
Dissolved Organic Carbon (DOC)	TOCV/NDIR	7347531	N/A	2021/05/13	Nimarta Singh

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BV Labs Job #: C1C4085
Report Date: 2021/05/14

Golder Associates Ltd
Client Project #: 20448776
Site Location: McCarthy
Sampler Initials: SDP

TEST SUMMARY

BV Labs ID: PND758
Sample ID: DUP2
Matrix: Water

Collected: 2021/05/06
Shipped:
Received: 2021/05/08

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Fluoride	ISE	7346328	2021/05/11	2021/05/12	Surinder Rai
Hardness (calculated as CaCO3)		7341977	N/A	2021/05/13	Automated Statchk
Dissolved Metals by ICPMS	ICP/MS	7344753	N/A	2021/05/13	Prempal Bhatti
Total Ammonia-N	LACH/NH4	7343368	N/A	2021/05/13	Amanpreet Sappal
Nitrate (NO3) and Nitrite (NO2) in Water	LACH	7345371	N/A	2021/05/11	Chandra Nandlal
pH	AT	7346332	2021/05/11	2021/05/12	Surinder Rai
Orthophosphate	KONE	7345363	N/A	2021/05/11	Avneet Kour Sudan
Sulphate by Automated Colourimetry	KONE	7345379	N/A	2021/05/11	Avneet Kour Sudan
Total Dissolved Solids (TDS calc)	CALC	7341792	N/A	2021/05/13	Automated Statchk

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BV Labs Job #: C1C4085
Report Date: 2021/05/14

Golder Associates Ltd
Client Project #: 20448776
Site Location: McCarthy
Sampler Initials: SDP

GENERAL COMMENTS

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

Package 1	6.0°C
Package 2	3.3°C

Sample PND746 [AMX-R] : Metals Analysis: Due to the sample matrix, the sample required dilution. Detection limits were adjusted accordingly.

Sample PND752 [OW5-3] : Metals Analysis: Due to the sample matrix, the sample required dilution. Detection limits were adjusted accordingly.

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
7341803	VRO	Spiked Blank	Colour	2021/05/10		97	%	80 - 120
7341803	VRO	Method Blank	Colour	2021/05/10	<2		TCU	
7341803	VRO	RPD	Colour	2021/05/10	NC		%	25
7343368	ASP	Matrix Spike [PND755-04]	Total Ammonia-N	2021/05/13		99	%	75 - 125
7343368	ASP	Spiked Blank	Total Ammonia-N	2021/05/13		98	%	80 - 120
7343368	ASP	Method Blank	Total Ammonia-N	2021/05/13	<0.050		mg/L	
7343368	ASP	RPD [PND755-04]	Total Ammonia-N	2021/05/13	8.5		%	20
7344753	PBA	Matrix Spike	Dissolved Aluminum (Al)	2021/05/12		101	%	80 - 120
			Dissolved Antimony (Sb)	2021/05/12		112	%	80 - 120
			Dissolved Arsenic (As)	2021/05/12		103	%	80 - 120
			Dissolved Barium (Ba)	2021/05/12		104	%	80 - 120
			Dissolved Beryllium (Be)	2021/05/12		104	%	80 - 120
			Dissolved Bismuth (Bi)	2021/05/12		97	%	80 - 120
			Dissolved Boron (B)	2021/05/12		100	%	80 - 120
			Dissolved Cadmium (Cd)	2021/05/12		105	%	80 - 120
			Dissolved Calcium (Ca)	2021/05/12		102	%	80 - 120
			Dissolved Chromium (Cr)	2021/05/12		100	%	80 - 120
			Dissolved Cobalt (Co)	2021/05/12		100	%	80 - 120
			Dissolved Copper (Cu)	2021/05/12		104	%	80 - 120
			Dissolved Iron (Fe)	2021/05/12		98	%	80 - 120
			Dissolved Lead (Pb)	2021/05/12		100	%	80 - 120
			Dissolved Lithium (Li)	2021/05/12		104	%	80 - 120
			Dissolved Magnesium (Mg)	2021/05/12		99	%	80 - 120
			Dissolved Manganese (Mn)	2021/05/12		97	%	80 - 120
			Dissolved Molybdenum (Mo)	2021/05/12		113	%	80 - 120
			Dissolved Nickel (Ni)	2021/05/12		92	%	80 - 120
			Dissolved Phosphorus (P)	2021/05/12		112	%	80 - 120
			Dissolved Potassium (K)	2021/05/12		102	%	80 - 120
			Dissolved Selenium (Se)	2021/05/12		102	%	80 - 120
			Dissolved Silicon (Si)	2021/05/12		104	%	80 - 120
			Dissolved Silver (Ag)	2021/05/12		101	%	80 - 120
			Dissolved Sodium (Na)	2021/05/12		NC	%	80 - 120
			Dissolved Strontium (Sr)	2021/05/12		99	%	80 - 120
			Dissolved Tellurium (Te)	2021/05/12		111	%	80 - 120
			Dissolved Thallium (Tl)	2021/05/12		100	%	80 - 120
			Dissolved Tin (Sn)	2021/05/12		110	%	80 - 120
			Dissolved Titanium (Ti)	2021/05/12		101	%	80 - 120
			Dissolved Tungsten (W)	2021/05/12		101	%	80 - 120
			Dissolved Uranium (U)	2021/05/12		99	%	80 - 120
			Dissolved Vanadium (V)	2021/05/12		96	%	80 - 120
			Dissolved Zinc (Zn)	2021/05/12		97	%	80 - 120
			Dissolved Zirconium (Zr)	2021/05/12		107	%	80 - 120
7344753	PBA	Spiked Blank	Dissolved Aluminum (Al)	2021/05/12		98	%	80 - 120
			Dissolved Antimony (Sb)	2021/05/12		106	%	80 - 120
			Dissolved Arsenic (As)	2021/05/12		100	%	80 - 120
			Dissolved Barium (Ba)	2021/05/12		103	%	80 - 120
			Dissolved Beryllium (Be)	2021/05/12		97	%	80 - 120
			Dissolved Bismuth (Bi)	2021/05/12		98	%	80 - 120
			Dissolved Boron (B)	2021/05/12		93	%	80 - 120
			Dissolved Cadmium (Cd)	2021/05/12		102	%	80 - 120
			Dissolved Calcium (Ca)	2021/05/12		100	%	80 - 120

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Dissolved Chromium (Cr)	2021/05/12		96	%	80 - 120
			Dissolved Cobalt (Co)	2021/05/12		99	%	80 - 120
			Dissolved Copper (Cu)	2021/05/12		103	%	80 - 120
			Dissolved Iron (Fe)	2021/05/12		96	%	80 - 120
			Dissolved Lead (Pb)	2021/05/12		98	%	80 - 120
			Dissolved Lithium (Li)	2021/05/12		98	%	80 - 120
			Dissolved Magnesium (Mg)	2021/05/12		98	%	80 - 120
			Dissolved Manganese (Mn)	2021/05/12		94	%	80 - 120
			Dissolved Molybdenum (Mo)	2021/05/12		105	%	80 - 120
			Dissolved Nickel (Ni)	2021/05/12		92	%	80 - 120
			Dissolved Phosphorus (P)	2021/05/12		103	%	80 - 120
			Dissolved Potassium (K)	2021/05/12		102	%	80 - 120
			Dissolved Selenium (Se)	2021/05/12		99	%	80 - 120
			Dissolved Silicon (Si)	2021/05/12		100	%	80 - 120
			Dissolved Silver (Ag)	2021/05/12		99	%	80 - 120
			Dissolved Sodium (Na)	2021/05/12		98	%	80 - 120
			Dissolved Strontium (Sr)	2021/05/12		96	%	80 - 120
			Dissolved Tellurium (Te)	2021/05/12		107	%	80 - 120
			Dissolved Thallium (Tl)	2021/05/12		100	%	80 - 120
			Dissolved Tin (Sn)	2021/05/12		107	%	80 - 120
			Dissolved Titanium (Ti)	2021/05/12		98	%	80 - 120
			Dissolved Tungsten (W)	2021/05/12		100	%	80 - 120
			Dissolved Uranium (U)	2021/05/12		95	%	80 - 120
			Dissolved Vanadium (V)	2021/05/12		95	%	80 - 120
			Dissolved Zinc (Zn)	2021/05/12		95	%	80 - 120
			Dissolved Zirconium (Zr)	2021/05/12		105	%	80 - 120
7344753	PBA	Method Blank	Dissolved Aluminum (Al)	2021/05/12	<4.9		ug/L	
			Dissolved Antimony (Sb)	2021/05/12	<0.50		ug/L	
			Dissolved Arsenic (As)	2021/05/12	<1.0		ug/L	
			Dissolved Barium (Ba)	2021/05/12	<2.0		ug/L	
			Dissolved Beryllium (Be)	2021/05/12	<0.40		ug/L	
			Dissolved Bismuth (Bi)	2021/05/12	<1.0		ug/L	
			Dissolved Boron (B)	2021/05/12	<10		ug/L	
			Dissolved Cadmium (Cd)	2021/05/12	<0.090		ug/L	
			Dissolved Calcium (Ca)	2021/05/12	<200		ug/L	
			Dissolved Chromium (Cr)	2021/05/12	<5.0		ug/L	
			Dissolved Cobalt (Co)	2021/05/12	<0.50		ug/L	
			Dissolved Copper (Cu)	2021/05/12	<0.90		ug/L	
			Dissolved Iron (Fe)	2021/05/12	<100		ug/L	
			Dissolved Lead (Pb)	2021/05/12	<0.50		ug/L	
			Dissolved Lithium (Li)	2021/05/12	<5.0		ug/L	
			Dissolved Magnesium (Mg)	2021/05/12	<50		ug/L	
			Dissolved Manganese (Mn)	2021/05/12	<2.0		ug/L	
			Dissolved Molybdenum (Mo)	2021/05/12	<0.50		ug/L	
			Dissolved Nickel (Ni)	2021/05/12	<1.0		ug/L	
			Dissolved Phosphorus (P)	2021/05/12	<100		ug/L	
			Dissolved Potassium (K)	2021/05/12	<200		ug/L	
			Dissolved Selenium (Se)	2021/05/12	<2.0		ug/L	
			Dissolved Silicon (Si)	2021/05/12	<50		ug/L	
			Dissolved Silver (Ag)	2021/05/12	<0.090		ug/L	
			Dissolved Sodium (Na)	2021/05/12	<100		ug/L	

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Dissolved Strontium (Sr)	2021/05/12	<1.0		ug/L	
			Dissolved Tellurium (Te)	2021/05/12	<1.0		ug/L	
			Dissolved Thallium (Tl)	2021/05/12	<0.050		ug/L	
			Dissolved Tin (Sn)	2021/05/12	<1.0		ug/L	
			Dissolved Titanium (Ti)	2021/05/12	<5.0		ug/L	
			Dissolved Tungsten (W)	2021/05/12	<1.0		ug/L	
			Dissolved Uranium (U)	2021/05/12	<0.10		ug/L	
			Dissolved Vanadium (V)	2021/05/12	<0.50		ug/L	
			Dissolved Zinc (Zn)	2021/05/12	<5.0		ug/L	
			Dissolved Zirconium (Zr)	2021/05/12	<1.0		ug/L	
7344753	PBA	RPD	Dissolved Lead (Pb)	2021/05/12	4.9		%	20
7345363	AKD	Matrix Spike	Orthophosphate (P)	2021/05/11		114	%	75 - 125
7345363	AKD	Spiked Blank	Orthophosphate (P)	2021/05/11		101	%	80 - 120
7345363	AKD	Method Blank	Orthophosphate (P)	2021/05/11	<0.010		mg/L	
7345363	AKD	RPD	Orthophosphate (P)	2021/05/11	6.3		%	25
7345371	C_N	Matrix Spike	Nitrite (N)	2021/05/11		107	%	80 - 120
			Nitrate (N)	2021/05/11		98	%	80 - 120
7345371	C_N	Spiked Blank	Nitrite (N)	2021/05/11		105	%	80 - 120
			Nitrate (N)	2021/05/11		97	%	80 - 120
7345371	C_N	Method Blank	Nitrite (N)	2021/05/11	<0.010		mg/L	
			Nitrate (N)	2021/05/11	<0.10		mg/L	
7345371	C_N	RPD	Nitrite (N)	2021/05/11	NC		%	20
			Nitrate (N)	2021/05/11	NC		%	20
7345378	AKD	Matrix Spike	Dissolved Chloride (Cl-)	2021/05/11		111	%	80 - 120
7345378	AKD	Spiked Blank	Dissolved Chloride (Cl-)	2021/05/11		104	%	80 - 120
7345378	AKD	Method Blank	Dissolved Chloride (Cl-)	2021/05/11	<1.0		mg/L	
7345378	AKD	RPD	Dissolved Chloride (Cl-)	2021/05/11	6.6		%	20
7345379	AKD	Matrix Spike	Dissolved Sulphate (SO4)	2021/05/11		135 (1)	%	75 - 125
7345379	AKD	Spiked Blank	Dissolved Sulphate (SO4)	2021/05/11		103	%	80 - 120
7345379	AKD	Method Blank	Dissolved Sulphate (SO4)	2021/05/11	<1.0		mg/L	
7345379	AKD	RPD	Dissolved Sulphate (SO4)	2021/05/11	NC		%	20
7346328	SAU	Matrix Spike	Fluoride (F-)	2021/05/12		99	%	80 - 120
7346328	SAU	Spiked Blank	Fluoride (F-)	2021/05/12		99	%	80 - 120
7346328	SAU	Method Blank	Fluoride (F-)	2021/05/12	<0.10		mg/L	
7346328	SAU	RPD	Fluoride (F-)	2021/05/12	7.5		%	20
7346329	SAU	Spiked Blank	Conductivity	2021/05/12		101	%	85 - 115
7346329	SAU	Method Blank	Conductivity	2021/05/12	<0.001		mS/cm	
7346329	SAU	RPD	Conductivity	2021/05/12	0		%	25
7346332	SAU	Spiked Blank	pH	2021/05/12		102	%	98 - 103
7346332	SAU	RPD	pH	2021/05/12	0.32		%	N/A
7346334	SAU	Spiked Blank	Alkalinity (Total as CaCO3)	2021/05/12		94	%	85 - 115
7346334	SAU	Method Blank	Alkalinity (Total as CaCO3)	2021/05/12	<1.0		mg/L	
7346334	SAU	RPD	Alkalinity (Total as CaCO3)	2021/05/12	0.57		%	20
7346367	C_N	Matrix Spike	Nitrite (N)	2021/05/12		106	%	80 - 120
			Nitrate (N)	2021/05/12		93	%	80 - 120
7346367	C_N	Spiked Blank	Nitrite (N)	2021/05/12		106	%	80 - 120
			Nitrate (N)	2021/05/12		93	%	80 - 120
7346367	C_N	Method Blank	Nitrite (N)	2021/05/12	<0.010		mg/L	
			Nitrate (N)	2021/05/12	<0.10		mg/L	
7346367	C_N	RPD	Nitrite (N)	2021/05/12	NC		%	20
			Nitrate (N)	2021/05/12	NC		%	20

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
7346985	VRO	Spiked Blank	Colour	2021/05/12		99	%	80 - 120
7346985	VRO	Method Blank	Colour	2021/05/12	<2		TCU	
7346985	VRO	RPD	Colour	2021/05/12	2.3		%	25
7347531	NS3	Matrix Spike [PND747-02]	Dissolved Organic Carbon	2021/05/13		96	%	80 - 120
7347531	NS3	Spiked Blank	Dissolved Organic Carbon	2021/05/13		96	%	80 - 120
7347531	NS3	Method Blank	Dissolved Organic Carbon	2021/05/13	<0.40		mg/L	
7347531	NS3	RPD [PND747-02]	Dissolved Organic Carbon	2021/05/13	0.65		%	20
7348597	C_N	Matrix Spike [PND745-01]	Nitrite (N)	2021/05/13		107	%	80 - 120
			Nitrate (N)	2021/05/13		96	%	80 - 120
7348597	C_N	Spiked Blank	Nitrite (N)	2021/05/13		107	%	80 - 120
			Nitrate (N)	2021/05/13		98	%	80 - 120
7348597	C_N	Method Blank	Nitrite (N)	2021/05/13	<0.010		mg/L	
			Nitrate (N)	2021/05/13	<0.10		mg/L	
7348597	C_N	RPD [PND745-01]	Nitrite (N)	2021/05/13	2.0		%	20
			Nitrate (N)	2021/05/13	NC		%	20
7348683	AGD	Matrix Spike	Dissolved Organic Carbon	2021/05/13		94	%	80 - 120
7348683	AGD	Spiked Blank	Dissolved Organic Carbon	2021/05/13		96	%	80 - 120
7348683	AGD	Method Blank	Dissolved Organic Carbon	2021/05/13	<0.40		mg/L	
7348683	AGD	RPD	Dissolved Organic Carbon	2021/05/13	1.7		%	20
7348790	SAU	Matrix Spike [PND746-01]	Fluoride (F-)	2021/05/13		63 (1)	%	80 - 120
7348790	SAU	Spiked Blank	Fluoride (F-)	2021/05/13		98	%	80 - 120
7348790	SAU	Method Blank	Fluoride (F-)	2021/05/13	<0.10		mg/L	
7348790	SAU	RPD [PND746-01]	Fluoride (F-)	2021/05/13	0.48		%	20
7348959	SAU	Spiked Blank	Conductivity	2021/05/13		100	%	85 - 115
7348959	SAU	Method Blank	Conductivity	2021/05/13	<0.001		mS/cm	
7348959	SAU	RPD [PND746-01]	Conductivity	2021/05/13	0.46		%	25
7348960	SAU	Spiked Blank	Alkalinity (Total as CaCO3)	2021/05/13		93	%	85 - 115
7348960	SAU	Method Blank	Alkalinity (Total as CaCO3)	2021/05/13	<1.0		mg/L	
7348960	SAU	RPD [PND746-01]	Alkalinity (Total as CaCO3)	2021/05/13	2.1		%	20
7349192	ADB	Matrix Spike [PND747-01]	Dissolved Sulphate (SO4)	2021/05/13		NC	%	75 - 125
7349192	ADB	Spiked Blank	Dissolved Sulphate (SO4)	2021/05/13		105	%	80 - 120
7349192	ADB	Method Blank	Dissolved Sulphate (SO4)	2021/05/13	<1.0		mg/L	
7349192	ADB	RPD [PND747-01]	Dissolved Sulphate (SO4)	2021/05/13	2.0		%	20
7349195	ADB	Matrix Spike [PND747-01]	Dissolved Chloride (Cl-)	2021/05/13		NC	%	80 - 120
7349195	ADB	Spiked Blank	Dissolved Chloride (Cl-)	2021/05/13		100	%	80 - 120
7349195	ADB	Method Blank	Dissolved Chloride (Cl-)	2021/05/13	<1.0		mg/L	
7349195	ADB	RPD [PND747-01]	Dissolved Chloride (Cl-)	2021/05/13	0.48		%	20
7349201	AKD	Matrix Spike [PND747-01]	Orthophosphate (P)	2021/05/13		113	%	75 - 125
7349201	AKD	Spiked Blank	Orthophosphate (P)	2021/05/13		100	%	80 - 120
7349201	AKD	Method Blank	Orthophosphate (P)	2021/05/13	<0.010		mg/L	
7349201	AKD	RPD [PND747-01]	Orthophosphate (P)	2021/05/13	NC		%	25
7349202	SAU	Spiked Blank	pH	2021/05/13		102	%	98 - 103

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
7349202	SAU	RPD [PND746-01]	pH	2021/05/13	0.22		%	N/A

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

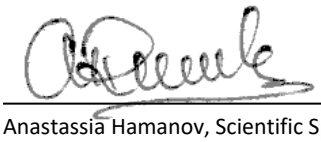
Bureau Veritas Laboratories 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

BV Labs Job #: C1C4085
Report Date: 2021/05/14

Golder Associates Ltd
Client Project #: 20448776
Site Location: McCarthy
Sampler Initials: SDP

VALIDATION SIGNATURE PAGE

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



Anastassia Hamanov, Scientific Specialist

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

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Your Project #: 20448776
Your C.O.C. #: 829401-04-01

Attention: Dawn Hoyle

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

Report Date: 2021/07/22
Report #: R6731448
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: C1I4834
Received: 2021/07/05, 16:30

Sample Matrix: Water
Samples Received: 3

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Alkalinity	3	N/A	2021/07/08	CAM SOP-00448	SM 23 2320 B m
Carbonate, Bicarbonate and Hydroxide	2	N/A	2021/07/09	CAM SOP-00102	APHA 4500-CO2 D
Chloride by Automated Colourimetry	3	N/A	2021/07/08	CAM SOP-00463	SM 23 4500-Cl E m
Colour	2	N/A	2021/07/07	CAM SOP-00412	SM 23 2120C m
Conductivity	3	N/A	2021/07/08	CAM SOP-00414	SM 23 2510 m
Dissolved Organic Carbon (DOC) (1)	3	N/A	2021/07/07	CAM SOP-00446	SM 23 5310 B m
Fluoride	3	2021/07/07	2021/07/08	CAM SOP-00449	SM 23 4500-F C m
Hardness (calculated as CaCO3)	2	N/A	2021/07/07	CAM SOP 00102/00408/00447	SM 2340 B
Hardness (calculated as CaCO3)	1	N/A	2021/07/09	CAM SOP 00102/00408/00447	SM 2340 B
Dissolved Metals by ICPMS	1	N/A	2021/07/07	CAM SOP-00447	EPA 6020B m
Metals Analysis by ICPMS (as received) (2)	1	N/A	2021/07/07	CAM SOP-00447	EPA 6020B m
Total Metals Analysis by ICPMS	1	N/A	2021/07/08	CAM SOP-00447	EPA 6020B m
Ion Balance (% Difference)	2	N/A	2021/07/09		
Anion and Cation Sum	1	N/A	2021/07/21		
Anion and Cation Sum	2	N/A	2021/07/09		
Total Ammonia-N	1	N/A	2021/07/08	CAM SOP-00441	USGS I-2522-90 m
Total Ammonia-N	2	N/A	2021/07/09	CAM SOP-00441	USGS I-2522-90 m
Nitrate (NO3) and Nitrite (NO2) in Water (3)	3	N/A	2021/07/08	CAM SOP-00440	SM 23 4500-NO3I/NO2B
Animal and Vegetable Oil and Grease	1	N/A	2021/07/09	CAM SOP-00326	EPA1664B m,SM5520B m
Total Oil and Grease	1	2021/07/09	2021/07/09	CAM SOP-00326	EPA1664B m,SM5520B m
pH	3	2021/07/07	2021/07/08	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	1	N/A	2021/07/07	CAM SOP-00444	OMOE E3179 m
Orthophosphate	2	N/A	2021/07/08	CAM SOP-00461	EPA 365.1 m
Sat. pH and Langelier Index (@ 20C)	2	N/A	2021/07/09		Auto Calc
Sat. pH and Langelier Index (@ 4C)	2	N/A	2021/07/09		Auto Calc
Sulphate by Automated Colourimetry	3	N/A	2021/07/08	CAM SOP-00464	EPA 375.4 m
Tannins & Lignins	1	N/A	2021/07/07	CAM SOP-00410	SM 23 5550 B m
Total Dissolved Solids (TDS calc)	2	N/A	2021/07/09		Auto Calc

Your Project #: 20448776
Your C.O.C. #: 829401-04-01

Attention: Dawn Hoyle

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

Report Date: 2021/07/22
Report #: R6731448
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: C1I4834
Received: 2021/07/05, 16:30

Sample Matrix: Water
Samples Received: 3

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Total Dissolved Solids	1	2021/07/07	2021/07/08	CAM SOP-00428	SM 23 2540C m
Total Kjeldahl Nitrogen in Water	1	2021/07/07	2021/07/07	CAM SOP-00938	OMOE E3516 m
Total Phosphorus (Colourimetric)	1	2021/07/08	2021/07/09	CAM SOP-00407	SM 23 4500 P B H m
Mineral/Synthetic O & G (TPH Heavy Oil) (4)	1	2021/07/09	2021/07/09	CAM SOP-00326	EPA1664B m,SM5520F m
Total Suspended Solids	1	2021/07/07	2021/07/08	CAM SOP-00428	SM 23 2540D m
Turbidity	1	N/A	2021/07/07	CAM SOP-00417	SM 23 2130 B m

Remarks:

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

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

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

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

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) Metals analysis was performed on the sample 'as received'.
(3) Values for calculated parameters may not appear to add up due to rounding of raw data and significant figures.
(4) Note: TPH (Heavy Oil) is equivalent to Mineral / Synthetic Oil & Grease

Your Project #: 20448776
Your C.O.C. #: 829401-04-01

Attention: Dawn Hoyle

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

Report Date: 2021/07/22
Report #: R6731448
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: C1I4834
Received: 2021/07/05, 16:30

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Ema Gitej, Senior Project Manager
Email: emese.gitej@bureauveritas.com
Phone# (905)817-5829
==========
BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

BV Labs Job #: C1I4834
Report Date: 2021/07/22

Golder Associates Ltd
Client Project #: 20448776
Sampler Initials: DS

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

BV Labs ID		PZX224		
Sampling Date		2021/06/29 01:40		
COC Number		829401-04-01		
	UNITS	POND	RDL	QC Batch
Calculated Parameters				
Total Animal/Vegetable Oil and Grease	mg/L	<0.50	0.50	7445790
Petroleum Hydrocarbons				
Total Oil & Grease	mg/L	<0.50	0.50	7453173
Total Oil & Grease Mineral/Synthetic	mg/L	<0.50	0.50	7453174

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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RCAP - COMPREHENSIVE (WATER)

BV Labs ID		PZX223			PZX223		
Sampling Date		2021/06/29 12:30			2021/06/29 12:30		
COC Number		829401-04-01			829401-04-01		
	UNITS	6-2	RDL	QC Batch	6-2 Lab-Dup	RDL	QC Batch
Calculated Parameters							
Anion Sum	me/L	66.0	N/A	7445811			
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	150	1.0	7445807			
Calculated TDS	mg/L	3900	1.0	7445817			
Carb. Alkalinity (calc. as CaCO3)	mg/L	<1.0	1.0	7445807			
Cation Sum	me/L	65.2	N/A	7445811			
Hardness (CaCO3)	mg/L	1600	1.0	7445809			
Ion Balance (% Difference)	%	0.600	N/A	7445810			
Langelier Index (@ 20C)	N/A	0.418		7445815			
Langelier Index (@ 4C)	N/A	0.177		7445816			
Saturation pH (@ 20C)	N/A	7.07		7445815			
Saturation pH (@ 4C)	N/A	7.31		7445816			
Inorganics							
Total Ammonia-N	mg/L	0.88	0.050	7452084			
Conductivity	umho/cm	6500	1.0	7450312	6500	1.0	7450312
Dissolved Organic Carbon	mg/L	1.8	0.40	7448584			
Orthophosphate (P)	mg/L	<0.010	0.010	7450345			
pH	pH	7.48		7450314	7.57		7450314
Dissolved Sulphate (SO4)	mg/L	980	5.0	7450322			
Alkalinity (Total as CaCO3)	mg/L	150	1.0	7450310	160	1.0	7450310
Dissolved Chloride (Cl-)	mg/L	1500	20	7450319			
Nitrite (N)	mg/L	0.425	0.010	7449352			
Nitrate (N)	mg/L	0.44	0.10	7449352			
Nitrate + Nitrite (N)	mg/L	0.86	0.10	7449352			
Metals							
Dissolved Aluminum (Al)	ug/L	5.2	4.9	7446635			
Dissolved Antimony (Sb)	ug/L	<0.50	0.50	7446635			
Dissolved Arsenic (As)	ug/L	<1.0	1.0	7446635			
Dissolved Barium (Ba)	ug/L	93	2.0	7446635			
Dissolved Beryllium (Be)	ug/L	<0.40	0.40	7446635			
Dissolved Boron (B)	ug/L	3300	10	7446635			

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

RCAP - COMPREHENSIVE (WATER)

BV Labs ID		PZX223			PZX223		
Sampling Date		2021/06/29 12:30			2021/06/29 12:30		
COC Number		829401-04-01			829401-04-01		
	UNITS	6-2	RDL	QC Batch	6-2 Lab-Dup	RDL	QC Batch
Dissolved Cadmium (Cd)	ug/L	<0.090	0.090	7446635			
Dissolved Calcium (Ca)	ug/L	310000	1000	7446635			
Dissolved Chromium (Cr)	ug/L	<5.0	5.0	7446635			
Dissolved Cobalt (Co)	ug/L	<0.50	0.50	7446635			
Dissolved Copper (Cu)	ug/L	26	0.90	7446635			
Dissolved Iron (Fe)	ug/L	<100	100	7446635			
Dissolved Lead (Pb)	ug/L	<0.50	0.50	7446635			
Dissolved Magnesium (Mg)	ug/L	190000	50	7446635			
Dissolved Manganese (Mn)	ug/L	1700	2.0	7446635			
Dissolved Molybdenum (Mo)	ug/L	1.2	0.50	7446635			
Dissolved Nickel (Ni)	ug/L	3.4	1.0	7446635			
Dissolved Phosphorus (P)	ug/L	<100	100	7446635			
Dissolved Potassium (K)	ug/L	79000	200	7446635			
Dissolved Selenium (Se)	ug/L	<2.0	2.0	7446635			
Dissolved Silicon (Si)	ug/L	3800	50	7446635			
Dissolved Silver (Ag)	ug/L	<0.090	0.090	7446635			
Dissolved Sodium (Na)	ug/L	740000	500	7446635			
Dissolved Strontium (Sr)	ug/L	16000	1.0	7446635			
Dissolved Thallium (Tl)	ug/L	<0.050	0.050	7446635			
Dissolved Titanium (Ti)	ug/L	<5.0	5.0	7446635			
Dissolved Uranium (U)	ug/L	0.31	0.10	7446635			
Dissolved Vanadium (V)	ug/L	<0.50	0.50	7446635			
Dissolved Zinc (Zn)	ug/L	13	5.0	7446635			

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Lab-Dup = Laboratory Initiated Duplicate

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RCAP - COMPREHENSIVE (DRINKING WATER)

BV Labs ID		PZX225			PZX225		
Sampling Date		2021/06/29 02:30			2021/06/29 02:30		
COC Number		829401-04-01			829401-04-01		
	UNITS	DW3	RDL	QC Batch	DW3 Lab-Dup	RDL	QC Batch
Calculated Parameters							
Anion Sum	me/L	11.1	N/A	7445811			
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	320	1.0	7445807			
Calculated TDS	mg/L	620	1.0	7445817			
Carb. Alkalinity (calc. as CaCO3)	mg/L	1.6	1.0	7445807			
Cation Sum	me/L	12.5	N/A	7445811			
Hardness (CaCO3)	mg/L	530	1.0	7445809			
Ion Balance (% Difference)	%	5.85	N/A	7445810			
Langelier Index (@ 20C)	N/A	0.955		7445815			
Langelier Index (@ 4C)	N/A	0.708		7445816			
Saturation pH (@ 20C)	N/A	6.77		7445815			
Saturation pH (@ 4C)	N/A	7.02		7445816			
Inorganics							
Total Ammonia-N	mg/L	<0.050	0.050	7452084	<0.050	0.050	7452084
Conductivity	umho/cm	1100	1.0	7450312			
Dissolved Organic Carbon	mg/L	1.5	0.40	7448584			
Orthophosphate (P)	mg/L	<0.010	0.010	7450345			
pH	pH	7.72		7450314			
Dissolved Sulphate (SO4)	mg/L	20	1.0	7450322			
Alkalinity (Total as CaCO3)	mg/L	320	1.0	7450310			
Dissolved Chloride (Cl-)	mg/L	150	2.0	7450319			
Nitrite (N)	mg/L	<0.010	0.010	7449352			
Nitrate (N)	mg/L	0.21	0.10	7449352			
Metals							
Aluminum (Al)	ug/L	9.0	4.9	7446641			
Antimony (Sb)	ug/L	<0.50	0.50	7446641			
Arsenic (As)	ug/L	<1.0	1.0	7446641			
Barium (Ba)	ug/L	160	2.0	7446641			
Beryllium (Be)	ug/L	<0.40	0.40	7446641			
Boron (B)	ug/L	24	10	7446641			
Cadmium (Cd)	ug/L	<0.090	0.090	7446641			

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

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RCAP - COMPREHENSIVE (DRINKING WATER)

BV Labs ID		PZX225			PZX225		
Sampling Date		2021/06/29 02:30			2021/06/29 02:30		
COC Number		829401-04-01			829401-04-01		
	UNITS	DW3	RDL	QC Batch	DW3 Lab-Dup	RDL	QC Batch
Calcium (Ca)	ug/L	160000	200	7446641			
Chromium (Cr)	ug/L	<5.0	5.0	7446641			
Cobalt (Co)	ug/L	<0.50	0.50	7446641			
Copper (Cu)	ug/L	1.3	0.90	7446641			
Iron (Fe)	ug/L	<100	100	7446641			
Lead (Pb)	ug/L	<0.50	0.50	7446641			
Lithium (Li)	ug/L	9.5	5.0	7446641			
Magnesium (Mg)	ug/L	29000	50	7446641			
Manganese (Mn)	ug/L	19	2.0	7446641			
Molybdenum (Mo)	ug/L	<0.50	0.50	7446641			
Nickel (Ni)	ug/L	<1.0	1.0	7446641			
Phosphorus (P)	ug/L	<100	100	7446641			
Potassium (K)	ug/L	1900	200	7446641			
Selenium (Se)	ug/L	<2.0	2.0	7446641			
Silicon (Si)	ug/L	7300	50	7446641			
Silver (Ag)	ug/L	<0.090	0.090	7446641			
Sodium (Na)	ug/L	44000	100	7446641			
Strontium (Sr)	ug/L	610	1.0	7446641			
Thallium (Tl)	ug/L	<0.050	0.050	7446641			
Titanium (Ti)	ug/L	<5.0	5.0	7446641			
Uranium (U)	ug/L	1.2	0.10	7446641			
Vanadium (V)	ug/L	<0.50	0.50	7446641			
Zinc (Zn)	ug/L	<5.0	5.0	7446641			

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate

BV Labs Job #: C1I4834
Report Date: 2021/07/22

Golder Associates Ltd
Client Project #: 20448776
Sampler Initials: DS

RESULTS OF ANALYSES OF WATER

BV Labs ID		PZX223			PZX223			PZX224		
Sampling Date		2021/06/29 12:30			2021/06/29 12:30			2021/06/29 01:40		
COC Number		829401-04-01			829401-04-01			829401-04-01		
	UNITS	6-2	RDL	QC Batch	6-2 Lab-Dup	RDL	QC Batch	POND	RDL	QC Batch
Calculated Parameters										
Anion Sum	me/L							12.1	N/A	7445811
Cation Sum	me/L							12.5	N/A	7445811
Hardness (CaCO3)	mg/L							370	1.0	7445809
Inorganics										
Total Ammonia-N	mg/L							<0.050	0.050	7448495
Colour	TCU	<2	2	7448619						
Conductivity	umho/cm							1200	1.0	7449863
Total Dissolved Solids	mg/L							770	10	7449279
Fluoride (F-)	mg/L	0.97	0.10	7450307	0.96	0.10	7450307	0.60	0.10	7449852
Total Kjeldahl Nitrogen (TKN)	mg/L							0.34	0.10	7448459
Dissolved Organic Carbon	mg/L							6.1	0.40	7448584
pH	pH							8.45		7449876
Phenols-4AAP	mg/L							<0.0010	0.0010	7448237
Total Phosphorus	mg/L							0.022	0.020	7451429
Total Suspended Solids	mg/L							<10	10	7448616
Dissolved Sulphate (SO4)	mg/L							320	1.0	7449327
Alkalinity (Total as CaCO3)	mg/L							45	1.0	7449862
Dissolved Chloride (Cl-)	mg/L							160	2.0	7449294
Nitrite (N)	mg/L							<0.010	0.010	7449352
Nitrate (N)	mg/L							<0.10	0.10	7449352
Nitrate + Nitrite (N)	mg/L							<0.10	0.10	7449352

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

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BV Labs Job #: C1I4834
Report Date: 2021/07/22

Golder Associates Ltd
Client Project #: 20448776
Sampler Initials: DS

RESULTS OF ANALYSES OF WATER

BV Labs ID		PZX224			PZX225			PZX225		
Sampling Date		2021/06/29 01:40			2021/06/29 02:30			2021/06/29 02:30		
COC Number		829401-04-01			829401-04-01			829401-04-01		
	UNITS	POND Lab-Dup	RDL	QC Batch	DW3	RDL	QC Batch	DW3 Lab-Dup	RDL	QC Batch
Inorganics										
Colour	TCU				2	2	7448619			
Conductivity	umho/cm	1200	1.0	7449863						
Fluoride (F-)	mg/L	0.57	0.10	7449852	0.16	0.10	7450307			
pH	pH	8.56		7449876						
Tannins & Lignins	mg/L				<0.2	0.2	7448005	<0.2	0.2	7448005
Turbidity	NTU				<0.1	0.1	7448506			
Alkalinity (Total as CaCO3)	mg/L	45	1.0	7449862						

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QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate

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ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

BV Labs ID		PZX224		
Sampling Date		2021/06/29 01:40		
COC Number		829401-04-01		
	UNITS	POND	RDL	QC Batch
Metals				
Total Arsenic (As)	ug/L	<1.0	1.0	7450558
Total Cadmium (Cd)	ug/L	<0.090	0.090	7450558
Total Calcium (Ca)	ug/L	69000	200	7450558
Total Chromium (Cr)	ug/L	<5.0	5.0	7450558
Total Copper (Cu)	ug/L	<0.90	0.90	7450558
Total Iron (Fe)	ug/L	150	100	7450558
Total Lead (Pb)	ug/L	<0.50	0.50	7450558
Total Magnesium (Mg)	ug/L	42000	50	7450558
Total Manganese (Mn)	ug/L	48	2.0	7450558
Total Nickel (Ni)	ug/L	1.7	1.0	7450558
Total Potassium (K)	ug/L	13000	200	7450558
Total Sodium (Na)	ug/L	110000	100	7450558
Total Zinc (Zn)	ug/L	<5.0	5.0	7450558

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

TEST SUMMARY

BV Labs ID: PZX223
Sample ID: 6-2
Matrix: Water

Collected: 2021/06/29
Shipped:
Received: 2021/07/05

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	7450310	N/A	2021/07/08	Surinder Rai
Carbonate, Bicarbonate and Hydroxide	CALC	7445807	N/A	2021/07/09	Automated Statchk
Chloride by Automated Colourimetry	KONE	7450319	N/A	2021/07/08	Alina Dobreanu
Colour	SPEC	7448619	N/A	2021/07/07	Viorica Rotaru
Conductivity	AT	7450312	N/A	2021/07/08	Surinder Rai
Dissolved Organic Carbon (DOC)	TOCV/NDIR	7448584	N/A	2021/07/07	Nimarta Singh
Fluoride	ISE	7450307	2021/07/07	2021/07/08	Surinder Rai
Hardness (calculated as CaCO3)		7445809	N/A	2021/07/07	Automated Statchk
Dissolved Metals by ICPMS	ICP/MS	7446635	N/A	2021/07/07	Arefa Dabhad
Ion Balance (% Difference)	CALC	7445810	N/A	2021/07/09	Automated Statchk
Anion and Cation Sum	CALC	7445811	N/A	2021/07/09	Automated Statchk
Total Ammonia-N	LACH/NH4	7452084	N/A	2021/07/09	Amanpreet Sappal
Nitrate (NO3) and Nitrite (NO2) in Water	LACH	7449352	N/A	2021/07/08	Chandra Nandlal
pH	AT	7450314	2021/07/07	2021/07/08	Surinder Rai
Orthophosphate	KONE	7450345	N/A	2021/07/08	Avneet Kour Sudan
Sat. pH and Langelier Index (@ 20C)	CALC	7445815	N/A	2021/07/09	Automated Statchk
Sat. pH and Langelier Index (@ 4C)	CALC	7445816	N/A	2021/07/09	Automated Statchk
Sulphate by Automated Colourimetry	KONE	7450322	N/A	2021/07/08	Alina Dobreanu
Total Dissolved Solids (TDS calc)	CALC	7445817	N/A	2021/07/09	Automated Statchk

BV Labs ID: PZX223 Dup
Sample ID: 6-2
Matrix: Water

Collected: 2021/06/29
Shipped:
Received: 2021/07/05

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	7450310	N/A	2021/07/08	Surinder Rai
Conductivity	AT	7450312	N/A	2021/07/08	Surinder Rai
Fluoride	ISE	7450307	2021/07/07	2021/07/08	Surinder Rai
pH	AT	7450314	2021/07/07	2021/07/08	Surinder Rai

BV Labs ID: PZX224
Sample ID: POND
Matrix: Water

Collected: 2021/06/29
Shipped:
Received: 2021/07/05

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	7449862	N/A	2021/07/08	Surinder Rai
Chloride by Automated Colourimetry	KONE	7449294	N/A	2021/07/08	Alina Dobreanu
Conductivity	AT	7449863	N/A	2021/07/08	Surinder Rai
Dissolved Organic Carbon (DOC)	TOCV/NDIR	7448584	N/A	2021/07/07	Nimarta Singh
Fluoride	ISE	7449852	2021/07/07	2021/07/08	Surinder Rai
Hardness (calculated as CaCO3)		7445809	N/A	2021/07/09	Ewa Pranjic
Total Metals Analysis by ICPMS	ICP/MS	7450558	N/A	2021/07/08	Prempal Bhatti
Anion and Cation Sum	CALC	7445811	N/A	2021/07/21	Automated Statchk
Total Ammonia-N	LACH/NH4	7448495	N/A	2021/07/08	Amanpreet Sappal
Nitrate (NO3) and Nitrite (NO2) in Water	LACH	7449352	N/A	2021/07/08	Chandra Nandlal

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TEST SUMMARY

BV Labs ID: PZX224
Sample ID: POND
Matrix: Water

Collected: 2021/06/29
Shipped:
Received: 2021/07/05

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Animal and Vegetable Oil and Grease	BAL	7445790	N/A	2021/07/09	Automated Statchk
Total Oil and Grease	BAL	7453173	2021/07/09	2021/07/09	Mitul Patel
pH	AT	7449876	2021/07/07	2021/07/08	Surinder Rai
Phenols (4AAP)	TECH/PHEN	7448237	N/A	2021/07/07	Deonarine Ramnarine
Sulphate by Automated Colourimetry	KONE	7449327	N/A	2021/07/08	Alina Dobreanu
Total Dissolved Solids	BAL	7449279	2021/07/07	2021/07/08	Shivani Desai
Total Kjeldahl Nitrogen in Water	SKAL	7448459	2021/07/07	2021/07/07	Massarat Jan
Total Phosphorus (Colourimetric)	LACH/P	7451429	2021/07/08	2021/07/09	Shivani Shivani
Mineral/Synthetic O & G (TPH Heavy Oil)	BAL	7453174	2021/07/09	2021/07/09	Mitul Patel
Total Suspended Solids	BAL	7448616	2021/07/07	2021/07/08	Shivani Desai

BV Labs ID: PZX224 Dup
Sample ID: POND
Matrix: Water

Collected: 2021/06/29
Shipped:
Received: 2021/07/05

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	7449862	N/A	2021/07/08	Surinder Rai
Conductivity	AT	7449863	N/A	2021/07/08	Surinder Rai
Fluoride	ISE	7449852	2021/07/07	2021/07/08	Surinder Rai
pH	AT	7449876	2021/07/07	2021/07/08	Surinder Rai

BV Labs ID: PZX225
Sample ID: DW3
Matrix: Water

Collected: 2021/06/29
Shipped:
Received: 2021/07/05

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	7450310	N/A	2021/07/08	Surinder Rai
Carbonate, Bicarbonate and Hydroxide	CALC	7445807	N/A	2021/07/09	Automated Statchk
Chloride by Automated Colourimetry	KONE	7450319	N/A	2021/07/08	Alina Dobreanu
Colour	SPEC	7448619	N/A	2021/07/07	Viorica Rotaru
Conductivity	AT	7450312	N/A	2021/07/08	Surinder Rai
Dissolved Organic Carbon (DOC)	TOCV/NDIR	7448584	N/A	2021/07/07	Nimarta Singh
Fluoride	ISE	7450307	2021/07/07	2021/07/08	Surinder Rai
Hardness (calculated as CaCO3)		7445809	N/A	2021/07/07	Automated Statchk
Metals Analysis by ICPMS (as received)	ICP/MS	7446641	N/A	2021/07/07	Arefa Dabhad
Ion Balance (% Difference)	CALC	7445810	N/A	2021/07/09	Automated Statchk
Anion and Cation Sum	CALC	7445811	N/A	2021/07/09	Automated Statchk
Total Ammonia-N	LACH/NH4	7452084	N/A	2021/07/09	Amanpreet Sappal
Nitrate (NO3) and Nitrite (NO2) in Water	LACH	7449352	N/A	2021/07/08	Chandra Nandlal
pH	AT	7450314	2021/07/07	2021/07/08	Surinder Rai
Orthophosphate	KONE	7450345	N/A	2021/07/08	Avneet Kour Sudan
Sat. pH and Langelier Index (@ 20C)	CALC	7445815	N/A	2021/07/09	Automated Statchk
Sat. pH and Langelier Index (@ 4C)	CALC	7445816	N/A	2021/07/09	Automated Statchk
Sulphate by Automated Colourimetry	KONE	7450322	N/A	2021/07/08	Alina Dobreanu
Tannins & Lignins	SPEC	7448005	N/A	2021/07/07	Viorica Rotaru

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TEST SUMMARY

BV Labs ID: PZX225
Sample ID: DW3
Matrix: Water

Collected: 2021/06/29
Shipped:
Received: 2021/07/05

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Total Dissolved Solids (TDS calc)	CALC	7445817	N/A	2021/07/09	Automated Statchk
Turbidity	AT	7448506	N/A	2021/07/07	Surinder Rai

BV Labs ID: PZX225 Dup
Sample ID: DW3
Matrix: Water

Collected: 2021/06/29
Shipped:
Received: 2021/07/05

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Total Ammonia-N	LACH/NH4	7452084	N/A	2021/07/09	Amanpreet Sappal
Tannins & Lignins	SPEC	7448005	N/A	2021/07/07	Viorica Rotaru

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GENERAL COMMENTS

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

Package 1	8.3°C

Results relate only to the items tested.

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QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
7446635	ADA	Matrix Spike	Dissolved Aluminum (Al)	2021/07/07		100	%	80 - 120
			Dissolved Antimony (Sb)	2021/07/07		107	%	80 - 120
			Dissolved Arsenic (As)	2021/07/07		102	%	80 - 120
			Dissolved Barium (Ba)	2021/07/07		102	%	80 - 120
			Dissolved Beryllium (Be)	2021/07/07		95	%	80 - 120
			Dissolved Boron (B)	2021/07/07		93	%	80 - 120
			Dissolved Cadmium (Cd)	2021/07/07		106	%	80 - 120
			Dissolved Calcium (Ca)	2021/07/07		NC	%	80 - 120
			Dissolved Chromium (Cr)	2021/07/07		98	%	80 - 120
			Dissolved Cobalt (Co)	2021/07/07		100	%	80 - 120
			Dissolved Copper (Cu)	2021/07/07		97	%	80 - 120
			Dissolved Iron (Fe)	2021/07/07		99	%	80 - 120
			Dissolved Lead (Pb)	2021/07/07		100	%	80 - 120
			Dissolved Magnesium (Mg)	2021/07/07		NC	%	80 - 120
			Dissolved Manganese (Mn)	2021/07/07		101	%	80 - 120
			Dissolved Molybdenum (Mo)	2021/07/07		101	%	80 - 120
			Dissolved Nickel (Ni)	2021/07/07		96	%	80 - 120
			Dissolved Phosphorus (P)	2021/07/07		105	%	80 - 120
			Dissolved Potassium (K)	2021/07/07		103	%	80 - 120
			Dissolved Selenium (Se)	2021/07/07		102	%	80 - 120
			Dissolved Silicon (Si)	2021/07/07		101	%	80 - 120
			Dissolved Silver (Ag)	2021/07/07		99	%	80 - 120
			Dissolved Sodium (Na)	2021/07/07		100	%	80 - 120
			Dissolved Strontium (Sr)	2021/07/07		101	%	80 - 120
			Dissolved Thallium (Tl)	2021/07/07		105	%	80 - 120
			Dissolved Titanium (Ti)	2021/07/07		101	%	80 - 120
			Dissolved Uranium (U)	2021/07/07		103	%	80 - 120
			Dissolved Vanadium (V)	2021/07/07		101	%	80 - 120
			Dissolved Zinc (Zn)	2021/07/07		102	%	80 - 120
7446635	ADA	Spiked Blank	Dissolved Aluminum (Al)	2021/07/07		99	%	80 - 120
			Dissolved Antimony (Sb)	2021/07/07		100	%	80 - 120
			Dissolved Arsenic (As)	2021/07/07		97	%	80 - 120
			Dissolved Barium (Ba)	2021/07/07		98	%	80 - 120
			Dissolved Beryllium (Be)	2021/07/07		90	%	80 - 120
			Dissolved Boron (B)	2021/07/07		89	%	80 - 120
			Dissolved Cadmium (Cd)	2021/07/07		100	%	80 - 120
			Dissolved Calcium (Ca)	2021/07/07		98	%	80 - 120
			Dissolved Chromium (Cr)	2021/07/07		93	%	80 - 120
			Dissolved Cobalt (Co)	2021/07/07		97	%	80 - 120
			Dissolved Copper (Cu)	2021/07/07		94	%	80 - 120
			Dissolved Iron (Fe)	2021/07/07		95	%	80 - 120
			Dissolved Lead (Pb)	2021/07/07		96	%	80 - 120
			Dissolved Magnesium (Mg)	2021/07/07		98	%	80 - 120
			Dissolved Manganese (Mn)	2021/07/07		98	%	80 - 120
			Dissolved Molybdenum (Mo)	2021/07/07		94	%	80 - 120
			Dissolved Nickel (Ni)	2021/07/07		95	%	80 - 120
			Dissolved Phosphorus (P)	2021/07/07		105	%	80 - 120
			Dissolved Potassium (K)	2021/07/07		98	%	80 - 120
			Dissolved Selenium (Se)	2021/07/07		100	%	80 - 120
			Dissolved Silicon (Si)	2021/07/07		101	%	80 - 120
			Dissolved Silver (Ag)	2021/07/07		95	%	80 - 120
			Dissolved Sodium (Na)	2021/07/07		96	%	80 - 120

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Dissolved Strontium (Sr)	2021/07/07		98	%	80 - 120
			Dissolved Thallium (Tl)	2021/07/07		97	%	80 - 120
			Dissolved Titanium (Ti)	2021/07/07		96	%	80 - 120
			Dissolved Uranium (U)	2021/07/07		97	%	80 - 120
			Dissolved Vanadium (V)	2021/07/07		96	%	80 - 120
			Dissolved Zinc (Zn)	2021/07/07		98	%	80 - 120
7446635	ADA	Method Blank	Dissolved Aluminum (Al)	2021/07/07	<4.9		ug/L	
			Dissolved Antimony (Sb)	2021/07/07	<0.50		ug/L	
			Dissolved Arsenic (As)	2021/07/07	<1.0		ug/L	
			Dissolved Barium (Ba)	2021/07/07	<2.0		ug/L	
			Dissolved Beryllium (Be)	2021/07/07	<0.40		ug/L	
			Dissolved Boron (B)	2021/07/07	<10		ug/L	
			Dissolved Cadmium (Cd)	2021/07/07	<0.090		ug/L	
			Dissolved Calcium (Ca)	2021/07/07	<200		ug/L	
			Dissolved Chromium (Cr)	2021/07/07	<5.0		ug/L	
			Dissolved Cobalt (Co)	2021/07/07	<0.50		ug/L	
			Dissolved Copper (Cu)	2021/07/07	<0.90		ug/L	
			Dissolved Iron (Fe)	2021/07/07	<100		ug/L	
			Dissolved Lead (Pb)	2021/07/07	<0.50		ug/L	
			Dissolved Magnesium (Mg)	2021/07/07	<50		ug/L	
			Dissolved Manganese (Mn)	2021/07/07	<2.0		ug/L	
			Dissolved Molybdenum (Mo)	2021/07/07	<0.50		ug/L	
			Dissolved Nickel (Ni)	2021/07/07	<1.0		ug/L	
			Dissolved Phosphorus (P)	2021/07/07	<100		ug/L	
			Dissolved Potassium (K)	2021/07/07	<200		ug/L	
			Dissolved Selenium (Se)	2021/07/07	<2.0		ug/L	
			Dissolved Silicon (Si)	2021/07/07	<50		ug/L	
			Dissolved Silver (Ag)	2021/07/07	<0.090		ug/L	
			Dissolved Sodium (Na)	2021/07/07	<100		ug/L	
			Dissolved Strontium (Sr)	2021/07/07	<1.0		ug/L	
			Dissolved Thallium (Tl)	2021/07/07	<0.050		ug/L	
			Dissolved Titanium (Ti)	2021/07/07	<5.0		ug/L	
			Dissolved Uranium (U)	2021/07/07	<0.10		ug/L	
			Dissolved Vanadium (V)	2021/07/07	<0.50		ug/L	
			Dissolved Zinc (Zn)	2021/07/07	<5.0		ug/L	
7446635	ADA	RPD	Dissolved Antimony (Sb)	2021/07/07	NC		%	20
			Dissolved Arsenic (As)	2021/07/07	NC		%	20
			Dissolved Barium (Ba)	2021/07/07	4.8		%	20
			Dissolved Beryllium (Be)	2021/07/07	NC		%	20
			Dissolved Boron (B)	2021/07/07	2.6		%	20
			Dissolved Cadmium (Cd)	2021/07/07	NC		%	20
			Dissolved Chromium (Cr)	2021/07/07	NC		%	20
			Dissolved Cobalt (Co)	2021/07/07	NC		%	20
			Dissolved Copper (Cu)	2021/07/07	NC		%	20
			Dissolved Lead (Pb)	2021/07/07	NC		%	20
			Dissolved Molybdenum (Mo)	2021/07/07	3.5		%	20
			Dissolved Nickel (Ni)	2021/07/07	NC		%	20
			Dissolved Selenium (Se)	2021/07/07	NC		%	20
			Dissolved Silver (Ag)	2021/07/07	NC		%	20
			Dissolved Sodium (Na)	2021/07/07	0.13		%	20
			Dissolved Thallium (Tl)	2021/07/07	NC		%	20
			Dissolved Uranium (U)	2021/07/07	0.84		%	20

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Dissolved Vanadium (V)	2021/07/07	NC		%	20
			Dissolved Zinc (Zn)	2021/07/07	NC		%	20
7446641	ADA	Matrix Spike	Aluminum (Al)	2021/07/07		101	%	80 - 120
			Antimony (Sb)	2021/07/07		105	%	80 - 120
			Arsenic (As)	2021/07/07		100	%	80 - 120
			Barium (Ba)	2021/07/07		103	%	80 - 120
			Beryllium (Be)	2021/07/07		94	%	80 - 120
			Boron (B)	2021/07/07		91	%	80 - 120
			Cadmium (Cd)	2021/07/07		103	%	80 - 120
			Calcium (Ca)	2021/07/07		NC	%	80 - 120
			Chromium (Cr)	2021/07/07		95	%	80 - 120
			Cobalt (Co)	2021/07/07		101	%	80 - 120
			Copper (Cu)	2021/07/07		95	%	80 - 120
			Iron (Fe)	2021/07/07		98	%	80 - 120
			Lead (Pb)	2021/07/07		98	%	80 - 120
			Lithium (Li)	2021/07/07		101	%	80 - 120
			Magnesium (Mg)	2021/07/07		NC	%	80 - 120
			Manganese (Mn)	2021/07/07		100	%	80 - 120
			Molybdenum (Mo)	2021/07/07		98	%	80 - 120
			Nickel (Ni)	2021/07/07		96	%	80 - 120
			Phosphorus (P)	2021/07/07		103	%	80 - 120
			Potassium (K)	2021/07/07		99	%	80 - 120
			Selenium (Se)	2021/07/07		104	%	80 - 120
			Silicon (Si)	2021/07/07		104	%	80 - 120
			Silver (Ag)	2021/07/07		97	%	80 - 120
			Sodium (Na)	2021/07/07		96	%	80 - 120
			Strontium (Sr)	2021/07/07		102	%	80 - 120
			Thallium (Tl)	2021/07/07		99	%	80 - 120
			Titanium (Ti)	2021/07/07		101	%	80 - 120
			Uranium (U)	2021/07/07		98	%	80 - 120
			Vanadium (V)	2021/07/07		98	%	80 - 120
			Zinc (Zn)	2021/07/07		99	%	80 - 120
7446641	ADA	Spiked Blank	Aluminum (Al)	2021/07/07		98	%	80 - 120
			Antimony (Sb)	2021/07/07		100	%	80 - 120
			Arsenic (As)	2021/07/07		97	%	80 - 120
			Barium (Ba)	2021/07/07		97	%	80 - 120
			Beryllium (Be)	2021/07/07		90	%	80 - 120
			Boron (B)	2021/07/07		89	%	80 - 120
			Cadmium (Cd)	2021/07/07		100	%	80 - 120
			Calcium (Ca)	2021/07/07		98	%	80 - 120
			Chromium (Cr)	2021/07/07		93	%	80 - 120
			Cobalt (Co)	2021/07/07		98	%	80 - 120
			Copper (Cu)	2021/07/07		92	%	80 - 120
			Iron (Fe)	2021/07/07		95	%	80 - 120
			Lead (Pb)	2021/07/07		95	%	80 - 120
			Lithium (Li)	2021/07/07		102	%	80 - 120
			Magnesium (Mg)	2021/07/07		98	%	80 - 120
			Manganese (Mn)	2021/07/07		96	%	80 - 120
			Molybdenum (Mo)	2021/07/07		94	%	80 - 120
			Nickel (Ni)	2021/07/07		94	%	80 - 120
			Phosphorus (P)	2021/07/07		106	%	80 - 120
			Potassium (K)	2021/07/07		96	%	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
			Selenium (Se)	2021/07/07		99	%	80 - 120
			Silicon (Si)	2021/07/07		100	%	80 - 120
			Silver (Ag)	2021/07/07		93	%	80 - 120
			Sodium (Na)	2021/07/07		95	%	80 - 120
			Strontium (Sr)	2021/07/07		98	%	80 - 120
			Thallium (Tl)	2021/07/07		99	%	80 - 120
			Titanium (Ti)	2021/07/07		97	%	80 - 120
			Uranium (U)	2021/07/07		95	%	80 - 120
			Vanadium (V)	2021/07/07		95	%	80 - 120
			Zinc (Zn)	2021/07/07		96	%	80 - 120
7446641	ADA	Method Blank	Aluminum (Al)	2021/07/07	<4.9		ug/L	
			Antimony (Sb)	2021/07/07	<0.50		ug/L	
			Arsenic (As)	2021/07/07	<1.0		ug/L	
			Barium (Ba)	2021/07/07	<2.0		ug/L	
			Beryllium (Be)	2021/07/07	<0.40		ug/L	
			Boron (B)	2021/07/07	<10		ug/L	
			Cadmium (Cd)	2021/07/07	<0.090		ug/L	
			Calcium (Ca)	2021/07/07	<200		ug/L	
			Chromium (Cr)	2021/07/07	<5.0		ug/L	
			Cobalt (Co)	2021/07/07	<0.50		ug/L	
			Copper (Cu)	2021/07/07	<0.90		ug/L	
			Iron (Fe)	2021/07/07	<100		ug/L	
			Lead (Pb)	2021/07/07	<0.50		ug/L	
			Lithium (Li)	2021/07/07	<5.0		ug/L	
			Magnesium (Mg)	2021/07/07	<50		ug/L	
			Manganese (Mn)	2021/07/07	<2.0		ug/L	
			Molybdenum (Mo)	2021/07/07	<0.50		ug/L	
			Nickel (Ni)	2021/07/07	<1.0		ug/L	
			Phosphorus (P)	2021/07/07	<100		ug/L	
			Potassium (K)	2021/07/07	<200		ug/L	
			Selenium (Se)	2021/07/07	<2.0		ug/L	
			Silicon (Si)	2021/07/07	<50		ug/L	
			Silver (Ag)	2021/07/07	<0.090		ug/L	
			Sodium (Na)	2021/07/07	<100		ug/L	
			Strontium (Sr)	2021/07/07	<1.0		ug/L	
			Thallium (Tl)	2021/07/07	<0.050		ug/L	
			Titanium (Ti)	2021/07/07	<5.0		ug/L	
			Uranium (U)	2021/07/07	<0.10		ug/L	
			Vanadium (V)	2021/07/07	<0.50		ug/L	
			Zinc (Zn)	2021/07/07	<5.0		ug/L	
7446641	ADA	RPD	Aluminum (Al)	2021/07/07	NC		%	20
			Antimony (Sb)	2021/07/07	NC		%	20
			Arsenic (As)	2021/07/07	0.73		%	20
			Barium (Ba)	2021/07/07	1.4		%	20
			Beryllium (Be)	2021/07/07	NC		%	20
			Boron (B)	2021/07/07	4.4		%	20
			Cadmium (Cd)	2021/07/07	NC		%	20
			Calcium (Ca)	2021/07/07	1.1		%	20
			Chromium (Cr)	2021/07/07	NC		%	20
			Cobalt (Co)	2021/07/07	NC		%	20
			Copper (Cu)	2021/07/07	5.8		%	20
			Iron (Fe)	2021/07/07	0.073		%	20

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Lead (Pb)	2021/07/07	0.10		%	20
			Lithium (Li)	2021/07/07	NC		%	20
			Magnesium (Mg)	2021/07/07	2.7		%	20
			Manganese (Mn)	2021/07/07	0.80		%	20
			Molybdenum (Mo)	2021/07/07	1.3		%	20
			Nickel (Ni)	2021/07/07	NC		%	20
			Phosphorus (P)	2021/07/07	NC		%	20
			Potassium (K)	2021/07/07	0.15		%	20
			Selenium (Se)	2021/07/07	NC		%	20
			Silicon (Si)	2021/07/07	0.53		%	20
			Silver (Ag)	2021/07/07	NC		%	20
			Sodium (Na)	2021/07/07	1.8		%	20
			Strontium (Sr)	2021/07/07	0.59		%	20
			Thallium (Tl)	2021/07/07	NC		%	20
			Titanium (Ti)	2021/07/07	NC		%	20
			Uranium (U)	2021/07/07	NC		%	20
			Vanadium (V)	2021/07/07	NC		%	20
			Zinc (Zn)	2021/07/07	1.3		%	20
7448005	VRO	Matrix Spike [PZX225-02]	Tannins & Lignins	2021/07/07		99	%	80 - 120
7448005	VRO	Spiked Blank	Tannins & Lignins	2021/07/07		102	%	80 - 120
7448005	VRO	Method Blank	Tannins & Lignins	2021/07/07	<0.2		mg/L	
7448005	VRO	RPD [PZX225-02]	Tannins & Lignins	2021/07/07	NC		%	20
7448237	DRM	Matrix Spike	Phenols-4AAP	2021/07/07		90	%	80 - 120
7448237	DRM	Spiked Blank	Phenols-4AAP	2021/07/07		101	%	80 - 120
7448237	DRM	Method Blank	Phenols-4AAP	2021/07/07	<0.0010		mg/L	
7448237	DRM	RPD	Phenols-4AAP	2021/07/07	NC		%	20
7448459	MJ1	Matrix Spike	Total Kjeldahl Nitrogen (TKN)	2021/07/07		NC	%	80 - 120
7448459	MJ1	QC Standard	Total Kjeldahl Nitrogen (TKN)	2021/07/07		89	%	80 - 120
7448459	MJ1	Spiked Blank	Total Kjeldahl Nitrogen (TKN)	2021/07/07		92	%	80 - 120
7448459	MJ1	Method Blank	Total Kjeldahl Nitrogen (TKN)	2021/07/07	<0.10		mg/L	
7448459	MJ1	RPD	Total Kjeldahl Nitrogen (TKN)	2021/07/07	NC		%	20
7448495	ASP	Matrix Spike	Total Ammonia-N	2021/07/08		103	%	75 - 125
7448495	ASP	Spiked Blank	Total Ammonia-N	2021/07/08		101	%	80 - 120
7448495	ASP	Method Blank	Total Ammonia-N	2021/07/08	<0.050		mg/L	
7448495	ASP	RPD	Total Ammonia-N	2021/07/08	2.3		%	20
7448506	SAU	Spiked Blank	Turbidity	2021/07/07		94	%	85 - 115
7448506	SAU	Method Blank	Turbidity	2021/07/07	<0.1		NTU	
7448506	SAU	RPD	Turbidity	2021/07/07	3.8		%	20
7448584	NS3	Matrix Spike	Dissolved Organic Carbon	2021/07/07		NC	%	80 - 120
7448584	NS3	Spiked Blank	Dissolved Organic Carbon	2021/07/07		97	%	80 - 120
7448584	NS3	Method Blank	Dissolved Organic Carbon	2021/07/07	<0.40		mg/L	
7448584	NS3	RPD	Dissolved Organic Carbon	2021/07/07	0.88		%	20
7448616	SDE	QC Standard	Total Suspended Solids	2021/07/08		95	%	85 - 115
7448616	SDE	Method Blank	Total Suspended Solids	2021/07/08	<10		mg/L	
7448616	SDE	RPD	Total Suspended Solids	2021/07/08	6.1		%	25
7448619	VRO	Spiked Blank	Colour	2021/07/07		100	%	80 - 120
7448619	VRO	Method Blank	Colour	2021/07/07	<2		TCU	
7448619	VRO	RPD	Colour	2021/07/07	NC		%	25
7449279	SDE	QC Standard	Total Dissolved Solids	2021/07/08		100	%	90 - 110
7449279	SDE	Method Blank	Total Dissolved Solids	2021/07/08	<10		mg/L	
7449279	SDE	RPD	Total Dissolved Solids	2021/07/08	4.7		%	25
7449294	ADB	Matrix Spike	Dissolved Chloride (Cl-)	2021/07/08		NC	%	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
7449294	ADB	Spiked Blank	Dissolved Chloride (Cl-)	2021/07/08		99	%	80 - 120
7449294	ADB	Method Blank	Dissolved Chloride (Cl-)	2021/07/08	<1.0		mg/L	
7449294	ADB	RPD	Dissolved Chloride (Cl-)	2021/07/08	7.3		%	20
7449327	ADB	Matrix Spike	Dissolved Sulphate (SO4)	2021/07/08		NC	%	75 - 125
7449327	ADB	Spiked Blank	Dissolved Sulphate (SO4)	2021/07/08		100	%	80 - 120
7449327	ADB	Method Blank	Dissolved Sulphate (SO4)	2021/07/08	<1.0		mg/L	
7449327	ADB	RPD	Dissolved Sulphate (SO4)	2021/07/08	3.0		%	20
7449352	C_N	Matrix Spike	Nitrite (N)	2021/07/08		102	%	80 - 120
			Nitrate (N)	2021/07/08		97	%	80 - 120
7449352	C_N	Spiked Blank	Nitrite (N)	2021/07/08		103	%	80 - 120
			Nitrate (N)	2021/07/08		98	%	80 - 120
7449352	C_N	Method Blank	Nitrite (N)	2021/07/08	<0.010		mg/L	
			Nitrate (N)	2021/07/08	<0.10		mg/L	
7449352	C_N	RPD	Nitrite (N)	2021/07/08	2.0		%	20
			Nitrate (N)	2021/07/08	8.1		%	20
7449852	SAU	Matrix Spike [PZX224-04]	Fluoride (F-)	2021/07/08		105	%	80 - 120
7449852	SAU	Spiked Blank	Fluoride (F-)	2021/07/08		101	%	80 - 120
7449852	SAU	Method Blank	Fluoride (F-)	2021/07/08	<0.10		mg/L	
7449852	SAU	RPD [PZX224-04]	Fluoride (F-)	2021/07/08	4.7		%	20
7449862	SAU	Spiked Blank	Alkalinity (Total as CaCO3)	2021/07/08		96	%	85 - 115
7449862	SAU	Method Blank	Alkalinity (Total as CaCO3)	2021/07/08	<1.0		mg/L	
7449862	SAU	RPD [PZX224-04]	Alkalinity (Total as CaCO3)	2021/07/08	0.12		%	20
7449863	SAU	Spiked Blank	Conductivity	2021/07/08		100	%	85 - 115
7449863	SAU	Method Blank	Conductivity	2021/07/08	<1.0		umho/cm	
7449863	SAU	RPD [PZX224-04]	Conductivity	2021/07/08	0.25		%	25
7449876	SAU	Spiked Blank	pH	2021/07/08		102	%	98 - 103
7449876	SAU	RPD [PZX224-04]	pH	2021/07/08	1.3		%	N/A
7450307	SAU	Matrix Spike [PZX223-01]	Fluoride (F-)	2021/07/08		97	%	80 - 120
7450307	SAU	Spiked Blank	Fluoride (F-)	2021/07/08		93	%	80 - 120
7450307	SAU	Method Blank	Fluoride (F-)	2021/07/08	<0.10		mg/L	
7450307	SAU	RPD [PZX223-01]	Fluoride (F-)	2021/07/08	1.4		%	20
7450310	SAU	Spiked Blank	Alkalinity (Total as CaCO3)	2021/07/08		96	%	85 - 115
7450310	SAU	Method Blank	Alkalinity (Total as CaCO3)	2021/07/08	<1.0		mg/L	
7450310	SAU	RPD [PZX223-01]	Alkalinity (Total as CaCO3)	2021/07/08	1.6		%	20
7450312	SAU	Spiked Blank	Conductivity	2021/07/08		102	%	85 - 115
7450312	SAU	Method Blank	Conductivity	2021/07/08	<1.0		umho/cm	
7450312	SAU	RPD [PZX223-01]	Conductivity	2021/07/08	0.16		%	25
7450314	SAU	Spiked Blank	pH	2021/07/08		102	%	98 - 103
7450314	SAU	RPD [PZX223-01]	pH	2021/07/08	1.2		%	N/A
7450319	ADB	Matrix Spike	Dissolved Chloride (Cl-)	2021/07/08		NC	%	80 - 120
7450319	ADB	Spiked Blank	Dissolved Chloride (Cl-)	2021/07/08		104	%	80 - 120
7450319	ADB	Method Blank	Dissolved Chloride (Cl-)	2021/07/08	<1.0		mg/L	
7450319	ADB	RPD	Dissolved Chloride (Cl-)	2021/07/08	0.77		%	20
7450322	ADB	Matrix Spike	Dissolved Sulphate (SO4)	2021/07/08		NC	%	75 - 125
7450322	ADB	Spiked Blank	Dissolved Sulphate (SO4)	2021/07/08		100	%	80 - 120
7450322	ADB	Method Blank	Dissolved Sulphate (SO4)	2021/07/08	<1.0		mg/L	
7450322	ADB	RPD	Dissolved Sulphate (SO4)	2021/07/08	1.5		%	20
7450345	AKD	Matrix Spike	Orthophosphate (P)	2021/07/08		110	%	75 - 125
7450345	AKD	Spiked Blank	Orthophosphate (P)	2021/07/08		99	%	80 - 120
7450345	AKD	Method Blank	Orthophosphate (P)	2021/07/08	<0.010		mg/L	
7450345	AKD	RPD	Orthophosphate (P)	2021/07/08	8.1		%	25
7450558	PBA	Matrix Spike	Total Arsenic (As)	2021/07/08		96	%	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 Cadmium (Cd)	2021/07/08		97	%	80 - 120
			Total Calcium (Ca)	2021/07/08		NC	%	80 - 120
			Total Chromium (Cr)	2021/07/08		91	%	80 - 120
			Total Copper (Cu)	2021/07/08		95	%	80 - 120
			Total Iron (Fe)	2021/07/08		93	%	80 - 120
			Total Lead (Pb)	2021/07/08		95	%	80 - 120
			Total Magnesium (Mg)	2021/07/08		91	%	80 - 120
			Total Manganese (Mn)	2021/07/08		93	%	80 - 120
			Total Nickel (Ni)	2021/07/08		92	%	80 - 120
			Total Potassium (K)	2021/07/08		96	%	80 - 120
			Total Sodium (Na)	2021/07/08		94	%	80 - 120
			Total Zinc (Zn)	2021/07/08		98	%	80 - 120
7450558	PBA	Spiked Blank	Total Arsenic (As)	2021/07/08		96	%	80 - 120
			Total Cadmium (Cd)	2021/07/08		98	%	80 - 120
			Total Calcium (Ca)	2021/07/08		96	%	80 - 120
			Total Chromium (Cr)	2021/07/08		92	%	80 - 120
			Total Copper (Cu)	2021/07/08		96	%	80 - 120
			Total Iron (Fe)	2021/07/08		94	%	80 - 120
			Total Lead (Pb)	2021/07/08		94	%	80 - 120
			Total Magnesium (Mg)	2021/07/08		97	%	80 - 120
			Total Manganese (Mn)	2021/07/08		94	%	80 - 120
			Total Nickel (Ni)	2021/07/08		94	%	80 - 120
			Total Potassium (K)	2021/07/08		97	%	80 - 120
			Total Sodium (Na)	2021/07/08		96	%	80 - 120
			Total Zinc (Zn)	2021/07/08		99	%	80 - 120
7450558	PBA	Method Blank	Total Arsenic (As)	2021/07/08	<1.0		ug/L	
			Total Cadmium (Cd)	2021/07/08	<0.090		ug/L	
			Total Calcium (Ca)	2021/07/08	<200		ug/L	
			Total Chromium (Cr)	2021/07/08	<5.0		ug/L	
			Total Copper (Cu)	2021/07/08	<0.90		ug/L	
			Total Iron (Fe)	2021/07/08	<100		ug/L	
			Total Lead (Pb)	2021/07/08	<0.50		ug/L	
			Total Magnesium (Mg)	2021/07/08	<50		ug/L	
			Total Manganese (Mn)	2021/07/08	<2.0		ug/L	
			Total Nickel (Ni)	2021/07/08	<1.0		ug/L	
			Total Potassium (K)	2021/07/08	<200		ug/L	
			Total Sodium (Na)	2021/07/08	<100		ug/L	
			Total Zinc (Zn)	2021/07/08	<5.0		ug/L	
7450558	PBA	RPD	Total Arsenic (As)	2021/07/08	NC		%	20
			Total Cadmium (Cd)	2021/07/08	NC		%	20
			Total Calcium (Ca)	2021/07/08	1.9		%	20
			Total Chromium (Cr)	2021/07/08	NC		%	20
			Total Copper (Cu)	2021/07/08	8.2		%	20
			Total Iron (Fe)	2021/07/08	NC		%	20
			Total Lead (Pb)	2021/07/08	NC		%	20
			Total Magnesium (Mg)	2021/07/08	0.053		%	20
			Total Manganese (Mn)	2021/07/08	19		%	20
			Total Nickel (Ni)	2021/07/08	0.57		%	20
			Total Potassium (K)	2021/07/08	1.1		%	20
			Total Sodium (Na)	2021/07/08	0.37		%	20
			Total Zinc (Zn)	2021/07/08	NC		%	20
7451429	SSV	Matrix Spike	Total Phosphorus	2021/07/09		98	%	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
7451429	SSV	QC Standard	Total Phosphorus	2021/07/09		99	%	80 - 120
7451429	SSV	Spiked Blank	Total Phosphorus	2021/07/09		95	%	80 - 120
7451429	SSV	Method Blank	Total Phosphorus	2021/07/09	<0.020		mg/L	
7451429	SSV	RPD	Total Phosphorus	2021/07/09	2.3		%	20
7452084	ASP	Matrix Spike [PZX225-05]	Total Ammonia-N	2021/07/09		103	%	75 - 125
7452084	ASP	Spiked Blank	Total Ammonia-N	2021/07/09		100	%	80 - 120
7452084	ASP	Method Blank	Total Ammonia-N	2021/07/09	<0.050		mg/L	
7452084	ASP	RPD [PZX225-05]	Total Ammonia-N	2021/07/09	NC		%	20
7453173	MPZ	Spiked Blank	Total Oil & Grease	2021/07/09		98	%	85 - 115
7453173	MPZ	RPD	Total Oil & Grease	2021/07/09	0.25		%	25
7453173	MPZ	Method Blank	Total Oil & Grease	2021/07/09	<0.50		mg/L	
7453174	MPZ	Spiked Blank	Total Oil & Grease Mineral/Synthetic	2021/07/09		95	%	85 - 115
7453174	MPZ	RPD	Total Oil & Grease Mineral/Synthetic	2021/07/09	0.52		%	25
7453174	MPZ	Method Blank	Total Oil & Grease Mineral/Synthetic	2021/07/09	<0.50		mg/L	

N/A = Not Applicable

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

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

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

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

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

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

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

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VALIDATION SIGNATURE PAGE

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

Anastassia Hamanov, Scientific Specialist

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

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

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Your Project #: 20448776
Site Location: MCCARTHY
Your C.O.C. #: 835805-01-01

Attention: Dawn Hoyle

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

Report Date: 2021/07/29
Report #: R6741681
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: C1K6407
Received: 2021/07/23, 11:40

Sample Matrix: Ground Water
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Alkalinity	1	N/A	2021/07/27	CAM SOP-00448	SM 23 2320 B m
Carbonate, Bicarbonate and Hydroxide	1	N/A	2021/07/28	CAM SOP-00102	APHA 4500-CO2 D
Chloride by Automated Colourimetry	1	N/A	2021/07/27	CAM SOP-00463	SM 23 4500-Cl E m
Colour	1	N/A	2021/07/27	CAM SOP-00412	SM 23 2120C m
Conductivity	1	N/A	2021/07/27	CAM SOP-00414	SM 23 2510 m
Dissolved Organic Carbon (DOC) (1)	1	N/A	2021/07/27	CAM SOP-00446	SM 23 5310 B m
Fluoride	1	2021/07/26	2021/07/27	CAM SOP-00449	SM 23 4500-F C m
Hardness (calculated as CaCO3)	1	N/A	2021/07/28	CAM SOP 00102/00408/00447	SM 2340 B
Dissolved Metals by ICPMS	1	N/A	2021/07/28	CAM SOP-00447	EPA 6020B m
Total Ammonia-N	1	N/A	2021/07/27	CAM SOP-00441	USGS I-2522-90 m
Nitrate (NO3) and Nitrite (NO2) in Water (2)	1	N/A	2021/07/26	CAM SOP-00440	SM 23 4500-NO3I/NO2B
pH	1	2021/07/26	2021/07/27	CAM SOP-00413	SM 4500H+ B m
Orthophosphate	1	N/A	2021/07/28	CAM SOP-00461	EPA 365.1 m
Sulphate by Automated Colourimetry	1	N/A	2021/07/28	CAM SOP-00464	EPA 375.4 m
Total Dissolved Solids (TDS calc)	1	N/A	2021/07/28		Auto Calc

Remarks:

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

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

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Your Project #: 20448776
Site Location: MCCARTHY
Your C.O.C. #: 835805-01-01

Attention: Dawn Hoyle

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

Report Date: 2021/07/29
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CERTIFICATE OF ANALYSIS

BV LABS JOB #: C1K6407
Received: 2021/07/23, 11:40

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) Dissolved Organic Carbon (DOC) present in the sample should be considered as non-purgeable DOC.
(2) Values for calculated parameters may not appear to add up due to rounding of raw data and significant figures.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Ema Gitej, Senior Project Manager
Email: emese.gitej@bureauveritas.com
Phone# (905)817-5829
==========
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BV Labs Job #: C1K6407
Report Date: 2021/07/29

Golder Associates Ltd
Client Project #: 20448776
Site Location: MCCARTHY
Sampler Initials: DD

RESULTS OF ANALYSES OF GROUND WATER

BV Labs ID		QEJ150		
Sampling Date		2021/07/19 13:50		
COC Number		835805-01-01		
	UNITS	OW5-2	RDL	QC Batch
Calculated Parameters				
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	120	1.0	7480175
Calculated TDS	mg/L	17000	1.0	7480172
Hardness (CaCO3)	mg/L	5900	1.0	7479939
Inorganics				
Total Ammonia-N	mg/L	15	0.050	7483166
Colour	TCU	12	2	7482039
Conductivity	umho/cm	32000	1.0	7483688
Fluoride (F-)	mg/L	0.40	0.10	7483628
Dissolved Organic Carbon	mg/L	0.99	0.40	7485276
Orthophosphate (P)	mg/L	<0.010	0.010	7483477
pH	pH	7.12		7483686
Dissolved Sulphate (SO4)	mg/L	14	1.0	7483476
Alkalinity (Total as CaCO3)	mg/L	130	1.0	7483685
Dissolved Chloride (Cl-)	mg/L	10000	120	7483474
Nitrite (N)	mg/L	<0.010	0.010	7483412
Nitrate (N)	mg/L	<0.10	0.10	7483412
Nitrate + Nitrite (N)	mg/L	<0.10	0.10	7483412

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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BV Labs Job #: C1K6407
Report Date: 2021/07/29

Golder Associates Ltd
Client Project #: 20448776
Site Location: MCCARTHY
Sampler Initials: DD

ELEMENTS BY ATOMIC SPECTROSCOPY (GROUND WATER)

BV Labs ID		QEJ150		
Sampling Date		2021/07/19 13:50		
COC Number		835805-01-01		
	UNITS	OW5-2	RDL	QC Batch
Metals				
Dissolved Calcium (Ca)	ug/L	1200000	5000	7482996
Dissolved Magnesium (Mg)	ug/L	720000	250	7482996
Dissolved Phosphorus (P)	ug/L	<500	500	7482996
Dissolved Potassium (K)	ug/L	67000	1000	7482996
Dissolved Sodium (Na)	ug/L	4100000	1000	7482996

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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BV Labs Job #: C1K6407
Report Date: 2021/07/29

Golder Associates Ltd
Client Project #: 20448776
Site Location: MCCARTHY
Sampler Initials: DD

TEST SUMMARY

BV Labs ID: QEJ150
Sample ID: OW5-2
Matrix: Ground Water

Collected: 2021/07/19
Shipped:
Received: 2021/07/23

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	7483685	N/A	2021/07/27	Surinder Rai
Carbonate, Bicarbonate and Hydroxide	CALC	7480175	N/A	2021/07/28	Automated Statchk
Chloride by Automated Colourimetry	KONE	7483474	N/A	2021/07/27	Avneet Kour Sudan
Colour	SPEC	7482039	N/A	2021/07/27	Viorica Rotaru
Conductivity	AT	7483688	N/A	2021/07/27	Surinder Rai
Dissolved Organic Carbon (DOC)	TOCV/NDIR	7485276	N/A	2021/07/27	Julianna Castiglione
Fluoride	ISE	7483628	2021/07/26	2021/07/27	Surinder Rai
Hardness (calculated as CaCO3)		7479939	N/A	2021/07/28	Automated Statchk
Dissolved Metals by ICPMS	ICP/MS	7482996	N/A	2021/07/28	Prempal Bhatti
Total Ammonia-N	LACH/NH4	7483166	N/A	2021/07/27	Amanpreet Sappal
Nitrate (NO3) and Nitrite (NO2) in Water	LACH	7483412	N/A	2021/07/26	Chandra Nandlal
pH	AT	7483686	2021/07/26	2021/07/27	Surinder Rai
Orthophosphate	KONE	7483477	N/A	2021/07/28	Avneet Kour Sudan
Sulphate by Automated Colourimetry	KONE	7483476	N/A	2021/07/28	Avneet Kour Sudan
Total Dissolved Solids (TDS calc)	CALC	7480172	N/A	2021/07/28	Automated Statchk

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BV Labs Job #: C1K6407
Report Date: 2021/07/29

Golder Associates Ltd
Client Project #: 20448776
Site Location: MCCARTHY
Sampler Initials: DD

GENERAL COMMENTS

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

Package 1	12.3°C

Sample QEJ150 [OW5-2] : Metals Analysis: Due to the sample matrix, the sample required dilution. Detection limits were adjusted accordingly.

Results relate only to the items tested.

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BV Labs Job #: C1K6407
Report Date: 2021/07/29

Golder Associates Ltd
Client Project #: 20448776
Site Location: MCCARTHY
Sampler Initials: DD

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
7482039	VRO	Spiked Blank	Colour	2021/07/27		100	%	80 - 120
7482039	VRO	Method Blank	Colour	2021/07/27	<2		TCU	
7482039	VRO	RPD	Colour	2021/07/27	NC		%	25
7482996	PBA	Matrix Spike	Dissolved Calcium (Ca)	2021/07/28		NC	%	80 - 120
			Dissolved Magnesium (Mg)	2021/07/28		NC	%	80 - 120
			Dissolved Phosphorus (P)	2021/07/28		101	%	80 - 120
			Dissolved Potassium (K)	2021/07/28		101	%	80 - 120
			Dissolved Sodium (Na)	2021/07/28		98	%	80 - 120
7482996	PBA	Spiked Blank	Dissolved Calcium (Ca)	2021/07/28		101	%	80 - 120
			Dissolved Magnesium (Mg)	2021/07/28		102	%	80 - 120
			Dissolved Phosphorus (P)	2021/07/28		110	%	80 - 120
			Dissolved Potassium (K)	2021/07/28		102	%	80 - 120
			Dissolved Sodium (Na)	2021/07/28		103	%	80 - 120
7482996	PBA	Method Blank	Dissolved Calcium (Ca)	2021/07/28	<200		ug/L	
			Dissolved Magnesium (Mg)	2021/07/28	<50		ug/L	
			Dissolved Phosphorus (P)	2021/07/28	<100		ug/L	
			Dissolved Potassium (K)	2021/07/28	<200		ug/L	
			Dissolved Sodium (Na)	2021/07/28	220, RDL=100		ug/L	
7482996	PBA	RPD	Dissolved Calcium (Ca)	2021/07/28	0.46		%	20
			Dissolved Magnesium (Mg)	2021/07/28	0.32		%	20
			Dissolved Potassium (K)	2021/07/28	0.59		%	20
			Dissolved Sodium (Na)	2021/07/28	1.4		%	20
7483166	ASP	Matrix Spike	Total Ammonia-N	2021/07/27		NC	%	75 - 125
7483166	ASP	Spiked Blank	Total Ammonia-N	2021/07/27		98	%	80 - 120
7483166	ASP	Method Blank	Total Ammonia-N	2021/07/27	<0.050		mg/L	
7483166	ASP	RPD	Total Ammonia-N	2021/07/27	0.056		%	20
7483412	C_N	Matrix Spike	Nitrite (N)	2021/07/26		105	%	80 - 120
			Nitrate (N)	2021/07/26		NC	%	80 - 120
7483412	C_N	Spiked Blank	Nitrite (N)	2021/07/26		109	%	80 - 120
			Nitrate (N)	2021/07/26		102	%	80 - 120
7483412	C_N	Method Blank	Nitrite (N)	2021/07/26	<0.010		mg/L	
			Nitrate (N)	2021/07/26	<0.10		mg/L	
7483412	C_N	RPD	Nitrite (N)	2021/07/26	0.36		%	20
			Nitrate (N)	2021/07/26	0.39		%	20
7483474	AKD	Matrix Spike	Dissolved Chloride (Cl-)	2021/07/27		NC	%	80 - 120
7483474	AKD	Spiked Blank	Dissolved Chloride (Cl-)	2021/07/27		100	%	80 - 120
7483474	AKD	Method Blank	Dissolved Chloride (Cl-)	2021/07/27	<1.0		mg/L	
7483474	AKD	RPD	Dissolved Chloride (Cl-)	2021/07/27	0.42		%	20
7483476	AKD	Matrix Spike	Dissolved Sulphate (SO4)	2021/07/28		NC	%	75 - 125
7483476	AKD	Spiked Blank	Dissolved Sulphate (SO4)	2021/07/28		106	%	80 - 120
7483476	AKD	Method Blank	Dissolved Sulphate (SO4)	2021/07/28	<1.0		mg/L	
7483476	AKD	RPD	Dissolved Sulphate (SO4)	2021/07/28	1.6		%	20
7483477	AKD	Matrix Spike	Orthophosphate (P)	2021/07/28		103	%	75 - 125
7483477	AKD	Spiked Blank	Orthophosphate (P)	2021/07/28		100	%	80 - 120
7483477	AKD	Method Blank	Orthophosphate (P)	2021/07/28	<0.010		mg/L	
7483477	AKD	RPD	Orthophosphate (P)	2021/07/28	NC		%	25
7483628	SAU	Matrix Spike	Fluoride (F-)	2021/07/27		104	%	80 - 120
7483628	SAU	Spiked Blank	Fluoride (F-)	2021/07/27		108	%	80 - 120
7483628	SAU	Method Blank	Fluoride (F-)	2021/07/27	<0.10		mg/L	
7483628	SAU	RPD	Fluoride (F-)	2021/07/27	5.6		%	20

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BV Labs Job #: C1K6407
Report Date: 2021/07/29

Golder Associates Ltd
Client Project #: 20448776
Site Location: MCCARTHY
Sampler Initials: DD

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
7483685	SAU	Spiked Blank	Alkalinity (Total as CaCO3)	2021/07/27		98	%	85 - 115
7483685	SAU	Method Blank	Alkalinity (Total as CaCO3)	2021/07/27	<1.0		mg/L	
7483685	SAU	RPD	Alkalinity (Total as CaCO3)	2021/07/27	1.9		%	20
7483686	SAU	Spiked Blank	pH	2021/07/27		102	%	98 - 103
7483686	SAU	RPD	pH	2021/07/27	0.93		%	N/A
7483688	SAU	Spiked Blank	Conductivity	2021/07/27		100	%	85 - 115
7483688	SAU	Method Blank	Conductivity	2021/07/27	<1.0		umho/cm	
7483688	SAU	RPD	Conductivity	2021/07/27	0.78		%	25
7485276	JUC	Matrix Spike	Dissolved Organic Carbon	2021/07/27		96	%	80 - 120
7485276	JUC	Spiked Blank	Dissolved Organic Carbon	2021/07/27		97	%	80 - 120
7485276	JUC	Method Blank	Dissolved Organic Carbon	2021/07/27	<0.40		mg/L	
7485276	JUC	RPD	Dissolved Organic Carbon	2021/07/27	4.9		%	20

N/A = Not Applicable

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

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

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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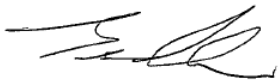
BV Labs Job #: C1K6407
Report Date: 2021/07/29

Golder Associates Ltd
Client Project #: 20448776
Site Location: MCCARTHY
Sampler Initials: DD

VALIDATION SIGNATURE PAGE

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



Brad Newman, B.Sc., C.Chem., Scientific Service Specialist

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Your Project #: 20448776
Site Location: McCarthy
Your C.O.C. #: 851924-01-01

Attention: Dawn Hoyle

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

Report Date: 2022/02/04
Report #: R6991162
Version: 2 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BV LABS JOB #: C1V1414
Received: 2021/10/25, 15:24

Sample Matrix: Water
Samples Received: 4

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Alkalinity	4	N/A	2021/10/28	CAM SOP-00448	SM 23 2320 B m
Carbonate, Bicarbonate and Hydroxide	4	N/A	2021/10/29	CAM SOP-00102	APHA 4500-CO2 D
Chloride by Automated Colourimetry	4	N/A	2021/10/27	CAM SOP-00463	SM 23 4500-Cl E m
Colour	4	N/A	2021/10/28	CAM SOP-00412	SM 23 2120C m
Conductivity	4	N/A	2021/10/28	CAM SOP-00414	SM 23 2510 m
Dissolved Organic Carbon (DOC) (1)	4	N/A	2021/10/27	CAM SOP-00446	SM 23 5310 B m
Fluoride	4	2021/10/26	2021/10/28	CAM SOP-00449	SM 23 4500-F C m
Hardness (calculated as CaCO3)	2	N/A	2021/11/01	CAM SOP 00102/00408/00447	SM 2340 B
Hardness (calculated as CaCO3)	2	N/A	2021/11/02	CAM SOP 00102/00408/00447	SM 2340 B
Dissolved Metals by ICPMS	2	N/A	2021/11/01	CAM SOP-00447	EPA 6020B m
Dissolved Metals by ICPMS	2	N/A	2021/11/02	CAM SOP-00447	EPA 6020B m
Ion Balance (% Difference)	2	N/A	2021/11/01		
Ion Balance (% Difference)	2	N/A	2021/11/02		
Anion and Cation Sum	2	N/A	2021/11/01		
Anion and Cation Sum	2	N/A	2021/11/02		
Total Ammonia-N	4	N/A	2021/10/28	CAM SOP-00441	USGS I-2522-90 m
Nitrate & Nitrite as Nitrogen in Water (2)	4	N/A	2021/10/27	CAM SOP-00440	SM 23 4500-NO3I/NO2B
pH	4	2021/10/26	2021/10/28	CAM SOP-00413	SM 4500H+ B m
Orthophosphate	4	N/A	2021/10/27	CAM SOP-00461	EPA 365.1 m
Sat. pH and Langelier Index (@ 20C)	2	N/A	2021/11/01		Auto Calc
Sat. pH and Langelier Index (@ 20C)	2	N/A	2021/11/02		Auto Calc
Sat. pH and Langelier Index (@ 4C)	2	N/A	2021/11/01		Auto Calc
Sat. pH and Langelier Index (@ 4C)	2	N/A	2021/11/02		Auto Calc
Sulphate by Automated Colourimetry	4	N/A	2021/10/27	CAM SOP-00464	EPA 375.4 m
Tannins & Lignins	4	N/A	2021/10/26	CAM SOP-00410	SM 23 5550 B m
Total Dissolved Solids (TDS calc)	2	N/A	2021/11/01		Auto Calc
Total Dissolved Solids (TDS calc)	2	N/A	2021/11/02		Auto Calc
Turbidity	4	N/A	2021/10/27	CAM SOP-00417	SM 23 2130 B m

Your Project #: 20448776
Site Location: McCarthy
Your C.O.C. #: 851924-01-01

Attention: Dawn Hoyle

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

Report Date: 2022/02/04
Report #: R6991162
Version: 2 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BV LABS JOB #: C1V1414
Received: 2021/10/25, 15:24

Remarks:

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

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

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

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

Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) Dissolved Organic Carbon (DOC) present in the sample should be considered as non-purgeable DOC.
(2) Values for calculated parameters may not appear to add up due to rounding of raw data and significant figures.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Ema Gitej, Senior Project Manager
Email:
Phone# (905)817-5829
==========
BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Bureau Veritas Job #: C1V1414
Report Date: 2022/02/04

Golder Associates Ltd
Client Project #: 20448776
Site Location: McCarthy
Sampler Initials: CT

RCAP - COMPREHENSIVE (WATER)

Bureau Veritas ID					RAP116			RAP116		
Sampling Date					2021/10/21 02:00			2021/10/21 02:00		
COC Number					851924-01-01			851924-01-01		
	UNITS	Criteria	MAC	A/O	DW1	RDL	QC Batch	DW1 Lab-Dup	RDL	QC Batch
Calculated Parameters										
Anion Sum	me/L	-	-	-	13.4	N/A	7657802			
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	-	-	-	330	1.0	7657798			
Calculated TDS	mg/L	-	-	500	**730**	1.0	7657807			
Carb. Alkalinity (calc. as CaCO3)	mg/L	-	-	-	2.7	1.0	7657798			
Cation Sum	me/L	-	-	-	13.7	N/A	7657802			
Hardness (CaCO3)	mg/L	-	-	80:100	**570**	1.0	7658081			
Ion Balance (% Difference)	%	-	-	-	1.29	N/A	7657800			
Langelier Index (@ 20C)	N/A	-	-	-	1.20		7657804			
Langelier Index (@ 4C)	N/A	-	-	-	0.949		7657806			
Saturation pH (@ 20C)	N/A	-	-	-	6.74		7657804			
Saturation pH (@ 4C)	N/A	-	-	-	6.99		7657806			
Inorganics										
Total Ammonia-N	mg/L	-	-	-	<0.050	0.050	7666013			
Conductivity	umho/cm	-	-	-	1400	1.0	7662610	1400	1.0	7662610
Dissolved Organic Carbon	mg/L	-	-	5	1.1	0.40	7663684			
Orthophosphate (P)	mg/L	-	-	-	<0.010	0.010	7662548			
pH	pH	6.5:8.5	-	6.5:8.5	7.94		7662614	7.85		7662614
Dissolved Sulphate (SO4)	mg/L	-	-	500	30	1.0	7662579			
Alkalinity (Total as CaCO3)	mg/L	-	-	30:500	330	1.0	7662602	340	1.0	7662602
Dissolved Chloride (Cl-)	mg/L	-	-	250	220	3.0	7662574			
Nitrite (N)	mg/L	-	1	-	<0.010	0.010	7662481			
Nitrate (N)	mg/L	-	10	-	0.25	0.10	7662481			
Metals										
Dissolved Aluminum (Al)	ug/L	-	-	100	<4.9	4.9	7664312			

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
MAC,A/O: Ontario Drinking Water Standards - Maximum Acceptable Concentration [MAC] & Table 4-Chemical/Physical Objectives [A/O] - Not Health Related, respectively
(Made under the Ontario Safe Drinking Water Act, 2002)
N/A = Not Applicable

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Bureau Veritas Job #: C1V1414
Report Date: 2022/02/04

Golder Associates Ltd
Client Project #: 20448776
Site Location: McCarthy
Sampler Initials: CT

RCAP - COMPREHENSIVE (WATER)

Bureau Veritas ID					RAP116			RAP116		
Sampling Date					2021/10/21 02:00			2021/10/21 02:00		
COC Number					851924-01-01			851924-01-01		
	UNITS	Criteria	MAC	A/O	DW1	RDL	QC Batch	DW1 Lab-Dup	RDL	QC Batch
Dissolved Antimony (Sb)	ug/L	20	6	-	<0.50	0.50	7664312			
Dissolved Arsenic (As)	ug/L	100	10	-	<1.0	1.0	7664312			
Dissolved Barium (Ba)	ug/L	-	1000	-	190	2.0	7664312			
Dissolved Beryllium (Be)	ug/L	11	-	-	<0.40	0.40	7664312			
Dissolved Boron (B)	ug/L	200	5000	-	41	10	7664312			
Dissolved Cadmium (Cd)	ug/L	0.2	5	-	<0.090	0.090	7664312			
Dissolved Calcium (Ca)	ug/L	-	-	-	180000	200	7664312			
Dissolved Chromium (Cr)	ug/L	-	50	-	<5.0	5.0	7664312			
Dissolved Cobalt (Co)	ug/L	0.9	-	-	<0.50	0.50	7664312			
Dissolved Copper (Cu)	ug/L	5	-	1000	**43**	0.90	7664312			
Dissolved Iron (Fe)	ug/L	300	-	300	<100	100	7664312			
Dissolved Lead (Pb)	ug/L	5	10	-	<0.50	0.50	7664312			
Dissolved Magnesium (Mg)	ug/L	-	-	-	33000	50	7664312			
Dissolved Manganese (Mn)	ug/L	-	-	50	44	2.0	7664312			
Dissolved Molybdenum (Mo)	ug/L	40	-	-	<0.50	0.50	7664312			
Dissolved Nickel (Ni)	ug/L	25	-	-	1.1	1.0	7664312			
Dissolved Phosphorus (P)	ug/L	-	-	-	<100	100	7664312			
Dissolved Potassium (K)	ug/L	-	-	-	2100	200	7664312			
Dissolved Selenium (Se)	ug/L	100	50	-	<2.0	2.0	7664312			
Dissolved Silicon (Si)	ug/L	-	-	-	8500	50	7664312			
Dissolved Silver (Ag)	ug/L	0.1	-	-	<0.090	0.090	7664312			
Dissolved Sodium (Na)	ug/L	-	-	200000	51000	100	7664312			
Dissolved Strontium (Sr)	ug/L	-	-	-	610	1.0	7664312			
Dissolved Thallium (Tl)	ug/L	0.3	-	-	<0.050	0.050	7664312			
Dissolved Titanium (Ti)	ug/L	-	-	-	<5.0	5.0	7664312			
Dissolved Uranium (U)	ug/L	5	20	-	1.5	0.10	7664312			

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
MAC,A/O: Ontario Drinking Water Standards - Maximum Acceptable Concentration [MAC] & Table 4-Chemical/Physical Objectives [A/O] - Not Health Related, respectively
(Made under the Ontario Safe Drinking Water Act, 2002)

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Bureau Veritas Job #: C1V1414
Report Date: 2022/02/04

Golder Associates Ltd
Client Project #: 20448776
Site Location: McCarthy
Sampler Initials: CT

RCAP - COMPREHENSIVE (WATER)

Bureau Veritas ID					RAP116			RAP116		
Sampling Date					2021/10/21 02:00			2021/10/21 02:00		
COC Number					851924-01-01			851924-01-01		
	UNITS	Criteria	MAC	A/O	DW1	RDL	QC Batch	DW1 Lab-Dup	RDL	QC Batch
Dissolved Vanadium (V)	ug/L	6	-	-	<0.50	0.50	7664312			
Dissolved Zinc (Zn)	ug/L	30	-	5000	**34**	5.0	7664312			

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
MAC,A/O: Ontario Drinking Water Standards - Maximum Acceptable Concentration [MAC] & Table 4-Chemical/Physical Objectives [A/O] - Not Health Related, respectively
(Made under the Ontario Safe Drinking Water Act, 2002)

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Bureau Veritas Job #: C1V1414
Report Date: 2022/02/04

Golder Associates Ltd
Client Project #: 20448776
Site Location: McCarthy
Sampler Initials: CT

RCAP - COMPREHENSIVE (WATER)

Bureau Veritas ID					RAP117		RAP118		
Sampling Date					2021/10/21 02:15		2021/10/21 09:30		
COC Number					851924-01-01		851924-01-01		
	UNITS	Criteria	MAC	A/O	DW2	QC Batch	DW3	RDL	QC Batch
Calculated Parameters									
Anion Sum	me/L	-	-	-	8.49	7657802	8.53	N/A	7657802
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	-	-	-	370	7657798	230	1.0	7657798
Calculated TDS	mg/L	-	-	500	450	7657807	450	1.0	7657807
Carb. Alkalinity (calc. as CaCO3)	mg/L	-	-	-	2.2	7657798	2.6	1.0	7657798
Cation Sum	me/L	-	-	-	8.46	7657802	8.13	N/A	7657802
Hardness (CaCO3)	mg/L	-	-	80:100	**380**	7658081	**180**	1.0	7658081
Ion Balance (% Difference)	%	-	-	-	0.160	7657800	2.43	N/A	7657800
Langelier Index (@ 20C)	N/A	-	-	-	1.02	7657804	0.478		7657804
Langelier Index (@ 4C)	N/A	-	-	-	0.771	7657806	0.230		7657806
Saturation pH (@ 20C)	N/A	-	-	-	6.79	7657804	7.60		7657804
Saturation pH (@ 4C)	N/A	-	-	-	7.04	7657806	7.85		7657806
Inorganics									
Total Ammonia-N	mg/L	-	-	-	<0.050	7666013	0.38	0.050	7666013
Conductivity	umho/cm	-	-	-	760	7662610	870	1.0	7662610
Dissolved Organic Carbon	mg/L	-	-	5	2.8	7663684	0.41	0.40	7663684
Orthophosphate (P)	mg/L	-	-	-	<0.010	7662548	<0.010	0.010	7662548
pH	pH	6.5:8.5	-	6.5:8.5	7.81	7662614	8.08		7662614
Dissolved Sulphate (SO4)	mg/L	-	-	500	26	7662579	5.2	1.0	7662579
Alkalinity (Total as CaCO3)	mg/L	-	-	30:500	370	7662602	230	1.0	7662602
Dissolved Chloride (Cl-)	mg/L	-	-	250	17	7662574	130	1.0	7662574
Nitrite (N)	mg/L	-	1	-	<0.010	7662481	<0.010	0.010	7662481
Nitrate (N)	mg/L	-	10	-	<0.10	7662481	<0.10	0.10	7662481
Metals									
Dissolved Aluminum (Al)	ug/L	-	-	100	<4.9	7664173	<4.9	4.9	7664312
Dissolved Antimony (Sb)	ug/L	20	6	-	<0.50	7664173	<0.50	0.50	7664312

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
MAC,A/O: Ontario Drinking Water Standards - Maximum Acceptable Concentration [MAC] & Table 4-Chemical/Physical Objectives [A/O] - Not Health Related, respectively
(Made under the Ontario Safe Drinking Water Act, 2002)
N/A = Not Applicable

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Bureau Veritas Job #: C1V1414
Report Date: 2022/02/04

Golder Associates Ltd
Client Project #: 20448776
Site Location: McCarthy
Sampler Initials: CT

RCAP - COMPREHENSIVE (WATER)

Bureau Veritas ID					RAP117		RAP118		
Sampling Date					2021/10/21 02:15		2021/10/21 09:30		
COC Number					851924-01-01		851924-01-01		
	UNITS	Criteria	MAC	A/O	DW2	QC Batch	DW3	RDL	QC Batch
Dissolved Arsenic (As)	ug/L	100	10	-	<1.0	7664173	<1.0	1.0	7664312
Dissolved Barium (Ba)	ug/L	-	1000	-	71	7664173	210	2.0	7664312
Dissolved Beryllium (Be)	ug/L	11	-	-	<0.40	7664173	<0.40	0.40	7664312
Dissolved Boron (B)	ug/L	200	5000	-	22	7664173	**800**	10	7664312
Dissolved Cadmium (Cd)	ug/L	0.2	5	-	<0.090	7664173	<0.090	0.090	7664312
Dissolved Calcium (Ca)	ug/L	-	-	-	120000	7664173	31000	200	7664312
Dissolved Chromium (Cr)	ug/L	-	50	-	<5.0	7664173	<5.0	5.0	7664312
Dissolved Cobalt (Co)	ug/L	0.9	-	-	<0.50	7664173	<0.50	0.50	7664312
Dissolved Copper (Cu)	ug/L	5	-	1000	1.7	7664173	2.4	0.90	7664312
Dissolved Iron (Fe)	ug/L	300	-	300	<100	7664173	<100	100	7664312
Dissolved Lead (Pb)	ug/L	5	10	-	<0.50	7664173	<0.50	0.50	7664312
Dissolved Magnesium (Mg)	ug/L	-	-	-	16000	7664173	24000	50	7664312
Dissolved Manganese (Mn)	ug/L	-	-	50	5.1	7664173	4.6	2.0	7664312
Dissolved Molybdenum (Mo)	ug/L	40	-	-	<0.50	7664173	<0.50	0.50	7664312
Dissolved Nickel (Ni)	ug/L	25	-	-	<1.0	7664173	<1.0	1.0	7664312
Dissolved Phosphorus (P)	ug/L	-	-	-	<100	7664173	<100	100	7664312
Dissolved Potassium (K)	ug/L	-	-	-	7900	7664173	6900	200	7664312
Dissolved Selenium (Se)	ug/L	100	50	-	<2.0	7664173	<2.0	2.0	7664312
Dissolved Silicon (Si)	ug/L	-	-	-	5900	7664173	5300	50	7664312
Dissolved Silver (Ag)	ug/L	0.1	-	-	<0.090	7664173	<0.090	0.090	7664312
Dissolved Sodium (Na)	ug/L	-	-	200000	17000	7664173	100000	100	7664312
Dissolved Strontium (Sr)	ug/L	-	-	-	330	7664173	2200	1.0	7664312
Dissolved Thallium (Tl)	ug/L	0.3	-	-	<0.050	7664173	<0.050	0.050	7664312
Dissolved Titanium (Ti)	ug/L	-	-	-	<5.0	7664173	<5.0	5.0	7664312
Dissolved Uranium (U)	ug/L	5	20	-	0.34	7664173	<0.10	0.10	7664312
Dissolved Vanadium (V)	ug/L	6	-	-	<0.50	7664173	<0.50	0.50	7664312
Dissolved Zinc (Zn)	ug/L	30	-	5000	5.4	7664173	10	5.0	7664312

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
MAC,A/O: Ontario Drinking Water Standards - Maximum Acceptable Concentration [MAC] & Table 4-Chemical/Physical Objectives [A/O] - Not Health Related, respectively
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Bureau Veritas Job #: C1V1414
Report Date: 2022/02/04

Golder Associates Ltd
Client Project #: 20448776
Site Location: McCarthy
Sampler Initials: CT

RCAP - COMPREHENSIVE (WATER)

Bureau Veritas ID					RAP118			RAP119		
Sampling Date					2021/10/21 09:30			2021/10/21 02:00		
COC Number					851924-01-01			851924-01-01		
	UNITS	Criteria	MAC	A/O	DW3 Lab-Dup	RDL	QC Batch	DUP1	RDL	QC Batch
Calculated Parameters										
Anion Sum	me/L	-	-	-				13.5	N/A	7657802
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	-	-	-				330	1.0	7657798
Calculated TDS	mg/L	-	-	500				**730**	1.0	7657807
Carb. Alkalinity (calc. as CaCO3)	mg/L	-	-	-				2.5	1.0	7657798
Cation Sum	me/L	-	-	-				13.6	N/A	7657802
Hardness (CaCO3)	mg/L	-	-	80:100				**570**	1.0	7658081
Ion Balance (% Difference)	%	-	-	-				0.430	N/A	7657800
Langelier Index (@ 20C)	N/A	-	-	-				1.16		7657804
Langelier Index (@ 4C)	N/A	-	-	-				0.912		7657806
Saturation pH (@ 20C)	N/A	-	-	-				6.74		7657804
Saturation pH (@ 4C)	N/A	-	-	-				6.99		7657806
Inorganics										
Total Ammonia-N	mg/L	-	-	-				<0.050	0.050	7666013
Conductivity	umho/cm	-	-	-				1400	1.0	7662610
Dissolved Organic Carbon	mg/L	-	-	5				1.1	0.40	7663684
Orthophosphate (P)	mg/L	-	-	-				<0.010	0.010	7662548
pH	pH	6.5:8.5	-	6.5:8.5				7.90		7662614
Dissolved Sulphate (SO4)	mg/L	-	-	500				30	1.0	7662579
Alkalinity (Total as CaCO3)	mg/L	-	-	30:500				340	1.0	7662602
Dissolved Chloride (Cl-)	mg/L	-	-	250				220	3.0	7662574
Nitrite (N)	mg/L	-	1	-				<0.010	0.010	7662481
Nitrate (N)	mg/L	-	10	-				0.24	0.10	7662481
Metals										
Dissolved Aluminum (Al)	ug/L	-	-	100	<4.9	4.9	7664312	<4.9	4.9	7664173

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
MAC,A/O: Ontario Drinking Water Standards - Maximum Acceptable Concentration [MAC] & Table 4-Chemical/Physical Objectives [A/O] - Not Health Related, respectively
(Made under the Ontario Safe Drinking Water Act, 2002)
N/A = Not Applicable

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RCAP - COMPREHENSIVE (WATER)

Bureau Veritas ID					RAP118			RAP119		
Sampling Date					2021/10/21 09:30			2021/10/21 02:00		
COC Number					851924-01-01			851924-01-01		
	UNITS	Criteria	MAC	A/O	DW3 Lab-Dup	RDL	QC Batch	DUP1	RDL	QC Batch
Dissolved Antimony (Sb)	ug/L	20	6	-	<0.50	0.50	7664312	<0.50	0.50	7664173
Dissolved Arsenic (As)	ug/L	100	10	-	<1.0	1.0	7664312	<1.0	1.0	7664173
Dissolved Barium (Ba)	ug/L	-	1000	-	210	2.0	7664312	180	2.0	7664173
Dissolved Beryllium (Be)	ug/L	11	-	-	<0.40	0.40	7664312	<0.40	0.40	7664173
Dissolved Boron (B)	ug/L	200	5000	-	**820**	10	7664312	41	10	7664173
Dissolved Cadmium (Cd)	ug/L	0.2	5	-	<0.090	0.090	7664312	<0.090	0.090	7664173
Dissolved Calcium (Ca)	ug/L	-	-	-	31000	200	7664312	180000	200	7664173
Dissolved Chromium (Cr)	ug/L	-	50	-	<5.0	5.0	7664312	<5.0	5.0	7664173
Dissolved Cobalt (Co)	ug/L	0.9	-	-	<0.50	0.50	7664312	<0.50	0.50	7664173
Dissolved Copper (Cu)	ug/L	5	-	1000	2.4	0.90	7664312	**47**	0.90	7664173
Dissolved Iron (Fe)	ug/L	300	-	300	<100	100	7664312	<100	100	7664173
Dissolved Lead (Pb)	ug/L	5	10	-	<0.50	0.50	7664312	<0.50	0.50	7664173
Dissolved Magnesium (Mg)	ug/L	-	-	-	25000	50	7664312	31000	50	7664173
Dissolved Manganese (Mn)	ug/L	-	-	50	4.7	2.0	7664312	41	2.0	7664173
Dissolved Molybdenum (Mo)	ug/L	40	-	-	<0.50	0.50	7664312	0.54	0.50	7664173
Dissolved Nickel (Ni)	ug/L	25	-	-	<1.0	1.0	7664312	<1.0	1.0	7664173
Dissolved Phosphorus (P)	ug/L	-	-	-	<100	100	7664312	<100	100	7664173
Dissolved Potassium (K)	ug/L	-	-	-	6900	200	7664312	2100	200	7664173
Dissolved Selenium (Se)	ug/L	100	50	-	<2.0	2.0	7664312	<2.0	2.0	7664173
Dissolved Silicon (Si)	ug/L	-	-	-	5400	50	7664312	8800	50	7664173
Dissolved Silver (Ag)	ug/L	0.1	-	-	<0.090	0.090	7664312	<0.090	0.090	7664173
Dissolved Sodium (Na)	ug/L	-	-	200000	100000	100	7664312	50000	100	7664173
Dissolved Strontium (Sr)	ug/L	-	-	-	2200	1.0	7664312	590	1.0	7664173
Dissolved Thallium (Tl)	ug/L	0.3	-	-	<0.050	0.050	7664312	<0.050	0.050	7664173
Dissolved Titanium (Ti)	ug/L	-	-	-	<5.0	5.0	7664312	<5.0	5.0	7664173
Dissolved Uranium (U)	ug/L	5	20	-	<0.10	0.10	7664312	1.5	0.10	7664173

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
MAC,A/O: Ontario Drinking Water Standards - Maximum Acceptable Concentration [MAC] & Table 4-Chemical/Physical Objectives [A/O] - Not Health Related, respectively
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Bureau Veritas Job #: C1V1414
Report Date: 2022/02/04

Golder Associates Ltd
Client Project #: 20448776
Site Location: McCarthy
Sampler Initials: CT

RCAP - COMPREHENSIVE (WATER)

Bureau Veritas ID					RAP118			RAP119		
Sampling Date					2021/10/21 09:30			2021/10/21 02:00		
COC Number					851924-01-01			851924-01-01		
	UNITS	Criteria	MAC	A/O	DW3 Lab-Dup	RDL	QC Batch	DUP1	RDL	QC Batch
Dissolved Vanadium (V)	ug/L	6	-	-	<0.50	0.50	7664312	<0.50	0.50	7664173
Dissolved Zinc (Zn)	ug/L	30	-	5000	11	5.0	7664312	18	5.0	7664173

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
MAC,A/O: Ontario Drinking Water Standards - Maximum Acceptable Concentration [MAC] & Table 4-Chemical/Physical Objectives [A/O] - Not Health Related, respectively
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Bureau Veritas Job #: C1V1414
Report Date: 2022/02/04

Golder Associates Ltd
Client Project #: 20448776
Site Location: McCarthy
Sampler Initials: CT

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID				RAP116			RAP116			RAP117		
Sampling Date				2021/10/21 02:00			2021/10/21 02:00			2021/10/21 02:15		
COC Number				851924-01-01			851924-01-01			851924-01-01		
	UNITS	MAC	A/O	DW1	RDL	QC Batch	DW1 Lab-Dup	RDL	QC Batch	DW2	RDL	QC Batch
Inorganics												
Colour	TCU	-	5	<2	2	7664151				3	2	7664151
Fluoride (F-)	mg/L	1.5	-	<0.10	0.10	7662611	<0.10	0.10	7662611	<0.10	0.10	7662611
Tannins & Lignins	mg/L	-	-	<0.2	0.2	7659949				<0.2	0.2	7659949
Turbidity	NTU	-	5	0.3	0.1	7662096				0.3	0.1	7662096

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
MAC,A/O: Ontario Drinking Water Standards - Maximum Acceptable Concentration [MAC] & Table 4-Chemical/Physical Objectives [A/O] - Not Health Related, respectively
(Made under the Ontario Safe Drinking Water Act, 2002)

Bureau Veritas ID				RAP118	RAP119		
Sampling Date				2021/10/21 09:30	2021/10/21 02:00		
COC Number				851924-01-01	851924-01-01		
	UNITS	MAC	A/O	DW3	DUP1	RDL	QC Batch
Inorganics							
Colour	TCU	-	5	<2	2	2	7664151
Fluoride (F-)	mg/L	1.5	-	0.75	<0.10	0.10	7662611
Tannins & Lignins	mg/L	-	-	<0.2	<0.2	0.2	7659949
Turbidity	NTU	-	5	<0.1	0.3	0.1	7662096

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

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
MAC,A/O: Ontario Drinking Water Standards - Maximum Acceptable Concentration [MAC] & Table 4-Chemical/Physical Objectives [A/O] - Not Health Related, respectively
(Made under the Ontario Safe Drinking Water Act, 2002)

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Bureau Veritas Job #: C1V1414
Report Date: 2022/02/04

Golder Associates Ltd
Client Project #: 20448776
Site Location: McCarthy
Sampler Initials: CT

TEST SUMMARY

Bureau Veritas ID: RAP116
Sample ID: DW1
Matrix: Water

Collected: 2021/10/21
Shipped:
Received: 2021/10/25

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	7662602	N/A	2021/10/28	Surinder Rai
Carbonate, Bicarbonate and Hydroxide	CALC	7657798	N/A	2021/10/29	Automated Statchk
Chloride by Automated Colourimetry	KONE	7662574	N/A	2021/10/27	Alina Dobreanu
Colour	SPEC	7664151	N/A	2021/10/28	Viorica Rotaru
Conductivity	AT	7662610	N/A	2021/10/28	Surinder Rai
Dissolved Organic Carbon (DOC)	TOCV/NDIR	7663684	N/A	2021/10/27	Julianna Castiglione
Fluoride	ISE	7662611	2021/10/26	2021/10/28	Surinder Rai
Hardness (calculated as CaCO3)		7658081	N/A	2021/11/01	Automated Statchk
Dissolved Metals by ICPMS	ICP/MS	7664312	N/A	2021/11/01	Nan Raykha
Ion Balance (% Difference)	CALC	7657800	N/A	2021/11/01	Automated Statchk
Anion and Cation Sum	CALC	7657802	N/A	2021/11/01	Automated Statchk
Total Ammonia-N	LACH/NH4	7666013	N/A	2021/10/28	Amanpreet Sappal
Nitrate & Nitrite as Nitrogen in Water	LACH	7662481	N/A	2021/10/27	Chandra Nandlal
pH	AT	7662614	2021/10/26	2021/10/28	Surinder Rai
Orthophosphate	KONE	7662548	N/A	2021/10/27	Avneet Kour Sudan
Sat. pH and Langelier Index (@ 20C)	CALC	7657804	N/A	2021/11/01	Automated Statchk
Sat. pH and Langelier Index (@ 4C)	CALC	7657806	N/A	2021/11/01	Automated Statchk
Sulphate by Automated Colourimetry	KONE	7662579	N/A	2021/10/27	Alina Dobreanu
Tannins & Lignins	SPEC	7659949	N/A	2021/10/26	Viorica Rotaru
Total Dissolved Solids (TDS calc)	CALC	7657807	N/A	2021/11/01	Automated Statchk
Turbidity	AT	7662096	N/A	2021/10/27	Surinder Rai

Bureau Veritas ID: RAP116 Dup
Sample ID: DW1
Matrix: Water

Collected: 2021/10/21
Shipped:
Received: 2021/10/25

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	7662602	N/A	2021/10/28	Surinder Rai
Conductivity	AT	7662610	N/A	2021/10/28	Surinder Rai
Fluoride	ISE	7662611	2021/10/26	2021/10/28	Surinder Rai
pH	AT	7662614	2021/10/26	2021/10/28	Surinder Rai

Bureau Veritas ID: RAP117
Sample ID: DW2
Matrix: Water

Collected: 2021/10/21
Shipped:
Received: 2021/10/25

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	7662602	N/A	2021/10/28	Surinder Rai
Carbonate, Bicarbonate and Hydroxide	CALC	7657798	N/A	2021/10/29	Automated Statchk
Chloride by Automated Colourimetry	KONE	7662574	N/A	2021/10/27	Alina Dobreanu
Colour	SPEC	7664151	N/A	2021/10/28	Viorica Rotaru
Conductivity	AT	7662610	N/A	2021/10/28	Surinder Rai
Dissolved Organic Carbon (DOC)	TOCV/NDIR	7663684	N/A	2021/10/27	Julianna Castiglione
Fluoride	ISE	7662611	2021/10/26	2021/10/28	Surinder Rai

Bureau Veritas Job #: C1V1414
Report Date: 2022/02/04

Golder Associates Ltd
Client Project #: 20448776
Site Location: McCarthy
Sampler Initials: CT

TEST SUMMARY

Bureau Veritas ID: RAP117
Sample ID: DW2
Matrix: Water

Collected: 2021/10/21
Shipped:
Received: 2021/10/25

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Hardness (calculated as CaCO3)		7658081	N/A	2021/11/02	Automated Statchk
Dissolved Metals by ICPMS	ICP/MS	7664173	N/A	2021/11/02	Azita Fazaeli
Ion Balance (% Difference)	CALC	7657800	N/A	2021/11/02	Automated Statchk
Anion and Cation Sum	CALC	7657802	N/A	2021/11/02	Automated Statchk
Total Ammonia-N	LACH/NH4	7666013	N/A	2021/10/28	Amanpreet Sappal
Nitrate & Nitrite as Nitrogen in Water	LACH	7662481	N/A	2021/10/27	Chandra Nandlal
pH	AT	7662614	2021/10/26	2021/10/28	Surinder Rai
Orthophosphate	KONE	7662548	N/A	2021/10/27	Avneet Kour Sudan
Sat. pH and Langelier Index (@ 20C)	CALC	7657804	N/A	2021/11/02	Automated Statchk
Sat. pH and Langelier Index (@ 4C)	CALC	7657806	N/A	2021/11/02	Automated Statchk
Sulphate by Automated Colourimetry	KONE	7662579	N/A	2021/10/27	Alina Dobreanu
Tannins & Lignins	SPEC	7659949	N/A	2021/10/26	Viorica Rotaru
Total Dissolved Solids (TDS calc)	CALC	7657807	N/A	2021/11/02	Automated Statchk
Turbidity	AT	7662096	N/A	2021/10/27	Surinder Rai

Bureau Veritas ID: RAP118
Sample ID: DW3
Matrix: Water

Collected: 2021/10/21
Shipped:
Received: 2021/10/25

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	7662602	N/A	2021/10/28	Surinder Rai
Carbonate, Bicarbonate and Hydroxide	CALC	7657798	N/A	2021/10/29	Automated Statchk
Chloride by Automated Colourimetry	KONE	7662574	N/A	2021/10/27	Alina Dobreanu
Colour	SPEC	7664151	N/A	2021/10/28	Viorica Rotaru
Conductivity	AT	7662610	N/A	2021/10/28	Surinder Rai
Dissolved Organic Carbon (DOC)	TOCV/NDIR	7663684	N/A	2021/10/27	Julianna Castiglione
Fluoride	ISE	7662611	2021/10/26	2021/10/28	Surinder Rai
Hardness (calculated as CaCO3)		7658081	N/A	2021/11/01	Automated Statchk
Dissolved Metals by ICPMS	ICP/MS	7664312	N/A	2021/11/01	Nan Raykha
Ion Balance (% Difference)	CALC	7657800	N/A	2021/11/01	Automated Statchk
Anion and Cation Sum	CALC	7657802	N/A	2021/11/01	Automated Statchk
Total Ammonia-N	LACH/NH4	7666013	N/A	2021/10/28	Amanpreet Sappal
Nitrate & Nitrite as Nitrogen in Water	LACH	7662481	N/A	2021/10/27	Chandra Nandlal
pH	AT	7662614	2021/10/26	2021/10/28	Surinder Rai
Orthophosphate	KONE	7662548	N/A	2021/10/27	Avneet Kour Sudan
Sat. pH and Langelier Index (@ 20C)	CALC	7657804	N/A	2021/11/01	Automated Statchk
Sat. pH and Langelier Index (@ 4C)	CALC	7657806	N/A	2021/11/01	Automated Statchk
Sulphate by Automated Colourimetry	KONE	7662579	N/A	2021/10/27	Alina Dobreanu
Tannins & Lignins	SPEC	7659949	N/A	2021/10/26	Viorica Rotaru
Total Dissolved Solids (TDS calc)	CALC	7657807	N/A	2021/11/01	Automated Statchk
Turbidity	AT	7662096	N/A	2021/10/27	Surinder Rai

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Bureau Veritas Job #: C1V1414
Report Date: 2022/02/04

Golder Associates Ltd
Client Project #: 20448776
Site Location: McCarthy
Sampler Initials: CT

TEST SUMMARY

Bureau Veritas ID: RAP118 Dup
Sample ID: DW3
Matrix: Water

Collected: 2021/10/21
Shipped:
Received: 2021/10/25

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Dissolved Metals by ICPMS	ICP/MS	7664312	N/A	2021/11/01	Nan Raykha

Bureau Veritas ID: RAP119
Sample ID: DUP1
Matrix: Water

Collected: 2021/10/21
Shipped:
Received: 2021/10/25

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	7662602	N/A	2021/10/28	Surinder Rai
Carbonate, Bicarbonate and Hydroxide	CALC	7657798	N/A	2021/10/29	Automated Statchk
Chloride by Automated Colourimetry	KONE	7662574	N/A	2021/10/27	Alina Dobreanu
Colour	SPEC	7664151	N/A	2021/10/28	Viorica Rotaru
Conductivity	AT	7662610	N/A	2021/10/28	Surinder Rai
Dissolved Organic Carbon (DOC)	TOCV/NDIR	7663684	N/A	2021/10/27	Julianna Castiglione
Fluoride	ISE	7662611	2021/10/26	2021/10/28	Surinder Rai
Hardness (calculated as CaCO3)		7658081	N/A	2021/11/02	Automated Statchk
Dissolved Metals by ICPMS	ICP/MS	7664173	N/A	2021/11/02	Azita Fazaeli
Ion Balance (% Difference)	CALC	7657800	N/A	2021/11/02	Automated Statchk
Anion and Cation Sum	CALC	7657802	N/A	2021/11/02	Automated Statchk
Total Ammonia-N	LACH/NH4	7666013	N/A	2021/10/28	Amanpreet Sappal
Nitrate & Nitrite as Nitrogen in Water	LACH	7662481	N/A	2021/10/27	Chandra Nandlal
pH	AT	7662614	2021/10/26	2021/10/28	Surinder Rai
Orthophosphate	KONE	7662548	N/A	2021/10/27	Avneet Kour Sudan
Sat. pH and Langelier Index (@ 20C)	CALC	7657804	N/A	2021/11/02	Automated Statchk
Sat. pH and Langelier Index (@ 4C)	CALC	7657806	N/A	2021/11/02	Automated Statchk
Sulphate by Automated Colourimetry	KONE	7662579	N/A	2021/10/27	Alina Dobreanu
Tannins & Lignins	SPEC	7659949	N/A	2021/10/26	Viorica Rotaru
Total Dissolved Solids (TDS calc)	CALC	7657807	N/A	2021/11/02	Automated Statchk
Turbidity	AT	7662096	N/A	2021/10/27	Surinder Rai

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Bureau Veritas Job #: C1V1414
Report Date: 2022/02/04

Golder Associates Ltd
Client Project #: 20448776
Site Location: McCarthy
Sampler Initials: CT

GENERAL COMMENTS

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

Package 1	9.0°C

Revised Report [2022/02/04]: Additional metal parameters included.

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
7659949	VRO	Matrix Spike	Tannins & Lignins	2021/10/26		88	%	80 - 120
7659949	VRO	Spiked Blank	Tannins & Lignins	2021/10/26		101	%	80 - 120
7659949	VRO	Method Blank	Tannins & Lignins	2021/10/26	<0.2		mg/L	
7659949	VRO	RPD	Tannins & Lignins	2021/10/26	5.6		%	20
7662096	SAU	Spiked Blank	Turbidity	2021/10/27		94	%	85 - 115
7662096	SAU	Method Blank	Turbidity	2021/10/27	<0.1		NTU	
7662096	SAU	RPD	Turbidity	2021/10/27	7.5		%	20
7662481	C_N	Matrix Spike	Nitrite (N)	2021/10/27		75 (1)	%	80 - 120
			Nitrate (N)	2021/10/27		87	%	80 - 120
7662481	C_N	Spiked Blank	Nitrite (N)	2021/10/27		106	%	80 - 120
			Nitrate (N)	2021/10/27		91	%	80 - 120
7662481	C_N	Method Blank	Nitrite (N)	2021/10/27	<0.010		mg/L	
			Nitrate (N)	2021/10/27	<0.10		mg/L	
7662481	C_N	RPD	Nitrite (N)	2021/10/27	NC		%	20
			Nitrate (N)	2021/10/27	0.042		%	20
7662548	AKD	Matrix Spike	Orthophosphate (P)	2021/10/27		143 (1)	%	75 - 125
7662548	AKD	Spiked Blank	Orthophosphate (P)	2021/10/27		101	%	80 - 120
7662548	AKD	Method Blank	Orthophosphate (P)	2021/10/27	<0.010		mg/L	
7662548	AKD	RPD	Orthophosphate (P)	2021/10/27	NC		%	25
7662574	ADB	Matrix Spike	Dissolved Chloride (Cl-)	2021/10/27		NC	%	80 - 120
7662574	ADB	Spiked Blank	Dissolved Chloride (Cl-)	2021/10/27		103	%	80 - 120
7662574	ADB	Method Blank	Dissolved Chloride (Cl-)	2021/10/27	<1.0		mg/L	
7662574	ADB	RPD	Dissolved Chloride (Cl-)	2021/10/27	1.5		%	20
7662579	ADB	Matrix Spike	Dissolved Sulphate (SO4)	2021/10/27		NC	%	75 - 125
7662579	ADB	Spiked Blank	Dissolved Sulphate (SO4)	2021/10/27		106	%	80 - 120
7662579	ADB	Method Blank	Dissolved Sulphate (SO4)	2021/10/27	<1.0		mg/L	
7662579	ADB	RPD	Dissolved Sulphate (SO4)	2021/10/27	6.9		%	20
7662602	SAU	Spiked Blank	Alkalinity (Total as CaCO3)	2021/10/28		96	%	85 - 115
7662602	SAU	Method Blank	Alkalinity (Total as CaCO3)	2021/10/28	<1.0		mg/L	
7662602	SAU	RPD [RAP116-01]	Alkalinity (Total as CaCO3)	2021/10/28	2.1		%	20
7662610	SAU	Spiked Blank	Conductivity	2021/10/28		102	%	85 - 115
7662610	SAU	Method Blank	Conductivity	2021/10/28	<1.0		umho/cm	
7662610	SAU	RPD [RAP116-01]	Conductivity	2021/10/28	0.073		%	25
7662611	SAU	Matrix Spike [RAP116-01]	Fluoride (F-)	2021/10/28		96	%	80 - 120
7662611	SAU	Spiked Blank	Fluoride (F-)	2021/10/28		96	%	80 - 120
7662611	SAU	Method Blank	Fluoride (F-)	2021/10/28	<0.10		mg/L	
7662611	SAU	RPD [RAP116-01]	Fluoride (F-)	2021/10/28	NC		%	20
7662614	SAU	Spiked Blank	pH	2021/10/28		102	%	98 - 103
7662614	SAU	RPD [RAP116-01]	pH	2021/10/28	1.1		%	N/A
7663684	JUC	Matrix Spike	Dissolved Organic Carbon	2021/10/27		101	%	80 - 120
7663684	JUC	Spiked Blank	Dissolved Organic Carbon	2021/10/27		99	%	80 - 120
7663684	JUC	Method Blank	Dissolved Organic Carbon	2021/10/27	<0.40		mg/L	
7663684	JUC	RPD	Dissolved Organic Carbon	2021/10/27	3.6		%	20
7664151	VRO	Spiked Blank	Colour	2021/10/28		97	%	80 - 120
7664151	VRO	Method Blank	Colour	2021/10/28	<2		TCU	
7664151	VRO	RPD	Colour	2021/10/28	NC		%	25
7664173	AFZ	Matrix Spike	Dissolved Aluminum (Al)	2021/11/02		97	%	80 - 120
			Dissolved Antimony (Sb)	2021/11/02		103	%	80 - 120
			Dissolved Arsenic (As)	2021/11/02		95	%	80 - 120
			Dissolved Barium (Ba)	2021/11/02		97	%	80 - 120
			Dissolved Beryllium (Be)	2021/11/02		96	%	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
			Dissolved Boron (B)	2021/11/02		93	%	80 - 120
			Dissolved Cadmium (Cd)	2021/11/02		97	%	80 - 120
			Dissolved Calcium (Ca)	2021/11/02		NC	%	80 - 120
			Dissolved Chromium (Cr)	2021/11/02		97	%	80 - 120
			Dissolved Cobalt (Co)	2021/11/02		95	%	80 - 120
			Dissolved Copper (Cu)	2021/11/02		93	%	80 - 120
			Dissolved Iron (Fe)	2021/11/02		94	%	80 - 120
			Dissolved Lead (Pb)	2021/11/02		93	%	80 - 120
			Dissolved Magnesium (Mg)	2021/11/02		96	%	80 - 120
			Dissolved Manganese (Mn)	2021/11/02		98	%	80 - 120
			Dissolved Molybdenum (Mo)	2021/11/02		101	%	80 - 120
			Dissolved Nickel (Ni)	2021/11/02		94	%	80 - 120
			Dissolved Phosphorus (P)	2021/11/02		103	%	80 - 120
			Dissolved Potassium (K)	2021/11/02		95	%	80 - 120
			Dissolved Selenium (Se)	2021/11/02		99	%	80 - 120
			Dissolved Silicon (Si)	2021/11/02		97	%	80 - 120
			Dissolved Silver (Ag)	2021/11/02		97	%	80 - 120
			Dissolved Sodium (Na)	2021/11/02		NC	%	80 - 120
			Dissolved Strontium (Sr)	2021/11/02		97	%	80 - 120
			Dissolved Thallium (Tl)	2021/11/02		96	%	80 - 120
			Dissolved Titanium (Ti)	2021/11/02		94	%	80 - 120
			Dissolved Uranium (U)	2021/11/02		99	%	80 - 120
			Dissolved Vanadium (V)	2021/11/02		99	%	80 - 120
			Dissolved Zinc (Zn)	2021/11/02		95	%	80 - 120
7664173	AFZ	Spiked Blank	Dissolved Aluminum (Al)	2021/11/02		97	%	80 - 120
			Dissolved Antimony (Sb)	2021/11/02		101	%	80 - 120
			Dissolved Arsenic (As)	2021/11/02		95	%	80 - 120
			Dissolved Barium (Ba)	2021/11/02		98	%	80 - 120
			Dissolved Beryllium (Be)	2021/11/02		98	%	80 - 120
			Dissolved Boron (B)	2021/11/02		93	%	80 - 120
			Dissolved Cadmium (Cd)	2021/11/02		98	%	80 - 120
			Dissolved Calcium (Ca)	2021/11/02		96	%	80 - 120
			Dissolved Chromium (Cr)	2021/11/02		97	%	80 - 120
			Dissolved Cobalt (Co)	2021/11/02		98	%	80 - 120
			Dissolved Copper (Cu)	2021/11/02		95	%	80 - 120
			Dissolved Iron (Fe)	2021/11/02		95	%	80 - 120
			Dissolved Lead (Pb)	2021/11/02		95	%	80 - 120
			Dissolved Magnesium (Mg)	2021/11/02		94	%	80 - 120
			Dissolved Manganese (Mn)	2021/11/02		99	%	80 - 120
			Dissolved Molybdenum (Mo)	2021/11/02		100	%	80 - 120
			Dissolved Nickel (Ni)	2021/11/02		97	%	80 - 120
			Dissolved Phosphorus (P)	2021/11/02		108	%	80 - 120
			Dissolved Potassium (K)	2021/11/02		96	%	80 - 120
			Dissolved Selenium (Se)	2021/11/02		99	%	80 - 120
			Dissolved Silicon (Si)	2021/11/02		99	%	80 - 120
			Dissolved Silver (Ag)	2021/11/02		97	%	80 - 120
			Dissolved Sodium (Na)	2021/11/02		96	%	80 - 120
			Dissolved Strontium (Sr)	2021/11/02		96	%	80 - 120
			Dissolved Thallium (Tl)	2021/11/02		96	%	80 - 120
			Dissolved Titanium (Ti)	2021/11/02		99	%	80 - 120
			Dissolved Uranium (U)	2021/11/02		99	%	80 - 120

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Dissolved Vanadium (V)	2021/11/02		97	%	80 - 120
			Dissolved Zinc (Zn)	2021/11/02		93	%	80 - 120
7664173	AFZ	Method Blank	Dissolved Aluminum (Al)	2021/11/02	<4.9		ug/L	
			Dissolved Antimony (Sb)	2021/11/02	<0.50		ug/L	
			Dissolved Arsenic (As)	2021/11/02	<1.0		ug/L	
			Dissolved Barium (Ba)	2021/11/02	<2.0		ug/L	
			Dissolved Beryllium (Be)	2021/11/02	<0.40		ug/L	
			Dissolved Boron (B)	2021/11/02	<10		ug/L	
			Dissolved Cadmium (Cd)	2021/11/02	<0.090		ug/L	
			Dissolved Calcium (Ca)	2021/11/02	<200		ug/L	
			Dissolved Chromium (Cr)	2021/11/02	<5.0		ug/L	
			Dissolved Cobalt (Co)	2021/11/02	<0.50		ug/L	
			Dissolved Copper (Cu)	2021/11/02	<0.90		ug/L	
			Dissolved Iron (Fe)	2021/11/02	<100		ug/L	
			Dissolved Lead (Pb)	2021/11/02	<0.50		ug/L	
			Dissolved Magnesium (Mg)	2021/11/02	<50		ug/L	
			Dissolved Manganese (Mn)	2021/11/02	<2.0		ug/L	
			Dissolved Molybdenum (Mo)	2021/11/02	<0.50		ug/L	
			Dissolved Nickel (Ni)	2021/11/02	<1.0		ug/L	
			Dissolved Phosphorus (P)	2021/11/02	<100		ug/L	
			Dissolved Potassium (K)	2021/11/02	<200		ug/L	
			Dissolved Selenium (Se)	2021/11/02	<2.0		ug/L	
			Dissolved Silicon (Si)	2021/11/02	<50		ug/L	
			Dissolved Silver (Ag)	2021/11/02	<0.090		ug/L	
			Dissolved Sodium (Na)	2021/11/02	<100		ug/L	
			Dissolved Strontium (Sr)	2021/11/02	<1.0		ug/L	
			Dissolved Thallium (Tl)	2021/11/02	<0.050		ug/L	
			Dissolved Titanium (Ti)	2021/11/02	<5.0		ug/L	
			Dissolved Uranium (U)	2021/11/02	<0.10		ug/L	
			Dissolved Vanadium (V)	2021/11/02	<0.50		ug/L	
			Dissolved Zinc (Zn)	2021/11/02	<5.0		ug/L	
7664173	AFZ	RPD	Dissolved Arsenic (As)	2021/11/02	NC		%	20
			Dissolved Boron (B)	2021/11/02	0.45		%	20
			Dissolved Iron (Fe)	2021/11/02	NC		%	20
7664312	N_R	Matrix Spike [RAP118-03]	Dissolved Aluminum (Al)	2021/11/01		100	%	80 - 120
			Dissolved Antimony (Sb)	2021/11/01		106	%	80 - 120
			Dissolved Arsenic (As)	2021/11/01		100	%	80 - 120
			Dissolved Barium (Ba)	2021/11/01		100	%	80 - 120
			Dissolved Beryllium (Be)	2021/11/01		104	%	80 - 120
			Dissolved Boron (B)	2021/11/01		NC	%	80 - 120
			Dissolved Cadmium (Cd)	2021/11/01		102	%	80 - 120
			Dissolved Calcium (Ca)	2021/11/01		NC	%	80 - 120
			Dissolved Chromium (Cr)	2021/11/01		96	%	80 - 120
			Dissolved Cobalt (Co)	2021/11/01		99	%	80 - 120
			Dissolved Copper (Cu)	2021/11/01		99	%	80 - 120
			Dissolved Iron (Fe)	2021/11/01		100	%	80 - 120
			Dissolved Lead (Pb)	2021/11/01		95	%	80 - 120
			Dissolved Magnesium (Mg)	2021/11/01		99	%	80 - 120
			Dissolved Manganese (Mn)	2021/11/01		99	%	80 - 120
			Dissolved Molybdenum (Mo)	2021/11/01		107	%	80 - 120
			Dissolved Nickel (Ni)	2021/11/01		96	%	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
			Dissolved Phosphorus (P)	2021/11/01		111	%	80 - 120
			Dissolved Potassium (K)	2021/11/01		102	%	80 - 120
			Dissolved Selenium (Se)	2021/11/01		99	%	80 - 120
			Dissolved Silicon (Si)	2021/11/01		100	%	80 - 120
			Dissolved Silver (Ag)	2021/11/01		101	%	80 - 120
			Dissolved Sodium (Na)	2021/11/01		NC	%	80 - 120
			Dissolved Strontium (Sr)	2021/11/01		NC	%	80 - 120
			Dissolved Thallium (Tl)	2021/11/01		98	%	80 - 120
			Dissolved Titanium (Ti)	2021/11/01		100	%	80 - 120
			Dissolved Uranium (U)	2021/11/01		96	%	80 - 120
			Dissolved Vanadium (V)	2021/11/01		97	%	80 - 120
			Dissolved Zinc (Zn)	2021/11/01		97	%	80 - 120
7664312	N_R	Spiked Blank	Dissolved Aluminum (Al)	2021/11/01		98	%	80 - 120
			Dissolved Antimony (Sb)	2021/11/01		103	%	80 - 120
			Dissolved Arsenic (As)	2021/11/01		100	%	80 - 120
			Dissolved Barium (Ba)	2021/11/01		100	%	80 - 120
			Dissolved Beryllium (Be)	2021/11/01		101	%	80 - 120
			Dissolved Boron (B)	2021/11/01		100	%	80 - 120
			Dissolved Cadmium (Cd)	2021/11/01		100	%	80 - 120
			Dissolved Calcium (Ca)	2021/11/01		97	%	80 - 120
			Dissolved Chromium (Cr)	2021/11/01		97	%	80 - 120
			Dissolved Cobalt (Co)	2021/11/01		99	%	80 - 120
			Dissolved Copper (Cu)	2021/11/01		100	%	80 - 120
			Dissolved Iron (Fe)	2021/11/01		101	%	80 - 120
			Dissolved Lead (Pb)	2021/11/01		94	%	80 - 120
			Dissolved Magnesium (Mg)	2021/11/01		101	%	80 - 120
			Dissolved Manganese (Mn)	2021/11/01		100	%	80 - 120
			Dissolved Molybdenum (Mo)	2021/11/01		103	%	80 - 120
			Dissolved Nickel (Ni)	2021/11/01		100	%	80 - 120
			Dissolved Phosphorus (P)	2021/11/01		111	%	80 - 120
			Dissolved Potassium (K)	2021/11/01		102	%	80 - 120
			Dissolved Selenium (Se)	2021/11/01		97	%	80 - 120
			Dissolved Silicon (Si)	2021/11/01		96	%	80 - 120
			Dissolved Silver (Ag)	2021/11/01		103	%	80 - 120
			Dissolved Sodium (Na)	2021/11/01		99	%	80 - 120
			Dissolved Strontium (Sr)	2021/11/01		100	%	80 - 120
			Dissolved Thallium (Tl)	2021/11/01		97	%	80 - 120
			Dissolved Titanium (Ti)	2021/11/01		94	%	80 - 120
			Dissolved Uranium (U)	2021/11/01		93	%	80 - 120
			Dissolved Vanadium (V)	2021/11/01		98	%	80 - 120
			Dissolved Zinc (Zn)	2021/11/01		99	%	80 - 120
7664312	N_R	Method Blank	Dissolved Aluminum (Al)	2021/11/01	<4.9		ug/L	
			Dissolved Antimony (Sb)	2021/11/01	<0.50		ug/L	
			Dissolved Arsenic (As)	2021/11/01	<1.0		ug/L	
			Dissolved Barium (Ba)	2021/11/01	<2.0		ug/L	
			Dissolved Beryllium (Be)	2021/11/01	<0.40		ug/L	
			Dissolved Boron (B)	2021/11/01	<10		ug/L	
			Dissolved Cadmium (Cd)	2021/11/01	<0.090		ug/L	
			Dissolved Calcium (Ca)	2021/11/01	<200		ug/L	
			Dissolved Chromium (Cr)	2021/11/01	<5.0		ug/L	
			Dissolved Cobalt (Co)	2021/11/01	<0.50		ug/L	

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Dissolved Copper (Cu)	2021/11/01	<0.90		ug/L	
			Dissolved Iron (Fe)	2021/11/01	<100		ug/L	
			Dissolved Lead (Pb)	2021/11/01	<0.50		ug/L	
			Dissolved Magnesium (Mg)	2021/11/01	<50		ug/L	
			Dissolved Manganese (Mn)	2021/11/01	<2.0		ug/L	
			Dissolved Molybdenum (Mo)	2021/11/01	<0.50		ug/L	
			Dissolved Nickel (Ni)	2021/11/01	<1.0		ug/L	
			Dissolved Phosphorus (P)	2021/11/01	<100		ug/L	
			Dissolved Potassium (K)	2021/11/01	<200		ug/L	
			Dissolved Selenium (Se)	2021/11/01	<2.0		ug/L	
			Dissolved Silicon (Si)	2021/11/01	<50		ug/L	
			Dissolved Silver (Ag)	2021/11/01	<0.090		ug/L	
			Dissolved Sodium (Na)	2021/11/01	<100		ug/L	
			Dissolved Strontium (Sr)	2021/11/01	<1.0		ug/L	
			Dissolved Thallium (Tl)	2021/11/01	<0.050		ug/L	
			Dissolved Titanium (Ti)	2021/11/01	<5.0		ug/L	
			Dissolved Uranium (U)	2021/11/01	<0.10		ug/L	
			Dissolved Vanadium (V)	2021/11/01	<0.50		ug/L	
			Dissolved Zinc (Zn)	2021/11/01	<5.0		ug/L	
7664312	N_R	RPD [RAP118-03]	Dissolved Aluminum (Al)	2021/11/01	NC		%	20
			Dissolved Antimony (Sb)	2021/11/01	NC		%	20
			Dissolved Arsenic (As)	2021/11/01	NC		%	20
			Dissolved Barium (Ba)	2021/11/01	0.87		%	20
			Dissolved Beryllium (Be)	2021/11/01	NC		%	20
			Dissolved Boron (B)	2021/11/01	2.5		%	20
			Dissolved Cadmium (Cd)	2021/11/01	NC		%	20
			Dissolved Calcium (Ca)	2021/11/01	0.14		%	20
			Dissolved Chromium (Cr)	2021/11/01	NC		%	20
			Dissolved Cobalt (Co)	2021/11/01	NC		%	20
			Dissolved Copper (Cu)	2021/11/01	0.42		%	20
			Dissolved Iron (Fe)	2021/11/01	NC		%	20
			Dissolved Lead (Pb)	2021/11/01	NC		%	20
			Dissolved Magnesium (Mg)	2021/11/01	2.9		%	20
			Dissolved Manganese (Mn)	2021/11/01	2.4		%	20
			Dissolved Molybdenum (Mo)	2021/11/01	NC		%	20
			Dissolved Nickel (Ni)	2021/11/01	NC		%	20
			Dissolved Phosphorus (P)	2021/11/01	NC		%	20
			Dissolved Potassium (K)	2021/11/01	0.90		%	20
			Dissolved Selenium (Se)	2021/11/01	NC		%	20
			Dissolved Silicon (Si)	2021/11/01	1.1		%	20
			Dissolved Silver (Ag)	2021/11/01	NC		%	20
			Dissolved Sodium (Na)	2021/11/01	3.5		%	20
			Dissolved Strontium (Sr)	2021/11/01	0.96		%	20
			Dissolved Thallium (Tl)	2021/11/01	NC		%	20
			Dissolved Titanium (Ti)	2021/11/01	NC		%	20
			Dissolved Uranium (U)	2021/11/01	NC		%	20
			Dissolved Vanadium (V)	2021/11/01	NC		%	20
			Dissolved Zinc (Zn)	2021/11/01	2.3		%	20
7666013	ASP	Matrix Spike	Total Ammonia-N	2021/10/28		93	%	75 - 125
7666013	ASP	Spiked Blank	Total Ammonia-N	2021/10/28		100	%	80 - 120
7666013	ASP	Method Blank	Total Ammonia-N	2021/10/28	<0.050		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
7666013	ASP	RPD	Total Ammonia-N	2021/10/28	1.9		%	20

N/A = Not Applicable

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

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

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

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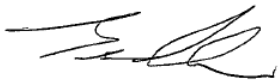
VALIDATION SIGNATURE PAGE

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



Brad Newman, B.Sc., C.Chem., Scientific Service Specialist

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

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Exceedance Summary Table – Prov. Water Quality Obj.

Result Exceedances

Sample ID	Bureau Veritas ID	Parameter	Criteria	Result	DL	UNITS
DW1	RAP116-03	Dissolved Copper (Cu)	5	43	0.90	ug/L
DW1	RAP116-03	Dissolved Zinc (Zn)	30	34	5.0	ug/L
DW3	RAP118-03	Dissolved Boron (B)	200	800	10	ug/L
DW3	RAP118-03-Lab Dup	Dissolved Boron (B)	200	820	10	ug/L
DUP1	RAP119-03	Dissolved Copper (Cu)	5	47	0.90	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.

Exceedance Summary Table – ODWS (2002)

Result Exceedances

Sample ID	Bureau Veritas ID	Parameter	Criteria	Result	DL	UNITS
No Exceedances						

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 #: 20448776
Site Location: McCarthy
Your C.O.C. #: 851925-04-01, 851925-03-01

Attention: Dawn Hoyle

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

Report Date: 2021/11/04
Report #: R6886708
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: C1V1807
Received: 2021/10/25, 15:24

Sample Matrix: Water
Samples Received: 17

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Alkalinity	17	N/A	2021/10/30	CAM SOP-00448	SM 23 2320 B m
Carbonate, Bicarbonate and Hydroxide	17	N/A	2021/11/01	CAM SOP-00102	APHA 4500-CO2 D
Chloride by Automated Colourimetry	17	N/A	2021/11/01	CAM SOP-00463	SM 23 4500-Cl E m
Colour	17	N/A	2021/11/01	CAM SOP-00412	SM 23 2120C m
Conductivity	16	N/A	2021/10/30	CAM SOP-00414	SM 23 2510 m
Conductivity	1	N/A	2021/11/04	CAM SOP-00414	SM 23 2510 m
Dissolved Organic Carbon (DOC) (1)	17	N/A	2021/11/01	CAM SOP-00446	SM 23 5310 B m
Fluoride	17	2021/10/30	2021/10/30	CAM SOP-00449	SM 23 4500-F C m
Hardness (calculated as CaCO3)	17	N/A	2021/11/01	CAM SOP 00102/00408/00447	SM 2340 B
Lab Filtered Metals by ICPMS	1	2021/11/01	2021/11/02	CAM SOP-00447	EPA 6020B m
Dissolved Metals by ICPMS	16	N/A	2021/11/01	CAM SOP-00447	EPA 6020B m
Total Ammonia-N	17	N/A	2021/11/01	CAM SOP-00441	USGS I-2522-90 m
Nitrate & Nitrite as Nitrogen in Water (2)	17	N/A	2021/11/01	CAM SOP-00440	SM 23 4500-NO3I/NO2B
pH	17	2021/10/30	2021/10/30	CAM SOP-00413	SM 4500H+ B m
Orthophosphate	17	N/A	2021/11/01	CAM SOP-00461	EPA 365.1 m
Sulphate by Automated Colourimetry	17	N/A	2021/11/01	CAM SOP-00464	EPA 375.4 m
Total Dissolved Solids (TDS calc)	17	N/A	2021/11/01		Auto Calc

Remarks:

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

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

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report.

Your Project #: 20448776
Site Location: McCarthy
Your C.O.C. #: 851925-04-01, 851925-03-01

Attention: Dawn Hoyle

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

Report Date: 2021/11/04
Report #: R6886708
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: C1V1807
Received: 2021/10/25, 15:24

Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) Dissolved Organic Carbon (DOC) present in the sample should be considered as non-purgeable DOC.
(2) Values for calculated parameters may not appear to add up due to rounding of raw data and significant figures.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Ema Gitej, Senior Project Manager
Email: emese.gitej@bureauveritas.com
Phone# (905)817-5829
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Bureau Veritas Job #: C1V1807
Report Date: 2021/11/04

Golder Associates Ltd
Client Project #: 20448776
Site Location: McCarthy
Sampler Initials: SAP

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID					RAR292		RAR293		RAR294		
Sampling Date					2021/10/21 11:30		2021/10/21 12:40		2021/10/21 11:00		
COC Number					851925-04-01		851925-04-01		851925-04-01		
	UNITS	Criteria	MAC	A/O	BORED	RDL	AMX-R	RDL	OW4-1	RDL	QC Batch
Calculated Parameters											
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	-	-	-	230	1.0	5.1	1.0	260	1.0	7668640
Calculated TDS	mg/L	-	-	500	290	1.0	**9500**	1.0	**670**	1.0	7668646
Carb. Alkalinity (calc. as CaCO3)	mg/L	-	-	-	3.8	1.0	<1.0	1.0	4.1	1.0	7668640
Hardness (CaCO3)	mg/L	-	-	80:100	**220**	1.0	**3800**	1.0	**150**	1.0	7668644
Hydrox. Alkalinity (calc. as CaCO3)	mg/L	-	-	-	<1.0	1.0	<1.0	1.0	<1.0	1.0	7668640
Inorganics											
Total Ammonia-N	mg/L	-	-	-	<0.050	0.050	5.3	0.050	1.2	0.050	7672504
Colour	TCU	-	-	5	<2	2	**22**	2	<2	2	7671618
Conductivity	mS/cm	-	-	-	0.461	0.001	12.6	0.001	1.16	0.001	7671136
Fluoride (F-)	mg/L	-	1.5	-	0.13	0.10	0.62	0.10	1.1	0.10	7671133
Dissolved Organic Carbon	mg/L	-	-	5	1.1	0.40	2.1	0.40	2.0	0.40	7671151
Orthophosphate (P)	mg/L	-	-	-	<0.010	0.010	<0.010	0.010	<0.010	0.010	7671691
pH	pH	6.5:8.5	-	6.5:8.5	8.24		**5.82**		8.22		7671130
Dissolved Sulphate (SO4)	mg/L	-	-	500	28	1.0	<1.0	1.0	2.9	1.0	7671692
Alkalinity (Total as CaCO3)	mg/L	-	-	30:500	240	1.0	**5.1**	1.0	260	1.0	7671121
Dissolved Chloride (Cl-)	mg/L	-	-	250	2.4	1.0	**6000**	80	230	3.0	7671690
Nitrite (N)	mg/L	-	1	-	<0.010	0.010	0.024	0.010	0.025	0.010	7671619
Nitrate (N)	mg/L	-	10	-	0.35	0.10	<0.10	0.10	<0.10	0.10	7671619
Nitrate + Nitrite (N)	mg/L	-	10	-	0.35	0.10	<0.10	0.10	0.12	0.10	7671619

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
MAC,A/O: Ontario Drinking Water Standards - Maximum Acceptable Concentration [MAC] & Table 4-Chemical/Physical Objectives [A/O] - Not Health Related, respectively
(Made under the Ontario Safe Drinking Water Act, 2002)

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Bureau Veritas Job #: C1V1807
Report Date: 2021/11/04

Golder Associates Ltd
Client Project #: 20448776
Site Location: McCarthy
Sampler Initials: SAP

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID					RAR295		RAR296		RAR297		
Sampling Date					2021/10/21 11:30		2021/10/21 12:00		2021/10/21 15:00		
COC Number					851925-04-01		851925-04-01		851925-04-01		
	UNITS	Criteria	MAC	A/O	OW4-2	RDL	AM16	RDL	TW1-1	RDL	QC Batch
Calculated Parameters											
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	-	-	-	250	1.0	250	1.0	250	1.0	7668640
Calculated TDS	mg/L	-	-	500	**770**	1.0	320	1.0	**1400**	1.0	7668646
Carb. Alkalinity (calc. as CaCO3)	mg/L	-	-	-	2.7	1.0	1.9	1.0	1.8	1.0	7668640
Hardness (CaCO3)	mg/L	-	-	80:100	**200**	1.0	**260**	1.0	**630**	1.0	7668644
Hydrox. Alkalinity (calc. as CaCO3)	mg/L	-	-	-	<1.0	1.0	<1.0	1.0	<1.0	1.0	7668640
Inorganics											
Total Ammonia-N	mg/L	-	-	-	0.94	0.050	0.19	0.050	0.63	0.050	7672504
Colour	TCU	-	-	5	<2	2	<2	2	3	2	7671618
Conductivity	mS/cm	-	-	-	1.28	0.001	0.448	0.001	2.26	0.001	7671136
Fluoride (F-)	mg/L	-	1.5	-	1.0	0.10	0.24	0.10	0.56	0.10	7671133
Dissolved Organic Carbon	mg/L	-	-	5	0.97	0.40	0.80	0.40	1.6	0.40	7671151
Orthophosphate (P)	mg/L	-	-	-	<0.010	0.010	<0.010	0.010	<0.010	0.010	7671691
pH	pH	6.5:8.5	-	6.5:8.5	8.07		7.90		7.89		7671130
Dissolved Sulphate (SO4)	mg/L	-	-	500	<1.0	1.0	43	1.0	39	1.0	7671692
Alkalinity (Total as CaCO3)	mg/L	-	-	30:500	250	1.0	250	1.0	260	1.0	7671121
Dissolved Chloride (Cl-)	mg/L	-	-	250	**300**	4.0	2.2	1.0	**700**	10	7671690
Nitrite (N)	mg/L	-	1	-	<0.010	0.010	0.023	0.010	0.039	0.010	7671619
Nitrate (N)	mg/L	-	10	-	<0.10	0.10	<0.10	0.10	0.46	0.10	7671619
Nitrate + Nitrite (N)	mg/L	-	10	-	<0.10	0.10	<0.10	0.10	0.50	0.10	7671619

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
MAC,A/O: Ontario Drinking Water Standards - Maximum Acceptable Concentration [MAC] & Table 4-Chemical/Physical Objectives [A/O] - Not Health Related, respectively
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Bureau Veritas Job #: C1V1807
Report Date: 2021/11/04

Golder Associates Ltd
Client Project #: 20448776
Site Location: McCarthy
Sampler Initials: SAP

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID					RAR298		RAR299	RAR300		
Sampling Date					2021/10/21 11:30		2021/10/21 18:05	2021/10/21 18:05		
COC Number					851925-04-01		851925-04-01	851925-04-01		
	UNITS	Criteria	MAC	A/O	DUP1	RDL	OW5-1	DUP2	RDL	QC Batch
Calculated Parameters										
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	-	-	-	250	1.0	320	330	1.0	7668640
Calculated TDS	mg/L	-	-	500	**770**	1.0	440	450	1.0	7668646
Carb. Alkalinity (calc. as CaCO3)	mg/L	-	-	-	2.6	1.0	4.0	2.1	1.0	7668640
Hardness (CaCO3)	mg/L	-	-	80:100	**200**	1.0	**250**	**260**	1.0	7668644
Hydrox. Alkalinity (calc. as CaCO3)	mg/L	-	-	-	<1.0	1.0	<1.0	<1.0	1.0	7668640
Inorganics										
Total Ammonia-N	mg/L	-	-	-	0.95	0.050	0.59	0.50	0.050	7672504
Colour	TCU	-	-	5	<2	2	<2	<2	2	7671618
Conductivity	mS/cm	-	-	-	1.27	0.001	0.635	0.627	0.001	7671136
Fluoride (F-)	mg/L	-	1.5	-	1.1	0.10	0.62	0.64	0.10	7671133
Dissolved Organic Carbon	mg/L	-	-	5	0.97	0.40	1.5	1.5	0.40	7671151
Orthophosphate (P)	mg/L	-	-	-	<0.010	0.010	<0.010	<0.010	0.010	7671691
pH	pH	6.5:8.5	-	6.5:8.5	8.06		8.12	7.82		7671130
Dissolved Sulphate (SO4)	mg/L	-	-	500	1.0	1.0	48	46	1.0	7671692
Alkalinity (Total as CaCO3)	mg/L	-	-	30:500	250	1.0	320	330	1.0	7671121
Dissolved Chloride (Cl-)	mg/L	-	-	250	**300**	4.0	26	25	1.0	7671690
Nitrite (N)	mg/L	-	1	-	<0.010	0.010	0.025	0.036	0.010	7671619
Nitrate (N)	mg/L	-	10	-	<0.10	0.10	0.51	0.47	0.10	7671619
Nitrate + Nitrite (N)	mg/L	-	10	-	<0.10	0.10	0.53	0.51	0.10	7671619

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
MAC,A/O: Ontario Drinking Water Standards - Maximum Acceptable Concentration [MAC] & Table 4-Chemical/Physical Objectives [A/O] - Not Health Related, respectively
(Made under the Ontario Safe Drinking Water Act, 2002)

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

Bureau Veritas Job #: C1V1807
Report Date: 2021/11/04

Golder Associates Ltd
Client Project #: 20448776
Site Location: McCarthy
Sampler Initials: SAP

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID					RAR307			RAR307		
Sampling Date					2021/10/21 17:15			2021/10/21 17:15		
COC Number					851925-03-01			851925-03-01		
	UNITS	Criteria	MAC	A/O	OW5-2	RDL	QC Batch	OW5-2 Lab-Dup	RDL	QC Batch
Calculated Parameters										
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	-	-	-	130	1.0	7668640			
Calculated TDS	mg/L	-	-	500	**14000**	1.0	7668646			
Carb. Alkalinity (calc. as CaCO3)	mg/L	-	-	-	<1.0	1.0	7668640			
Hardness (CaCO3)	mg/L	-	-	80:100	**5200**	1.0	7668644			
Hydrox. Alkalinity (calc. as CaCO3)	mg/L	-	-	-	<1.0	1.0	7668640			
Inorganics										
Total Ammonia-N	mg/L	-	-	-	8.1	0.050	7672504			
Colour	TCU	-	-	5	**48**	2	7671618			
Conductivity	mS/cm	-	-	-	18.1	0.001	7671136	17.2	0.001	7671136
Fluoride (F-)	mg/L	-	1.5	-	0.44	0.10	7671133	0.44	0.10	7671133
Dissolved Organic Carbon	mg/L	-	-	5	**23**	0.40	7671203			
Orthophosphate (P)	mg/L	-	-	-	0.031	0.010	7671691			
pH	pH	6.5:8.5	-	6.5:8.5	7.02		7671130	7.11		7671130
Dissolved Sulphate (SO4)	mg/L	-	-	500	<1.0	1.0	7671692			
Alkalinity (Total as CaCO3)	mg/L	-	-	30:500	130	1.0	7671121	130	1.0	7671121
Dissolved Chloride (Cl-)	mg/L	-	-	250	**8600**	120	7671690			
Nitrite (N)	mg/L	-	1	-	<0.010	0.010	7671619			
Nitrate (N)	mg/L	-	10	-	<0.10	0.10	7671619			
Nitrate + Nitrite (N)	mg/L	-	10	-	<0.10	0.10	7671619			

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
MAC,A/O: Ontario Drinking Water Standards - Maximum Acceptable Concentration [MAC] & Table 4-Chemical/Physical Objectives [A/O] - Not Health Related, respectively
(Made under the Ontario Safe Drinking Water Act, 2002)

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Bureau Veritas Job #: C1V1807
Report Date: 2021/11/04

Golder Associates Ltd
Client Project #: 20448776
Site Location: McCarthy
Sampler Initials: SAP

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID					RAR308		RAR309		
Sampling Date					2021/10/21 17:30		2021/10/21 10:30		
COC Number					851925-03-01		851925-03-01		
	UNITS	Criteria	MAC	A/O	OW5-3	RDL	OW6-2	RDL	QC Batch
Calculated Parameters									
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	-	-	-	120	1.0	160	1.0	7668640
Calculated TDS	mg/L	-	-	500	**15000**	1.0	**3800**	1.0	7668646
Carb. Alkalinity (calc. as CaCO3)	mg/L	-	-	-	<1.0	1.0	<1.0	1.0	7668640
Hardness (CaCO3)	mg/L	-	-	80:100	**6600**	1.0	**1700**	1.0	7668644
Hydrox. Alkalinity (calc. as CaCO3)	mg/L	-	-	-	<1.0	1.0	<1.0	1.0	7668640
Inorganics									
Total Ammonia-N	mg/L	-	-	-	9.3	0.050	1.4	0.050	7672504
Colour	TCU	-	-	5	3	2	3	2	7671618
Conductivity	mS/cm	-	-	-	18.0	0.001	4.71	0.001	7671136
Fluoride (F-)	mg/L	-	1.5	-	0.43	0.10	0.85	0.10	7671133
Dissolved Organic Carbon	mg/L	-	-	5	1.2	0.40	0.44	0.40	7671151
Orthophosphate (P)	mg/L	-	-	-	<0.010	0.010	<0.010	0.010	7671691
pH	pH	6.5:8.5	-	6.5:8.5	7.22		7.69		7671130
Dissolved Sulphate (SO4)	mg/L	-	-	500	41	1.0	**870**	5.0	7671692
Alkalinity (Total as CaCO3)	mg/L	-	-	30:500	120	1.0	160	1.0	7671121
Dissolved Chloride (Cl-)	mg/L	-	-	250	**8800**	120	**1400**	20	7671690
Nitrite (N)	mg/L	-	1	-	<0.010	0.010	0.034	0.010	7671619
Nitrate (N)	mg/L	-	10	-	<0.10	0.10	<0.10	0.10	7671619
Nitrate + Nitrite (N)	mg/L	-	10	-	<0.10	0.10	<0.10	0.10	7671619

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
MAC,A/O: Ontario Drinking Water Standards - Maximum Acceptable Concentration [MAC] & Table 4-Chemical/Physical Objectives [A/O] - Not Health Related, respectively
(Made under the Ontario Safe Drinking Water Act, 2002)

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Bureau Veritas Job #: C1V1807
Report Date: 2021/11/04

Golder Associates Ltd
Client Project #: 20448776
Site Location: McCarthy
Sampler Initials: SAP

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID					RAR309			RAR310	RAR311		
Sampling Date					2021/10/21 10:30			2021/10/22 11:40	2021/10/22 12:00		
COC Number					851925-03-01			851925-03-01	851925-03-01		
	UNITS	Criteria	MAC	A/O	OW6-2 Lab-Dup	RDL	QC Batch	OW7-1	OW7-2	RDL	QC Batch
Calculated Parameters											
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	-	-	-				250	260	1.0	7668640
Calculated TDS	mg/L	-	-	500				**5000**	**4600**	1.0	7668646
Carb. Alkalinity (calc. as CaCO3)	mg/L	-	-	-				<1.0	1.2	1.0	7668640
Hardness (CaCO3)	mg/L	-	-	80:100				**1600**	**1600**	1.0	7668644
Hydrox. Alkalinity (calc. as CaCO3)	mg/L	-	-	-				<1.0	<1.0	1.0	7668640
Inorganics											
Total Ammonia-N	mg/L	-	-	-				3.0	2.6	0.050	7672504
Colour	TCU	-	-	5				**61**	2	2	7671618
Conductivity	mS/cm	-	-	-				7.18	6.63	0.001	7671136
Fluoride (F-)	mg/L	-	1.5	-				1.5	**1.6**	0.10	7671133
Dissolved Organic Carbon	mg/L	-	-	5	0.44	0.40	7671151	0.88	0.68	0.40	7671151
Orthophosphate (P)	mg/L	-	-	-				<0.010	<0.010	0.010	7671691
pH	pH	6.5:8.5	-	6.5:8.5				7.62	7.69		7671130
Dissolved Sulphate (SO4)	mg/L	-	-	500				22	25	1.0	7671692
Alkalinity (Total as CaCO3)	mg/L	-	-	30:500				250	260	1.0	7671121
Dissolved Chloride (Cl-)	mg/L	-	-	250				**2800**	**2400**	40	7671690
Nitrite (N)	mg/L	-	1	-				<0.010	<0.010	0.010	7671619
Nitrate (N)	mg/L	-	10	-				<0.10	<0.10	0.10	7671619
Nitrate + Nitrite (N)	mg/L	-	10	-				<0.10	<0.10	0.10	7671619

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
MAC,A/O: Ontario Drinking Water Standards - Maximum Acceptable Concentration [MAC] & Table 4-Chemical/Physical Objectives [A/O] - Not Health Related, respectively
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Bureau Veritas Job #: C1V1807
Report Date: 2021/11/04

Golder Associates Ltd
Client Project #: 20448776
Site Location: McCarthy
Sampler Initials: SAP

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID					RAR312	RAR313			RAR313		
Sampling Date					2021/10/21 16:55	2021/10/21 16:00			2021/10/21 16:00		
COC Number					851925-03-01	851925-03-01			851925-03-01		
	UNITS	Criteria	MAC	A/O	OW8-1	OW8-2	RDL	QC Batch	OW8-2 Lab-Dup	RDL	QC Batch
Calculated Parameters											
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	-	-	-	300	290	1.0	7668640			
Calculated TDS	mg/L	-	-	500	**520**	420	1.0	7668646			
Carb. Alkalinity (calc. as CaCO3)	mg/L	-	-	-	1.6	3.0	1.0	7668640			
Hardness (CaCO3)	mg/L	-	-	80:100	**290**	**330**	1.0	7668644			
Hydrox. Alkalinity (calc. as CaCO3)	mg/L	-	-	-	<1.0	<1.0	1.0	7668640			
Inorganics											
Total Ammonia-N	mg/L	-	-	-	0.49	0.26	0.050	7672504			
Colour	TCU	-	-	5	2	2	2	7671618	<2	2	7671618
Conductivity	mS/cm	-	-	-	0.818	0.648	0.001	7671136			
Fluoride (F-)	mg/L	-	1.5	-	0.91	0.49	0.10	7671133			
Dissolved Organic Carbon	mg/L	-	-	5	1.5	1.7	0.40	7671151			
Orthophosphate (P)	mg/L	-	-	-	<0.010	<0.010	0.010	7671691			
pH	pH	6.5:8.5	-	6.5:8.5	7.75	8.03		7671130			
Dissolved Sulphate (SO4)	mg/L	-	-	500	52	53	1.0	7671692			
Alkalinity (Total as CaCO3)	mg/L	-	-	30:500	300	290	1.0	7671121			
Dissolved Chloride (Cl-)	mg/L	-	-	250	93	27	1.0	7671690			
Nitrite (N)	mg/L	-	1	-	<0.010	<0.010	0.010	7671619	<0.010	0.010	7671619
Nitrate (N)	mg/L	-	10	-	<0.10	<0.10	0.10	7671619	<0.10	0.10	7671619
Nitrate + Nitrite (N)	mg/L	-	10	-	<0.10	<0.10	0.10	7671619	<0.10	0.10	7671619

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
MAC,A/O: Ontario Drinking Water Standards - Maximum Acceptable Concentration [MAC] & Table 4-Chemical/Physical Objectives [A/O] - Not Health Related, respectively
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Bureau Veritas Job #: C1V1807
Report Date: 2021/11/04

Golder Associates Ltd
Client Project #: 20448776
Site Location: McCarthy
Sampler Initials: SAP

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID					RAR314			RAR314		
Sampling Date					2021/10/21 15:30			2021/10/21 15:30		
COC Number					851925-03-01			851925-03-01		
	UNITS	Criteria	MAC	A/O	OW9-2	RDL	QC Batch	OW9-2 Lab-Dup	RDL	QC Batch
Calculated Parameters										
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	-	-	-	140	1.0	7668640			
Calculated TDS	mg/L	-	-	500	**39000**	1.0	7668646			
Carb. Alkalinity (calc. as CaCO3)	mg/L	-	-	-	<1.0	1.0	7668640			
Hardness (CaCO3)	mg/L	-	-	80:100	**21000**	1.0	7668644			
Hydrox. Alkalinity (calc. as CaCO3)	mg/L	-	-	-	<1.0	1.0	7668640			
Inorganics										
Total Ammonia-N	mg/L	-	-	-	0.15	0.050	7672504			
Colour	TCU	-	-	5	**6**	2	7671618			
Conductivity	mS/cm	-	-	-	62.2	0.001	7679806	62.1	0.001	7679806
Fluoride (F-)	mg/L	-	1.5	-	<0.10	0.10	7671133			
Dissolved Organic Carbon	mg/L	-	-	5	**8.5**	0.40	7671151			
Orthophosphate (P)	mg/L	-	-	-	<0.010	0.010	7671691			
pH	pH	6.5:8.5	-	6.5:8.5	7.15		7671130			
Dissolved Sulphate (SO4)	mg/L	-	-	500	**1200**	5.0	7671692			
Alkalinity (Total as CaCO3)	mg/L	-	-	30:500	140	1.0	7671121			
Dissolved Chloride (Cl-)	mg/L	-	-	250	**24000**	200	7671690			
Nitrite (N)	mg/L	-	1	-	<0.010	0.010	7671619			
Nitrate (N)	mg/L	-	10	-	2.19	0.10	7671619			
Nitrate + Nitrite (N)	mg/L	-	10	-	2.19	0.10	7671619			

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
MAC,A/O: Ontario Drinking Water Standards - Maximum Acceptable Concentration [MAC] & Table 4-Chemical/Physical Objectives [A/O] - Not Health Related, respectively
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Bureau Veritas Job #: C1V1807
Report Date: 2021/11/04

Golder Associates Ltd
Client Project #: 20448776
Site Location: McCarthy
Sampler Initials: SAP

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID					RAR292		RAR293		RAR294		
Sampling Date					2021/10/21 11:30		2021/10/21 12:40		2021/10/21 11:00		
COC Number					851925-04-01		851925-04-01		851925-04-01		
	UNITS	Criteria	MAC	A/O	BORED	RDL	AMX-R	RDL	OW4-1	RDL	QC Batch
Metals											
Dissolved Aluminum (Al)	ug/L	-	-	100	8.9	4.9	<4.9	4.9	31	4.9	7672239
Dissolved Antimony (Sb)	ug/L	20	6	-	<0.50	0.50	<0.50	0.50	<0.50	0.50	7672239
Dissolved Arsenic (As)	ug/L	100	10	-	<1.0	1.0	<1.0	1.0	<1.0	1.0	7672239
Dissolved Barium (Ba)	ug/L	-	1000	-	59	2.0	220	2.0	46	2.0	7672239
Dissolved Beryllium (Be)	ug/L	11	-	-	<0.40	0.40	<0.40	0.40	<0.40	0.40	7672239
Dissolved Bismuth (Bi)	ug/L	-	-	-	<1.0	1.0	<1.0	1.0	<1.0	1.0	7672239
Dissolved Boron (B)	ug/L	200	5000	-	14	10	**1100**	10	**860**	10	7672239
Dissolved Cadmium (Cd)	ug/L	0.2	5	-	<0.090	0.090	<0.090	0.090	<0.090	0.090	7672239
Dissolved Calcium (Ca)	ug/L	-	-	-	47000	200	710000	2000	28000	200	7672239
Dissolved Chromium (Cr)	ug/L	-	50	-	<5.0	5.0	<5.0	5.0	<5.0	5.0	7672239
Dissolved Cobalt (Co)	ug/L	0.9	-	-	<0.50	0.50	<0.50	0.50	<0.50	0.50	7672239
Dissolved Copper (Cu)	ug/L	5	-	1000	1.1	0.90	<0.90	0.90	<0.90	0.90	7672239
Dissolved Iron (Fe)	ug/L	300	-	300	<100	100	**43000**	100	120	100	7672239
Dissolved Lead (Pb)	ug/L	5	10	-	<0.50	0.50	<0.50	0.50	<0.50	0.50	7672239
Dissolved Lithium (Li)	ug/L	-	-	-	13	5.0	1100	25	120	5.0	7672239
Dissolved Magnesium (Mg)	ug/L	-	-	-	25000	50	480000	250	19000	50	7672239
Dissolved Manganese (Mn)	ug/L	-	-	50	<2.0	2.0	**1800**	2.0	**51**	2.0	7672239
Dissolved Molybdenum (Mo)	ug/L	40	-	-	1.9	0.50	<0.50	0.50	1.7	0.50	7672239
Dissolved Nickel (Ni)	ug/L	25	-	-	<1.0	1.0	<1.0	1.0	<1.0	1.0	7672239
Dissolved Phosphorus (P)	ug/L	-	-	-	<100	100	<100	100	<100	100	7672239
Dissolved Potassium (K)	ug/L	-	-	-	8700	200	45000	200	7700	200	7672239
Dissolved Selenium (Se)	ug/L	100	50	-	<2.0	2.0	<2.0	2.0	<2.0	2.0	7672239
Dissolved Silicon (Si)	ug/L	-	-	-	8900	50	300	50	5600	50	7672239
Dissolved Silver (Ag)	ug/L	0.1	-	-	<0.090	0.090	<0.090	0.090	<0.090	0.090	7672239
Dissolved Sodium (Na)	ug/L	-	-	200000	21000	100	**2200000**	500	**210000**	100	7672239
Dissolved Strontium (Sr)	ug/L	-	-	-	230	1.0	44000	1.0	1600	1.0	7672239

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
MAC,A/O: Ontario Drinking Water Standards - Maximum Acceptable Concentration [MAC] & Table 4-Chemical/Physical Objectives [A/O] - Not Health Related, respectively
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Bureau Veritas Job #: C1V1807
Report Date: 2021/11/04

Golder Associates Ltd
Client Project #: 20448776
Site Location: McCarthy
Sampler Initials: SAP

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID					RAR292		RAR293		RAR294		
Sampling Date					2021/10/21 11:30		2021/10/21 12:40		2021/10/21 11:00		
COC Number					851925-04-01		851925-04-01		851925-04-01		
	UNITS	Criteria	MAC	A/O	BORED	RDL	AMX-R	RDL	OW4-1	RDL	QC Batch
Dissolved Tellurium (Te)	ug/L	-	-	-	<1.0	1.0	<1.0	1.0	<1.0	1.0	7672239
Dissolved Thallium (Tl)	ug/L	0.3	-	-	<0.050	0.050	<0.050	0.050	<0.050	0.050	7672239
Dissolved Tin (Sn)	ug/L	-	-	-	4.8	1.0	1.4	1.0	<1.0	1.0	7672239
Dissolved Titanium (Ti)	ug/L	-	-	-	<5.0	5.0	<5.0	5.0	<5.0	5.0	7672239
Dissolved Tungsten (W)	ug/L	30	-	-	<1.0	1.0	<1.0	1.0	<1.0	1.0	7672239
Dissolved Uranium (U)	ug/L	5	20	-	1.6	0.10	<0.10	0.10	0.13	0.10	7672239
Dissolved Vanadium (V)	ug/L	6	-	-	<0.50	0.50	<0.50	0.50	<0.50	0.50	7672239
Dissolved Zinc (Zn)	ug/L	30	-	5000	<5.0	5.0	<5.0	5.0	<5.0	5.0	7672239
Dissolved Zirconium (Zr)	ug/L	4	-	-	<1.0	1.0	<1.0	1.0	<1.0	1.0	7672239

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

MAC,A/O: Ontario Drinking Water Standards - Maximum Acceptable Concentration [MAC] & Table 4-Chemical/Physical Objectives [A/O] - Not Health Related, respectively
(Made under the Ontario Safe Drinking Water Act, 2002)

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ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID					RAR295	RAR296		RAR297	RAR297		
Sampling Date					2021/10/21 11:30	2021/10/21 12:00		2021/10/21 15:00	2021/10/21 15:00		
COC Number					851925-04-01	851925-04-01		851925-04-01	851925-04-01		
	UNITS	Criteria	MAC	A/O	OW4-2	AM16	RDL	TW1-1	TW1-1 Lab-Dup	RDL	QC Batch
Metals											
Dissolved Aluminum (Al)	ug/L	-	-	100	<4.9	<4.9	4.9	<4.9	<4.9	4.9	7672239
Dissolved Antimony (Sb)	ug/L	20	6	-	<0.50	<0.50	0.50	<0.50	<0.50	0.50	7672239
Dissolved Arsenic (As)	ug/L	100	10	-	<1.0	<1.0	1.0	<1.0	<1.0	1.0	7672239
Dissolved Barium (Ba)	ug/L	-	1000	-	54	110	2.0	40	40	2.0	7672239
Dissolved Beryllium (Be)	ug/L	11	-	-	<0.40	<0.40	0.40	<0.40	<0.40	0.40	7672239
Dissolved Bismuth (Bi)	ug/L	-	-	-	<1.0	<1.0	1.0	<1.0	<1.0	1.0	7672239
Dissolved Boron (B)	ug/L	200	5000	-	**950**	52	10	**580**	**570**	10	7672239
Dissolved Cadmium (Cd)	ug/L	0.2	5	-	<0.090	<0.090	0.090	<0.090	<0.090	0.090	7672239
Dissolved Calcium (Ca)	ug/L	-	-	-	37000	52000	200	130000	140000	400	7672239
Dissolved Chromium (Cr)	ug/L	-	50	-	<5.0	<5.0	5.0	<5.0	<5.0	5.0	7672239
Dissolved Cobalt (Co)	ug/L	0.9	-	-	<0.50	<0.50	0.50	<0.50	<0.50	0.50	7672239
Dissolved Copper (Cu)	ug/L	5	-	1000	<0.90	<0.90	0.90	<0.90	0.95	0.90	7672239
Dissolved Iron (Fe)	ug/L	300	-	300	<100	**390**	100	210	210	100	7672239
Dissolved Lead (Pb)	ug/L	5	10	-	<0.50	<0.50	0.50	<0.50	<0.50	0.50	7672239
Dissolved Lithium (Li)	ug/L	-	-	-	150	14	5.0	160	160	5.0	7672239
Dissolved Magnesium (Mg)	ug/L	-	-	-	26000	32000	50	73000	74000	50	7672239
Dissolved Manganese (Mn)	ug/L	-	-	50	<2.0	9.6	2.0	**85**	**87**	2.0	7672239
Dissolved Molybdenum (Mo)	ug/L	40	-	-	<0.50	1.3	0.50	<0.50	<0.50	0.50	7672239
Dissolved Nickel (Ni)	ug/L	25	-	-	<1.0	<1.0	1.0	<1.0	<1.0	1.0	7672239
Dissolved Phosphorus (P)	ug/L	-	-	-	<100	<100	100	<100	<100	100	7672239
Dissolved Potassium (K)	ug/L	-	-	-	9100	2400	200	13000	14000	200	7672239
Dissolved Selenium (Se)	ug/L	100	50	-	<2.0	<2.0	2.0	<2.0	<2.0	2.0	7672239
Dissolved Silicon (Si)	ug/L	-	-	-	4700	13000	50	3000	3200	50	7672239
Dissolved Silver (Ag)	ug/L	0.1	-	-	<0.090	<0.090	0.090	<0.090	<0.090	0.090	7672239
Dissolved Sodium (Na)	ug/L	-	-	200000	**230000**	7000	100	**320000**	**330000**	100	7672239

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
MAC,A/O: Ontario Drinking Water Standards - Maximum Acceptable Concentration [MAC] & Table 4-Chemical/Physical Objectives [A/O] - Not Health Related, respectively
(Made under the Ontario Safe Drinking Water Act, 2002)

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ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID					RAR295	RAR296		RAR297	RAR297		
Sampling Date					2021/10/21 11:30	2021/10/21 12:00		2021/10/21 15:00	2021/10/21 15:00		
COC Number					851925-04-01	851925-04-01		851925-04-01	851925-04-01		
	UNITS	Criteria	MAC	A/O	OW4-2	AM16	RDL	TW1-1	TW1-1 Lab-Dup	RDL	QC Batch
Dissolved Strontium (Sr)	ug/L	-	-	-	3100	510	1.0	6900	7100	1.0	7672239
Dissolved Tellurium (Te)	ug/L	-	-	-	<1.0	<1.0	1.0	<1.0	<1.0	1.0	7672239
Dissolved Thallium (Tl)	ug/L	0.3	-	-	<0.050	<0.050	0.050	<0.050	<0.050	0.050	7672239
Dissolved Tin (Sn)	ug/L	-	-	-	<1.0	<1.0	1.0	<1.0	<1.0	1.0	7672239
Dissolved Titanium (Ti)	ug/L	-	-	-	<5.0	<5.0	5.0	<5.0	<5.0	5.0	7672239
Dissolved Tungsten (W)	ug/L	30	-	-	<1.0	<1.0	1.0	<1.0	<1.0	1.0	7672239
Dissolved Uranium (U)	ug/L	5	20	-	<0.10	<0.10	0.10	<0.10	<0.10	0.10	7672239
Dissolved Vanadium (V)	ug/L	6	-	-	<0.50	<0.50	0.50	<0.50	<0.50	0.50	7672239
Dissolved Zinc (Zn)	ug/L	30	-	5000	<5.0	<5.0	5.0	<5.0	<5.0	5.0	7672239
Dissolved Zirconium (Zr)	ug/L	4	-	-	<1.0	<1.0	1.0	<1.0	<1.0	1.0	7672239

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
MAC,A/O: Ontario Drinking Water Standards - Maximum Acceptable Concentration [MAC] & Table 4-Chemical/Physical Objectives [A/O] - Not Health Related, respectively
(Made under the Ontario Safe Drinking Water Act, 2002)

Bureau Veritas Job #: C1V1807
Report Date: 2021/11/04

Golder Associates Ltd
Client Project #: 20448776
Site Location: McCarthy
Sampler Initials: SAP

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID					RAR298	RAR299	RAR300		RAR307		
Sampling Date					2021/10/21 11:30	2021/10/21 18:05	2021/10/21 18:05		2021/10/21 17:15		
COC Number					851925-04-01	851925-04-01	851925-04-01		851925-03-01		
	UNITS	Criteria	MAC	A/O	DUP1	OW5-1	DUP2	RDL	OW5-2	RDL	QC Batch
Metals											
Dissolved Aluminum (Al)	ug/L	-	-	100	<4.9	<4.9	21	4.9	46	25	7672239
Dissolved Antimony (Sb)	ug/L	20	6	-	<0.50	<0.50	<0.50	0.50	<2.5	2.5	7672239
Dissolved Arsenic (As)	ug/L	100	10	-	<1.0	<1.0	<1.0	1.0	<5.0	5.0	7672239
Dissolved Barium (Ba)	ug/L	-	1000	-	54	98	96	2.0	640	10	7672239
Dissolved Beryllium (Be)	ug/L	11	-	-	<0.40	<0.40	<0.40	0.40	<2.0	2.0	7672239
Dissolved Bismuth (Bi)	ug/L	-	-	-	<1.0	<1.0	<1.0	1.0	<5.0	5.0	7672239
Dissolved Boron (B)	ug/L	200	5000	-	**910**	**650**	**700**	10	**2300**	50	7672239
Dissolved Cadmium (Cd)	ug/L	0.2	5	-	<0.090	<0.090	<0.090	0.090	**<0.45 (1)**	0.45	7672239
Dissolved Calcium (Ca)	ug/L	-	-	-	38000	48000	50000	200	1100000	5000	7672239
Dissolved Chromium (Cr)	ug/L	-	50	-	<5.0	<5.0	<5.0	5.0	<25	25	7672239
Dissolved Cobalt (Co)	ug/L	0.9	-	-	<0.50	<0.50	<0.50	0.50	**<2.5 (1)**	2.5	7672239
Dissolved Copper (Cu)	ug/L	5	-	1000	<0.90	<0.90	<0.90	0.90	<4.5	4.5	7672239
Dissolved Iron (Fe)	ug/L	300	-	300	<100	<100	110	100	**3400**	500	7672239
Dissolved Lead (Pb)	ug/L	5	10	-	<0.50	<0.50	<0.50	0.50	<2.5	2.5	7672239
Dissolved Lithium (Li)	ug/L	-	-	-	140	75	82	5.0	1600	25	7672239
Dissolved Magnesium (Mg)	ug/L	-	-	-	26000	32000	33000	50	630000	250	7672239
Dissolved Manganese (Mn)	ug/L	-	-	50	<2.0	7.4	8.7	2.0	**130**	10	7672239
Dissolved Molybdenum (Mo)	ug/L	40	-	-	<0.50	<0.50	<0.50	0.50	<2.5	2.5	7672239
Dissolved Nickel (Ni)	ug/L	25	-	-	<1.0	<1.0	<1.0	1.0	<5.0	5.0	7672239
Dissolved Phosphorus (P)	ug/L	-	-	-	<100	<100	<100	100	870	500	7672239
Dissolved Potassium (K)	ug/L	-	-	-	9000	7900	8000	200	74000	1000	7672239
Dissolved Selenium (Se)	ug/L	100	50	-	<2.0	<2.0	<2.0	2.0	<10	10	7672239
Dissolved Silicon (Si)	ug/L	-	-	-	4900	7600	7700	50	4100	250	7672239
Dissolved Silver (Ag)	ug/L	0.1	-	-	<0.090	<0.090	<0.090	0.090	**<0.45 (1)**	0.45	7672239
Dissolved Sodium (Na)	ug/L	-	-	200000	**240000**	63000	64000	100	**3300000**	1000	7672239

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
MAC,A/O: Ontario Drinking Water Standards - Maximum Acceptable Concentration [MAC] & Table 4-Chemical/Physical Objectives [A/O] - Not Health Related, respectively
(Made under the Ontario Safe Drinking Water Act, 2002)
(1) RDL exceeds criteria

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ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID					RAR298	RAR299	RAR300		RAR307		
Sampling Date					2021/10/21 11:30	2021/10/21 18:05	2021/10/21 18:05		2021/10/21 17:15		
COC Number					851925-04-01	851925-04-01	851925-04-01		851925-03-01		
	UNITS	Criteria	MAC	A/O	DUP1	OW5-1	DUP2	RDL	OW5-2	RDL	QC Batch
Dissolved Strontium (Sr)	ug/L	-	-	-	3100	1900	1900	1.0	71000	5.0	7672239
Dissolved Tellurium (Te)	ug/L	-	-	-	<1.0	<1.0	<1.0	1.0	<5.0	5.0	7672239
Dissolved Thallium (Tl)	ug/L	0.3	-	-	<0.050	<0.050	<0.050	0.050	<0.25	0.25	7672239
Dissolved Tin (Sn)	ug/L	-	-	-	<1.0	<1.0	<1.0	1.0	<5.0	5.0	7672239
Dissolved Titanium (Ti)	ug/L	-	-	-	<5.0	<5.0	<5.0	5.0	<25	25	7672239
Dissolved Tungsten (W)	ug/L	30	-	-	<1.0	<1.0	<1.0	1.0	<5.0	5.0	7672239
Dissolved Uranium (U)	ug/L	5	20	-	<0.10	0.28	0.31	0.10	<0.50	0.50	7672239
Dissolved Vanadium (V)	ug/L	6	-	-	<0.50	<0.50	<0.50	0.50	<2.5	2.5	7672239
Dissolved Zinc (Zn)	ug/L	30	-	5000	<5.0	<5.0	<5.0	5.0	26	25	7672239
Dissolved Zirconium (Zr)	ug/L	4	-	-	<1.0	<1.0	<1.0	1.0	**<5.0 (1)**	5.0	7672239

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
MAC,A/O: Ontario Drinking Water Standards - Maximum Acceptable Concentration [MAC] & Table 4-Chemical/Physical Objectives [A/O] - Not Health Related, respectively
(Made under the Ontario Safe Drinking Water Act, 2002)
(1) RDL exceeds criteria

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Bureau Veritas Job #: C1V1807
Report Date: 2021/11/04

Golder Associates Ltd
Client Project #: 20448776
Site Location: McCarthy
Sampler Initials: SAP

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID					RAR308		RAR309		RAR310		
Sampling Date					2021/10/21 17:30		2021/10/21 10:30		2021/10/22 11:40		
COC Number					851925-03-01		851925-03-01		851925-03-01		
	UNITS	Criteria	MAC	A/O	OW5-3	RDL	OW6-2	RDL	OW7-1	RDL	QC Batch
Metals											
Dissolved Aluminum (Al)	ug/L	-	-	100	<25	25	<25	25	<4.9	4.9	7672239
Dissolved Antimony (Sb)	ug/L	20	6	-	<2.5	2.5	<2.5	2.5	<0.50	0.50	7672239
Dissolved Arsenic (As)	ug/L	100	10	-	<5.0	5.0	<5.0	5.0	<1.0	1.0	7672239
Dissolved Barium (Ba)	ug/L	-	1000	-	800	10	97	10	130	2.0	7672239
Dissolved Beryllium (Be)	ug/L	11	-	-	<2.0	2.0	<2.0	2.0	<0.40	0.40	7672239
Dissolved Bismuth (Bi)	ug/L	-	-	-	<5.0	5.0	<5.0	5.0	<1.0	1.0	7672239
Dissolved Boron (B)	ug/L	200	5000	-	**2500**	50	**3700**	50	**2200**	10	7672239
Dissolved Cadmium (Cd)	ug/L	0.2	5	-	**<0.45 (1)**	0.45	**<0.45 (1)**	0.45	<0.090	0.090	7672239
Dissolved Calcium (Ca)	ug/L	-	-	-	1400000	5000	340000	1000	340000	1000	7672239
Dissolved Chromium (Cr)	ug/L	-	50	-	<25	25	<25	25	<5.0	5.0	7672239
Dissolved Cobalt (Co)	ug/L	0.9	-	-	**<2.5 (1)**	2.5	**<2.5 (1)**	2.5	<0.50	0.50	7672239
Dissolved Copper (Cu)	ug/L	5	-	1000	<4.5	4.5	<4.5	4.5	<0.90	0.90	7672239
Dissolved Iron (Fe)	ug/L	300	-	300	**7600**	500	**650**	500	**2500**	100	7672239
Dissolved Lead (Pb)	ug/L	5	10	-	<2.5	2.5	<2.5	2.5	<0.50	0.50	7672239
Dissolved Lithium (Li)	ug/L	-	-	-	1900	25	350	25	540	25	7672239
Dissolved Magnesium (Mg)	ug/L	-	-	-	770000	250	200000	250	190000	50	7672239
Dissolved Manganese (Mn)	ug/L	-	-	50	**170**	10	**2000**	10	**120**	2.0	7672239
Dissolved Molybdenum (Mo)	ug/L	40	-	-	3.2	2.5	<2.5	2.5	2.2	0.50	7672239
Dissolved Nickel (Ni)	ug/L	25	-	-	<5.0	5.0	<5.0	5.0	2.9	1.0	7672239
Dissolved Phosphorus (P)	ug/L	-	-	-	<500	500	<500	500	<100	100	7672239
Dissolved Potassium (K)	ug/L	-	-	-	73000	1000	19000	1000	24000	200	7672239
Dissolved Selenium (Se)	ug/L	100	50	-	<10	10	<10	10	<2.0	2.0	7672239
Dissolved Silicon (Si)	ug/L	-	-	-	5000	250	4300	250	3500	50	7672239
Dissolved Silver (Ag)	ug/L	0.1	-	-	**<0.45 (1)**	0.45	**<0.45 (1)**	0.45	<0.090	0.090	7672239
Dissolved Sodium (Na)	ug/L	-	-	200000	**4100000**	1000	**800000**	500	**1500000**	500	7672239

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
MAC,A/O: Ontario Drinking Water Standards - Maximum Acceptable Concentration [MAC] & Table 4-Chemical/Physical Objectives [A/O] - Not Health Related, respectively
(Made under the Ontario Safe Drinking Water Act, 2002)
(1) RDL exceeds criteria

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Bureau Veritas Job #: C1V1807
Report Date: 2021/11/04

Golder Associates Ltd
Client Project #: 20448776
Site Location: McCarthy
Sampler Initials: SAP

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID					RAR308		RAR309		RAR310		
Sampling Date					2021/10/21 17:30		2021/10/21 10:30		2021/10/22 11:40		
COC Number					851925-03-01		851925-03-01		851925-03-01		
	UNITS	Criteria	MAC	A/O	OW5-3	RDL	OW6-2	RDL	OW7-1	RDL	QC Batch
Dissolved Strontium (Sr)	ug/L	-	-	-	84000	5.0	18000	5.0	21000	1.0	7672239
Dissolved Tellurium (Te)	ug/L	-	-	-	<5.0	5.0	<5.0	5.0	<1.0	1.0	7672239
Dissolved Thallium (Tl)	ug/L	0.3	-	-	<0.25	0.25	<0.25	0.25	<0.050	0.050	7672239
Dissolved Tin (Sn)	ug/L	-	-	-	<5.0	5.0	<5.0	5.0	<1.0	1.0	7672239
Dissolved Titanium (Ti)	ug/L	-	-	-	<25	25	<25	25	<5.0	5.0	7672239
Dissolved Tungsten (W)	ug/L	30	-	-	<5.0	5.0	<5.0	5.0	<1.0	1.0	7672239
Dissolved Uranium (U)	ug/L	5	20	-	2.0	0.50	<0.50	0.50	<0.10	0.10	7672239
Dissolved Vanadium (V)	ug/L	6	-	-	<2.5	2.5	<2.5	2.5	<0.50	0.50	7672239
Dissolved Zinc (Zn)	ug/L	30	-	5000	**39**	25	<25	25	11	5.0	7672239
Dissolved Zirconium (Zr)	ug/L	4	-	-	**<5.0 (1)**	5.0	**<5.0 (1)**	5.0	<1.0	1.0	7672239

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
MAC,A/O: Ontario Drinking Water Standards - Maximum Acceptable Concentration [MAC] & Table 4-Chemical/Physical Objectives [A/O] - Not Health Related, respectively
(Made under the Ontario Safe Drinking Water Act, 2002)
(1) RDL exceeds criteria

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Bureau Veritas Job #: C1V1807
Report Date: 2021/11/04

Golder Associates Ltd
Client Project #: 20448776
Site Location: McCarthy
Sampler Initials: SAP

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID					RAR311		RAR312	RAR313		
Sampling Date					2021/10/22 12:00		2021/10/21 16:55	2021/10/21 16:00		
COC Number					851925-03-01		851925-03-01	851925-03-01		
	UNITS	Criteria	MAC	A/O	OW7-2	RDL	OW8-1	OW8-2	RDL	QC Batch
Metals										
Dissolved Aluminum (Al)	ug/L	-	-	100	6.3	4.9	<4.9	<4.9	4.9	7672239
Dissolved Antimony (Sb)	ug/L	20	6	-	<0.50	0.50	<0.50	<0.50	0.50	7672239
Dissolved Arsenic (As)	ug/L	100	10	-	<1.0	1.0	<1.0	<1.0	1.0	7672239
Dissolved Barium (Ba)	ug/L	-	1000	-	120	2.0	140	170	2.0	7672239
Dissolved Beryllium (Be)	ug/L	11	-	-	<0.40	0.40	<0.40	<0.40	0.40	7672239
Dissolved Bismuth (Bi)	ug/L	-	-	-	<1.0	1.0	<1.0	<1.0	1.0	7672239
Dissolved Boron (B)	ug/L	200	5000	-	**2300**	10	**540**	**300**	10	7672239
Dissolved Cadmium (Cd)	ug/L	0.2	5	-	<0.090	0.090	<0.090	<0.090	0.090	7672239
Dissolved Calcium (Ca)	ug/L	-	-	-	340000	1000	83000	100000	200	7672239
Dissolved Chromium (Cr)	ug/L	-	50	-	<5.0	5.0	<5.0	<5.0	5.0	7672239
Dissolved Cobalt (Co)	ug/L	0.9	-	-	<0.50	0.50	<0.50	<0.50	0.50	7672239
Dissolved Copper (Cu)	ug/L	5	-	1000	<0.90	0.90	<0.90	<0.90	0.90	7672239
Dissolved Iron (Fe)	ug/L	300	-	300	<100	100	**750**	250	100	7672239
Dissolved Lead (Pb)	ug/L	5	10	-	<0.50	0.50	<0.50	<0.50	0.50	7672239
Dissolved Lithium (Li)	ug/L	-	-	-	540	25	58	29	5.0	7672239
Dissolved Magnesium (Mg)	ug/L	-	-	-	180000	50	20000	18000	50	7672239
Dissolved Manganese (Mn)	ug/L	-	-	50	4.7	2.0	**85**	11	2.0	7672239
Dissolved Molybdenum (Mo)	ug/L	40	-	-	<0.50	0.50	0.74	<0.50	0.50	7672239
Dissolved Nickel (Ni)	ug/L	25	-	-	<1.0	1.0	1.8	<1.0	1.0	7672239
Dissolved Phosphorus (P)	ug/L	-	-	-	<100	100	<100	<100	100	7672239
Dissolved Potassium (K)	ug/L	-	-	-	23000	200	4600	3700	200	7672239
Dissolved Selenium (Se)	ug/L	100	50	-	<2.0	2.0	<2.0	<2.0	2.0	7672239
Dissolved Silicon (Si)	ug/L	-	-	-	3600	50	3000	3700	50	7672239
Dissolved Silver (Ag)	ug/L	0.1	-	-	<0.090	0.090	<0.090	<0.090	0.090	7672239
Dissolved Sodium (Na)	ug/L	-	-	200000	**1500000**	500	80000	31000	100	7672239
Dissolved Strontium (Sr)	ug/L	-	-	-	20000	1.0	1700	1600	1.0	7672239

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
MAC,A/O: Ontario Drinking Water Standards - Maximum Acceptable Concentration [MAC] & Table 4-Chemical/Physical Objectives [A/O] - Not Health Related, respectively
(Made under the Ontario Safe Drinking Water Act, 2002)

Bureau Veritas Job #: C1V1807
Report Date: 2021/11/04

Golder Associates Ltd
Client Project #: 20448776
Site Location: McCarthy
Sampler Initials: SAP

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID					RAR311		RAR312	RAR313		
Sampling Date					2021/10/22 12:00		2021/10/21 16:55	2021/10/21 16:00		
COC Number					851925-03-01		851925-03-01	851925-03-01		
	UNITS	Criteria	MAC	A/O	OW7-2	RDL	OW8-1	OW8-2	RDL	QC Batch
Dissolved Tellurium (Te)	ug/L	-	-	-	1.3	1.0	<1.0	<1.0	1.0	7672239
Dissolved Thallium (Tl)	ug/L	0.3	-	-	<0.050	0.050	<0.050	<0.050	0.050	7672239
Dissolved Tin (Sn)	ug/L	-	-	-	<1.0	1.0	<1.0	<1.0	1.0	7672239
Dissolved Titanium (Ti)	ug/L	-	-	-	<5.0	5.0	<5.0	<5.0	5.0	7672239
Dissolved Tungsten (W)	ug/L	30	-	-	<1.0	1.0	1.8	<1.0	1.0	7672239
Dissolved Uranium (U)	ug/L	5	20	-	<0.10	0.10	<0.10	<0.10	0.10	7672239
Dissolved Vanadium (V)	ug/L	6	-	-	<0.50	0.50	<0.50	<0.50	0.50	7672239
Dissolved Zinc (Zn)	ug/L	30	-	5000	<5.0	5.0	<5.0	<5.0	5.0	7672239
Dissolved Zirconium (Zr)	ug/L	4	-	-	<1.0	1.0	<1.0	<1.0	1.0	7672239

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

MAC,A/O: Ontario Drinking Water Standards - Maximum Acceptable Concentration [MAC] & Table 4-Chemical/Physical Objectives [A/O] - Not Health Related, respectively
(Made under the Ontario Safe Drinking Water Act, 2002)

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ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID					RAR314		
Sampling Date					2021/10/21 15:30		
COC Number					851925-03-01		
	UNITS	Criteria	MAC	A/O	OW9-2	RDL	QC Batch
Metals							
Dissolved Aluminum (Al)	ug/L	-	-	100	<49	49	7673520
Dissolved Antimony (Sb)	ug/L	20	6	-	<5.0	5.0	7673520
Dissolved Arsenic (As)	ug/L	100	10	-	<10	10	7673520
Dissolved Barium (Ba)	ug/L	-	1000	-	470	20	7673520
Dissolved Beryllium (Be)	ug/L	11	-	-	<4.0	4.0	7673520
Dissolved Bismuth (Bi)	ug/L	-	-	-	<10	10	7673520
Dissolved Boron (B)	ug/L	200	5000	-	**1300**	100	7673520
Dissolved Cadmium (Cd)	ug/L	0.2	5	-	**5.6**	0.90	7673520
Dissolved Calcium (Ca)	ug/L	-	-	-	4800000	10000	7673520
Dissolved Chromium (Cr)	ug/L	-	50	-	<50	50	7673520
Dissolved Cobalt (Co)	ug/L	0.9	-	-	**27**	5.0	7673520
Dissolved Copper (Cu)	ug/L	5	-	1000	**<9.0 (1)**	9.0	7673520
Dissolved Iron (Fe)	ug/L	300	-	300	**<1000 (1)**	1000	7673520
Dissolved Lead (Pb)	ug/L	5	10	-	<5.0	5.0	7673520
Dissolved Lithium (Li)	ug/L	-	-	-	<50	50	7673520
Dissolved Magnesium (Mg)	ug/L	-	-	-	2100000	500	7673520
Dissolved Manganese (Mn)	ug/L	-	-	50	**9100**	20	7673520
Dissolved Molybdenum (Mo)	ug/L	40	-	-	<5.0	5.0	7673520
Dissolved Nickel (Ni)	ug/L	25	-	-	12	10	7673520
Dissolved Phosphorus (P)	ug/L	-	-	-	<1000	1000	7673520
Dissolved Potassium (K)	ug/L	-	-	-	110000	2000	7673520
Dissolved Selenium (Se)	ug/L	100	50	-	<20	20	7673520
Dissolved Silicon (Si)	ug/L	-	-	-	2800	500	7673520
Dissolved Silver (Ag)	ug/L	0.1	-	-	**<0.90 (1)**	0.90	7673520

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
MAC,A/O: Ontario Drinking Water Standards - Maximum Acceptable Concentration [MAC] & Table 4-Chemical/Physical Objectives [A/O] - Not Health Related, respectively
(Made under the Ontario Safe Drinking Water Act, 2002)
(1) RDL exceeds criteria

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Bureau Veritas Job #: C1V1807
Report Date: 2021/11/04

Golder Associates Ltd
Client Project #: 20448776
Site Location: McCarthy
Sampler Initials: SAP

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID					RAR314		
Sampling Date					2021/10/21 15:30		
COC Number					851925-03-01		
	UNITS	Criteria	MAC	A/O	OW9-2	RDL	QC Batch
Dissolved Sodium (Na)	ug/L	-	-	200000	**6600000**	5000	7673520
Dissolved Strontium (Sr)	ug/L	-	-	-	97000	10	7673520
Dissolved Tellurium (Te)	ug/L	-	-	-	<10	10	7673520
Dissolved Thallium (Tl)	ug/L	0.3	-	-	**0.52**	0.50	7673520
Dissolved Tin (Sn)	ug/L	-	-	-	<10	10	7673520
Dissolved Titanium (Ti)	ug/L	-	-	-	<50	50	7673520
Dissolved Tungsten (W)	ug/L	30	-	-	<10	10	7673520
Dissolved Uranium (U)	ug/L	5	20	-	**22**	1.0	7673520
Dissolved Vanadium (V)	ug/L	6	-	-	<5.0	5.0	7673520
Dissolved Zinc (Zn)	ug/L	30	-	5000	**<50 (1)**	50	7673520
Dissolved Zirconium (Zr)	ug/L	4	-	-	**<10 (1)**	10	7673520

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
MAC,A/O: Ontario Drinking Water Standards - Maximum Acceptable Concentration [MAC] & Table 4-Chemical/Physical Objectives [A/O] - Not Health Related, respectively
(Made under the Ontario Safe Drinking Water Act, 2002)
(1) RDL exceeds criteria

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Bureau Veritas Job #: C1V1807
Report Date: 2021/11/04

Golder Associates Ltd
Client Project #: 20448776
Site Location: McCarthy
Sampler Initials: SAP

TEST SUMMARY

Bureau Veritas ID: RAR292
Sample ID: BORED
Matrix: Water

Collected: 2021/10/21
Shipped:
Received: 2021/10/25

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	7671121	N/A	2021/10/30	Surinder Rai
Carbonate, Bicarbonate and Hydroxide	CALC	7668640	N/A	2021/11/01	Automated Statchk
Chloride by Automated Colourimetry	KONE	7671690	N/A	2021/11/01	Alina Dobreanu
Colour	SPEC	7671618	N/A	2021/11/01	Viorica Rotaru
Conductivity	AT	7671136	N/A	2021/10/30	Surinder Rai
Dissolved Organic Carbon (DOC)	TOCV/NDIR	7671151	N/A	2021/11/01	Julianna Castiglione
Fluoride	ISE	7671133	2021/10/30	2021/10/30	Surinder Rai
Hardness (calculated as CaCO3)		7668644	N/A	2021/11/01	Automated Statchk
Dissolved Metals by ICPMS	ICP/MS	7672239	N/A	2021/11/01	Prempal Bhatti
Total Ammonia-N	LACH/NH4	7672504	N/A	2021/11/01	Amanpreet Sappal
Nitrate & Nitrite as Nitrogen in Water	LACH	7671619	N/A	2021/11/01	Chandra Nandlal
pH	AT	7671130	2021/10/30	2021/10/30	Surinder Rai
Orthophosphate	KONE	7671691	N/A	2021/11/01	Avneet Kour Sudan
Sulphate by Automated Colourimetry	KONE	7671692	N/A	2021/11/01	Alina Dobreanu
Total Dissolved Solids (TDS calc)	CALC	7668646	N/A	2021/11/01	Automated Statchk

Bureau Veritas ID: RAR293
Sample ID: AMX-R
Matrix: Water

Collected: 2021/10/21
Shipped:
Received: 2021/10/25

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	7671121	N/A	2021/10/30	Surinder Rai
Carbonate, Bicarbonate and Hydroxide	CALC	7668640	N/A	2021/11/01	Automated Statchk
Chloride by Automated Colourimetry	KONE	7671690	N/A	2021/11/01	Alina Dobreanu
Colour	SPEC	7671618	N/A	2021/11/01	Viorica Rotaru
Conductivity	AT	7671136	N/A	2021/10/30	Surinder Rai
Dissolved Organic Carbon (DOC)	TOCV/NDIR	7671151	N/A	2021/11/01	Julianna Castiglione
Fluoride	ISE	7671133	2021/10/30	2021/10/30	Surinder Rai
Hardness (calculated as CaCO3)		7668644	N/A	2021/11/01	Automated Statchk
Dissolved Metals by ICPMS	ICP/MS	7672239	N/A	2021/11/01	Prempal Bhatti
Total Ammonia-N	LACH/NH4	7672504	N/A	2021/11/01	Amanpreet Sappal
Nitrate & Nitrite as Nitrogen in Water	LACH	7671619	N/A	2021/11/01	Chandra Nandlal
pH	AT	7671130	2021/10/30	2021/10/30	Surinder Rai
Orthophosphate	KONE	7671691	N/A	2021/11/01	Avneet Kour Sudan
Sulphate by Automated Colourimetry	KONE	7671692	N/A	2021/11/01	Alina Dobreanu
Total Dissolved Solids (TDS calc)	CALC	7668646	N/A	2021/11/01	Automated Statchk

Bureau Veritas ID: RAR294
Sample ID: OW4-1
Matrix: Water

Collected: 2021/10/21
Shipped:
Received: 2021/10/25

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	7671121	N/A	2021/10/30	Surinder Rai
Carbonate, Bicarbonate and Hydroxide	CALC	7668640	N/A	2021/11/01	Automated Statchk

TEST SUMMARY

Bureau Veritas ID: RAR294
Sample ID: OW4-1
Matrix: Water

Collected: 2021/10/21
Shipped:
Received: 2021/10/25

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Chloride by Automated Colourimetry	KONE	7671690	N/A	2021/11/01	Alina Dobreanu
Colour	SPEC	7671618	N/A	2021/11/01	Viorica Rotaru
Conductivity	AT	7671136	N/A	2021/10/30	Surinder Rai
Dissolved Organic Carbon (DOC)	TOCV/NDIR	7671151	N/A	2021/11/01	Julianna Castiglione
Fluoride	ISE	7671133	2021/10/30	2021/10/30	Surinder Rai
Hardness (calculated as CaCO3)		7668644	N/A	2021/11/01	Automated Statchk
Dissolved Metals by ICPMS	ICP/MS	7672239	N/A	2021/11/01	Prempal Bhatti
Total Ammonia-N	LACH/NH4	7672504	N/A	2021/11/01	Amanpreet Sappal
Nitrate & Nitrite as Nitrogen in Water	LACH	7671619	N/A	2021/11/01	Chandra Nandlal
pH	AT	7671130	2021/10/30	2021/10/30	Surinder Rai
Orthophosphate	KONE	7671691	N/A	2021/11/01	Avneet Kour Sudan
Sulphate by Automated Colourimetry	KONE	7671692	N/A	2021/11/01	Alina Dobreanu
Total Dissolved Solids (TDS calc)	CALC	7668646	N/A	2021/11/01	Automated Statchk

Bureau Veritas ID: RAR295
Sample ID: OW4-2
Matrix: Water

Collected: 2021/10/21
Shipped:
Received: 2021/10/25

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	7671121	N/A	2021/10/30	Surinder Rai
Carbonate, Bicarbonate and Hydroxide	CALC	7668640	N/A	2021/11/01	Automated Statchk
Chloride by Automated Colourimetry	KONE	7671690	N/A	2021/11/01	Alina Dobreanu
Colour	SPEC	7671618	N/A	2021/11/01	Viorica Rotaru
Conductivity	AT	7671136	N/A	2021/10/30	Surinder Rai
Dissolved Organic Carbon (DOC)	TOCV/NDIR	7671151	N/A	2021/11/01	Julianna Castiglione
Fluoride	ISE	7671133	2021/10/30	2021/10/30	Surinder Rai
Hardness (calculated as CaCO3)		7668644	N/A	2021/11/01	Automated Statchk
Dissolved Metals by ICPMS	ICP/MS	7672239	N/A	2021/11/01	Prempal Bhatti
Total Ammonia-N	LACH/NH4	7672504	N/A	2021/11/01	Amanpreet Sappal
Nitrate & Nitrite as Nitrogen in Water	LACH	7671619	N/A	2021/11/01	Chandra Nandlal
pH	AT	7671130	2021/10/30	2021/10/30	Surinder Rai
Orthophosphate	KONE	7671691	N/A	2021/11/01	Avneet Kour Sudan
Sulphate by Automated Colourimetry	KONE	7671692	N/A	2021/11/01	Alina Dobreanu
Total Dissolved Solids (TDS calc)	CALC	7668646	N/A	2021/11/01	Automated Statchk

Bureau Veritas ID: RAR296
Sample ID: AM16
Matrix: Water

Collected: 2021/10/21
Shipped:
Received: 2021/10/25

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	7671121	N/A	2021/10/30	Surinder Rai
Carbonate, Bicarbonate and Hydroxide	CALC	7668640	N/A	2021/11/01	Automated Statchk
Chloride by Automated Colourimetry	KONE	7671690	N/A	2021/11/01	Alina Dobreanu
Colour	SPEC	7671618	N/A	2021/11/01	Viorica Rotaru

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TEST SUMMARY

Bureau Veritas ID: RAR296
Sample ID: AM16
Matrix: Water

Collected: 2021/10/21
Shipped:
Received: 2021/10/25

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Conductivity	AT	7671136	N/A	2021/10/30	Surinder Rai
Dissolved Organic Carbon (DOC)	TOCV/NDIR	7671151	N/A	2021/11/01	Julianna Castiglione
Fluoride	ISE	7671133	2021/10/30	2021/10/30	Surinder Rai
Hardness (calculated as CaCO3)		7668644	N/A	2021/11/01	Automated Statchk
Dissolved Metals by ICPMS	ICP/MS	7672239	N/A	2021/11/01	Prempal Bhatti
Total Ammonia-N	LACH/NH4	7672504	N/A	2021/11/01	Amanpreet Sappal
Nitrate & Nitrite as Nitrogen in Water	LACH	7671619	N/A	2021/11/01	Chandra Nandlal
pH	AT	7671130	2021/10/30	2021/10/30	Surinder Rai
Orthophosphate	KONE	7671691	N/A	2021/11/01	Avneet Kour Sudan
Sulphate by Automated Colourimetry	KONE	7671692	N/A	2021/11/01	Alina Dobreanu
Total Dissolved Solids (TDS calc)	CALC	7668646	N/A	2021/11/01	Automated Statchk

Bureau Veritas ID: RAR297
Sample ID: TW1-1
Matrix: Water

Collected: 2021/10/21
Shipped:
Received: 2021/10/25

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	7671121	N/A	2021/10/30	Surinder Rai
Carbonate, Bicarbonate and Hydroxide	CALC	7668640	N/A	2021/11/01	Automated Statchk
Chloride by Automated Colourimetry	KONE	7671690	N/A	2021/11/01	Alina Dobreanu
Colour	SPEC	7671618	N/A	2021/11/01	Viorica Rotaru
Conductivity	AT	7671136	N/A	2021/10/30	Surinder Rai
Dissolved Organic Carbon (DOC)	TOCV/NDIR	7671151	N/A	2021/11/01	Julianna Castiglione
Fluoride	ISE	7671133	2021/10/30	2021/10/30	Surinder Rai
Hardness (calculated as CaCO3)		7668644	N/A	2021/11/01	Automated Statchk
Dissolved Metals by ICPMS	ICP/MS	7672239	N/A	2021/11/01	Prempal Bhatti
Total Ammonia-N	LACH/NH4	7672504	N/A	2021/11/01	Amanpreet Sappal
Nitrate & Nitrite as Nitrogen in Water	LACH	7671619	N/A	2021/11/01	Chandra Nandlal
pH	AT	7671130	2021/10/30	2021/10/30	Surinder Rai
Orthophosphate	KONE	7671691	N/A	2021/11/01	Avneet Kour Sudan
Sulphate by Automated Colourimetry	KONE	7671692	N/A	2021/11/01	Alina Dobreanu
Total Dissolved Solids (TDS calc)	CALC	7668646	N/A	2021/11/01	Automated Statchk

Bureau Veritas ID: RAR297 Dup
Sample ID: TW1-1
Matrix: Water

Collected: 2021/10/21
Shipped:
Received: 2021/10/25

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Dissolved Metals by ICPMS	ICP/MS	7672239	N/A	2021/11/01	Prempal Bhatti

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TEST SUMMARY

Bureau Veritas ID: RAR298
Sample ID: DUP1
Matrix: Water

Collected: 2021/10/21
Shipped:
Received: 2021/10/25

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	7671121	N/A	2021/10/30	Surinder Rai
Carbonate, Bicarbonate and Hydroxide	CALC	7668640	N/A	2021/11/01	Automated Statchk
Chloride by Automated Colourimetry	KONE	7671690	N/A	2021/11/01	Alina Dobreanu
Colour	SPEC	7671618	N/A	2021/11/01	Viorica Rotaru
Conductivity	AT	7671136	N/A	2021/10/30	Surinder Rai
Dissolved Organic Carbon (DOC)	TOCV/NDIR	7671151	N/A	2021/11/01	Julianna Castiglione
Fluoride	ISE	7671133	2021/10/30	2021/10/30	Surinder Rai
Hardness (calculated as CaCO3)		7668644	N/A	2021/11/01	Automated Statchk
Dissolved Metals by ICPMS	ICP/MS	7672239	N/A	2021/11/01	Prempal Bhatti
Total Ammonia-N	LACH/NH4	7672504	N/A	2021/11/01	Amanpreet Sappal
Nitrate & Nitrite as Nitrogen in Water	LACH	7671619	N/A	2021/11/01	Chandra Nandlal
pH	AT	7671130	2021/10/30	2021/10/30	Surinder Rai
Orthophosphate	KONE	7671691	N/A	2021/11/01	Avneet Kour Sudan
Sulphate by Automated Colourimetry	KONE	7671692	N/A	2021/11/01	Alina Dobreanu
Total Dissolved Solids (TDS calc)	CALC	7668646	N/A	2021/11/01	Automated Statchk

Bureau Veritas ID: RAR299
Sample ID: OW5-1
Matrix: Water

Collected: 2021/10/21
Shipped:
Received: 2021/10/25

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	7671121	N/A	2021/10/30	Surinder Rai
Carbonate, Bicarbonate and Hydroxide	CALC	7668640	N/A	2021/11/01	Automated Statchk
Chloride by Automated Colourimetry	KONE	7671690	N/A	2021/11/01	Alina Dobreanu
Colour	SPEC	7671618	N/A	2021/11/01	Viorica Rotaru
Conductivity	AT	7671136	N/A	2021/10/30	Surinder Rai
Dissolved Organic Carbon (DOC)	TOCV/NDIR	7671151	N/A	2021/11/01	Julianna Castiglione
Fluoride	ISE	7671133	2021/10/30	2021/10/30	Surinder Rai
Hardness (calculated as CaCO3)		7668644	N/A	2021/11/01	Automated Statchk
Dissolved Metals by ICPMS	ICP/MS	7672239	N/A	2021/11/01	Prempal Bhatti
Total Ammonia-N	LACH/NH4	7672504	N/A	2021/11/01	Amanpreet Sappal
Nitrate & Nitrite as Nitrogen in Water	LACH	7671619	N/A	2021/11/01	Chandra Nandlal
pH	AT	7671130	2021/10/30	2021/10/30	Surinder Rai
Orthophosphate	KONE	7671691	N/A	2021/11/01	Avneet Kour Sudan
Sulphate by Automated Colourimetry	KONE	7671692	N/A	2021/11/01	Alina Dobreanu
Total Dissolved Solids (TDS calc)	CALC	7668646	N/A	2021/11/01	Automated Statchk

Bureau Veritas ID: RAR300
Sample ID: DUP2
Matrix: Water

Collected: 2021/10/21
Shipped:
Received: 2021/10/25

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	7671121	N/A	2021/10/30	Surinder Rai
Carbonate, Bicarbonate and Hydroxide	CALC	7668640	N/A	2021/11/01	Automated Statchk

TEST SUMMARY

Bureau Veritas ID: RAR300
Sample ID: DUP2
Matrix: Water

Collected: 2021/10/21
Shipped:
Received: 2021/10/25

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Chloride by Automated Colourimetry	KONE	7671690	N/A	2021/11/01	Alina Dobreanu
Colour	SPEC	7671618	N/A	2021/11/01	Viorica Rotaru
Conductivity	AT	7671136	N/A	2021/10/30	Surinder Rai
Dissolved Organic Carbon (DOC)	TOCV/NDIR	7671151	N/A	2021/11/01	Julianna Castiglione
Fluoride	ISE	7671133	2021/10/30	2021/10/30	Surinder Rai
Hardness (calculated as CaCO3)		7668644	N/A	2021/11/01	Automated Statchk
Dissolved Metals by ICPMS	ICP/MS	7672239	N/A	2021/11/01	Prempal Bhatti
Total Ammonia-N	LACH/NH4	7672504	N/A	2021/11/01	Amanpreet Sappal
Nitrate & Nitrite as Nitrogen in Water	LACH	7671619	N/A	2021/11/01	Chandra Nandlal
pH	AT	7671130	2021/10/30	2021/10/30	Surinder Rai
Orthophosphate	KONE	7671691	N/A	2021/11/01	Avneet Kour Sudan
Sulphate by Automated Colourimetry	KONE	7671692	N/A	2021/11/01	Alina Dobreanu
Total Dissolved Solids (TDS calc)	CALC	7668646	N/A	2021/11/01	Automated Statchk

Bureau Veritas ID: RAR307
Sample ID: OW5-2
Matrix: Water

Collected: 2021/10/21
Shipped:
Received: 2021/10/25

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	7671121	N/A	2021/10/30	Surinder Rai
Carbonate, Bicarbonate and Hydroxide	CALC	7668640	N/A	2021/11/01	Automated Statchk
Chloride by Automated Colourimetry	KONE	7671690	N/A	2021/11/01	Alina Dobreanu
Colour	SPEC	7671618	N/A	2021/11/01	Viorica Rotaru
Conductivity	AT	7671136	N/A	2021/10/30	Surinder Rai
Dissolved Organic Carbon (DOC)	TOCV/NDIR	7671203	N/A	2021/11/01	Julianna Castiglione
Fluoride	ISE	7671133	2021/10/30	2021/10/30	Surinder Rai
Hardness (calculated as CaCO3)		7668644	N/A	2021/11/01	Automated Statchk
Dissolved Metals by ICPMS	ICP/MS	7672239	N/A	2021/11/01	Prempal Bhatti
Total Ammonia-N	LACH/NH4	7672504	N/A	2021/11/01	Amanpreet Sappal
Nitrate & Nitrite as Nitrogen in Water	LACH	7671619	N/A	2021/11/01	Chandra Nandlal
pH	AT	7671130	2021/10/30	2021/10/30	Surinder Rai
Orthophosphate	KONE	7671691	N/A	2021/11/01	Avneet Kour Sudan
Sulphate by Automated Colourimetry	KONE	7671692	N/A	2021/11/01	Alina Dobreanu
Total Dissolved Solids (TDS calc)	CALC	7668646	N/A	2021/11/01	Automated Statchk

Bureau Veritas ID: RAR307 Dup
Sample ID: OW5-2
Matrix: Water

Collected: 2021/10/21
Shipped:
Received: 2021/10/25

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	7671121	N/A	2021/10/30	Surinder Rai
Conductivity	AT	7671136	N/A	2021/10/30	Surinder Rai
Fluoride	ISE	7671133	2021/10/30	2021/10/30	Surinder Rai
pH	AT	7671130	2021/10/30	2021/10/30	Surinder Rai

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Bureau Veritas Job #: C1V1807
Report Date: 2021/11/04

Golder Associates Ltd
Client Project #: 20448776
Site Location: McCarthy
Sampler Initials: SAP

TEST SUMMARY

Bureau Veritas ID: RAR308
Sample ID: OW5-3
Matrix: Water

Collected: 2021/10/21
Shipped:
Received: 2021/10/25

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	7671121	N/A	2021/10/30	Surinder Rai
Carbonate, Bicarbonate and Hydroxide	CALC	7668640	N/A	2021/11/01	Automated Statchk
Chloride by Automated Colourimetry	KONE	7671690	N/A	2021/11/01	Alina Dobreanu
Colour	SPEC	7671618	N/A	2021/11/01	Viorica Rotaru
Conductivity	AT	7671136	N/A	2021/10/30	Surinder Rai
Dissolved Organic Carbon (DOC)	TOCV/NDIR	7671151	N/A	2021/11/01	Julianna Castiglione
Fluoride	ISE	7671133	2021/10/30	2021/10/30	Surinder Rai
Hardness (calculated as CaCO3)		7668644	N/A	2021/11/01	Automated Statchk
Dissolved Metals by ICPMS	ICP/MS	7672239	N/A	2021/11/01	Prempal Bhatti
Total Ammonia-N	LACH/NH4	7672504	N/A	2021/11/01	Amanpreet Sappal
Nitrate & Nitrite as Nitrogen in Water	LACH	7671619	N/A	2021/11/01	Chandra Nandlal
pH	AT	7671130	2021/10/30	2021/10/30	Surinder Rai
Orthophosphate	KONE	7671691	N/A	2021/11/01	Avneet Kour Sudan
Sulphate by Automated Colourimetry	KONE	7671692	N/A	2021/11/01	Alina Dobreanu
Total Dissolved Solids (TDS calc)	CALC	7668646	N/A	2021/11/01	Automated Statchk

Bureau Veritas ID: RAR309
Sample ID: OW6-2
Matrix: Water

Collected: 2021/10/21
Shipped:
Received: 2021/10/25

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	7671121	N/A	2021/10/30	Surinder Rai
Carbonate, Bicarbonate and Hydroxide	CALC	7668640	N/A	2021/11/01	Automated Statchk
Chloride by Automated Colourimetry	KONE	7671690	N/A	2021/11/01	Alina Dobreanu
Colour	SPEC	7671618	N/A	2021/11/01	Viorica Rotaru
Conductivity	AT	7671136	N/A	2021/10/30	Surinder Rai
Dissolved Organic Carbon (DOC)	TOCV/NDIR	7671151	N/A	2021/11/01	Julianna Castiglione
Fluoride	ISE	7671133	2021/10/30	2021/10/30	Surinder Rai
Hardness (calculated as CaCO3)		7668644	N/A	2021/11/01	Automated Statchk
Dissolved Metals by ICPMS	ICP/MS	7672239	N/A	2021/11/01	Prempal Bhatti
Total Ammonia-N	LACH/NH4	7672504	N/A	2021/11/01	Amanpreet Sappal
Nitrate & Nitrite as Nitrogen in Water	LACH	7671619	N/A	2021/11/01	Chandra Nandlal
pH	AT	7671130	2021/10/30	2021/10/30	Surinder Rai
Orthophosphate	KONE	7671691	N/A	2021/11/01	Avneet Kour Sudan
Sulphate by Automated Colourimetry	KONE	7671692	N/A	2021/11/01	Alina Dobreanu
Total Dissolved Solids (TDS calc)	CALC	7668646	N/A	2021/11/01	Automated Statchk

Bureau Veritas ID: RAR309 Dup
Sample ID: OW6-2
Matrix: Water

Collected: 2021/10/21
Shipped:
Received: 2021/10/25

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Dissolved Organic Carbon (DOC)	TOCV/NDIR	7671151	N/A	2021/11/01	Julianna Castiglione

Bureau Veritas Job #: C1V1807
Report Date: 2021/11/04

Golder Associates Ltd
Client Project #: 20448776
Site Location: McCarthy
Sampler Initials: SAP

TEST SUMMARY

Bureau Veritas ID: RAR310
Sample ID: OW7-1
Matrix: Water

Collected: 2021/10/22
Shipped:
Received: 2021/10/25

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	7671121	N/A	2021/10/30	Surinder Rai
Carbonate, Bicarbonate and Hydroxide	CALC	7668640	N/A	2021/11/01	Automated Statchk
Chloride by Automated Colourimetry	KONE	7671690	N/A	2021/11/01	Alina Dobreanu
Colour	SPEC	7671618	N/A	2021/11/01	Viorica Rotaru
Conductivity	AT	7671136	N/A	2021/10/30	Surinder Rai
Dissolved Organic Carbon (DOC)	TOCV/NDIR	7671151	N/A	2021/11/01	Julianna Castiglione
Fluoride	ISE	7671133	2021/10/30	2021/10/30	Surinder Rai
Hardness (calculated as CaCO3)		7668644	N/A	2021/11/01	Automated Statchk
Dissolved Metals by ICPMS	ICP/MS	7672239	N/A	2021/11/01	Prempal Bhatti
Total Ammonia-N	LACH/NH4	7672504	N/A	2021/11/01	Amanpreet Sappal
Nitrate & Nitrite as Nitrogen in Water	LACH	7671619	N/A	2021/11/01	Chandra Nandlal
pH	AT	7671130	2021/10/30	2021/10/30	Surinder Rai
Orthophosphate	KONE	7671691	N/A	2021/11/01	Avneet Kour Sudan
Sulphate by Automated Colourimetry	KONE	7671692	N/A	2021/11/01	Alina Dobreanu
Total Dissolved Solids (TDS calc)	CALC	7668646	N/A	2021/11/01	Automated Statchk

Bureau Veritas ID: RAR311
Sample ID: OW7-2
Matrix: Water

Collected: 2021/10/22
Shipped:
Received: 2021/10/25

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	7671121	N/A	2021/10/30	Surinder Rai
Carbonate, Bicarbonate and Hydroxide	CALC	7668640	N/A	2021/11/01	Automated Statchk
Chloride by Automated Colourimetry	KONE	7671690	N/A	2021/11/01	Alina Dobreanu
Colour	SPEC	7671618	N/A	2021/11/01	Viorica Rotaru
Conductivity	AT	7671136	N/A	2021/10/30	Surinder Rai
Dissolved Organic Carbon (DOC)	TOCV/NDIR	7671151	N/A	2021/11/01	Julianna Castiglione
Fluoride	ISE	7671133	2021/10/30	2021/10/30	Surinder Rai
Hardness (calculated as CaCO3)		7668644	N/A	2021/11/01	Automated Statchk
Dissolved Metals by ICPMS	ICP/MS	7672239	N/A	2021/11/01	Prempal Bhatti
Total Ammonia-N	LACH/NH4	7672504	N/A	2021/11/01	Amanpreet Sappal
Nitrate & Nitrite as Nitrogen in Water	LACH	7671619	N/A	2021/11/01	Chandra Nandlal
pH	AT	7671130	2021/10/30	2021/10/30	Surinder Rai
Orthophosphate	KONE	7671691	N/A	2021/11/01	Avneet Kour Sudan
Sulphate by Automated Colourimetry	KONE	7671692	N/A	2021/11/01	Alina Dobreanu
Total Dissolved Solids (TDS calc)	CALC	7668646	N/A	2021/11/01	Automated Statchk

Bureau Veritas ID: RAR312
Sample ID: OW8-1
Matrix: Water

Collected: 2021/10/21
Shipped:
Received: 2021/10/25

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	7671121	N/A	2021/10/30	Surinder Rai
Carbonate, Bicarbonate and Hydroxide	CALC	7668640	N/A	2021/11/01	Automated Statchk

Bureau Veritas Job #: C1V1807
Report Date: 2021/11/04

Golder Associates Ltd
Client Project #: 20448776
Site Location: McCarthy
Sampler Initials: SAP

TEST SUMMARY

Bureau Veritas ID: RAR312
Sample ID: OW8-1
Matrix: Water

Collected: 2021/10/21
Shipped:
Received: 2021/10/25

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Chloride by Automated Colourimetry	KONE	7671690	N/A	2021/11/01	Alina Dobreanu
Colour	SPEC	7671618	N/A	2021/11/01	Viorica Rotaru
Conductivity	AT	7671136	N/A	2021/10/30	Surinder Rai
Dissolved Organic Carbon (DOC)	TOCV/NDIR	7671151	N/A	2021/11/01	Julianna Castiglione
Fluoride	ISE	7671133	2021/10/30	2021/10/30	Surinder Rai
Hardness (calculated as CaCO3)		7668644	N/A	2021/11/01	Automated Statchk
Dissolved Metals by ICPMS	ICP/MS	7672239	N/A	2021/11/01	Prempal Bhatti
Total Ammonia-N	LACH/NH4	7672504	N/A	2021/11/01	Amanpreet Sappal
Nitrate & Nitrite as Nitrogen in Water	LACH	7671619	N/A	2021/11/01	Chandra Nandlal
pH	AT	7671130	2021/10/30	2021/10/30	Surinder Rai
Orthophosphate	KONE	7671691	N/A	2021/11/01	Avneet Kour Sudan
Sulphate by Automated Colourimetry	KONE	7671692	N/A	2021/11/01	Alina Dobreanu
Total Dissolved Solids (TDS calc)	CALC	7668646	N/A	2021/11/01	Automated Statchk

Bureau Veritas ID: RAR313
Sample ID: OW8-2
Matrix: Water

Collected: 2021/10/21
Shipped:
Received: 2021/10/25

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	7671121	N/A	2021/10/30	Surinder Rai
Carbonate, Bicarbonate and Hydroxide	CALC	7668640	N/A	2021/11/01	Automated Statchk
Chloride by Automated Colourimetry	KONE	7671690	N/A	2021/11/01	Alina Dobreanu
Colour	SPEC	7671618	N/A	2021/11/01	Viorica Rotaru
Conductivity	AT	7671136	N/A	2021/10/30	Surinder Rai
Dissolved Organic Carbon (DOC)	TOCV/NDIR	7671151	N/A	2021/11/01	Julianna Castiglione
Fluoride	ISE	7671133	2021/10/30	2021/10/30	Surinder Rai
Hardness (calculated as CaCO3)		7668644	N/A	2021/11/01	Automated Statchk
Dissolved Metals by ICPMS	ICP/MS	7672239	N/A	2021/11/01	Prempal Bhatti
Total Ammonia-N	LACH/NH4	7672504	N/A	2021/11/01	Amanpreet Sappal
Nitrate & Nitrite as Nitrogen in Water	LACH	7671619	N/A	2021/11/01	Chandra Nandlal
pH	AT	7671130	2021/10/30	2021/10/30	Surinder Rai
Orthophosphate	KONE	7671691	N/A	2021/11/01	Avneet Kour Sudan
Sulphate by Automated Colourimetry	KONE	7671692	N/A	2021/11/01	Alina Dobreanu
Total Dissolved Solids (TDS calc)	CALC	7668646	N/A	2021/11/01	Automated Statchk

Bureau Veritas ID: RAR313 Dup
Sample ID: OW8-2
Matrix: Water

Collected: 2021/10/21
Shipped:
Received: 2021/10/25

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Colour	SPEC	7671618	N/A	2021/11/01	Viorica Rotaru
Nitrate & Nitrite as Nitrogen in Water	LACH	7671619	N/A	2021/11/01	Chandra Nandlal

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Bureau Veritas Job #: C1V1807
Report Date: 2021/11/04

Golder Associates Ltd
Client Project #: 20448776
Site Location: McCarthy
Sampler Initials: SAP

TEST SUMMARY

Bureau Veritas ID: RAR314
Sample ID: OW9-2
Matrix: Water

Collected: 2021/10/21
Shipped:
Received: 2021/10/25

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	7671121	N/A	2021/10/30	Surinder Rai
Carbonate, Bicarbonate and Hydroxide	CALC	7668640	N/A	2021/11/01	Automated Statchk
Chloride by Automated Colourimetry	KONE	7671690	N/A	2021/11/01	Alina Dobreanu
Colour	SPEC	7671618	N/A	2021/11/01	Viorica Rotaru
Conductivity	AT	7679806	N/A	2021/11/04	Surinder Rai
Dissolved Organic Carbon (DOC)	TOCV/NDIR	7671151	N/A	2021/11/01	Julianna Castiglione
Fluoride	ISE	7671133	2021/10/30	2021/10/30	Surinder Rai
Hardness (calculated as CaCO3)		7668644	N/A	2021/11/01	Automated Statchk
Lab Filtered Metals by ICPMS	ICP/MS	7673520	2021/11/01	2021/11/02	Nan Raykha
Total Ammonia-N	LACH/NH4	7672504	N/A	2021/11/01	Amanpreet Sappal
Nitrate & Nitrite as Nitrogen in Water	LACH	7671619	N/A	2021/11/01	Chandra Nandlal
pH	AT	7671130	2021/10/30	2021/10/30	Surinder Rai
Orthophosphate	KONE	7671691	N/A	2021/11/01	Avneet Kour Sudan
Sulphate by Automated Colourimetry	KONE	7671692	N/A	2021/11/01	Alina Dobreanu
Total Dissolved Solids (TDS calc)	CALC	7668646	N/A	2021/11/01	Automated Statchk

Bureau Veritas ID: RAR314 Dup
Sample ID: OW9-2
Matrix: Water

Collected: 2021/10/21
Shipped:
Received: 2021/10/25

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Conductivity	AT	7679806	N/A	2021/11/04	Surinder Rai

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Bureau Veritas Job #: C1V1807
Report Date: 2021/11/04

Golder Associates Ltd
Client Project #: 20448776
Site Location: McCarthy
Sampler Initials: SAP

GENERAL COMMENTS

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

Package 1	4.7°C
Package 2	5.0°C
Package 3	5.3°C

Sample RAR307 [OW5-2] : Metals Analysis: Due to the sample matrix, the sample required dilution. Detection limits were adjusted accordingly.

Sample RAR308 [OW5-3] : Metals Analysis: Due to the sample matrix, the sample required dilution. Detection limits were adjusted accordingly.

Sample RAR309 [OW6-2] : Metals Analysis: Due to the sample matrix, the sample required dilution. Detection limits were adjusted accordingly.

Sample RAR314 [OW9-2] : Metals Analysis: Due to the sample matrix, the sample required dilution. Detection limits were adjusted accordingly.

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
7671121	SAU	Spiked Blank	Alkalinity (Total as CaCO3)	2021/10/30		97	%	85 - 115
7671121	SAU	Method Blank	Alkalinity (Total as CaCO3)	2021/10/30	<1.0		mg/L	
7671121	SAU	RPD [RAR307-01]	Alkalinity (Total as CaCO3)	2021/10/30	0.79		%	20
7671130	SAU	Spiked Blank	pH	2021/10/30		102	%	98 - 103
7671130	SAU	RPD [RAR307-01]	pH	2021/10/30	1.2		%	N/A
7671133	SAU	Matrix Spike [RAR307-01]	Fluoride (F-)	2021/10/30		60 (1)	%	80 - 120
7671133	SAU	Spiked Blank	Fluoride (F-)	2021/10/30		100	%	80 - 120
7671133	SAU	Method Blank	Fluoride (F-)	2021/10/30	<0.10		mg/L	
7671133	SAU	RPD [RAR307-01]	Fluoride (F-)	2021/10/30	0.96		%	20
7671136	SAU	Spiked Blank	Conductivity	2021/10/30		103	%	85 - 115
7671136	SAU	Method Blank	Conductivity	2021/10/30	<0.001		mS/cm	
7671136	SAU	RPD [RAR307-01]	Conductivity	2021/10/30	4.7		%	25
7671151	JUC	Matrix Spike [RAR309-02]	Dissolved Organic Carbon	2021/11/01		97	%	80 - 120
7671151	JUC	Spiked Blank	Dissolved Organic Carbon	2021/11/01		95	%	80 - 120
7671151	JUC	Method Blank	Dissolved Organic Carbon	2021/11/01	<0.40		mg/L	
7671151	JUC	RPD [RAR309-02]	Dissolved Organic Carbon	2021/11/01	0.72		%	20
7671203	JUC	Matrix Spike	Dissolved Organic Carbon	2021/11/01		97	%	80 - 120
7671203	JUC	Spiked Blank	Dissolved Organic Carbon	2021/11/01		100	%	80 - 120
7671203	JUC	Method Blank	Dissolved Organic Carbon	2021/11/01	<0.40		mg/L	
7671203	JUC	RPD	Dissolved Organic Carbon	2021/11/01	15		%	20
7671618	VRO	Spiked Blank	Colour	2021/11/01		104	%	80 - 120
7671618	VRO	Method Blank	Colour	2021/11/01	<2		TCU	
7671618	VRO	RPD [RAR313-01]	Colour	2021/11/01	8.3		%	25
7671619	C_N	Matrix Spike [RAR313-01]	Nitrite (N)	2021/11/01		104	%	80 - 120
			Nitrate (N)	2021/11/01		96	%	80 - 120
7671619	C_N	Spiked Blank	Nitrite (N)	2021/11/01		104	%	80 - 120
			Nitrate (N)	2021/11/01		98	%	80 - 120
7671619	C_N	Method Blank	Nitrite (N)	2021/11/01	<0.010		mg/L	
			Nitrate (N)	2021/11/01	<0.10		mg/L	
7671619	C_N	RPD [RAR313-01]	Nitrite (N)	2021/11/01	NC		%	20
			Nitrate (N)	2021/11/01	NC		%	20
7671690	ADB	Matrix Spike	Dissolved Chloride (Cl-)	2021/11/01		110	%	80 - 120
7671690	ADB	Spiked Blank	Dissolved Chloride (Cl-)	2021/11/01		105	%	80 - 120
7671690	ADB	Method Blank	Dissolved Chloride (Cl-)	2021/11/01	<1.0		mg/L	
7671690	ADB	RPD	Dissolved Chloride (Cl-)	2021/11/01	1.3		%	20
7671691	AKD	Matrix Spike	Orthophosphate (P)	2021/11/01		120	%	75 - 125
7671691	AKD	Spiked Blank	Orthophosphate (P)	2021/11/01		100	%	80 - 120
7671691	AKD	Method Blank	Orthophosphate (P)	2021/11/01	<0.010		mg/L	
7671691	AKD	RPD	Orthophosphate (P)	2021/11/01	NC		%	25
7671692	ADB	Matrix Spike	Dissolved Sulphate (SO4)	2021/11/01		110	%	75 - 125
7671692	ADB	Spiked Blank	Dissolved Sulphate (SO4)	2021/11/01		101	%	80 - 120
7671692	ADB	Method Blank	Dissolved Sulphate (SO4)	2021/11/01	<1.0		mg/L	
7671692	ADB	RPD	Dissolved Sulphate (SO4)	2021/11/01	17		%	20
7672239	PBA	Matrix Spike [RAR297-03]	Dissolved Aluminum (Al)	2021/11/01		108	%	80 - 120
			Dissolved Antimony (Sb)	2021/11/01		107	%	80 - 120
			Dissolved Arsenic (As)	2021/11/01		99	%	80 - 120
			Dissolved Barium (Ba)	2021/11/01		105	%	80 - 120
			Dissolved Beryllium (Be)	2021/11/01		101	%	80 - 120
			Dissolved Bismuth (Bi)	2021/11/01		95	%	80 - 120
			Dissolved Boron (B)	2021/11/01		NC	%	80 - 120
			Dissolved Cadmium (Cd)	2021/11/01		101	%	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
			Dissolved Calcium (Ca)	2021/11/01		NC	%	80 - 120
			Dissolved Chromium (Cr)	2021/11/01		98	%	80 - 120
			Dissolved Cobalt (Co)	2021/11/01		100	%	80 - 120
			Dissolved Copper (Cu)	2021/11/01		97	%	80 - 120
			Dissolved Iron (Fe)	2021/11/01		100	%	80 - 120
			Dissolved Lead (Pb)	2021/11/01		93	%	80 - 120
			Dissolved Lithium (Li)	2021/11/01		85	%	80 - 120
			Dissolved Magnesium (Mg)	2021/11/01		NC	%	80 - 120
			Dissolved Manganese (Mn)	2021/11/01		102	%	80 - 120
			Dissolved Molybdenum (Mo)	2021/11/01		106	%	80 - 120
			Dissolved Nickel (Ni)	2021/11/01		95	%	80 - 120
			Dissolved Phosphorus (P)	2021/11/01		104	%	80 - 120
			Dissolved Potassium (K)	2021/11/01		106	%	80 - 120
			Dissolved Selenium (Se)	2021/11/01		100	%	80 - 120
			Dissolved Silicon (Si)	2021/11/01		110	%	80 - 120
			Dissolved Silver (Ag)	2021/11/01		79 (1)	%	80 - 120
			Dissolved Sodium (Na)	2021/11/01		NC	%	80 - 120
			Dissolved Strontium (Sr)	2021/11/01		NC	%	80 - 120
			Dissolved Tellurium (Te)	2021/11/01		101	%	80 - 120
			Dissolved Thallium (Tl)	2021/11/01		94	%	80 - 120
			Dissolved Tin (Sn)	2021/11/01		104	%	80 - 120
			Dissolved Titanium (Ti)	2021/11/01		103	%	80 - 120
			Dissolved Tungsten (W)	2021/11/01		94	%	80 - 120
			Dissolved Uranium (U)	2021/11/01		97	%	80 - 120
			Dissolved Vanadium (V)	2021/11/01		102	%	80 - 120
			Dissolved Zinc (Zn)	2021/11/01		95	%	80 - 120
			Dissolved Zirconium (Zr)	2021/11/01		110	%	80 - 120
7672239	PBA	Spiked Blank	Dissolved Aluminum (Al)	2021/11/01		109	%	80 - 120
			Dissolved Antimony (Sb)	2021/11/01		99	%	80 - 120
			Dissolved Arsenic (As)	2021/11/01		100	%	80 - 120
			Dissolved Barium (Ba)	2021/11/01		102	%	80 - 120
			Dissolved Beryllium (Be)	2021/11/01		101	%	80 - 120
			Dissolved Bismuth (Bi)	2021/11/01		98	%	80 - 120
			Dissolved Boron (B)	2021/11/01		100	%	80 - 120
			Dissolved Cadmium (Cd)	2021/11/01		99	%	80 - 120
			Dissolved Calcium (Ca)	2021/11/01		107	%	80 - 120
			Dissolved Chromium (Cr)	2021/11/01		99	%	80 - 120
			Dissolved Cobalt (Co)	2021/11/01		105	%	80 - 120
			Dissolved Copper (Cu)	2021/11/01		104	%	80 - 120
			Dissolved Iron (Fe)	2021/11/01		104	%	80 - 120
			Dissolved Lead (Pb)	2021/11/01		95	%	80 - 120
			Dissolved Lithium (Li)	2021/11/01		102	%	80 - 120
			Dissolved Magnesium (Mg)	2021/11/01		106	%	80 - 120
			Dissolved Manganese (Mn)	2021/11/01		105	%	80 - 120
			Dissolved Molybdenum (Mo)	2021/11/01		100	%	80 - 120
			Dissolved Nickel (Ni)	2021/11/01		100	%	80 - 120
			Dissolved Phosphorus (P)	2021/11/01		116	%	80 - 120
			Dissolved Potassium (K)	2021/11/01		109	%	80 - 120
			Dissolved Selenium (Se)	2021/11/01		100	%	80 - 120
			Dissolved Silicon (Si)	2021/11/01		108	%	80 - 120
			Dissolved Silver (Ag)	2021/11/01		98	%	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
			Dissolved Sodium (Na)	2021/11/01		108	%	80 - 120
			Dissolved Strontium (Sr)	2021/11/01		102	%	80 - 120
			Dissolved Tellurium (Te)	2021/11/01		96	%	80 - 120
			Dissolved Thallium (Tl)	2021/11/01		99	%	80 - 120
			Dissolved Tin (Sn)	2021/11/01		101	%	80 - 120
			Dissolved Titanium (Ti)	2021/11/01		102	%	80 - 120
			Dissolved Tungsten (W)	2021/11/01		93	%	80 - 120
			Dissolved Uranium (U)	2021/11/01		96	%	80 - 120
			Dissolved Vanadium (V)	2021/11/01		103	%	80 - 120
			Dissolved Zinc (Zn)	2021/11/01		98	%	80 - 120
			Dissolved Zirconium (Zr)	2021/11/01		106	%	80 - 120
7672239	PBA	Method Blank	Dissolved Aluminum (Al)	2021/11/01	<4.9		ug/L	
			Dissolved Antimony (Sb)	2021/11/01	<0.50		ug/L	
			Dissolved Arsenic (As)	2021/11/01	<1.0		ug/L	
			Dissolved Barium (Ba)	2021/11/01	<2.0		ug/L	
			Dissolved Beryllium (Be)	2021/11/01	<0.40		ug/L	
			Dissolved Bismuth (Bi)	2021/11/01	<1.0		ug/L	
			Dissolved Boron (B)	2021/11/01	<10		ug/L	
			Dissolved Cadmium (Cd)	2021/11/01	<0.090		ug/L	
			Dissolved Calcium (Ca)	2021/11/01	<200		ug/L	
			Dissolved Chromium (Cr)	2021/11/01	<5.0		ug/L	
			Dissolved Cobalt (Co)	2021/11/01	<0.50		ug/L	
			Dissolved Copper (Cu)	2021/11/01	<0.90		ug/L	
			Dissolved Iron (Fe)	2021/11/01	<100		ug/L	
			Dissolved Lead (Pb)	2021/11/01	<0.50		ug/L	
			Dissolved Lithium (Li)	2021/11/01	<5.0		ug/L	
			Dissolved Magnesium (Mg)	2021/11/01	<50		ug/L	
			Dissolved Manganese (Mn)	2021/11/01	<2.0		ug/L	
			Dissolved Molybdenum (Mo)	2021/11/01	<0.50		ug/L	
			Dissolved Nickel (Ni)	2021/11/01	<1.0		ug/L	
			Dissolved Phosphorus (P)	2021/11/01	<100		ug/L	
			Dissolved Potassium (K)	2021/11/01	<200		ug/L	
			Dissolved Selenium (Se)	2021/11/01	<2.0		ug/L	
			Dissolved Silicon (Si)	2021/11/01	<50		ug/L	
			Dissolved Silver (Ag)	2021/11/01	<0.090		ug/L	
			Dissolved Sodium (Na)	2021/11/01	<100		ug/L	
			Dissolved Strontium (Sr)	2021/11/01	<1.0		ug/L	
			Dissolved Tellurium (Te)	2021/11/01	<1.0		ug/L	
			Dissolved Thallium (Tl)	2021/11/01	<0.050		ug/L	
			Dissolved Tin (Sn)	2021/11/01	<1.0		ug/L	
			Dissolved Titanium (Ti)	2021/11/01	<5.0		ug/L	
			Dissolved Tungsten (W)	2021/11/01	<1.0		ug/L	
			Dissolved Uranium (U)	2021/11/01	<0.10		ug/L	
			Dissolved Vanadium (V)	2021/11/01	<0.50		ug/L	
			Dissolved Zinc (Zn)	2021/11/01	<5.0		ug/L	
			Dissolved Zirconium (Zr)	2021/11/01	<1.0		ug/L	
7672239	PBA	RPD [RAR297-03]	Dissolved Aluminum (Al)	2021/11/01	NC		%	20
			Dissolved Antimony (Sb)	2021/11/01	NC		%	20
			Dissolved Arsenic (As)	2021/11/01	NC		%	20
			Dissolved Barium (Ba)	2021/11/01	1.0		%	20
			Dissolved Beryllium (Be)	2021/11/01	NC		%	20

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Dissolved Bismuth (Bi)	2021/11/01	NC		%	20
			Dissolved Boron (B)	2021/11/01	1.3		%	20
			Dissolved Cadmium (Cd)	2021/11/01	NC		%	20
			Dissolved Calcium (Ca)	2021/11/01	4.5		%	20
			Dissolved Chromium (Cr)	2021/11/01	NC		%	20
			Dissolved Cobalt (Co)	2021/11/01	NC		%	20
			Dissolved Copper (Cu)	2021/11/01	5.6		%	20
			Dissolved Iron (Fe)	2021/11/01	1.4		%	20
			Dissolved Lead (Pb)	2021/11/01	NC		%	20
			Dissolved Lithium (Li)	2021/11/01	2.5		%	20
			Dissolved Magnesium (Mg)	2021/11/01	2.4		%	20
			Dissolved Manganese (Mn)	2021/11/01	2.4		%	20
			Dissolved Molybdenum (Mo)	2021/11/01	NC		%	20
			Dissolved Nickel (Ni)	2021/11/01	NC		%	20
			Dissolved Phosphorus (P)	2021/11/01	NC		%	20
			Dissolved Potassium (K)	2021/11/01	5.9		%	20
			Dissolved Selenium (Se)	2021/11/01	NC		%	20
			Dissolved Silicon (Si)	2021/11/01	6.9		%	20
			Dissolved Silver (Ag)	2021/11/01	NC		%	20
			Dissolved Sodium (Na)	2021/11/01	4.6		%	20
			Dissolved Strontium (Sr)	2021/11/01	1.9		%	20
			Dissolved Tellurium (Te)	2021/11/01	NC		%	20
			Dissolved Thallium (Tl)	2021/11/01	NC		%	20
			Dissolved Tin (Sn)	2021/11/01	NC		%	20
			Dissolved Titanium (Ti)	2021/11/01	NC		%	20
			Dissolved Tungsten (W)	2021/11/01	NC		%	20
			Dissolved Uranium (U)	2021/11/01	NC		%	20
			Dissolved Vanadium (V)	2021/11/01	NC		%	20
			Dissolved Zinc (Zn)	2021/11/01	NC		%	20
			Dissolved Zirconium (Zr)	2021/11/01	NC		%	20
7672504	ASP	Matrix Spike	Total Ammonia-N	2021/11/01		NC	%	75 - 125
7672504	ASP	Spiked Blank	Total Ammonia-N	2021/11/01		97	%	80 - 120
7672504	ASP	Method Blank	Total Ammonia-N	2021/11/01	<0.050		mg/L	
7672504	ASP	RPD	Total Ammonia-N	2021/11/01	5.9		%	20
7673520	N_R	Matrix Spike	Dissolved Aluminum (Al)	2021/11/02		107	%	80 - 120
			Dissolved Antimony (Sb)	2021/11/02		110	%	80 - 120
			Dissolved Arsenic (As)	2021/11/02		105	%	80 - 120
			Dissolved Barium (Ba)	2021/11/02		107	%	80 - 120
			Dissolved Beryllium (Be)	2021/11/02		111	%	80 - 120
			Dissolved Bismuth (Bi)	2021/11/02		96	%	80 - 120
			Dissolved Boron (B)	2021/11/02		104	%	80 - 120
			Dissolved Cadmium (Cd)	2021/11/02		104	%	80 - 120
			Dissolved Calcium (Ca)	2021/11/02		NC	%	80 - 120
			Dissolved Chromium (Cr)	2021/11/02		103	%	80 - 120
			Dissolved Cobalt (Co)	2021/11/02		100	%	80 - 120
			Dissolved Copper (Cu)	2021/11/02		103	%	80 - 120
			Dissolved Iron (Fe)	2021/11/02		104	%	80 - 120
			Dissolved Lead (Pb)	2021/11/02		97	%	80 - 120
			Dissolved Lithium (Li)	2021/11/02		109	%	80 - 120
			Dissolved Magnesium (Mg)	2021/11/02		98	%	80 - 120
			Dissolved Manganese (Mn)	2021/11/02		102	%	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
			Dissolved Molybdenum (Mo)	2021/11/02		108	%	80 - 120
			Dissolved Nickel (Ni)	2021/11/02		96	%	80 - 120
			Dissolved Phosphorus (P)	2021/11/02		117	%	80 - 120
			Dissolved Potassium (K)	2021/11/02		109	%	80 - 120
			Dissolved Selenium (Se)	2021/11/02		104	%	80 - 120
			Dissolved Silicon (Si)	2021/11/02		105	%	80 - 120
			Dissolved Silver (Ag)	2021/11/02		103	%	80 - 120
			Dissolved Sodium (Na)	2021/11/02		99	%	80 - 120
			Dissolved Strontium (Sr)	2021/11/02		101	%	80 - 120
			Dissolved Tellurium (Te)	2021/11/02		108	%	80 - 120
			Dissolved Thallium (Tl)	2021/11/02		98	%	80 - 120
			Dissolved Tin (Sn)	2021/11/02		107	%	80 - 120
			Dissolved Titanium (Ti)	2021/11/02		105	%	80 - 120
			Dissolved Tungsten (W)	2021/11/02		103	%	80 - 120
			Dissolved Uranium (U)	2021/11/02		94	%	80 - 120
			Dissolved Vanadium (V)	2021/11/02		104	%	80 - 120
			Dissolved Zinc (Zn)	2021/11/02		95	%	80 - 120
			Dissolved Zirconium (Zr)	2021/11/02		111	%	80 - 120
7673520	N_R	Spiked Blank	Dissolved Aluminum (Al)	2021/11/02		108	%	80 - 120
			Dissolved Antimony (Sb)	2021/11/02		103	%	80 - 120
			Dissolved Arsenic (As)	2021/11/02		101	%	80 - 120
			Dissolved Barium (Ba)	2021/11/02		103	%	80 - 120
			Dissolved Beryllium (Be)	2021/11/02		106	%	80 - 120
			Dissolved Bismuth (Bi)	2021/11/02		96	%	80 - 120
			Dissolved Boron (B)	2021/11/02		98	%	80 - 120
			Dissolved Cadmium (Cd)	2021/11/02		100	%	80 - 120
			Dissolved Calcium (Ca)	2021/11/02		108	%	80 - 120
			Dissolved Chromium (Cr)	2021/11/02		98	%	80 - 120
			Dissolved Cobalt (Co)	2021/11/02		101	%	80 - 120
			Dissolved Copper (Cu)	2021/11/02		102	%	80 - 120
			Dissolved Iron (Fe)	2021/11/02		101	%	80 - 120
			Dissolved Lead (Pb)	2021/11/02		96	%	80 - 120
			Dissolved Lithium (Li)	2021/11/02		103	%	80 - 120
			Dissolved Magnesium (Mg)	2021/11/02		100	%	80 - 120
			Dissolved Manganese (Mn)	2021/11/02		99	%	80 - 120
			Dissolved Molybdenum (Mo)	2021/11/02		102	%	80 - 120
			Dissolved Nickel (Ni)	2021/11/02		96	%	80 - 120
			Dissolved Phosphorus (P)	2021/11/02		118	%	80 - 120
			Dissolved Potassium (K)	2021/11/02		105	%	80 - 120
			Dissolved Selenium (Se)	2021/11/02		101	%	80 - 120
			Dissolved Silicon (Si)	2021/11/02		107	%	80 - 120
			Dissolved Silver (Ag)	2021/11/02		101	%	80 - 120
			Dissolved Sodium (Na)	2021/11/02		98	%	80 - 120
			Dissolved Strontium (Sr)	2021/11/02		98	%	80 - 120
			Dissolved Tellurium (Te)	2021/11/02		102	%	80 - 120
			Dissolved Thallium (Tl)	2021/11/02		97	%	80 - 120
			Dissolved Tin (Sn)	2021/11/02		101	%	80 - 120
			Dissolved Titanium (Ti)	2021/11/02		101	%	80 - 120
			Dissolved Tungsten (W)	2021/11/02		98	%	80 - 120
			Dissolved Uranium (U)	2021/11/02		87	%	80 - 120
			Dissolved Vanadium (V)	2021/11/02		99	%	80 - 120

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Dissolved Zinc (Zn)	2021/11/02		97	%	80 - 120
			Dissolved Zirconium (Zr)	2021/11/02		106	%	80 - 120
7673520	N_R	Method Blank	Dissolved Aluminum (Al)	2021/11/02	<4.9		ug/L	
			Dissolved Antimony (Sb)	2021/11/02	<0.50		ug/L	
			Dissolved Arsenic (As)	2021/11/02	<1.0		ug/L	
			Dissolved Barium (Ba)	2021/11/02	<2.0		ug/L	
			Dissolved Beryllium (Be)	2021/11/02	<0.40		ug/L	
			Dissolved Bismuth (Bi)	2021/11/02	<1.0		ug/L	
			Dissolved Boron (B)	2021/11/02	<10		ug/L	
			Dissolved Cadmium (Cd)	2021/11/02	<0.090		ug/L	
			Dissolved Calcium (Ca)	2021/11/02	<200		ug/L	
			Dissolved Chromium (Cr)	2021/11/02	<5.0		ug/L	
			Dissolved Cobalt (Co)	2021/11/02	<0.50		ug/L	
			Dissolved Copper (Cu)	2021/11/02	<0.90		ug/L	
			Dissolved Iron (Fe)	2021/11/02	<100		ug/L	
			Dissolved Lead (Pb)	2021/11/02	<0.50		ug/L	
			Dissolved Lithium (Li)	2021/11/02	<5.0		ug/L	
			Dissolved Magnesium (Mg)	2021/11/02	<50		ug/L	
			Dissolved Manganese (Mn)	2021/11/02	<2.0		ug/L	
			Dissolved Molybdenum (Mo)	2021/11/02	<0.50		ug/L	
			Dissolved Nickel (Ni)	2021/11/02	<1.0		ug/L	
			Dissolved Phosphorus (P)	2021/11/02	<100		ug/L	
			Dissolved Potassium (K)	2021/11/02	<200		ug/L	
			Dissolved Selenium (Se)	2021/11/02	<2.0		ug/L	
			Dissolved Silicon (Si)	2021/11/02	<50		ug/L	
			Dissolved Silver (Ag)	2021/11/02	<0.090		ug/L	
			Dissolved Sodium (Na)	2021/11/02	<100		ug/L	
			Dissolved Strontium (Sr)	2021/11/02	<1.0		ug/L	
			Dissolved Tellurium (Te)	2021/11/02	<1.0		ug/L	
			Dissolved Thallium (Tl)	2021/11/02	<0.050		ug/L	
			Dissolved Tin (Sn)	2021/11/02	<1.0		ug/L	
			Dissolved Titanium (Ti)	2021/11/02	<5.0		ug/L	
			Dissolved Tungsten (W)	2021/11/02	<1.0		ug/L	
			Dissolved Uranium (U)	2021/11/02	<0.10		ug/L	
			Dissolved Vanadium (V)	2021/11/02	<0.50		ug/L	
			Dissolved Zinc (Zn)	2021/11/02	<5.0		ug/L	
			Dissolved Zirconium (Zr)	2021/11/02	<1.0		ug/L	
7673520	N_R	RPD	Dissolved Aluminum (Al)	2021/11/02	NC		%	20
			Dissolved Antimony (Sb)	2021/11/02	NC		%	20
			Dissolved Arsenic (As)	2021/11/02	NC		%	20
			Dissolved Barium (Ba)	2021/11/02	4.7		%	20
			Dissolved Beryllium (Be)	2021/11/02	NC		%	20
			Dissolved Bismuth (Bi)	2021/11/02	NC		%	20
			Dissolved Boron (B)	2021/11/02	0.59		%	20
			Dissolved Cadmium (Cd)	2021/11/02	NC		%	20
			Dissolved Calcium (Ca)	2021/11/02	1.0		%	20
			Dissolved Chromium (Cr)	2021/11/02	NC		%	20
			Dissolved Cobalt (Co)	2021/11/02	NC		%	20
			Dissolved Copper (Cu)	2021/11/02	NC		%	20
			Dissolved Iron (Fe)	2021/11/02	NC		%	20
			Dissolved Lead (Pb)	2021/11/02	NC		%	20

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Dissolved Lithium (Li)	2021/11/02	NC		%	20
			Dissolved Magnesium (Mg)	2021/11/02	0.33		%	20
			Dissolved Manganese (Mn)	2021/11/02	NC		%	20
			Dissolved Molybdenum (Mo)	2021/11/02	NC		%	20
			Dissolved Nickel (Ni)	2021/11/02	NC		%	20
			Dissolved Phosphorus (P)	2021/11/02	NC		%	20
			Dissolved Potassium (K)	2021/11/02	0.60		%	20
			Dissolved Selenium (Se)	2021/11/02	NC		%	20
			Dissolved Silicon (Si)	2021/11/02	0.32		%	20
			Dissolved Silver (Ag)	2021/11/02	NC		%	20
			Dissolved Sodium (Na)	2021/11/02	3.3		%	20
			Dissolved Strontium (Sr)	2021/11/02	2.8		%	20
			Dissolved Tellurium (Te)	2021/11/02	NC		%	20
			Dissolved Thallium (Tl)	2021/11/02	NC		%	20
			Dissolved Tin (Sn)	2021/11/02	NC		%	20
			Dissolved Titanium (Ti)	2021/11/02	NC		%	20
			Dissolved Tungsten (W)	2021/11/02	NC		%	20
			Dissolved Uranium (U)	2021/11/02	3.6		%	20
			Dissolved Vanadium (V)	2021/11/02	NC		%	20
			Dissolved Zinc (Zn)	2021/11/02	NC		%	20
			Dissolved Zirconium (Zr)	2021/11/02	NC		%	20
7679806	SAU	Spiked Blank	Conductivity	2021/11/04		102	%	85 - 115
7679806	SAU	Method Blank	Conductivity	2021/11/04	<0.001		mS/cm	
7679806	SAU	RPD [RAR314-01]	Conductivity	2021/11/04	0.16		%	25

N/A = Not Applicable

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

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

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

VALIDATION SIGNATURE PAGE

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

Anastassia Hamanov, Scientific Specialist

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

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

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Exceedance Summary Table – Prov. Water Quality Obj.

Result Exceedances

Sample ID	Bureau Veritas ID	Parameter	Criteria	Result	DL	UNITS
AMX-R	RAR293-03	Dissolved Boron (B)	200	1100	10	ug/L
AMX-R	RAR293-03	Dissolved Iron (Fe)	300	43000	100	ug/L
OW4-1	RAR294-03	Dissolved Boron (B)	200	860	10	ug/L
OW4-2	RAR295-03	Dissolved Boron (B)	200	950	10	ug/L
AM16	RAR296-03	Dissolved Iron (Fe)	300	390	100	ug/L
TW1-1	RAR297-03-Lab Dup	Dissolved Boron (B)	200	570	10	ug/L
TW1-1	RAR297-03	Dissolved Boron (B)	200	580	10	ug/L
DUP1	RAR298-03	Dissolved Boron (B)	200	910	10	ug/L
OW5-1	RAR299-03	Dissolved Boron (B)	200	650	10	ug/L
DUP2	RAR300-03	Dissolved Boron (B)	200	700	10	ug/L
OW5-2	RAR307-03	Dissolved Boron (B)	200	2300	50	ug/L
OW5-2	RAR307-03	Dissolved Iron (Fe)	300	3400	500	ug/L
OW5-3	RAR308-03	Dissolved Boron (B)	200	2500	50	ug/L
OW5-3	RAR308-03	Dissolved Iron (Fe)	300	7600	500	ug/L
OW5-3	RAR308-03	Dissolved Zinc (Zn)	30	39	25	ug/L
OW6-2	RAR309-03	Dissolved Boron (B)	200	3700	50	ug/L
OW6-2	RAR309-03	Dissolved Iron (Fe)	300	650	500	ug/L
OW7-1	RAR310-03	Dissolved Boron (B)	200	2200	10	ug/L
OW7-1	RAR310-03	Dissolved Iron (Fe)	300	2500	100	ug/L
OW7-2	RAR311-03	Dissolved Boron (B)	200	2300	10	ug/L
OW8-1	RAR312-03	Dissolved Boron (B)	200	540	10	ug/L
OW8-1	RAR312-03	Dissolved Iron (Fe)	300	750	100	ug/L
OW8-2	RAR313-03	Dissolved Boron (B)	200	300	10	ug/L
OW9-2	RAR314-01	Dissolved Boron (B)	200	1300	100	ug/L
OW9-2	RAR314-01	Dissolved Cadmium (Cd)	0.2	5.6	0.90	ug/L
OW9-2	RAR314-01	Dissolved Cobalt (Co)	0.9	27	5.0	ug/L
OW9-2	RAR314-01	Dissolved Thallium (Tl)	0.3	0.52	0.50	ug/L
OW9-2	RAR314-01	Dissolved Uranium (U)	5	22	1.0	ug/L

Detection Limit Exceedances

Sample ID	Bureau Veritas ID	Parameter	Criteria	Result	DL	UNITS
OW5-2	RAR307-03	Dissolved Cadmium (Cd)	0.2	<0.45	0.45	ug/L
OW5-2	RAR307-03	Dissolved Cobalt (Co)	0.9	<2.5	2.5	ug/L
OW5-2	RAR307-03	Dissolved Silver (Ag)	0.1	<0.45	0.45	ug/L
OW5-2	RAR307-03	Dissolved Zirconium (Zr)	4	<5.0	5.0	ug/L
OW5-3	RAR308-03	Dissolved Cadmium (Cd)	0.2	<0.45	0.45	ug/L
OW5-3	RAR308-03	Dissolved Cobalt (Co)	0.9	<2.5	2.5	ug/L
OW5-3	RAR308-03	Dissolved Silver (Ag)	0.1	<0.45	0.45	ug/L
OW5-3	RAR308-03	Dissolved Zirconium (Zr)	4	<5.0	5.0	ug/L
OW6-2	RAR309-03	Dissolved Cadmium (Cd)	0.2	<0.45	0.45	ug/L
OW6-2	RAR309-03	Dissolved Cobalt (Co)	0.9	<2.5	2.5	ug/L
OW6-2	RAR309-03	Dissolved Silver (Ag)	0.1	<0.45	0.45	ug/L
OW6-2	RAR309-03	Dissolved Zirconium (Zr)	4	<5.0	5.0	ug/L
OW9-2	RAR314-01	Dissolved Copper (Cu)	5	<9.0	9.0	ug/L
OW9-2	RAR314-01	Dissolved Iron (Fe)	300	<1000	1000	ug/L
OW9-2	RAR314-01	Dissolved Silver (Ag)	0.1	<0.90	0.90	ug/L
OW9-2	RAR314-01	Dissolved Zinc (Zn)	30	<50	50	ug/L
OW9-2	RAR314-01	Dissolved Zirconium (Zr)	4	<10	10	ug/L

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Exceedance Summary Table – Prov. Water Quality Obj.

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.

Exceedance Summary Table – ODWS (2002)

Result Exceedances

Sample ID	Bureau Veritas ID	Parameter	Criteria	Result	DL	UNITS
OW7-2	RAR311-01	Fluoride (F-)	1.5	1.6	0.10	mg/L
OW9-2	RAR314-01	Dissolved Cadmium (Cd)	5	5.6	0.90	ug/L
OW9-2	RAR314-01	Dissolved Uranium (U)	20	22	1.0	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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