REPORT

Westbay Monitoring Well System M20-3071 2021 Groundwater Monitoring Program Meliadine Extension

Factual Report

Submitted to:

Agnico Eagle Mines Limited

Angie Arbaiza

Submitted by:

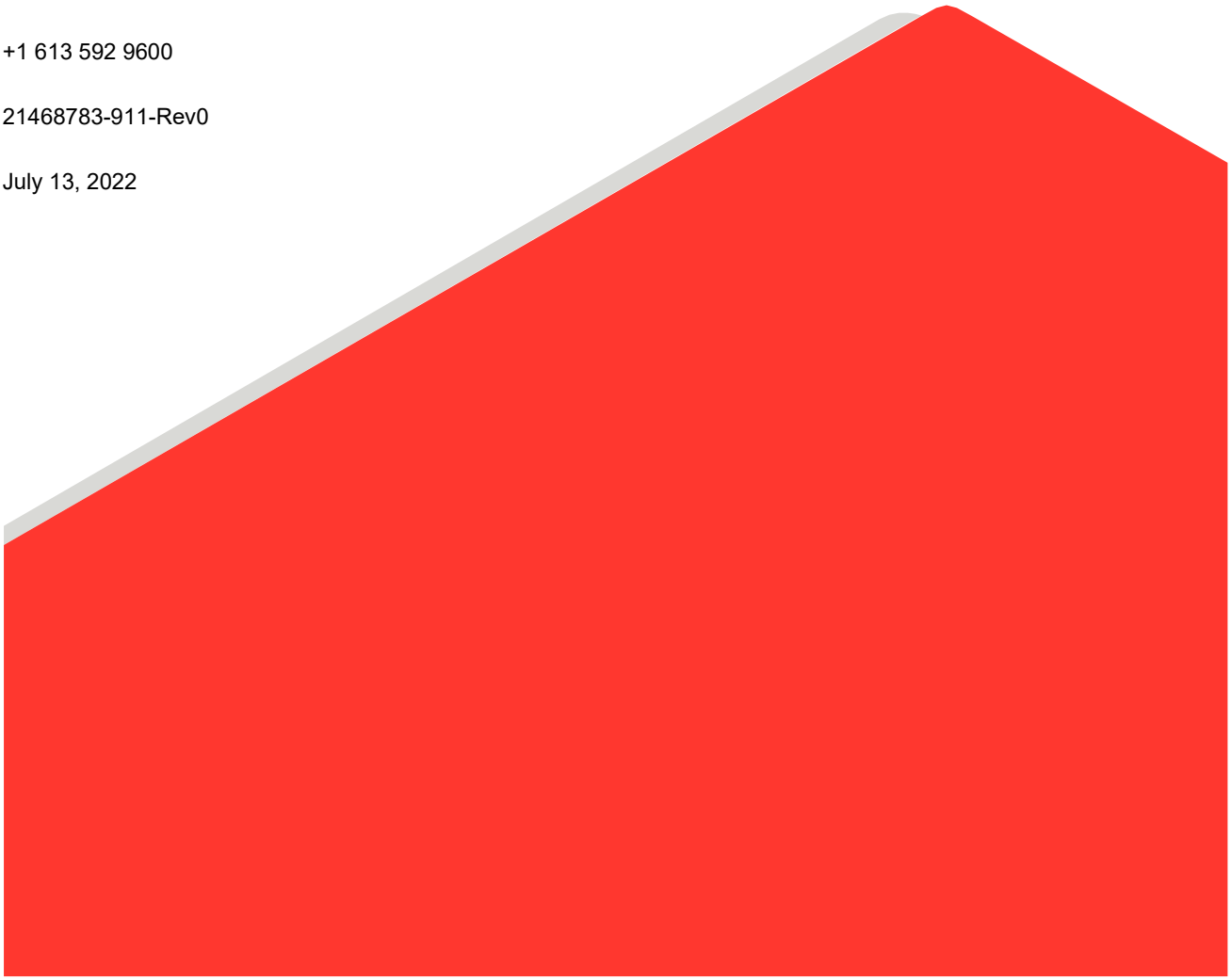
Golder Associates Ltd.

1931 Robertson Road, Ottawa, Ontario, K2H 5B7, Canada

+1 613 592 9600

21468783-911-Rev0

July 13, 2022



Distribution List

1 e-copy Agnico Eagle Mines Limited

1 e-copy Golder Associates Ltd.

1 e-copy Nuqsana Golder

Table of Contents

TABLES

FIGURES

APPENDICES

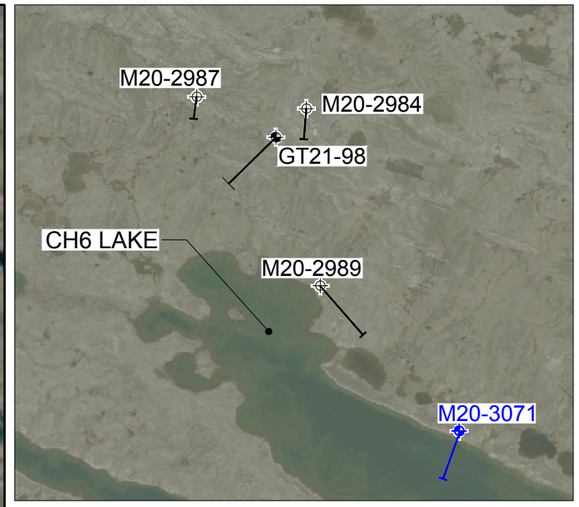
1.0 INTRODUCTION

Agnico Eagle Mines Limited (Agnico Eagle) is proposing to expand the development at the Meliadine Gold Project (herein referred to as the Meliadine Extension or Project), located approximately 25 km north from Rankin Inlet and 80 km southwest from Chesterfield Inlet in the Kivalliq Region of Nunavut. Agnico Eagle retained Golder Associates Ltd. (Golder) through Nuqsana Golder to conduct supplemental sampling and development of select ports of Westbay Well M20-3071 in the summer of 2021. This report documents the development and sampling methodology and provides a factual summary of the estimated hydraulic gradients and groundwater quality from the collected data.

2.0 BACKGROUND

Westbay Well M20-3071 was installed in September 2020 to measure groundwater quality and vertical hydraulic gradients near the inferred open talik of Lake CH6 and in the deeper regional flow system that will be intercepted by the proposed Discovery Underground. Data from M20-3071 will be used in combination with historical data from Westbay Well M11-1257, located to the northwest of the Tiriganiaq Underground, to infer groundwater quality in areas of open talik and the in the deeper regional flow system. M20-3071 is located approximately 65 metres east of Lake CH6 and was drilled to a depth of 606 metres along the hole (mah) or 560 metres below ground surface (mbgs) at an average collar inclination of 67.7 degrees. The approximate locations of M11-1257 and M20-3071 are shown in Figure 1.

M20-3071 is equipped with a total of fourteen ports. Five of these ports target intervals to be used for sampling and/or pressure monitoring (Ports 2, 4, 6, 8 and 10), and nine ports were installed to facilitate the installation process (i.e., relieve excess pressure generated during the packer inflation process and/or to allow the injection of propylene glycol mixture into the annulus of the borehole within the extent of the permafrost zone to prevent freezing of the well). Borehole drilling, packer test results and well installation details are documented in a separate report (Golder 2021c). A schematic of the Westbay Well M20-3071 instrumentation is included in Figure 2 and reference port intervals are described in Table 1.



DISCOVERY AREA
SCALE 1:30,000

LEGEND

- BOREHOLE
- BOREHOLE WITH THERMISTOR INSTALLATION
- BOREHOLE WITH WESTBAY WELL INSTALLATION

BOREHOLE ID	
GOLDER	**AGNICO EAGLE**
DISCO-CONV-016	M20-2984
DISCO-CONV-019	M20-2987
DISCO-CONV-021-V2	M20-2989
EXPLO/HYDROGEO 8	TIS-200-001

REFERENCE(S)

- COORDINATE SYSTEM: UTM NAD 83, ZONE 15.
- AERIAL IMAGE : GOOGLE EARTH, 2020

NOT FOR CONSTRUCTION

0 500 1 000
1:30 000 METRES

0 1 250 2 500
1:75 000 METRES

CLIENT
AGNICO EAGLE LaRonde

CONSULTANT
WSP GOLDER

YYYY-MM-DD	2022-06-29
DESIGNED	CP
PREPARED	DH
REVIEWED	DH
APPROVED	JL

PROJECT
AGNICO EAGLE MINES LIMITED
MELIADINE EXPANSION
NUVAVUT

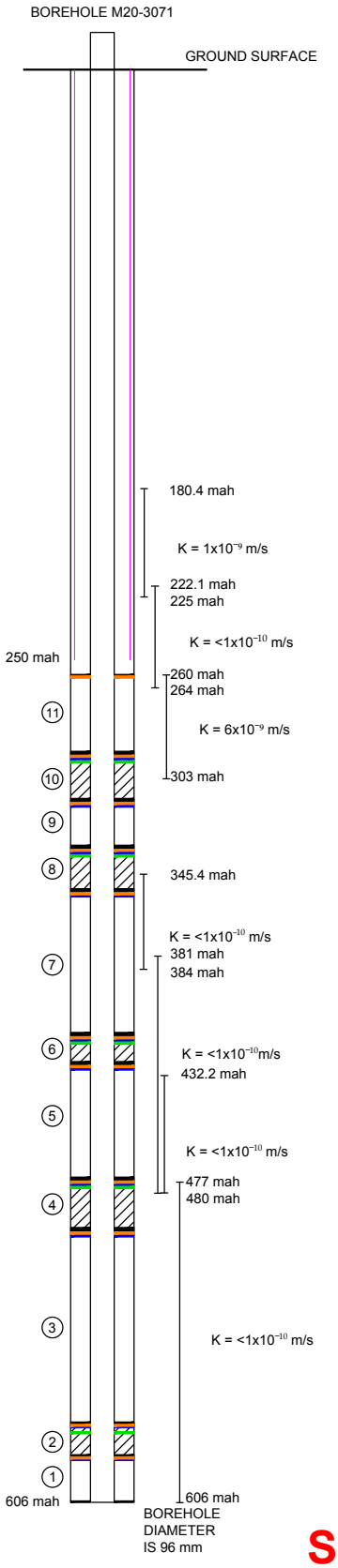
TITLE
WELL MONITORING LOCATIONS

PROJECT NO.	PHASE	REV.	FIGURE
21468783	2000	0	1

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

0 25 mm

Path: \\golder.gds\ga\Montreal\SIG\CAD\PROJETS\AGNICO-EAGLE\MELIADINE\PRODUCTION\21468783\2000\ | File Name: 21468783-2000-01.dwg | Last Edited By: cpachis Date: 2022-06-29 Time:4:09:20 PM | Printed By: CPachis Date: 2022-07-04 Time:11:58:30 AM



WESTBAY SYSTEM INTERVAL DETAILS							
PORT NO.	ZONE NO.	INTERVAL DEPTH ALONG HOLE			INTERVAL VERTICAL DEPTH		
		MONITORING PORT	FROM	TO	MONITORING PORT	FROM	TO
		(mah)	(mah)	(mah)	(mbgs)	(mbgs)	(mbgs)
11	QA6	256.4	256.2	288.8	243.2	243	273.3
10	5	290	289.7	308.7	274.4	274.1	291.7
9	QA5	309.8	309.6	328.5	292.7	292.5	310
8	4	329.7	329.4	346.9	311.1	310.8	326.9
7	QA4	348	347.8	407.8	327.9	327.7	382.5
6	3	409	408.7	420.1	383.6	383.4	393.7
5	QA3	421.2	421	468.9	394.7	394.5	437.9
4	2	470	469.8	490.3	438.9	438.7	457.1
3	QA2	491.4	491.2	572.6	458.1	457.9	530.6
2	1	573.7	573.5	586.4	531.6	531.4	542.8
1	QA1	587.5	587.3	606	543.8	543.6	560.2

LEGEND

	PACKER
	SAMPLE INTERVAL
	STEEL CASING
①	PORT
	MAGNETIC COLLAR (MC)
	MONITORING PORT (MP)
	PUMPING PORT (PP)
K	HYDRAULIC CONDUCTIVITY (m/s)
mah	METRES ALONG BOREHOLE RELATIVE TO GROUND SURFACE
mbgs	METRES BELOW GROUND SURFACE
m/s	METRES PER SECOND

NOTES

1. ALL UNITS ARE IN METRES UNLESS OTHERWISE NOTED.
2. PERMAFROST ASSUMED 250 m ALONG HOLE ALIGNMENT.
3. DRILL RODS TO 250 m ALONG HOLE.
4. BOREHOLE LOCATED IN UTM ZONE 15 NAD 83 AT N 6980349.0 , E 555550.8, ELEVATION 66.85 m.
5. BOREHOLE INCLINATION VARIES FROM 74.3° AT COLLAR TO 62.2° AT THE END OF THE SURVEYED HOLE (590 mah).
6. DEPTHS FOR TOP AND BOTTOM INTERVAL BASED ON PACKER SEAL POSITION.
7. ZONE NO. REFERENCED AS PER TABLE 4 M20-3071 AS-BUILT PACKER AND PORT SUMMARY PREPARED BY WESTBAY INSTRUMENTS (REFER TO APPENDIX E).
8. NOT ALL MONITORING PORTS INSTALLED ARE SHOWN FOR SIMPLICITY PURPOSES.

NOT TO SCALE

SCHEMATIC ONLY

CLIENT

AGNICO EAGLE

CONSULTANT

WSP GOLDER

YYYY-MM-DD	2022-06-29
DESIGNED	RG
PREPARED	DH
REVIEWED	DH
APPROVED	MD

PROJECT

AGNICO EAGLE MINES LIMITED
MELIADINE EXTENSION
NUNAVUT

TITLE

M20-3071 WESTBAY WELL INSTALLATION DETAILS

PROJECT NO.	PHASE	REV.	FIGURE
21468783	2000	0	2

Table 1: Monitoring Ports installed in Westbay Well M20-3071

Port	Interval Lengths (mah)				Interval Depths (mbgs)			
	Port Position within Interval	Interval Top	Interval Bottom	Length	Port Position within Interval	Interval Top	Interval Bottom	Length
14	46.0	45.8	145.5	99.7	44.2	44.0	139.0	95.0
13	146.6	146.4	246.1	99.7	144.0	139.9	233.6	93.7
12	247.3	247.0	255.3	8.3	234.7	234.4	242.1	7.7
11	256.4	256.2	288.8	32.6	243.2	243.0	273.3	30.3
10	290.0	289.7	308.7	19.0	274.4	274.1	291.7	17.6
9	309.8	309.6	328.5	18.9	292.7	292.5	310.0	17.4
8	329.7	329.4	346.9	17.5	311.1	310.8	326.9	16.1
7	348.0	347.8	407.8	60.0	327.9	327.7	382.5	54.8
6	409.0	408.7	420.1	11.4	383.6	383.4	393.7	10.4
5	421.2	421.0	468.9	47.9	394.7	394.5	437.9	43.3
4	470.0	469.8	490.3	20.5	438.9	438.7	457.1	18.4
3	491.4	491.2	572.6	81.4	458.1	457.9	530.6	72.7
2	573.7	573.5	586.4	12.9	531.6	531.4	542.8	11.4
1	587.5	587.3	606.0	18.7	543.8	543.6	560.2	16.6

Notes:

m = metres; mah = metres along the hole; mbgs = metres below ground surface

Depths along hole were provided by Westbay Instruments completion report and are based on packer seal position. Depths below ground surface were calculated from provided depths along hole and gyroscopic survey data.

As shown in Table 1 and Figure 2, the M20-3071 ports are positioned at the top of the interval (below the packer) to facilitate the installation process. For all packers inflated in low permeability formations, such as M20-3071 (Golder 2021c), the port must be positioned below the packer to relieve packer squeeze pressures during the installation process. These ports can also be suitable for the collection of fluid samples in some cases. The sample intervals for Ports 2, 4, 6, 8 and 10 were positioned to target fractures zones identified during the drilling program and/or target sample depths.

Following installation, development of well sampling ports is required to remove, to the extent possible, the fluid introduced during drilling. During drilling of the borehole into which the Westbay Well M20-2071 was installed, the drilling fluid was tagged with a fluorescein tracer with average concentration of 795 parts per billion (ppb). Drill fluid tagging was initiated when drilling reached 225 mah, near the inferred base of the permafrost. The tracer was added to allow future differentiation of the amount of drill fluid present in water collected from the Westbay Well M20-3071 ports. The drilling fluid was composed of Lake CH6 water to which was added calcium chloride salt ($CaCl_2$) between 225 mah and 393 mah, to form a drilling brine of 11% calcium chloride. At 393 mah, use of brine was discontinued and replaced by heated fresh water down to the end of the borehole. The heated drill water mixed with the brine already in the borehole which resulted in variable drill water salinity seeping into the formation below 393 mah.

Furthermore, at the end of drilling, the 11% calcium chloride drilling brine was again introduced into the borehole to displace the fresh water and prevent freezing during packer testing and subsequent Westbay Well M20-3071 installation. Drill fluid sampling methods and chemical analysis are documented in a separate report (Golder 2021b).

Well development and sampling in 2020 focused on Ports 4 and 8 in 2020, although samples were also collected from Port 3 and 9 in the absence of targeted well development. Port 8, located at a depth of 329 to 347 mah (311 to 327 mbgs), was selected for development and sampling to assess groundwater quality between Lake CH6 and the deeper regional groundwater flow system. Port 8 data will also complement groundwater quality data historically collected in 2009 from borehole GT09-19, which was installed below Lake B7 (northwest of Tiriganiaq) at a depth of approximately 105 m (Golder 2009). Port 4, located at a depth of 439 to 451 mah (439 to 457 mbgs), was selected for development and sampling to assess groundwater quality that will be intercepted at the Discovery Underground mine (i.e., it is at a similar elevation) and to support the overall interpretation of regional groundwater quality below the permafrost at similar depths. Additional regional water quality data is available from M11-1257 Interval 5 (449 to 460 mbgs) of a previously installed Westbay System to the northwest of the Tiriganiaq Underground (Golder 2013), and from underground sampling at the Tiriganiaq Underground development below the permafrost completed at borehole TIS-200-001 from between 630 and 730 mbgs and the 300 m ramp seep (Golder 2016). The locations of boreholes GT09-19, TIS-200-001 and Westbay Well M11-1257 are shown on Figure 1. It is noted that water quality from the 300 m ramp seep is interpreted to be from the partially frozen cryopeg.

Samples collected from Port 8 in 2020 had an estimated 29% residual drill fluid remaining and were generally considered representative of formation groundwater quality based on the fluorescein content measured in the collected samples. The 2020 Port 8 formation groundwater quality indicated the sodium to chloride and sodium to calcium ratios trended towards water quality obtained from Interval 5 of Westbay Well M11-1257, which is considered sufficiently developed at the time of historical sampling and from the Tiriganiaq Underground (TIS-200-001). Westbay Well M11-1257 Interval 5 (449 to 460 mbgs) is located at a similar depth to Port 8 (311 to 327 mbgs) therefore salinity would be expected to be similar at the two sample depths. The total dissolved solids (TDS) content in the Port 8 formation groundwater was estimated to range between 24,558 mg/L and 33,308 mg/L. Samples from Port 4 in 2020 still contained over 50% residual drill fluid at the time of sampling, and formation groundwater quality was therefore considered too uncertain to quantify at Port 4. The positioning of Ports 3 and 9 served to facilitate the well installation process and were not intended for sampling. However, samples were collected in 2020 from these ports based on low drill fluid content remaining in the interval following development of adjacent Ports 4 and 8. Samples collected at Ports 3 and 9 were analyzed for stable isotopes of water.

Sampling methods, data interpretation and water quality results from the 2020 field program were presented in Golder 2021b.

3.0 OBJECTIVES AND SCOPE OF WORK

The objective of the 2021 groundwater monitoring program was to conduct supplemental development and sampling at M20-3071 in support of groundwater quality interpretation for the Meliadine Extension.

The program included the following tasks:

- Record pressures at the Westbay M20-3071 sampling ports prior to development. This data will be used to evaluate vertical hydraulic gradients below Lake CH6.
- Resume the development of Ports 4 and 8 that was initiated in fall 2020.

- Collect groundwater samples from the Westbay Well M20-3071 for chemical analysis at sample Ports 3, 4, 8 and 9.
- Collect a surface water sample from Lake CH6, the source of the drilling water used for M20-3071, for chemical analysis. This sample provides additional chemical information on the drill fluid to improve its discernment from formation groundwater.

Although not conducted, the scope of work originally included pressure measurements and water quality sampling at Westbay M11-127. This data would have been used to document natural flushing that occurred since the ports were last developed / sampled in 2014 by Agnico Eagle (Agnico Eagle 2014) and to complement data at M20-3071. The proposed monitoring program at M11-1257, however, could not be initiated due to malfunction of the motorized winch used to deploy and retrieve the Mosdax sampler to the Westbay Well M20-3071 ports during the development.

4.0 METHODOLGY

4.1 Pressure Measurements

The formation pressure for each port at M20-3071 was measured on 22 July 2021 using the Mosdax sampler manufactured and supplied by Westbay Instruments located in Burnaby, British Columbia. The pressure data was recorded at the ports prior to any development or sampling in 2021.

4.2 Westbay Well Development

Golder developed a Purge Decision Procedure in advance of the field program which served as a dynamic guidance document that was updated with the results of the investigation. The document included trends in field-measured fluorescein content and specific conductance. It is included in APPENDIX A (Golder 2021a).

Development at M20-3071 Port 4 and Port 8 was carried out by Golder personnel from 23 July to 24 August 2021 to remove residual drill fluid present in the formation (i.e., improve the estimation of formation groundwater quality) prior to sampling. On 24 August 2021, development and sampling was stopped prematurely due to malfunction of the motorized winch used to deploy and retrieve the Mosdax sampler to the Westbay Well M20-3071 ports. No replacement motorized winch was available to resume the field campaign during the remainder of the year.

Well development and groundwater sampling were performed using specialized equipment (the Westbay Mosdax sampler) manufactured and supplied by Westbay Instruments (refer to APPENDIX B for the instrument calibration record). Because of the low permeability of the formations (<1 x 10^{-10} m/s to 6 x 10^{-9} m/s, Golder 2021c), a flow restrictor (Part No. 240812) must be added to the Mosdax sampler bottle set to reduce the pressure drawdown applied to the target zone during development and sampling. The Mosdax sampler collects 1 litre of groundwater per sampling instrument descent and retrieval into the well. This process is required in lieu of standard purging methods because of the low hydraulic conductivity of the bedrock and presence of permafrost above the ports, which would result in freezing of purged water during well development by other methods (i.e., combination of air-lifting method coupled with the use of Westbay pumping ports which can be opened and closed to withdrawal fluid from the formation).

During development and water sample collection, field chemical parameters (specific conductance, electrical conductivity, total dissolved solids (TDS), salinity, fluorescein content and temperature) were measured to track the progress of development and estimate the percentage of drilling fluid remaining. Field parameters were also periodically measured at Port 3 during the development of Port 4 to monitor changes in fluorescein concentrations with time and evaluate whether Port 3 was being influenced by the development of the adjacent Port 4. Fluorescein

content was measured using the AquaFluor handheld fluorometer manufactured by Turner Designs. Electrical conductivity, specific conductance (temperature corrected electrical conductivity), TDS, salinity and temperature, were measured with a Pro30 Conductivity manufactured by YSI. Field pH was measured using a field pen manufactured by Hanna (HI 98127).

While drilling borehole M20-3071 in 2020, an 11% calcium chloride brine solution mixed with CH6 lake water was used to prevent freezing of the rods between 225 mah and 393 mah, coinciding with the location of Ports 7 to 13. Use of brine was discontinued below 393 mah and replaced by heated fresh water down to the end of the borehole. The heated drill water mixed with the brine already in the borehole, which resulted in a variable drill water salinity seeping into the formation below 393 mah, a depth range which coincides with Ports 1 through 7 (393 to 606 mah). At the end of drilling, the 11% calcium chloride drilling brine was again introduced into the borehole to displace the fresh water and prevent freezing during packer testing and Westbay Well M20-3071 installation.

The use of drill water of variable salinity adds uncertainty to the calculation of formation water quality. When drill water salinity and tracer content is maintained at stable concentrations during drilling of the borehole and installation of the well, a residual drill fluid content of equal to or less than 10% in the raw water (in the geological formation) can generally be used as a target to proceed to sampling. In accordance with the Purge Decision Procedure document (Golder 2021a), a residual drill fluid content of less than or equal to 10% in the raw water sample was established for Port 8 target development or upon completion of the third day of purging, whichever came sooner. Conversely, when the salinity and/or tracer content of the drill fluid is variable during the drilling program, such as at the depth of installation of Ports 1 to 7, a much lower development target (<3%) is generally necessary in order to minimize the effect of the uncertainty drill water quality. Therefore, a development target of less than or 3% residual drill fluid content in the Port 4 raw water sample was established for Port 4 (Golder 2021a).

Table 2 presents a summary of the 2021 field development record. Development focused on Ports 4 and 8; however, a small quantity of groundwater was collected from the other ports at the start of the program to monitor basic field parameters and fluorescein concentrations and document if any natural flushing occurred since the 2020 monitoring program. The field program was carried out in accordance with the Purge Decision Procedure guidance document (Golder 2021a), with some exceptions based on observed conditions. An increasing trend in fluorescein content (representative of drill fluid content) was observed during development of Port 4. Water quality field parameters at Port 3 were monitored every third day during the removal of the first 195 Litres from Port 4 between 28 July and 9 August 2021 to assess the effects of development of Port 4 on the development of Port 3. The fluorescein content in Port 3 (26 to 29% drill fluid remaining) was lower than in Port 4 (49 to 56% drill fluid remaining) during the 5 and 7 August 2021 checks. Consequently, development efforts were temporarily redirected from Port 4 to Port 3 between August 9 and 18 2021. The decrease in fluorescein at Port 3 was temporary and an increasing trend was again observed at Port 3. Purging activities therefore were resumed at Port 4 between August 19 and 24 2021. The development program was suspended on 24 August 2021 the due to malfunction of the motorized winch used to deploy and retrieve the Mosdax sampler to the Westbay Well M20-3071 ports. The estimated required development volume for Ports 4 and 8 presented in Table 2 is based on the observed trends during development of the well and based on the historical volumes that were removed from development of Interval 5 at M11-1257 (6.6 port interval water volumes). Interval 5 at M11-1257 is completed within similarly low permeability bedrock as Ports 4 and 8 of M20-3071 and was therefore considered a reasonable indicator of potential development requirements at M20-3071.

To aid in future programs, troubleshooting tips and lessons learned from the 2021 program is presented in APPENDIX C.

Table 2: Borehole M20-3071 Westbay System Port Development Record

Port	Interval (mah)			Internal Volume (L)[a]	Estimated Required Development Volume (L)	2020					2021					Total Cumulative Volume Extracted (L)
						Volume Extracted (L)	Initial Field Parameters[f]		Final Field Parameters[g]		Volume Extracted (L)	Initial Field Parameters[h]		Final Field Parameters[i]		
	To	From	Length				F	SPC	F	SPC	F	F	SPC	F	SPC	
11	256.2	288.8	32.6	177	-	0	-	-	-	-	2	371.8	82.4	388.3	78.3	2
10	289.7	308.7	19	103	-	3	782.5	146.5	713.8	88.0	1	565.6	124.5	-	-	4
9	309.6	328.5	18.9	103	-	6	793.0	147.0	234.7	53.4	18	187.8	54.5	278.3	81.4	24
8	329.4	346.9	17.5	95	425[b] – 627[c]	272	809.0	146.5	234.5	83.7	82	141.4	68.3	106.0	61.7	354
7	347.8	407.8	60	326	-	2	786.8	140.4	434.1	103.5	1	748.4	140.7	-	-	3
6	408.7	420.1	11.4	62	-	2	747.4	146.6	748.4	151.5	1	801.5	148.5	-	-	3
5	421	468.9	47.9	260	-	1	699.0	137.1	-	-	1	784.6	141.3	-	-	2
4	469.8	490.3	20.5	111	735[c][d]	220	820.2[h]	145.1	421.5	92.7	254	416.9	93.5	455.1	120.7	464
3	491.2	572.6	81.4	442	-	2	237.2	73.0	276.5	75.6	155	230.8	72.4	238.0	72.0	157
2	573.5	586.4	12.9	70	-	2	743.5	158.0	542.4	117.3	1	400.8	100.1	-	-	3
1	587.3	606	18.7	102	-	1	755.3	140.4	-	-	1	764.2	134.7	-	-	2

Notes:

mah = metres along hole; L = litres; - not applicable; F = fluorescein concentration (ppb); SPC = specific electrical conductance (mS/cm);

(a) Interval volume is the estimated volume in the annulus between the PVC pipe and the borehole wall. The volume per metre in the annulus is approximately 5.43 L/m based on the known dimensions of Schedule 80 1-1/2" PVC (inner diameter = 38 mm; outer diameter = 48 mm) and HQ outer hole diameter is 96 mm.

(b) Estimated volume forecasted from the 2021 development progress (trends of fluorescein concentrations with time) for Port 8

(c) Extraction volume is estimated based on 6.6 well volumes that were extracted to obtain a representative groundwater sample for M11-1257 Interval 5 in 2011. This estimate may be used as a best-case scenario only for Port 4 where the drill fluid chemistry was variable.

(d) Fluorescein concentrations were variable during the 2021 development program. Estimated volume forecast based on trends of fluorescein concentration with time not possible for Port 4.

(e) Date of initial field parameters: 7 September 2020 (Port 8), 8 September 2020 (Ports 2, 4, 6, 9 and 10), 24 September 2020 (Ports 1, 3 and 5)

(f) Date of final field measured parameters: 21 September 2020 (Port 8), 24 September 2020 (Port 2), 25 September 2020 (Ports 6 and 7) and 28 September 2020 (Ports 3, 4 and 9)

(g) Date of initial field parameters: 23 July 2021 (Ports 1, 10, 11), 24 July 2021 (Ports 2, 3, 5 and 6), 25 July 2021 (Ports 7, 8 and 9) and 28 July 2021 (Port 4)

(h) Dates of final field parameter measurements 29 July 2021 (Port 1), 1 August 2021 (Ports 8 and 9), 21 August 2021 (Port 3) and 24 August 2021 (Port 4)

(i) Maximum fluorescein concentration (820.2 ppb) measured after extracting 6 L, which was higher than after the initial 1 L sample recovered (809.3 ppb) at the start of development.

4.3 Westbay Well Groundwater Sample Collection

As described in Section 4.2, well purging focused on Ports 4 and 8, with limited purging occurring at Port 3 prior to sample collection. Port 9 was not purged prior to sample collection; however, flushing by groundwater flow past the port may have been induced by the purging of adjacent Port 8 and by natural flushing since 2020.

The sampling was carried out in accordance with the Purge Decision Procedure (refer to 0) with a few exceptions as discussed below and documented in Table 3 and Table 4:

- A sample was collected from Port 3 after it was partially developed. Port 3 sampling was triggered prematurely after purge water field chemistry indicated an unexpected in increase in residual drill fluid content during the purging activities.
- An initial sample was collected from Port 4 after 6 days of purging. Malfunction of the motorized winch prohibited the collection of a final sample from Port 4 after the removal of an additional 49 Litres, therefore it was not possible to monitor evolution of chemistry throughout the development program.
- Parameter list of triplicate sample set was reduced due to the time commitment and large sample volumes required to complete three full sets (refer to Table 3).

Groundwater samples were collected from Ports 3, 4, 8 and 9 and analyzed for alkalinity, major ions, dissolved and total metals, petroleum hydrocarbons, radium-226, and isotopes, as summarized in Table 3 and Table 4. An equipment blank and trip blank were collected on 24 August 2021 for quality assurance/quality control (QA/QC) purposes.

Table 3: Summary of Analytical Parameters for M20-3071 Port Sampling

Analysis Group	Analytical Parameters
1	■ Alkalinity (total, bicarbonate, hydroxide and phenolphthalein as $CaCO_3$), bicarbonate, carbonate, conductivity, dissolved organic carbon (DOC), hardness (total and dissolved, pH, salinity, total dissolved solids (TDS), total organic carbon (TOC), total suspended solids (TSS) and turbidity ■ Cyanides, including free, strong acid dissociable and weak acid dissociable ■ Metals (total[(a)] and dissolved[(b)]), including aluminium, antimony, barium, beryllium, bismuth, boron, cadmium, calcium, cesium, chromium, cobalt, copper, iron, ferrous iron (dissolved only), lead, lithium, magnesium, manganese, mercury, molybdenum, nickel, phosphorus, potassium, rubidium, selenium, silicon, silver, sodium, strontium, sulfur, tellurium, thallium, thorium, tin, titanium, tungsten, uranium, vanadium, zinc and zirconium ■ Petroleum hydrocarbons including benzene, ethylbenzene, methyl-tert-butyl-ether (MTBE), styrene, toluene, m+p-xylene, o-xylene, and total xylenes ■ Radium-226
2	■ Isotopes: oxygen (oxygen 18), hydrogen (deuterium), strontium and sulphur and oxygen 18 of sulphate
3[(c)]	■ Alkalinity (total, bicarbonate, hydroxide and phenolphthalein as $CaCO_3$), bicarbonate, BOD, carbonate, conductivity, DOC, pH, salinity, TDS, and turbidity ■ Anions and nutrients including ammonia, bromide, chloride, fluoride, nitrate, nitrite, orthophosphate, and sulphate ■ Metals (dissolved[(b)]), including aluminium, antimony, barium, beryllium, bismuth, boron, cadmium, calcium, cesium, chromium, cobalt, copper, iron, ferrous iron (dissolved only), lead, lithium, magnesium, manganese, mercury, molybdenum, nickel, phosphorus, potassium, rubidium, selenium, silicon, silver, sodium, strontium, sulfur, tellurium, thallium, thorium, tin, titanium, tungsten, uranium, vanadium, zinc and zirconium

Notes:

(a) Total constituent, unfiltered

(b) Dissolved constituents, field filtered to 0.45 microns

(c) Reduced parameter suite for triplicate sample set

Table 4: Summary Information on Raw Water Samples Collected from M20-3071 Ports 3, 4, 8 and 9

Port	2021 Volume Extracted (L) [a]	Cumulative Development Volume since 2020 (L)	2021 Sample Date	Estimated Residual Content of Drill Fluid (%)	Analysis Group [b]	Comment
9	18	24	1 August	33	1, 2 and 3	Duplicate samples submitted for Group 1 analysis.
8	79	351	1 August	13	1, 2 and 3	Duplicate samples submitted for Group 1 and 2 analysis.
4	196	416	5 August	56	1, 2 and 3	Duplicate samples submitted for Group 1 analysis. Sample collected after 6 days of purging.
3	136.5	138.5	16 August	41	1[c] and 3	Duplicate samples submitted for Group 1 analysis.
3	140.5	142.5	17 August	39	1[c] and 2	Duplicate samples held on-Site for Group 1 analysis.
3	145.5	147.5	18 August	39	1[c]	Duplicate samples submitted for Group 1 analysis.

Notes:

L = Litres, % = estimated percentage of residual drill fluid content in the raw water sample collected

(a) Volume of water removed during development prior to sampling (between 13 and 15 L of sample volume required for complete sample set).

(b) Complete list of analysis group parameters is included in Table 1.

(c) Partial parameter suite samples collected due to insufficient sample volume. Complete sample suite collected by 18 August 2021.

Groundwater samples for Group 1 and 3 parameters listed in Table 3 were filtered in the field (as required for select analyses) and collected in laboratory-supplied bottles which were packed and shipped to the analytical laboratory Bureau Veritas Laboratories (BV), located in Ottawa. Ontario. From their Ottawa office, BV subsequently sent the samples for analysis to Mississauga, Ontario or Burnaby, British Columbia locations.

Groundwater samples for Group 2 isotope parameters listed in Table 3 were collected in 1 L laboratory-supplied bottles which were packed and shipped to isotopes analytical laboratory Isotope Tracer Technologies located in Waterloo, Ontario.

4.4 Lake CH6 Surface Water Sampling

On August 25, 2021, Golder personnel collected a surface water sample from Lake CH6 (M20-3071 drill water source) using a poll sampler, at the approximate location shown on Figure 1. Field chemical parameters measured at the time of sampling included: specific conductance, electrical conductivity, TDS, salinity and temperature. The surface water sample was analyzed for the analysis groups listed in Table 5 (alkalinity, major ions, dissolved and total metals, petroleum hydrocarbons, radium-226, and isotopes).

Table 5: Summary of Analytical Parameters for Lake CH6 Sampling

Analysis Group	Analytical Parameters
1	■ Alkalinity (total, bicarbonate, hydroxide and phenolphthalein as $CaCO_3$), bicarbonate, carbonate, conductivity, DOC, hardness (total and dissolved, pH, salinity, TDS, TOC, TSS and turbidity ■ Cyanides, including free, strong acid dissociable and weak acid dissociable ■ Metals (total[(a)] and dissolved[(b)]), including aluminium, antimony, barium, beryllium, bismuth, boron, cadmium, calcium, cesium, chromium, cobalt, copper, iron, ferrous iron (dissolved only), lead, lithium, magnesium, manganese, mercury, molybdenum, nickel, phosphorus, potassium, rubidium, selenium, silicon, silver, sodium, strontium, sulfur, tellurium, thallium, thorium, tin, titanium, tungsten, uranium, vanadium, zinc and zirconium ■ Petroleum hydrocarbons including benzene, ethylbenzene, MTBE, styrene, toluene, m+p-xylene, o-xylene, and total xylenes ■ Radium-226
2	■ Isotopes: oxygen (oxygen 18), hydrogen (deuterium), strontium and sulphur and oxygen 18 of sulphate

Notes:

(a) Total constituent, unfiltered

(b) Dissolved constituents, field filtered to 0.45 microns

4.5 Evaluation of Formation Water Quality

The principal indicator of sufficient development is a low fluorescein content and a sodium to chloride ratio trending toward 0.5. The ratio of 0.5 is considered an indicator of sufficient development as it has been measured in groundwater samples collected from borehole TIS-200-001 (well installed to 600 m depth) during a 96-hour pumping test (Golder 2016), and from Westbay Well M11-1257 Interval 5 (454 mbgs) (Golder 2013).

To properly identify the chemistry of formation groundwater quality (corrected groundwater quality), concentrations attributed to drill fluid and brine addition to the borehole prior to packer testing and Westbay Well installation were removed from the raw water sample collected from each port. The following steps summarize the calculations made to estimate formation groundwater quality from field measurements of fluorescein concentrations and laboratory analytical results of the raw water samples and the available drill fluid samples.

1) **Estimation of the drill fluid chemistry introduced during drilling and well completion.** The drilling process introduced fresh and saline drilling fluids into the surrounding bedrock**.** The drilling fluid consisted of heated low TDS lake water to which was added a concentrated brine between 225 mah and 393 mah. Below 393 mah the drilling fluid progressively freshened as the concentrated brine flushed out of the drill fluid. Brine was again used at the end of drilling to displace the fresh water and prevent freezing during packer testing and subsequent Westbay Well M20-3071 installation. Drill fluid samples were used to estimate drill fluid chemistry as follows:

   Ports 8 and 9 – The drill fluid composition was calculated based on the average chemistry of two drill fluid samples collected while drilling the interval of 225 and 360 mah.

   Ports 3 and 4 – The drill fluid composition was calculated as the average chemistry of the drill fluid sample and its duplicate collected when the borehole was being drilled, at a depth of 490 mah.

2) **Calculation of the proportion of residual drill fluid in collected raw water samples**. The proportion of residual drill fluid was estimated based on the amount of residual fluorescein measured in the raw water sample collected compared to the initial fluorescein content measured at each Port (assumed to be representative of the fluorescein content of the drill fluid delivered to the interval) and/or the average fluorescein content measured in the drill fluid at the time the borehole drilling (i.e., Port 8 only). The fluorescein content of the drill fluid assumed for each port is based on the following:

   Port 8 – Calculated range based on the average measured fluorescein content of the drilling fluid samples between 225 and 360 mah (758 ppb) based on the available fluorescein readings measured during the drilling interval, and the initial fluorescein content measured in the port interval at the start of development (809 ppb). Because fluorescein concentrations and drill fluid chemistry varied during drilling and Westbay Well M20-3071 installation, a range of resultant groundwater concentrations were estimated from the correction process reflective of the uncertainty in the drill fluid quantity and quality in each raw water sample from Port 8.

   Port 4 – Estimated based on the fluorescein content measured in the port interval prior to the start of development (820 ppb), and the average fluorescein content during the drilling of the port interval (470 to 490 mah; 803 ppb).

   Port 3 – The fluorescein content of the drilling fluid introduced to Port 3 was assumed to be the average fluorescein content measured from all drill fluid samples collected during the drilling program (i.e., 795 ppb). Fluorescein content in the interval was not measured until after significant development had occurred in adjacent ports, and therefore only the average fluorescein concentration was available to support the proportion estimate.

   Port 9 – The fluorescein content of the drilling fluid introduced to Port 9 was assumed to be the initial fluorescein content measured in the port interval at the start of development (796 ppb).

3) **Removal of drilling fluid chemistry from the raw water sample analytical results**. The concentration of constituents from the drilling fluid are removed from the reported analytical results for each chemical constituent per the below equation 1.

(1) $$Groundwater\ Quality_{corrected} = \frac{Lab\ Result - \ Proportion\ of\ Drill\ Fluid\ x\ Drill\ Fluid\ Chemistry}{Proportion\ of\ Formation\ Water\ in\ Raw\ Water\ Sample}$$

4.6 Stable Isotope Analysis

Groundwater near M20-3071 is saline, consistent with the findings at the previously installed Westbay Well M11-1257 and observations at the Tiriganiaq underground development. Dissolved salts in water can change oxygen and hydrogen partitioning between water and other phases (vapour, minerals) due to the hydration of ions upon dissolution of salts in water. Saline groundwater oxygen (equation 2) and hydrogen (equation 3) isotope results have been corrected for the "salt effect" for the drilling fluids and the water samples collected from Ports 3, 4, 8 and 9 given the following equations developed by Sofer and Gat (1972) and Sofer and Gat (1975), respectively:

(2) $$\frac{\delta_o - \delta_m}{\delta_m + 1000} \times 10^3 = 1.11M_{Mg} + 0.47M_{Ca} - 0.16M_K$$

(3) $$\frac{\delta_o - \delta_m}{\delta_m + 1000} \times 10^3 = 6.1M_{Mg} + 5.1M_{Ca} + 2.4M_K + 0.4M_{Na}$$

Where:

δ_o = delta value on the concentration scale;

δ_m = measured activity delta of the salt solution; and,

M_i = molality of the dissolved salt component 'i' of the raw water quality result.

5.0 RESULTS AND DISCUSSION

5.1 Pressure Profile and Estimated Vertical Hydraulic Gradient

Pressure measurements at M20-3071 were recorded prior to sampling and development efforts to evaluate the vertical hydraulic gradients between Lake CH6 and the sampling ports. The approximate direction of vertical groundwater flow can be estimated using the freshwater heads with a correction for the buoyancy effects, as outlined in Post et al. (2007). Using the TDS profile developed for the Project to calculate the average density between the lake and sampling port, the overall groundwater flow direction below Lake CH6 appears to be upwards (Table 6), suggesting groundwater is discharging to Lake CH6. Deeper, (below about -300 masl), the interpreted gradient reverses, potentially because of the higher salinity groundwater at depth. The calculated directions of groundwater flow are approximate and sensitive to the assumed TDS versus depth profile. For example, if the TDS at depth trended to a lower, less saline, value at depth (approximately 54,000 mg/L), a consistent upward gradient would be measured between each of the ports and Lake CH6.

Table 6: Estimated Freshwater Hydraulic Heads and Vertical Hydraulic Gradients

Port	Port Position (masl)	Freshwater Head at Port (masl)	Freshwater Head at Lake CH6 (masl)	Average Density (kg/m^3)	Gradient
11	-174.8	68.1	64	1,016	-0.008
10	-206.0	68.8		1,018	-0.006
9	-224.3	69.5		1,019	-0.006
8	-242.7	69.8		1,020	-0.004
7	-259.5	71.0		1,021	-0.006
6	-315.2	70.1		1,024	0.005
5	-326.3	68.1		1,025	0.012
4	-370.5	71.6		1,023	0.003
3	-370.5	71.6		1,023	0.003
2	-463.2	75.8		1,026	0.001
1	-475.4	76.3		1,027	0.001

Notes:

masl = metres above sea level (elevation). Gradients calculated between each multi-level Port and Lake CH6. A positive value indicates a downward gradient. Port positions are approximate. Due to borehole deviation the actual elevations could be +/- 1 metre from the tabulated value.

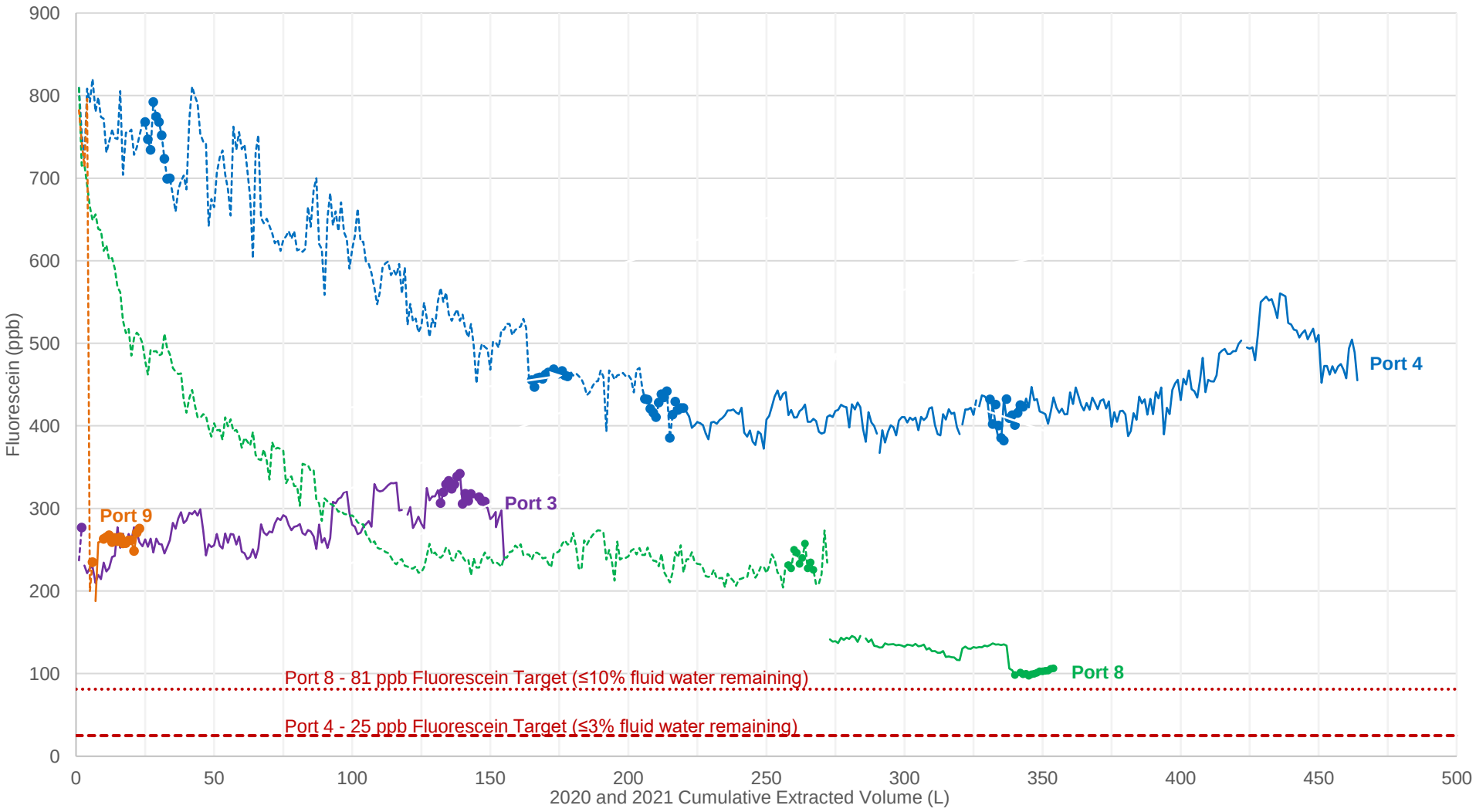
5.2 Groundwater Quality

The results of the groundwater quality analyses are presented in Table 7 and Tables D-1 through D-3 of APPENDIX D. Table D-1 also includes raw water quality results from the 2020 field program, including drill fluid chemistry for comparative purposes. Laboratory analytical reports are included in APPENDIX E.

Fluorescein concentrations and specific conductance measured in water removed from Ports 3, 4, 8 and 9 during the groundwater monitoring program are illustrated in Figure 3 and Figure 4, respectively. Table 7 and Tables D-1 and D-2 of APPENDIX D summarize the average fluorescein concentrations recorded at the time of sampling. The fluorescein concentration values in these tables are averages from the subsamples collected to obtain the required volume of water for analysis of the full suite of chemical constituents (as outlined in Table 3).

Figure 3 and Figure 4 illustrate that the fluorescein content and specific conductance in Ports 8 and 9 were generally stable at the time the samples were collected whereas concentrations of fluorescein in Ports 3 and 4 were variable and increased towards the end.

Between the 2020 and 2021 field programs, a sharp decrease in fluorescein concentration (Figure 3) and specific conductance (Figure 4) were noted in Port 8, which is interpreted to be the result of natural flushing.



Notes:
2020 field program ———
2021 field program --------
Sample* collected ●
*where 'sample' represents 1 Litre volume extracted from Ports 3, 4, 8 and/or 9 for analysis of select parameter suite. Between 13-15 Litres of sample volume is required to complete sample set.

CLIENT
AGNICO EAGLE

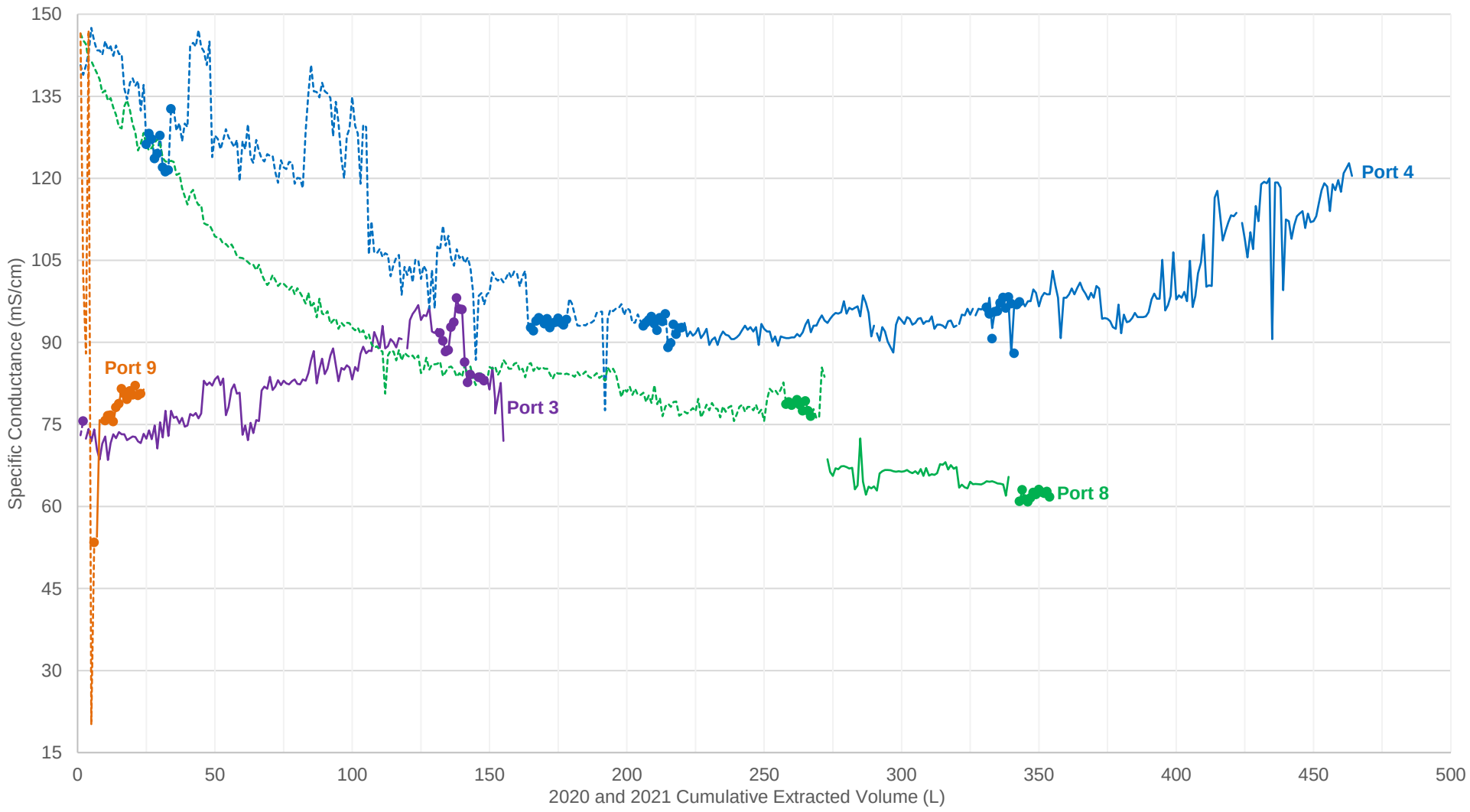
CONSULTANT
WSP GOLDER

YYYY-MM-DD	2022-07-12
PREPARED	DH
DESIGN	--
REVIEW	JL
APPROVED	VJB

PROJECT
AGNICO EAGLE MINES LIMITED
MELIADINE EXTENSION
NUNAVUT

TITLE
M20-3071 DEVELOPMENT RECORD FOR PORTS 3, 4 , 8 AND 9 FLUORESCEIN CONTENT

PROJECT No.		Rev.	
21468783	**2000**	**0**	**3**



Notes:
2020 field program ———
2021 field program --------
Sample* collected ●
*where 'sample' represents 1 Litre volume extracted from Ports 3, 4, 8 and/or 9 for analysis of select parameter suite. Between 13-15 Litres of sample volume is required to complete sample set.

CLIENT
AGNICO EAGLE

CONSULTANT
WSP GOLDER

YYYY-MM-DD	2022-07-12
PREPARED	DH
DESIGN	--
REVIEW	JL
APPROVED	VJB

PROJECT
AGNICO EAGLE MINES LIMITED
MELIADINE EXTENSION
NUNAVUT

TITLE
M20-3071 DEVELOPMENT RECORD FOR PORTS 3, 4 , 8 AND 9 SPECIFIC CONDUCTANCE

PROJECT No.		Rev.	
21468783	**2000**	**0**	**4**

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM ANSI A
1 in
0

5.2.1 Port 8 Groundwater Quality

Detailed water quality results are provided in Table D-2 in APPENDIX D. Table 7 presents a summary of the estimated groundwater quality at Port 8 of M20-3071 for key salinity parameters, using the correction procedure outlined in Section 4.5. The correction procedure was applied for each parameter that had a concentration above the analytical method detection limit (MDL). Also included in Table 7 is the historical sample results for Port 8 (319 mbgs), and for comparison to M20-3071 water quality, the average 2011 and 2012 estimated groundwater quality at Westbay well M11-1257 Interval 5 (454 mbgs). Interval 5 is located at a deeper depth than Port 8, however, comparisons of the salt element ratios in both sample locations is useful for evaluating if the port is sufficiently developed.

In 2021 the average residual drill fluid content in samples collected from Port 8 was 13%. Although the 10% development target was not achieved at Port 8 during the 2021 field program, it is lower than what was achieved in 2020 and the corrected groundwater quality is considered an improved estimate of groundwater quality at Port 8. The chemical signature estimated in 2021 is similar to that of the 2020 samples.

Table 7: Key Groundwater Quality Parameters at M20-3071 Ports 8 and M11-1257 Interval 5, Corrected to Remove Residual Drilling Fluid Content

Parameter	Drilling Fluid (Average 225 and 360 mah) [a]	M20-3071 Port 8 Corrected Water Quality				M11-1257 Interval 5 Corrected Water Quality
		2020 Sample 1	2020 Duplicate of Sample 1	2021 Sample 1	2021 Duplicate of Sample 1	Average of 2011 & 2012 Samples [c]
Sample Interval (mbgs)	-	310.8 to 326.9				448.5 to 460.3
Fluorescein Concentration in Drill Fluid (ppb)	-	758 to 809[b]				581
Fluorescein Concentration in Water Sample (ppb)	-	267			101	54 to 65
Estimated Proportion of Drilling Fluid in Sample	100%	28 to 29%			13%	9 to 11%
Estimated Proportion of Formation Groundwater in Sample	0%	71 to 72%			87%	89 to 91%
General Chemistry Water Quality Tests						
Measured Total Dissolved Solids (mg/L)	149,500	24,558	33,308	26,610	30,170	66,122
Calculated Total Dissolved Solids[d] (mg/L)	124,322	25,842	30,846	28,403	31,316	56,772
Chloride (mg/L)	74,500	14,518	20,399	17,642	19,939	32,510
Sulphate (mg/L)	<30 - <300	1,086	1,222	1,110	1,110	3,551
Dissolved Metals						
Dissolved Calcium (mg/L)	43,850	783	-	1,803	2,171	1,080
Dissolved Magnesium (mg/L)	19	1,232	1,156	992	1,000	2,240
Dissolved Potassium (mg/L)	2,240	-	-	-	-	345
Dissolved Sodium (mg/L)	1,370	8,614	8,069	6,791	7,021	16,982
Dissolved Strontium (mg/L)	2,260	-	-	66	77	64

Table 7: Key Groundwater Quality Parameters at M20-3071 Ports 8 and M11-1257 Interval 5, Corrected to Remove Residual Drilling Fluid Content

Parameter	Drilling Fluid (Average 225 and 360 mah) [a]	M20-3071 Port 8 Corrected Water Quality				M11-1257 Interval 5 Corrected Water Quality
		2020 Sample 1	2020 Duplicate of Sample 1	2021 Sample 1	2021 Duplicate of Sample 1	Average of 2011 & 2012 Samples [c]
Salt Element Ratios						
Calcium: Chloride (dominant salt of drilling fluid)	1.72	0.05	-	0.12	0.06	0.03
Sodium: Chloride (dominant salt of formation)	0.02	0.59	0.40	0.38	0.35	0.52

Notes:

"-" indicates a low estimated concentration (calculations returned a negative value)

(a) Average fluorescein concentration measured during the drilling program (795 ppb).

(b) Average fluorescein concentration in 225 and 360 mah drill fluid samples (758 ppb) and initial fluorescein content measured in the port interval prior to development (809 ppb).

(c) Average groundwater quality estimated from samples collected by Golder in 2011 and Agnico Eagle in 2012 (Golder 2013).

(d) Total dissolved solids calculated from sum of laboratory results of major ions chloride, sulphate, calcium, magnesium, potassium, sodium and strontium.

As presented in Table 7, the salt element ratios (calcium chloride and sodium chloride) of the groundwater measured at Port 8 of M20-3071 is approaching that observed at Interval 5 of M11-1257, with the corrected groundwater quality concentrations from Port 8 samples being slightly more diluted (concentrations of major ions measured in Port 8 are on average two times lower than those measured at M11-1257 Interval 5). Although time constraints did not allow for sufficient development to achieve the targeted drill fluid content (10%), the groundwater sample collected from Port 8 (13% drill fluid remaining) is considered to be a fair representation of formation water based on its chemical signature and similarity in salt element ratios to M11-1257 Interval 5 (Table 7) and the Tiriganiaq Underground samples collected from TIS-200-001 (calcium chloride 0.09 and sodium chloride 0.47 respectively) (Golder 2016).

The concentrations of metals in groundwater collected from Port 8 is low (near and/or below the analytical detection limits), except for radium-226, which ranged between 2.8 and 3.6 Bq/L. The presence of radium-226 may be elevated from drill fluid content and will be continued to be monitored as the well is progressively developed in subsequent years. Groundwater quality from the borehole TIS-200-001 after 96-hours of pumping was 0.61 Bq/L (Golder 2016), which is higher than the Metal Mining Effluent Regulation criteria (0.37 Bq/L) but lower than the concentrations in samples from Port 8.

5.2.2 Port 9 Groundwater Quality

Port 9 has not been actively developed and was sampled immediately following the development of Port 8. The raw water sample collected from Port 9 had a drill fluid content of 33% in 2021, and concentrations of fluorescein and specific conductance increased during sampling as shown in Figure 3 and Figure 4. Although Port 9 is considered to be insufficiently developed to provide reliable estimates of groundwater quality, results are useful in showing that salt element ratios (calcium chloride and sodium chloride) in the Port 9 samples are trending towards those of anticipated formation water quality.

Traces of toluene were observed in the raw water samples collected from Port 9 which is likely associated with drilling (i.e., introduced from products associated with the drilling equipment). Based on drill fluid samples, the elevated radium-226 present in the samples collected from Port 9 may also be associated with the brined drill fluid. A lower residual drill fluid content will be required to confirm the presence and concentration of radium-226 in formation groundwater at that depth.

5.2.3 Port 4 Groundwater Quality

A development target of 3% or less of residual drill fluid content in the raw water sample collected was established for Port 4 to minimize the effect of the uncertainty drill water quality delivered across the sample interval during drilling (Golder 2021a). The raw water sample collected during the middle of the 2021 field program had a residual drill fluid content of 50 to 51%, similar to 2020 samples. As shown in Table 2 and Figure 3, the fluorescein content in Port 4 remained variable and did not decline with additional purging as expected, while specific conductance was variable, then increased towards the end of the field program (Figure 4).

Port 4 is completed in a low permeability unit (with an estimated hydraulic conductivity of less than 1 x 10^{-10} metres per second, Golder 2021c). The pressure values recorded by the Mosdax Westbay Sampler during the 2021 (and 2020) purging and sampling period indicate the pressure differentials of the Port 4 (and Port 3) monitoring ports and packers were greater than a 100 psi difference recommended by Westbay Instruments. A large pressure difference between the formation and the Westbay casing can cause small amounts of Westbay casing fluid to enter the sample (in the Mosdax sampler) as the sample port takes longer to close and can lead to fluid being short-circuited between adjacent sample ports.

Port 4 was determined to not be sufficiently developed to provide reliably groundwater quality data because too much drill fluid remained in the sample. Preliminary water quality estimates of Port 4 samples were made but showed salt element ratios being dominated by the calcium chloride brine used for the drilling fluid. Compared to 2020 data, these ratios (calcium to sodium and calcium to chloride) are trending toward those of groundwater at Interval 5 of M11-1257, which infers some progress in developing the sample interval. The corrected raw water quality results based on the proportion of drill fluid remaining are not included in the report due to inherent inaccuracies in the extrapolation of the drilling fluid chemistry and groundwater composition at this time.

Traces of toluene were observed in the samples collected from Port 4, are likely associated with drilling activity (i.e., introduced from products associated with the drilling equipment). Concentrations of toluene have declined since 2020. Based on drill fluid sample chemistry, the radium-226 present in the samples collected from Port 4 may be associated, at least in part, with the brined drill fluid. A lower residual drill fluid content will be required to confirm the presence and concentration of radium in formation groundwater at that depth.

5.2.4 Port 3 Groundwater Quality

The development of Port 3 was initiated during the 2021 field program. The raw water sample collected from Port 3 had a drill fluid content of 39 to 41%, where concentrations of fluorescein and specific conductance remained variable but followed similar trends as shown in Figure 3 and Figure 4, respectively. Similar to Ports 4 and 9, Port 3 was determined to be insufficiently developed and unsuitable to provide accurate formation groundwater quality data. The 2021 salt element ratios for Port 3 are trending towards formation water quality based on the lower fluorescein content, however there is still a high uncertainty in the corrected groundwater quality estimate for Port 3 for the sample to be considered representative of formation groundwater.

Port 3 is completed in a low permeability unit (with a hydraulic conductivity of less than 1 x 10^{-10} metres per second, Golder 2021a). As discussed in Section 5.2.3 the pressure differentials of the Port 3 (and Port 4) monitoring ports and packers were exceeded, which can cause small amounts of Westbay casing fluid to enter the sample (in the Mosdax sampler) as the sample port takes longer to close and can lead to fluid being short-circuited between adjacent sample ports.

Based on drill fluid samples, the concentration of radium-226 present in the samples collected from Port 3 may also be associated, at least in part, with the brined drill fluid. A lower residual drill fluid content will be required to confirm the source and concentration of radium-226 in formation groundwater at that depth.

5.2.5 Isotope Results

Results of the isotope analyses are summarized in APPENDIX D. Salinity corrected isotope calculations are provided in APPENDIX F.

5.2.5.1 Oxygen (^{18}O) and Deuterium (^{2}H)

Stable isotopes of water, Oxygen ($\delta^{18}O$) and hydrogen ($\delta^{2}H$), from Lake CH6, Port 3, 4, 8, 9 of M20-3071 and the drilling fluids are illustrated in Figure 5 and Figure 6 and summarized in Tables D-1, D-2 (Port 8 only) and D-3 of APPENDIX D.

Saline groundwater oxygen and hydrogen isotope have been corrected for the “salt effect” for the drilling fluids and the water samples collected from Ports 4 and 8, as outlined in Section 4.6. The salt effect correction results in an enrichment (more positive) of oxygen and hydrogen isotopes as salinity increases as presented in APPENDIX D Table D-3.

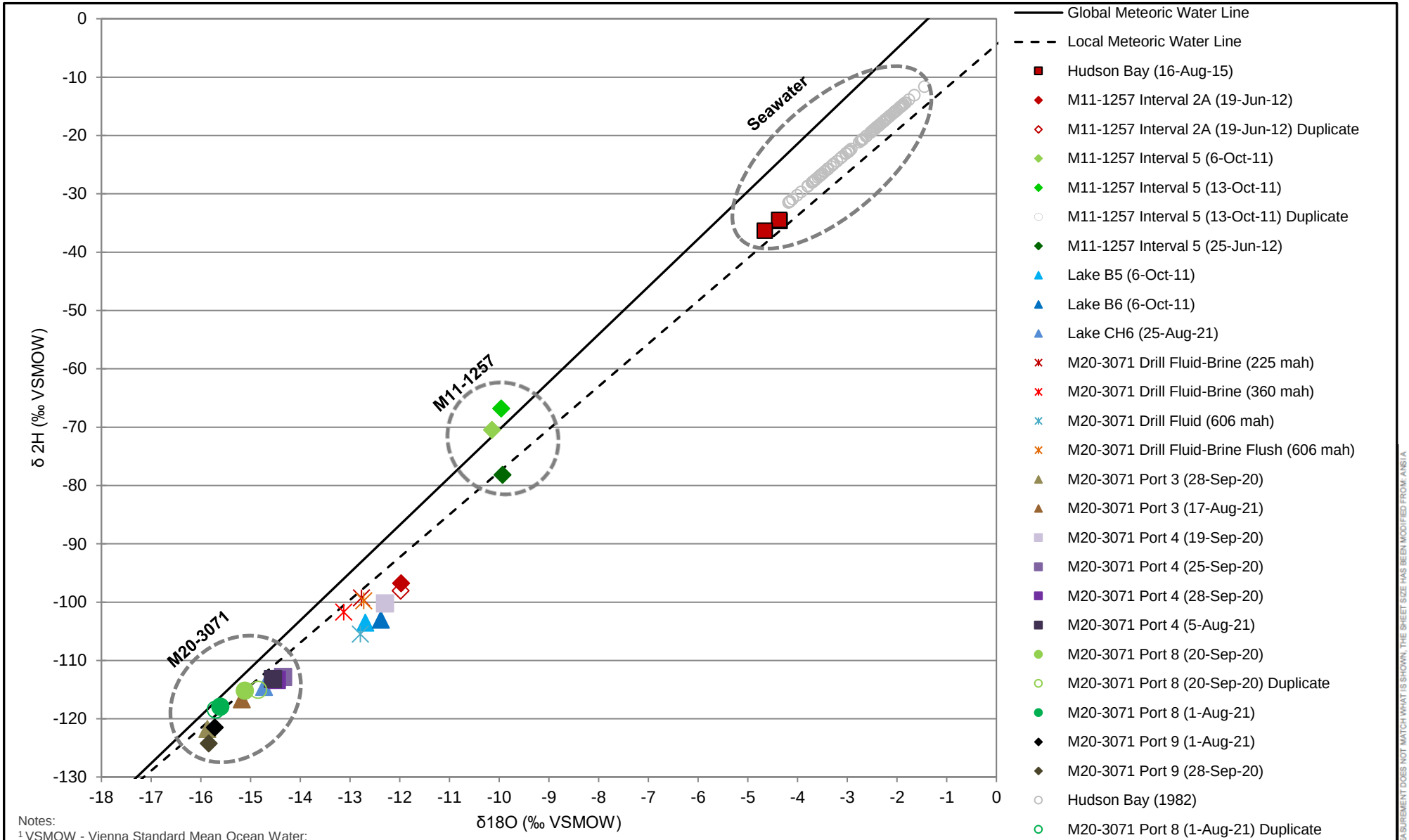
Ports 3 and 9 were sampled for the stable isotopes of water to further identify and quantify the presence of drill fluid at these locations, and potentially bridge the uncertainty due to drill water salinity variability. Unlike Ports 3, 4 and 8, Port 9 was not actively developed; only natural flushing by groundwater flow past the ports had occurred prior to sampling.

Isotopic results for $\delta^{18}O$ and $\delta^{2}H$ for Ports 3, 4, 8 and 9, the drilling fluid and Lake CH6 are illustrated on Figure 5. Results presented on Figure 5 have been corrected for salinity, except for Lake CH6 which is fresh water and did not require salinity correction. The isotopic results are also shown on Figure 6, which provides more context for the interpretation of groundwater isotopic results by comparing them to other groundwaters from shield rock under permafrost. Results of the $\delta^{18}O$ and $\delta^{2}H$ analysis, after correction for the drilling water component, indicate that groundwater at M20-3071 samples has the following attributes:

- Is significantly more depleted (more negative) relative to the isotopic signature of groundwater at Interval 5 of M11-1257 and the Tiriganiaq Underground samples collected from the 300 m ramp seep and borehole TIS-200-001 (well installed to 600 m depth).
- Plots on or just below the global meteoric water line (GWML) which represents the isotopic composition of precipitation across the globe and the local meteoric line (LML) for Lupin Mine area, which is more representative of Arctic precipitation. Lupin was the closest available precipitation information and may not fully represent the precipitation in the Meliadine area.
- Are more enriched (more positive) than the estimated average annual isotopic composition of precipitation (approximate $\delta^{18}O$ of -18 to -19 ‰ based on the interception point of the local evaporation line with the local meteoric water line (e.g., Edwards et al. 2004) and on the map of $\delta^{18}O$ distribution in precipitation summarized in Rozanski et al. 1993).

- Does not follow a consistent trend with depth (based on calculated final isotopic compositions, which may be revised as samples with less drilling fluid are acquired), M20-3071 raw water samples from Port 3 (35% drill fluid remaining) and Port 9 (30% and 33% drill fluid remaining) are more depleted relative to the isotopic signature of Port 8 (13% or 29-31% drill fluid remaining).

M20-3071 groundwater appears to be mainly meteoric in origin, plotting on or just below the GMWL and LML for Lupin, with little influence from extended water-rock interaction and mineral hydration that typically causes shield brines to plot above the GWML (Frape and Fritz 1987). Enrichment in $\delta^{18}O$ relative to the estimated average annual isotopic composition of precipitation and an isotopic signature that plots slightly below the GWML and LML may be indicative of mixing with a more enriched source of water such as seawater or evaporatively impacted surface water (lakes) (Figure 6). In contrast, the M11-1257 Interval 5 samples plot on or just above the GMWL and above the LMWL suggesting that the sub-permafrost groundwaters may be more influenced by water-rock interaction and mineral hydration than the talik waters.



Notes:
[1] VSMOW - Vienna Standard Mean Ocean Water;
[2] Saline groundwater oxygen and hydrogen isotope results were corrected for the 'salt effect' using Sofer & Gat (1972, 1975), with the exception of Port 3 and Port 9
[3] Global Meteoric Water Line (Rozanski et al. 1993);
[4] Local Meteoric Water Line for Lupin (Gibson 1996)
[5] Lake B5 and B6 located near M11-1257
[6] mah – metres along hole
7 M20-2071 Drill Fluid Brine samples collected between 17-Aug-21 and 27-Aug-21
[8] Hudson Bay data (Golder 2016)
[9] Hudson Bay (Schmidt et al 1999)

CLIENT
AGNICO EAGLE

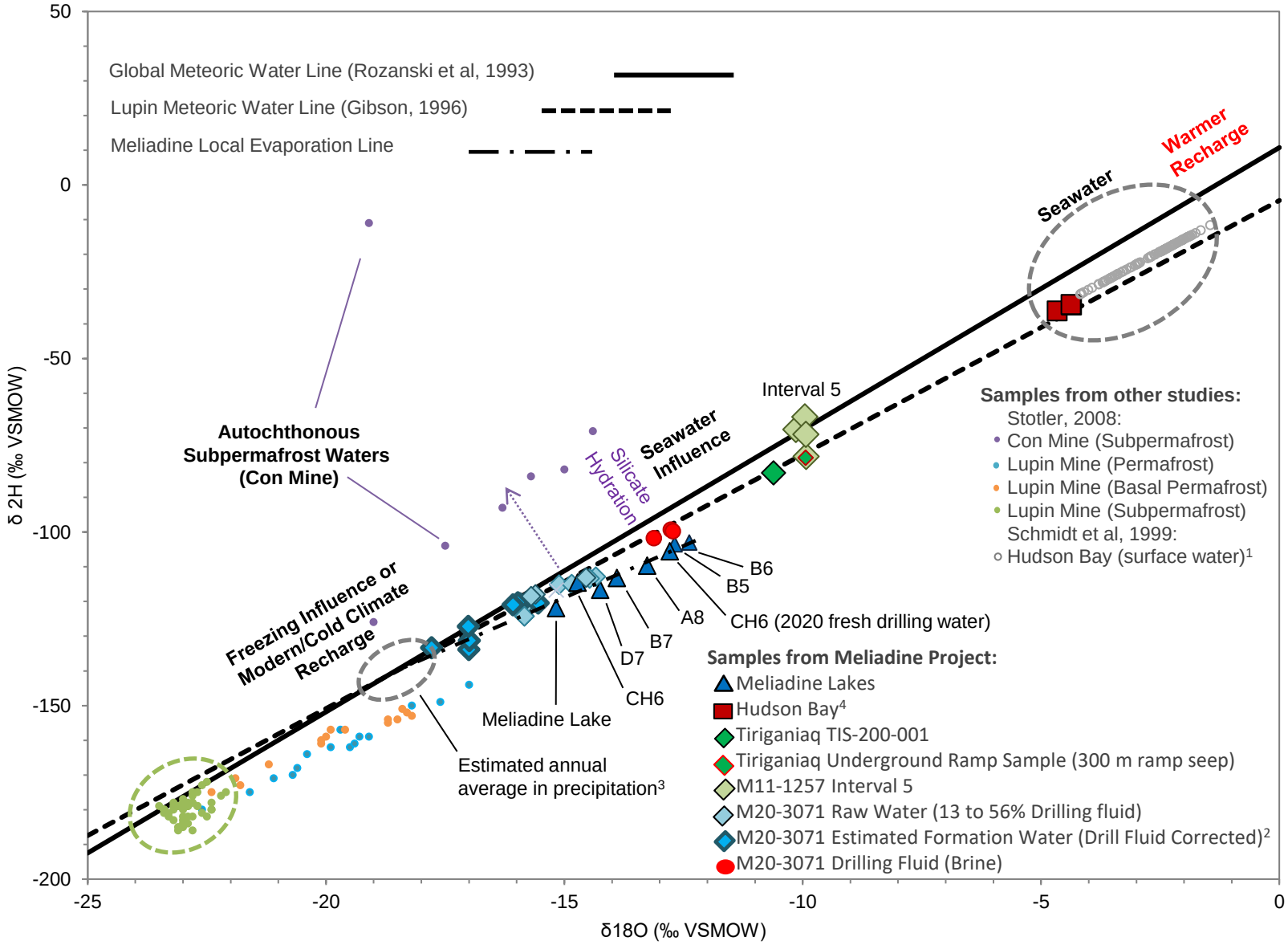
CONSULTANT
WSP GOLDER

YYYY-MM-DD	2022-07-12
PREPARED	DH
DESIGN	--
REVIEW	JL
APPROVED	VJB

PROJECT
AGNICO EAGLE MINES LIMITED
MELIADINE EXTENSION
NUNAVUT

TITLE
ISOTOPIC COMPOSITION OF MELIADINE WATER SAMPLES

PROJECT No. **21468783** **2000** Rev. **0** **5**



Notes:

[1] δ2H not measured in Schmidt (1999) samples from Hudson Bay; values plotted assume the δ2H vs δ18O relationship in samples from Atlantic Ocean from that study

[2] Estimated Formation Water (Drilling Fluid Corrected) shown for Ports 3, 8 and 9

[3] Annual average precipitation estimated as the point at which local evaporation line intersects the LMWL (Edwards et al. 2004)

[4] Hudson Bay (Golder 2016)

CLIENT: AGNICO EAGLE

CONSULTANT: WSP GOLDER

YYYY-MM-DD	2022-07-12
PREPARED	DH
DESIGN	--
REVIEW	JL
APPROVED	VJB

PROJECT
AGNICO EAGLE MINES LIMITED
MELIADINE EXTENSION
NUNAVUT

TITLE
WATER ISOTOPES – RECHARGE ORIGIN DEUTERIUM VERSUS OXYGEN-18 COMPOSITION OF WATER

PROJECT No.		Rev.	
21468783	**2000**	**0**	**6**

The isotopic signatures of groundwater from Ports 4 and 8 of M20-3071 is enriched compared to modern climate or cold climate recharge and has similar salt element ratios to groundwater collected from Interval 5 of M11-1257. This indicates mixing with a more enriched source of groundwater such as a Canadian Shield Brine, which become enriched over time due to water-rock interaction or seawater, which has an isotopic signature close to 0 ‰. The salinity of groundwater is dominantly sodium chloride, suggesting sea water overprinting onto a typical Canadian Shield brine (typically dominated by calcium carbonate) as explained in Golder (2016).

The hydraulic head measurements in M20-3071 indicate that groundwater is discharging to the lake. The isotopic signature of Port 4 and 8 which represent groundwater in the talik, is depleted relative to that of M11-1257, which represents groundwater below the regional permafrost. This may be explained by one or both of the following:

- Greater influence of modern ($\delta^{18}O$ -18 to -19 ‰) or cold climate ($\delta^{18}O$ < 20 ‰) recharge in the talik compared to the sub permafrost groundwater; this would infer that talik water is (mixed with) younger meteoric water compared to regional sub permafrost groundwater at Interval 5.
- Influence of freezing on groundwater (Figure 6). The freezing process causes the heavy isotopes to preferentially be incorporated into the ice, initially enriching the ice and causing depletion in the residual water. As freezing continues and the amount of residual water decreases, both the ice and the residual water will be depleted relative to the original solution. The isotopic signature of water within the talik may be more likely to be impacted by freezing processes as the talik exists at depths that would historically have been more likely to contain permafrost.

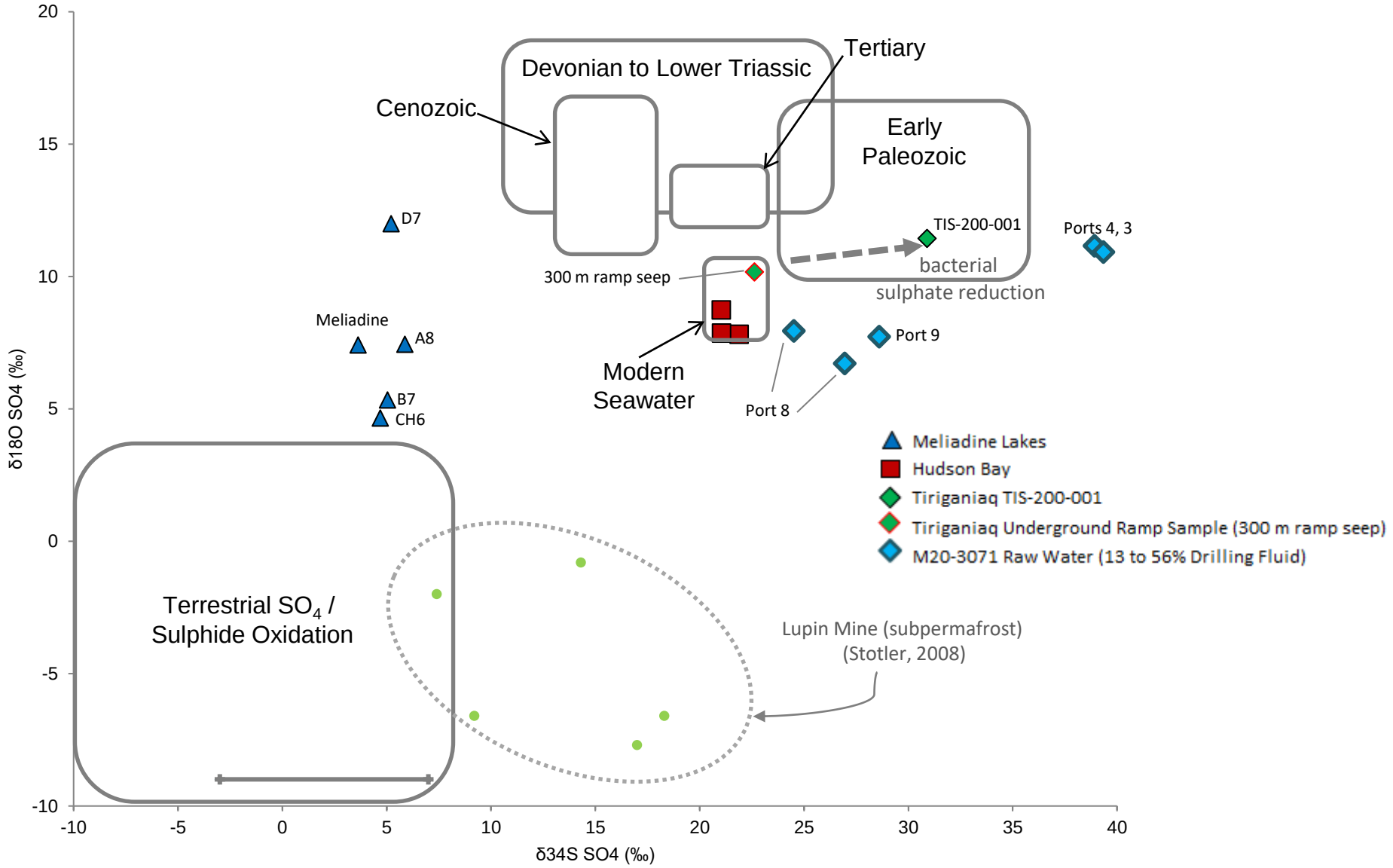
There is no depth trend in $\delta^{18}O$/ $\delta^{2}H$ that would suggest the isotopic signature of groundwater in the talik is influenced by upward movement of the more isotopically enriched sub-permafrost groundwater (i.e. deeper ports are not more enriched relative to shallower ports) however the difference between the ports is relatively minor (around 1 ‰).

5.2.5.2 Sulphate Isotopes: 34S-SO4 and 18O-SO4

Figure 7 presents a plot of oxygen and sulphur isotopes of sulphate for Meliadine water samples, as well as for Lupin mine sub permafrost groundwater (Stotler 2008) for comparison. Sulphur and oxygen isotopes of sulphate analyses were not performed on the drilling fluid; therefore these parameters could not be corrected for drilling fluid influence. However, the sulphate concentration is much higher in the formation water (in the 2021 raw water samples which is a mixture of drill fluid and formation groundwater) than in the drilling fluid (Golder 2021b) and Lake CH6 (APPENDIX D Table D-1) (490 to 970 mg/L compared to less than 10 mg/L sulphate). Thus, the isotopic signature of sulphate will have minimal influence from the drilling fluid. The following is observed:

- The $\delta^{34}S$ (SO_4) of Ports 3, 4, 8 and 9 of M20-3071 is more enriched than Hudson Bay seawater (21 to 22 ‰), up to 39.3 ‰ in Port 3.
- $\delta^{18}O$ (SO_4) is similar to or more enriched than Hudson Bay seawater (8 ‰), up to 11.2 ‰ in Port 4 except for one of the two samples collected from Port 8, which has a $\delta^{18}O$ (SO_4) of 6.7 ‰.

Golder has previously reported that groundwater collected from a 300 m ramp seep and borehole TIS-200-001 (well installed to 600 m depth) at Meliadine had enriched $\delta^{34}S$ and $\delta^{18}O$ of sulphate relative to seawater sulphate. This enrichment of $\delta^{34}S$ and $\delta^{18}O$ of sulphate was attributed to an original source of seawater sulphate enriched through bacterial sulphate reduction (Golder 2016). The results from M20-3071 corroborate this finding. Bacterial sulphate reduction enriches the residual sulphate (i.e. sulphate remaining dissolved in the groundwater) in $\delta^{34}S$, and to a lesser extent $\delta^{18}O$ relative to the initial isotopic signature of the sulphate. The influence of bacterial sulphate reduction increases with depth with Ports 3 and 4, and the borehole TIS-200-001 having a more enriched isotopic signature than Ports 8 and 9 and the 300 m ramp seep (Figure 7).



CLIENT
AGNICO EAGLE

CONSULTANT
WSP GOLDER

YYYY-MM-DD	2022-07-12
PREPARED	DH
DESIGN	--
REVIEW	JL
APPROVED	VJB

PROJECT
AGNICO EAGLE MINES LIMITED
MELIADINE EXTENSION
NUNAVUT

TITLE
SULPHATE ISOTOPES IN WATER – RECHARGE ORIGIN
OXYGEN-18 IN SULPHATE VERSUS SULPHUR-34 IN SULPHATE

PROJECT No. **21468783** **2000** Rev. **0**

A water sample from Lake CH6 submitted for analysis of $\delta^{34}S$ and $\delta^{18}O$ of sulphate also show consistent results with sampling from other lakes in the Meliadine area (A8, B7, D7 and Meliadine). As shown on Figure 7, Meliadine area lake samples had a $\delta^{34}S$ and $\delta^{18}O$ of sulphate, which indicated sulphate is derived from oxidation of sulphide minerals ($\delta^{34}S$ in the terrestrial sulphate range) under dry, cold climate conditions (enriched $\delta^{18}O$ compared to the typical terrestrial sulphate range due to the greater influence of atmospheric oxygen on the oxygen isotope of sulphate). The isotopic signature of sulphate in the M20-3071 groundwater does not show a major influence from sulphide oxidation. Sulphide oxidation would result in sulphate that is more depleted in $\delta^{34}S$ and $\delta^{18}O$ than the isotopic signature of sulphate in seawater, for example more similar to the isotopic signature of the lakes. The enrichment of $\delta^{34}S$ and $\delta^{18}O$ of sulphate in the M20-3071 groundwater compared to seawater suggests that depleted $\delta^{34}S$ and $\delta^{18}O$ derived from sulphide oxidation is not a significant source of sulphate in groundwater.

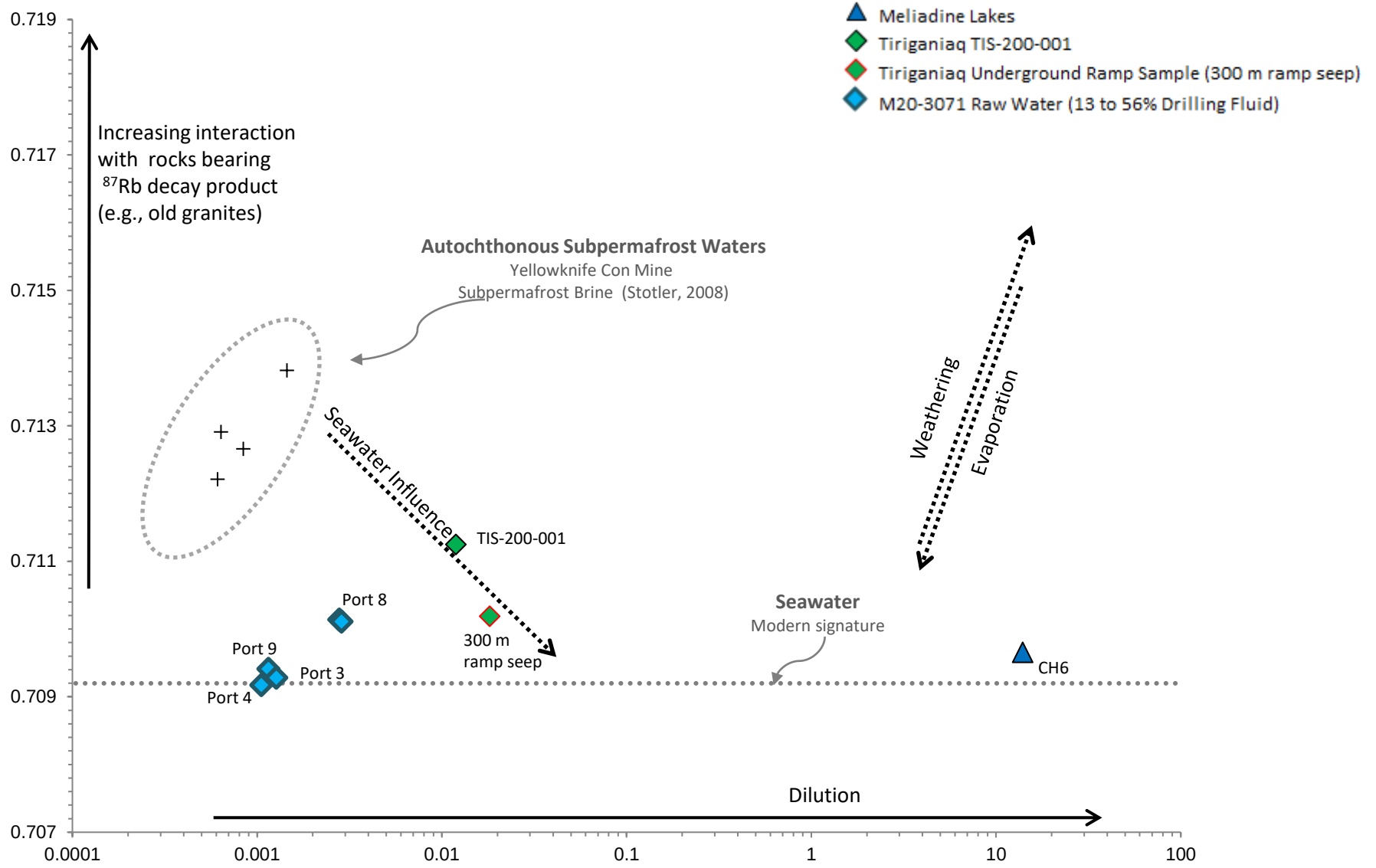
5.2.5.3 Strontium Isotopes: $^{87}Sr/^{86}Sr$ Ratios

The ratio of radiogenic ^{87}Sr to non-radiogenic ^{86}Sr is indicative of the provenance or flow pathway of water. The ^{87}Sr is produced by radioactive decay of ^{87}Rb which is present in greater quantities in crustal rock than mantle rock. Crustal weathering products and waters that carry these products tend to have higher $^{87}Sr/^{86}Sr$ ratios than waters that carry less crustal weathering products (such as seawater), thus a higher (more radiogenic) $^{87}Sr/^{86}Sr$ ratio represent an increased influence of water-rock interaction. The present-day seawater $^{87}Sr/^{86}Sr$ ratio is 0.709; this ratio was lower in prior geologic times (Jones and Jenkyns 2001). The strontium isotope ratio was not measured in the drilling fluid and thus the strontium isotope ratios of the M20-3071 groundwater cannot be corrected for the presence of residual drilling fluids in the raw groundwater sample. The high concentration of strontium in the drilling brine compared to Lake CH6 suggest that the calcium-chloride salt used to produce the drilling fluid brine contained strontium as well (strontium can replace calcium in many salts and minerals). The strontium isotope ratios of the M20-3071 groundwater samples are thus heavily influenced by the drilling fluid salt and strontium provides a secondary tracer of drilling salt content.

Figure 8 compares the $^{87}Sr/^{86}Sr$ isotopic ratios with the inverse of the dissolved strontium concentration in Meliadine-area water, as well as the Con Mine groundwater (Stotler 2008) for comparison. The following are observed:

- The $^{87}Sr/^{86}Sr$ isotopic ratio of Ports 3, 4 and 9 are similar to that of seawater, but with higher concentrations of strontium. It is likely that the salt used to produce the drilling brine may have been originally derived from seawater.
- The $^{87}Sr/^{86}Sr$ isotopic ratio of groundwater at Port 8, which has experienced the greatest amount of flushing of the drilling fluid, was higher than at Ports 3, 4 and 9 (Figure 8). The strontium concentration in Port 8 was also lower than in the less developed Ports 3, 4 and 9.

The isotope data from Port 8 suggests that the $^{87}Sr/^{86}Sr$ in this port has less drilling water influence and that the strontium isotopic signature of the formation water is more radiogenic (higher) than seawater and the strontium concentration lower than the drilling fluid. This corroborates the findings in Golder's 2016 report that a component of the strontium in groundwater is derived from water-rock interaction, resulting in a more radiogenic $^{87}Sr/^{86}Sr$ ratio. These initial results show that the strontium concentration and isotopic signature in Port 8 may be similar to those in sub-permafrost groundwater. However, the heavy influence of strontium from the drilling brine makes interpretation of the strontium isotope data difficult at this time.



CLIENT
AGNICO EAGLE

CONSULTANT
WSP GOLDER

YYYY-MM-DD	2022-07-12
PREPARED	DH
DESIGN	--
REVIEW	JL
APPROVED	VJB

PROJECT
AGNICO EAGLE MINES LIMITED
MELIADINE EXTENSION
NUNAVUT

TITLE
STRONTIUM ISOTOPES IN WATER – RECHARGE ORIGIN
STRONTIUM ISOTOPIC RATIO VERSUS 1/SR

PROJECT No. **21468783** | **2000** | Rev. **0** | **8**

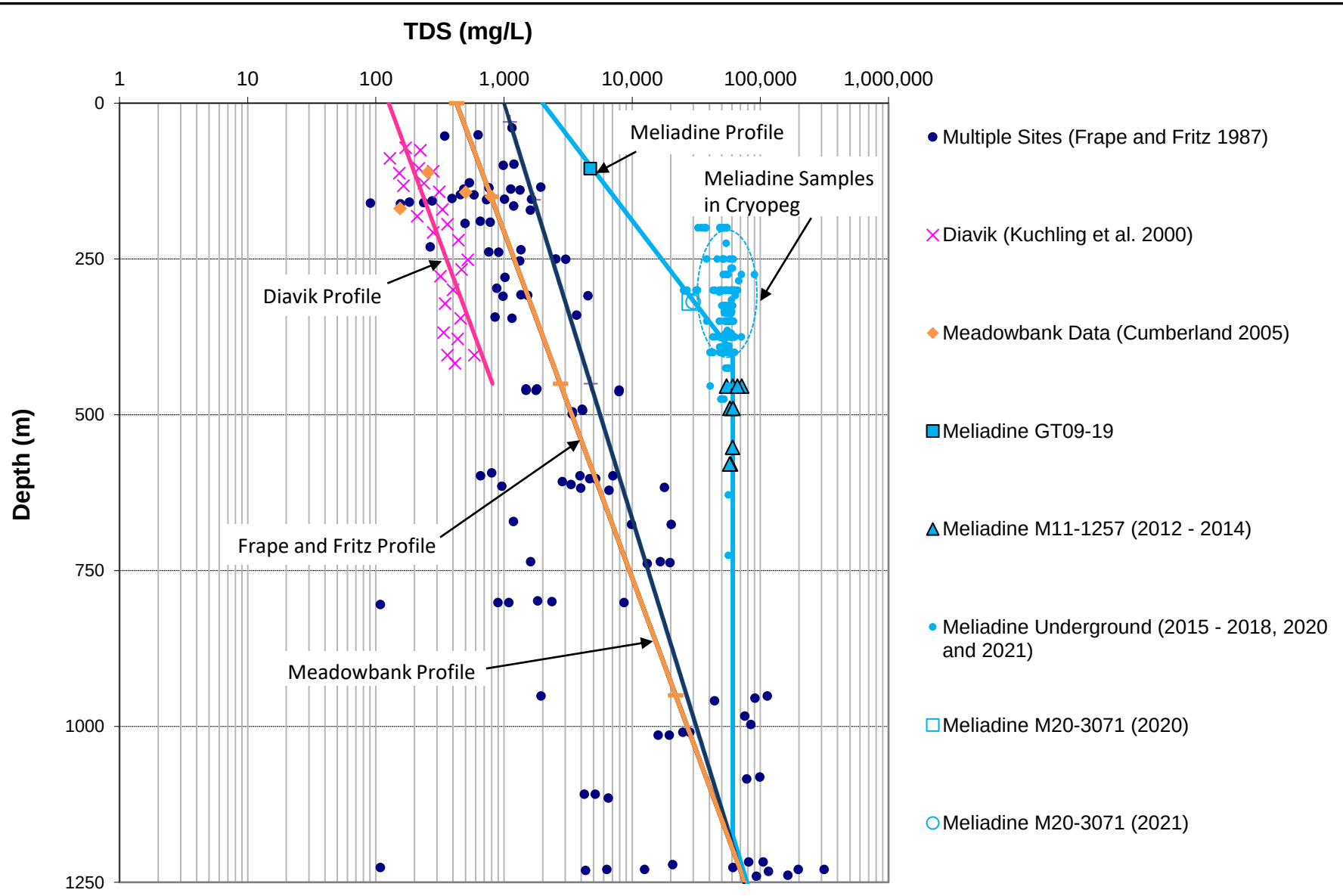
5.3 Groundwater Salinity Profile

In the Canadian Shield, concentrations of TDS in groundwater increase with depth (Frape and Fritz 1987). The chemicals that contribute to shield brines are typically chloride and calcium, with sodium to a lesser degree, except in areas close to the ocean or areas that were submerged by oceans in the past where sodium can be a significant contributor to TDS in groundwater (Séguin 1995). The major contributors to TDS in seawater are chloride and sodium.

The salinity of the deep groundwater samples collected to date for the Project are at a high end of what has been observed at other sites in the Canadian Shield at corresponding depths (Frape and Fritz 1987; Stotler et al. 2012; Dominion 2014). The relatively high proportion of sodium relative to calcium infers the presence of relic sea water in bedrock. It is known that this area was largely overlain by seawater during the last period of glaciation (Dyke et al. 2003).

Figure 9 presents the interpreted TDS profile with depth from sites in the Canadian Shield and the constructed profile of the Meliadine groundwater based on calculated groundwater quality (corrected to remove concentrations of constituents associated with residual drill water). The Meliadine data set incorporates 2020 and 2021 data from Port 8 of M20-3071, as well as historical data collected from the Tiriganiaq underground mine, GT09-19 located below Lake B7, and Westbay Well M11-1257 northwest of the Tiriganiaq underground mine. Samples collected at the Tiriganiaq underground mine are from the partially frozen cryopeg and may be elevated in TDS relative to unfrozen bedrock at similar elevation below lakes due to the preferential freezing of ‘fresher’ water in the cryopeg. Overall, the TDS profile for the Project is unchanged from 2020, based on the 2021 data.

Data from sites in the Canadian Shield are included for reference and comparison and is typically used to project the local TDS profile at depth. The Frape and Fritz dataset (1987) was developed based on chemical analyses of deep saline water collected by various investigators from several sites in the Canadian Shield. The Diavik dataset is based on site-specific data from Diavik, supplemented by information from the Lupin Mine site located about 200 km north of Diavik (Blowes and Logsdon 1997; Kuchling et al. 2000). The Diavik mine is located about 300 km northeast of Yellowknife. The Meadowbank dataset (Golder 2004) was developed based on site-specific data from Meadowbank Mine site supplemented by the data sources discussed above (Frape and Fritz 1987; Blowes and Logsdon 1997). The Meadowbank Mine is located approximately 300 km west of Hudson Bay and 70 km north of Baker Lake, or approximately 250 northwest of the Meliadine site. Of note is that the Meadowbank and Diavik datasets reflect shallow talik groundwater which differs from deep talik water and deeper sub permafrost groundwater. The hydraulic connection with an overlying freshwater lake result in lower salinity at equivalent depths than has been previously observed below full permafrost at the Meliadine Mine. Water quality in deep groundwater samplings suggest the salinity remains consistent with depth following the transition from near surface freshwater (refer to Figure 9). Salinity concentrations in deep groundwater at Meliadine are approximately 1.6 times that of seawater (35 g/L).



Notes:
[1] TDS result plotted as midpoint of sample interval depth where applicable;
[2] Westbay Wells M11-1257 and M20-3071
[3] M11-1257 samples collected from Interval 5 (2011, 2012, 2013 and 2014), Intervals 5A and 3 (2013 and 2014) and Interval 4A (2014);
[4] Meliadine Underground samples collected from TIS-200-001, Diamond Drill Holes (DDH), Ramp and/or Level 200 and 300 (2015 – 2018, 2020 and 2021)
[5] M20-3071 samples collected from Port 8 (2020 and 2021).

CLIENT
AGNICO EAGLE

CONSULTANT
WSP GOLDER

YYYY-MM-DD	2022-07-12
PREPARED	DH
DESIGN	--
REVIEW	JL
APPROVED	VJB

PROJECT
AGNICO EAGLE MINES LIMITED
MELIADINE EXTENSION
NUNAVUT

TITLE
2021 GROUNDWATER SALINITY PROFILE WITH DEPTH

PROJECT No. **21468783** **2000** Rev. **0** **9**

6.0 QUALITY ASSURANCE/QUALITY CONTROL

Duplicate field samples, a field equipment blank and trip blank were submitted to the analytical laboratory as part of the quality assurance/quality control (QA/QC) protocol. The duplicate samples included final samples from Ports 3, 4, 8 and 9, where only Port 8 samples was analyzed for the full suite of parameters included in Groups 1 and 2. Separate from the field submitted duplicates, the analytical laboratory performs equipment blanks and duplicate analyses as an internal QA/QC verification by the laboratory.

Analytical repeatability was tested by assessing the similarity between duplicate pairs of results. For each duplicate pairs of analysis where both results were higher than 5 times the method detection limit (MDL), the RPD was calculated as follows (equation 5):

(5) $$RPD = \frac{absolute\ [difference\ (concentration\ of\ a\ given\ parameter)]}{[average\ (concentration\ of\ a\ given\ parameter)]} \times 100$$

Per USEPA recommended methods (USEPA 1994), an RPD of 20% or less was considered acceptable. Where one or both results of the duplicate pair were less than 5 times the MDL, a margin of +/- MDL was considered acceptable.

Table D-4 in APPENDIX D presents the RPD or +/- MDL value calculated from the duplicate pairs of results. Approximately 47% of the duplicate pairs of analyses had one or both analytical results below the method detection limit and consequently could not be assessed for repeatability. Where analytical results were above method detection limits in both samples, QA/QC results were within acceptable tolerance limits (RPD or +/- MDL) with the exception of the following parameters:

- Port 3 – duplicate concentrations of reactive silicate and total zinc;
- Port 4 – duplicate concentrations of BOD, free cyanide, manganese (dissolved), nickel (total), orthophosphate, radium-226, TSS and zinc (total); and,
- Port 8 – duplicate concentrations of DOC, nickel, radium-226, turbidity and zinc (total and dissolved).

The reason for the deviations in concentrations of these parameters may be attributed to the presence of trace sediments in the sample and/or the exceedance of the hold times due to sample shipping times and delayed laboratory analysis.

The results of the analysis of the equipment blank (QMT567) submitted to BV indicate all parameters were similar or below laboratory method detection limits. The concentrations of parameters detected above the laboratory method detection limit in the equipment blank were consistently lower (within the same order of magnitude or lower by many orders of magnitude than the groundwater samples). It is noted trace concentrations of toluene were detected (0.0038 µg/L) in the equipment blank at similar concentrations to Port 9 (0.0040 and 0.0041 µg/L). The presence of nickel and zinc in the equipment blank may be the result of minor leaching from either the stainless steel Westbay sample bottles or laboratory equipment. Based on the results of the corrected groundwater quality from Port 8, the low concentrations of parameters reported in the equipment blank are not interpreted to have affected the calculated quality of formation groundwater.

The results of the calculated and laboratory measured values were within reasonable range limits for all samples. The TDS calculated values were typically within 1 to 32% the laboratory measured TDS values and generally lower likely due to the incomplete list of TDS constituents analyzed as part of the parameter suite.

7.0 CONCLUSIONS

This report documents the 2021 development and sampling of the Well M20-3071, along with the interpretation of vertical hydraulic gradients between the Westbay instrument ports and CH6.

Using the TDS profile developed for the Project, the overall groundwater flow direction below Lake CH6 is calculated to be upwards, suggesting groundwater is discharging to Lake CH6. At deeper depths, the interpreted gradient reverses as a result of the higher salinity groundwater. The calculated directions of groundwater flow are approximate and sensitive to the assumed TDS versus depth profile. For example, if the TDS at depth is assumed to trend to a lower value at depth (approximately 54,000 mg/L), a consistent upward gradient would be measured between each of the ports and Lake CH6.

Port 8 corrected water quality data (estimated formation water quality) supports the interpretation of a transitional water salinity occurring between the deeper saline regional flow system and Lake CH6. The estimated formation groundwater quality from Port 8 (319 mbgs) has a sodium chloride signature similar to regional chemistry measured at M11-1257 Interval 5 (454 mbgs) though slightly more diluted (concentrations of major ions are two times lower than those measured at M11-1257 Interval 5). This relative dilution is consistent with the interpreted TDS profile for the site that shows increasing TDS with depth over these sampling intervals (Golder 2021d). Although the residual drill fluid content in the 2021 Port 8 samples is higher than the targeted value (13% versus 10%), there is reasonable confidence in the accuracy of the groundwater salinity evaluated from the sample that was collected at Port 8 because of the consistency of the drill fluid chemistry during development and because the calculated water quality has a similar chemical signature and salt element ratios than groundwater at M11-1257 Interval 5 and the Tiriganiaq Underground (TIS-200-001).

Formation groundwater quality at Ports 3, 4 and 9 could not be assessed because the samples still contain a large proportion of drilling fluid (between 33% and 51% drill fluid content), combined with imprecise drill fluid chemistry at Ports 3 and 4. These intervals require further development and removal of drilling fluid to provide better resolution of groundwater quality. Notwithstanding this, the chemical signatures of the groundwater samples based on the salt element ratios of sodium chloride (dominant salt of formation) and calcium chloride (dominant salt of drilling fluid) indicate a trend toward a similar salinity signature to that of the groundwater at Interval 5 of M11-1257 and the Tiriganiaq Underground (300 m ramp seep and borehole TIS-200-001) as the development progressed at Ports 3 and 4 and following natural flushing at Port 9.

As a result of the low bedrock hydraulic conductivity at Westbay Well M20-3071 Port 4, it may not be feasible to adequately develop and collect a representative sample of formation water quality within a reasonable timeline using the Mosdax Westbay sampler. The pressure values recorded by the Mosdax Westbay Sampler during the 2020 and 2021 development programs indicate the pressure differentials of the Meliadine Ports 3 and 4 monitoring ports and packers were exceeded in 2020 and 2021, which can cause small amounts of Westbay casing fluid to enter the sample (in the Mosdax sampler) as the sample port takes longer to close and can lead to fluid being short-circuited between adjacent sample ports. Development would need to be slowed down to avoid this from occurring in the future, which is not practical. Further development at Port 4 and deeper ports is not practical because of the physical constraints of the bedrock (low hydraulic conductivity). Notwithstanding this, the absence of reliable data at Port 4 is mitigated by data at collected at Tiriganiaq underground at similar depths. The Port 8 salinity measured in 2020 and 2021 has been consistent with the TDS depth profile developed for Tiriganiaq in the original FEIS, which suggests that the TDS profile at the Discovery area is similar to that of the Tiriganiaq area.

The $\delta^{18}O$ and $\delta^{2}H$ signature of M20-3071 groundwater indicates the talik waters are more isotopically depleted than the sub-permafrost groundwater at M11-1257, likely due to the greater influence of fresher, modern or cold climate recharge.

The $\delta^{34}S$ and $\delta^{18}O$ of sulphate in M20-3071 are similar to but more enriched than seawater, indicating that the source of sulphate is originally seawater but that sulphate reducing bacteria have reduced a portion of the sulphate to hydrogen sulphide. The deeper sampling ports, Port 3 and Port 4 show more extensive enrichment due to sulphate reduction than the shallower ports, Port 8 and Port 9, as expected. The $\delta^{34}S$ and $\delta^{18}O$ of sulphate in M20-3071 indicate that sulphide oxidation is not a significant contributor of sulphate in the talik groundwater.

Fluorescein concentrations at Port 3 (30% residual drill fluid remaining) and Port 9 (33% residual drill fluid remaining) were lower than expected given they were not actively developed in 2020 and hydraulic testing in the surrounding bedrock indicated the rock bedrock hydraulic conductivity is low (10^{-9} to 10^{-11} m/s, Golder 2021c). It is possible that flushing has been induced from adjacent port development. In 2021 fluorescein concentrations at Port 3 were variable, but generally increased throughout the limited development period, while fluorescein concentrations at Port 9 increased initially and were generally stable at the time the sample was collected. It's possible that drill fluid is drawn towards Ports 3 and 9 during purging or sampling of these ports.

8.0 CLOSURE

The reader is referred to the Study Limitations, which follows the text and forms an integral part of this report. We trust the above meets your present requirements. If you have any questions or require additional information, please contact the undersigned.

Golder Associates Ltd.

Original Stamped By

Dale Holtze, M.Sc., P.Geo. (NT/NU)
Hydrogeologist

Original Stamped By

Valérie Bertrand, M.A.Sc., P.Geo. (NT/NU)
Principal Senior Geochemist

Original Signed By

Jennifer Levenick, M.Sc., P.Eng. (NT/NU)
Principal Senior Hydrogeologist

DH/VJB/JL/rd

https://golderassociates.sharepoint.com/sites/147542/project files/6 deliverables/21468783-911-rev0 meliadine westbay wq/21468783-911-r-rev0-meliadine westbay gw quality.docx

9.0 REFERENCES

Agnico Eagle (Agnico Eagle Mines Limited). 2014. Meliadine Well 2014 Sampling Campaign. 22 July 2014.

Blowes DW, Logson MJ. 1997. Diavik Geochemistry 1996-1997 Baseline Report. Prepared for Diavik Diamond Mines Inc.

De Beers. (De Beers Canada Inc.). 2002. The Snap Lake Diamond Project Environmental Assessment Report. Submitted to the Mackenzie Valley Environmental Impact Review Board. Yellowknife, NWT, Canada.

De Beers. 2010. Environmental Impact Statement for the Gacho Kué Project. Volumes 1, 2, 3a, 3b, 4, 5, 6a, 6b, 7 and Annexes A through N. Submitted to Mackenzie Valley Environmental Impact Review Board. Yellowknife, NWT, Canada.

Dominion (Dominion Diamond Ekati Corporation). 2014. Developer's Assessment Report Hydrogeology Baseline Report Annex IX. September 2014.

Dyke, A.S., A. Moore, A., and L. Robertson. 2003. Deglaciation of North America, Geological Survey of Canada Open File 1574.

Edwards T.W.D., Wolfe B.B., Gibson J.J., Hammarlund D. 2004. Use of water isotope tracers in high latitude hydrology and paleohydrology. In: Smol J.P., Pienitz R., Douglas M.S.V. (eds) Long-term Environmental Change in Arctic and Antarctic Lakes. Developments in Paleoenvironmental Research, vol 8. Springer, Dordrecht.

Frape SK, Fritz P. 1987. Geochemical Trends for Groundwaters from the Canadian Shield. In: Saline Water and Gases in Crystalline Rocks, Editors: P. Fritz and S.K. Frape, Geological Association of Canada Special Paper 33.

Gibson JJ. 1996. Non-steady isotopic methods for estimating lake evaporation: development and validation in arctic Canada. Ph.D. Dissertation, University of Waterloo, Waterloo, Ontario, Canada.

Golder (Golder Associates Ltd.). 2004. Predictions of Brackish Water Upwelling in Open Pits, Meadowbank Project Nunavut.

Golder. 2009. Golder Associates Technical Memorandum, Hydrogeologic Investigation Program – Meliadine Project. Golder Document No. 039 Ver. 0.

Golder. 2013. Technical Memorandum, Monitoring Well M11-1257 (Westbay Well) Groundwater Sampling Results – Meliadine Gold Project, Nunavut. Golder Document No. 236 Ver. 0 Rev 1.

Golder. 2016. Surface and Groundwater Quality Investigation in Support of the Underground Mine Development at Tiriganiaq. Golder Document No. 555-1416135 1803 Ver. 0.

Golder 2021a. Westbay Monitoring Well Systems M20-3071 and M11-1257 Purge Decision Procedure Meliadine Extension Project, Nunavut. Prepared for Agnico Eagle Mines Limited. Golder Document No. 21468783-860-R-Rev0.

Golder 2021b. Westbay Monitoring Well System M20-3071 Water Quality Meliadine Extension. Factual Report. Prepared for Agnico Eagle Mines Limited. Golder Document No. 20136436-817-R-Rev1. November 2021.

Golder. 2021c. Installation of Westbay Monitoring Well System M20-3071 – Meliadine Extension, Factual Report. Prepared for Agnico Eagle Mines Limited. Golder Document No. 20136436-820-R-Rev2. November 2021.

Golder 2021d. Summary of Hydrogeology Existing Conditions Meliadine Extension Factual Report. Prepared for Agnico Eagle Mines Limited. Golder Document No. 20136436-855-R-Rev3. December 2021.

Jones C.E. and H.C. Jenkyns. 2001. Seawater Strontium Isotopes, Oceanic Anoxic Events and Seafloor Hydrothermal Activity in the Jurassic and Cretaceous. American Journal of Science. 301. 112-149.

Kuchling K, Chorley D, Zawadzki W. 2000. Hydrogeological Modeling of Mining Operations at the Diavik Diamonds Project. Proceedings of the Sixth International Symposium on Environmental Issues and Waste Management in Energy and Mineral Production. University of Calgary, Calgary, AB.

Post, B., Kooi, H. and Simmons, C., 2007. Using Hydraulic head measurements in variable-density ground water flow analysis. Ground Water, 45(6): 664-671.

Rozanski K, Araguás-Araguás, L. and R. Gonfiantini. 1993. Isotopic patterns in modern global precipitation. Geophysical Monograph Series, Vol. 28, 1-36.

Schmidt, G.A., G. R. Bigg and E. J. Rohling. 1999. "Global Seawater Oxygen-18 Database - v1.22" https://data.giss.nasa.gov/o18data/

Séguin, A. 1995. Origin of saline groundwaters in Torbolton Ward, Eastern Ontario. Master of Science Thesis, Department of Earth Sciences, University of Ottawa, Ontario, Canada.

Sofer Z, Gat JR. 1972. Activities and concentrations of oxygen-18 in concentrated aqueous salt solutions: analytical and geophysical implications. Earth Planetary Sciences Letters 15, 232-238.

Sofer Z, Gat JR. 1975. The isotope composition of evaporating brines: effect of the isotopic activity ratio in saline solutions. Earth Planetary Sciences Letters 26, 179-186.

Stotler RL. 2008. Evolution of Canadian Shield Groundwaters and Gases: Influence of Deep Permafrost. University of Waterloo, PhD Thesis. UWSpace. ***http://hdl.handle.net/10012/4020*** USEPA. 1994. USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Review. EPA 540/R-94/013. Office of Emergency and Remedial Response, Washington, D.C. February 1994.

Stotler, R, S.K. Frape, T. Ruskeeniemi, I. Ahonen, T.C. Onstott and M.Y. Hobbs. W. 2009. Hydrogeochemistry of groundwaters in and below the base of thick permafrost at Lupin, Nunavut, Canada. Journal of Hydrology 373: 80-95.

USEPA. 1994. USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Review. EPA 540/R-94/013. Office of Emergency and Remedial Response, Washington, D.C. February 1994.

10.0 STUDY LIMITATIONS

Golder Associates Ltd. (Golder) has prepared this document in a manner consistent with that level of care and skill ordinarily exercised by members of the engineering and science professions currently practising under similar conditions in the jurisdiction in which the services are provided, subject to the time limits and physical constraints applicable to this document. No warranty, express or implied, is made.

This document, including all text, data, tables, plans, figures, drawings and other documents contained herein, has been prepared by Golder for the sole benefit of Agnico Eagle Mines Limited. It represents Golder's professional judgement based on the knowledge and information available at the time of completion. Golder is not responsible for any unauthorized use or modification of this document. All third parties relying on this document do so at their own risk.

The factual data, interpretations, suggestions, recommendations and opinions expressed in this document pertain to the specific project, site conditions, design objective, development and purpose described to Golder by Agnico Eagle Mines Limited, and are not applicable to any other project or site location. In order to properly understand the factual data, interpretations, suggestions, recommendations and opinions expressed in this document, reference must be made to the entire document.

This document, including all text, data, tables, plans, figures, drawings and other documents contained herein, as well as all electronic media prepared by Golder are considered its professional work product and shall remain the copyright property of Golder. Agnico Eagle Mines Limited may make copies of the document in such quantities as are reasonably necessary for those parties conducting business specifically related to the subject of this document or in support of or in response to regulatory inquiries and proceedings. Electronic media is susceptible to unauthorized modification, deterioration and incompatibility and therefore no party can rely solely on the electronic media versions of this document.

APPENDIX A

Purge Decision Procedure (Golder 2021a)

GOLDER
MEMBER OF WSP

TECHNICAL MEMORANDUM

DATE 7 July 2021 **Project No.** 21468783-860-TM-Rev0

TO Colleen Prather, Michel Groleau
Agnico Eagle Mines Limited

CC Angie Arbaiza, Agnico Eagle Mines Limited

FROM Dale Holtze, Valérie Bertrand **EMAIL** dale_holtze@golder.com;
valerie_bertrand@golder.com

WESTBAY MONITORING WELL SYSTEMS M20-3071 AND M11-1257 PURGE DECISION PROCEDURE MELIADINE EXTENSION PROJECT, NUNAVUT

This technical memorandum has been prepared at the request of Agnico Eagle Mines Limited (Agnico Eagle) to be used as a guidance document for the Golder Associates Ltd. (Golder) project team, and Agnico Eagle to monitor the development progress of the Westbay Monitoring Well System (Westbay well) M20-3071 throughout the 2021 field investigation for the Meliadine Extension Project. In addition, Golder will also be sampling select ports of Westbay well M11-1257 to document any natural flushing that has occurred since the ports were last sampled by Agnico Eagle in 2013. This technical memorandum should be reviewed in conjunction with the workflow diagram included in Attachment A for Westbay well M20-3071 and Attachment B for Westbay well M11-1257. The Purge Decision Procedure is meant to be a dynamic document that will be updated pending the results of the field program, which include trends in field-measured fluorescein content and electrical conductivity, and the preliminary laboratory analytical results for raw water samples collected as they become available.

1.0 BACKGROUND

Two of the five Westbay well M20-3071 sampling ports (Ports 2, 4, 6, 8 and 10) were partially developed in 2020 (Golder 2021a). Development time was constrained in 2020 by the onset of winter and the shutdown of the mine site operations in the area of the well. Following installation, well development was initiated at Ports 4 and 8 to remove drill fluid introduced into the borehole during drilling.

When drill water salinity and tracer content is maintained at stable concentrations during drilling of the borehole and installation of the well, a residual drill fluid content of less than 10% in the raw water (in the geological formation) is used as a target to stop development and proceed to sampling to achieve adequate precision in the calculation of true formation water quality. However, when the salinity and/or tracer content of the drill fluid is variable during the drilling program a lower development target may be applicable. This issue occurred while drilling borehole M20-3071 where drill water salinity was discontinued during drilling below 393 metres along the borehole (mah) (369 metres below ground surface or mbgs) which coincides with de depths of Ports 7, 8, 9, 10 and 11. This resulted in a variable drill water salinity seeping into the formation below 393 mah. Given the variability of the drill water salinity at Port 7 to Port 11, a lower residual drill water content must be targeted to reduce the uncertainty on true formation water quality (the quantity of drill water remaining is known, but not its chemistry, thereby preventing an accurate extrapolation of true formation chemistry).

Consequently, the interpretation of groundwater chemistry and salinity is still uncertain as the development targets were not achieved at Ports 4 and 8 in 2020. The 2021 Westbay well M20-3071 monitoring requirements and decision criteria provided are described in subsequent sections and in the workflow diagram provided in Attachment A.

Two of the six Westbay well M11-1257 sampling intervals (1, 2A, 2, 3, 4 and 5) have been developed based on the 2013 investigation completed by Agnico Eagle (Agnico Eagle 2013). Well development was completed at Interval 3 and Interval 5 where less than 10% drill fluid content remained in the raw water sample collected. It is expected that the Westbay well M11-1257 groundwater monitoring program will be conducted following the achieved targets and completion of the M20-3071 monitoring program (3 days have been allocated as part of rotation three). The proposed monitoring program allows for the sampling of select intervals of M11-1257 to document any natural flushing that occurred since the ports were last developed or sampled in 2013 by Agnico Eagle. It is noted that the concentration of fluorescein in Intervals 2 and 4 are interpreted to have decreased by natural flushing between 2011 and 2013 as the intervals have never been extensively developed. The additional data collected in 2021 would support the interpretation of deep groundwater quality and be used to update the existing Meliadine salinity profile. The 2021 Westbay well M11-1257 workflow diagram provided in Attachment B.

2.0 METHODOLOGY WESTBAY WELL M20-3071

A Mosdax sampler manufactured and supplied by Westbay Instruments located in Burnaby, British Columbia will be used to monitor hydraulic head in the Westbay well, purge and to collect water samples from select ports. Refer to the 2021 Westbay Monitoring Program Standard Operating Procedures document to be prepared by Golder. The 2021 Westbay well M20-3071 workflow diagram is provided in Attachment A.

2.1 Pressure Profile

Hydraulic head will be measured at each of the M20-3071 Ports 1 through 11 prior to any development or sampling, and at the end of the sampling program, herein referred to as a pressure profile. The initial data will be used to assess the vertical gradient between well ports and infer whether Lake CH6 is a source of recharge or discharge. Final pressure profile data will also be used to monitor possible changes in hydraulic heads in ports not subject to active development as natural flushing may be induced from the adjacent port development.

2.2 Field Parameters

Field parameters (electrical conductivity, total dissolved solids (TDS), salinity, fluorescein content and temperature) should be collected from Ports 1, 2, 3, 5, 6, 7, 8, 9, 10 and 11 at the start and end of the development program to monitor residual drill fluid content (one 1-Litre sample per port). This information will document if any natural flushing has occurred since the previous monitoring program and the anticipated effort required to achieve the targeted residual drill water content for sampling of formation groundwater.

2.3 Port 8 Development and Sampling

Port 8 (319 metres below ground surface) was selected for development for the depth interval it represents. Water samples collected at this depth will support assessment of water quality between Lake CH6 and the deeper regional groundwater flow system. Although drill fluid content (approximately 30%) in the final raw water sample collected in 2020 is higher than targeted (target of less than 10%), there is reasonable confidence in the accuracy of the true formation groundwater quality evaluated from that sample because of the consistent fluorescein and chemistry of the drill fluid used during drilling at that interval depth. For Port 8, it is estimated that between 355 to 710 liters of additional purging will be required to reduce the residual drill fluid content to between 5 and 10% in

order to yield higher confidence water quality results. Based on the Port 8 water quality results, medium confidence is inferred in raw water quality samples collected containing between 10% and 30% residual drill fluid content. Additional development and groundwater sampling at Port 8 should be carried out to increase the accuracy of the of the calculated true formation groundwater chemistry.

For budgeting purposes, it assumed that up to 3 days of development and sampling time will be completed at Port 8. Based on the 2020 purge rate of 50 L/day (25 L per day and night shift) for Port 8, the drill fluid content remaining after 3 days of purging is estimated to be below 20% (medium confidence water quality result). A raw water sample will be collected from Port 8 when the estimated residual drill content in the sample reaches the target development (equal to or less than 10%) or upon completion of the third day of purging, whichever comes sooner if the residual drill fluid content remaining is 30% or below. The raw water sample will be analyzed for Group 1 and 2 parameters (stable isotopes and the full suite of analytical parameters) listed in Attachment C.

2.4 Port 4 Development and Sampling

Port 4 (445 metres below ground surface) is targeted for prioritized development and sampling to support the assessment of water quality to be intercepted at the Discovery underground mine (i.e., it is at a similar depth) and it will support the overall interpretation of regional water quality below the permafrost at similar depths. Formation groundwater quality at Port 4 could not be assessed in 2020 because it still contained a large proportion of drilling fluid content (more than 50% residual drill fluid remaining). For Port 4, it is estimated between 180 to 515 litres of additional development will be required to reduce the residual drill fluid content in the raw water sample to below 3%. This lower target is set for Port 4 as the drill fluid content over this depth interval was more variable during borehole drilling.

For budgeting purposes, it is assumed that up to 29 days of development and sampling will occur at Port 4. During this time, development of Port 4 will be prioritized since it has more significant concentrations of drill fluid remaining in the formation (greater than 50% residual drill fluid remaining). Based on the 2020 purge rate of 40 L/day (20 L per day and night shift) for Port 4, the drill fluid content remaining after 29 days of purging is estimated to be at 10% (medium confidence water quality result). Similar to 2020, Port 4 will be sampled twice to track the evolution of the development program. An initial raw water quality sample will be collected from Port 4 upon after 6 days of purging or a residual drill fluid content of 30% (whichever comes sooner). A final raw water sample will be collected from Port 4 when the target <3% residual drill fluid content reached or after 29 days of purging, whichever comes sooner. Raw water samples collected from Port 4 will be analyzed for Group 1 and 2 parameters listed in Attachment C.

2.5 Port 9 Sampling

The residual drill fluid content in the raw water samples collected from Port 9 (30% residual drill fluid remaining, completed 301 metres below ground surface) decreased more than would be expected given the port was not actively developed and hydraulic testing in the surrounding bedrock indicated the rock permeability is low (10^{-9} to less than 10^{-10} m/s, Golder 2021b). A raw water quality sample will be collected from Port 9 upon completion of the Port 8 monitoring program for Group 1 and 2 parameters listed in Attachment C to evaluate the groundwater quality. Port 9 will be sampled if the residual drill fluid content remaining in the raw water sample is 30% or less. Sampling of Port 9 was not planned as part of the 2020 field program; however isotopes samples were collected based on field observations and the results indicate raw water from Port 9 are more depleted relative to the isotopic signature of Port 8. One day of sampling time will be allocated to Port 9, which is the time required to collect sufficient water for the proposed suite of chemical parameters.

2.6 Port 3 Sampling

Similar to Port 9, the residual drill fluid content in the raw water samples collected from Port 3 (35% residual drill fluid remaining, completed 494 metres below ground surface) during the 2020 Westbay campaign decreased more than would be expected given Port 3 was not actively developed and hydraulic testing in the surrounding bedrock indicated the rock permeability is low (less than 10^{-10} m/s for Port 3, Golder 2021b). A raw water quality sample will be collected from Port 3 upon completion of the Port 4 monitoring program for Group 1 and 2 parameters listed in Attachment C to evaluate the groundwater quality. Port 3 will be sampled if the residual drill fluid content remaining in the raw water sample is 35% or less. Similar to Port 3 sampling of Port 9 was not planned as part of the 2020 field program, however isotopes samples were collected based on field observations and the results indicate raw water from Port 3 are more depleted relative to the isotopic signature of Port 8 (approximately 30%). One day of sampling time will be allocated to Port 3, which is the time required to collect sufficient water for the proposed suite of chemical parameters.

2.7 Ports 1 and 2 Sampling

Water quality samples should be collected from Ports 1 (552 metres below ground surface) and/or 2 (537 metres below ground surface) in the event that natural flushing has reduced the remaining drill fluid. A residual drill fluid content near 20% or lower is decision criteria for collecting a sample for full chemical analysis. Although the residual amount of drill water is not likely to result in an accurate estimation of true formation groundwater, the chemistry of the raw water would be used to evaluate the effect of flushing on raw water quality and be used as a reference for development progress over time. The raw water quality sample will be analyzed for Group 1 and 2 parameters listed in Attachment C to evaluate the groundwater quality.

3.0 METHODOLOGY WESTBAY WELL M11-1257

Similar to Westbay well M20-3071, a Mosdax sampler will be used to monitor hydraulic head in the Westbay well and to collect water samples from select intervals. Refer to the 2021 Westbay Monitoring Program Standard Operating Procedures document to be prepared by Golder. The 2021 Westbay well M11-1257 workflow diagram is provided in Attachment B.

3.1 Pressure Profile

Hydraulic head will be measured at each of the six monitoring intervals of M11-1257 (i.e., 1, 2A, 2, 3, 4 and 5) prior to any sampling. The initial data will be used to assess the vertical gradient between well ports and infer whether Lake CH6 is a source of recharge or discharge. The data will be used to assess the vertical hydraulic gradient between well ports and confirm the overall groundwater flow direction between Lake B7 and deep bedrock and test the integrity of the well.

3.2 Interval 5 Sampling

Interval 5 (454 metres below ground surface) is targeted for sampling to support the overall interpretation of groundwater quality below the permafrost. Based on the results of the 2013 investigation, Interval 5 is estimated to have less than 10% residual drill fluid content remaining. One day of sampling time will be allocated to Interval 5, which is the time required to collect sufficient water for the proposed laboratory analysis. The raw water quality sample will be analyzed for Group 1 and 2 parameters listed in Attachment C to evaluate the groundwater quality.

3.3 Interval 3 Sampling

Interval 3 (580 metres below ground surface) is targeted for sampling to support the overall interpretation of groundwater quality below the permafrost. Based on the results of the 2013 investigation, Interval 3 is estimated to have less than 10% residual drill fluid content remaining. One day of sampling time will be allocated to Interval 3, which is the time required to collect sufficient water for the proposed laboratory analysis. The raw water quality sample will be analyzed for Group 1 and 2 parameters listed in Attachment C to evaluate the groundwater quality.

3.4 Field Parameters

Field parameters (electrical conductivity, total dissolved solids (TDS), salinity, fluorescein content and temperature) should be measured in Westbay well M11-1257 Intervals 1, 2A, 2 and 4 after sampling Intervals 3 and 5 to document natural flushing that occurred since 2013. Intervals 2 and 4 are interpreted to have decreased by natural flushing between 2011 and 2013 as the intervals have never been extensively developed.

4.0 MODIFICATIONS TO PURGE DECISION CRITERIA

A factual field activity report will be submitted to Agnico Eagle by Golder field personnel on a daily basis. The daily report will include a summary of the activities completed within the past 24 hours (day/night shift), a table summarizing the status of the field measured parameters during development and a graph showing the trend in field measured electrical conductivity and fluorescein content of the raw water. The daily reports will be reviewed Golder technical lead(s) on a daily basis and modifications to be Purge Development Procedure will be adjusted if and when appropriate. An example template of the daily summary report is included in Attachment D.

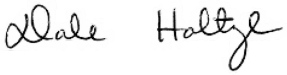
Preliminary analytical water quality results (key parameters including TDS, major anions and cations to sodium ratios) from M20-3071 Port 8 and Port 4 (initial sample only) will be reviewed upon receipt from the analytical laboratory (approximately 3-4 weeks after samples shipped from site). Pending the results of the field parameter trends in M20-3071 Ports 4 (initial sample only) and 8 and/or review of the preliminary analytical water quality results, Golder may recommend modifications to the development program (i.e. prioritize development/sampling of another port, extension to purge duration for Port 4, elimination of Westbay well M11-1257 monitoring, etc.).

Golder will consult with Agnico Eagle prior to making any changes to the Purge Development Procedure based on the field parameter trends and/or review of preliminary water quality results.

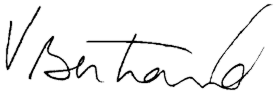
5.0 CLOSURE

We trust this technical memorandum provides sufficient information for your present requirements. If you have any questions or require additional information, please contact the undersigned.

Golder Associates Ltd.



Dale Holtze, M.Sc..
Environmental Specialist



Valérie Bertrand, M.A.Sc., P.Geo. (NT/NU)
Associate, Senior Geochemist

DH/VJB/sg
https://golderassociates.sharepoint.com/sites/147542/project files/6 deliverables/21468783-860-tm-purge development procedure/rev0/21468783-860-tm-rev0-purge development procedure.docx

Attachments: Attachment A – M20-3071 Workflow Diagram
Attachment B – M11-1257 Workflow Diagram
Attachment C – Analytical Parameters
Attachment D – Daily Summary Report Template

References

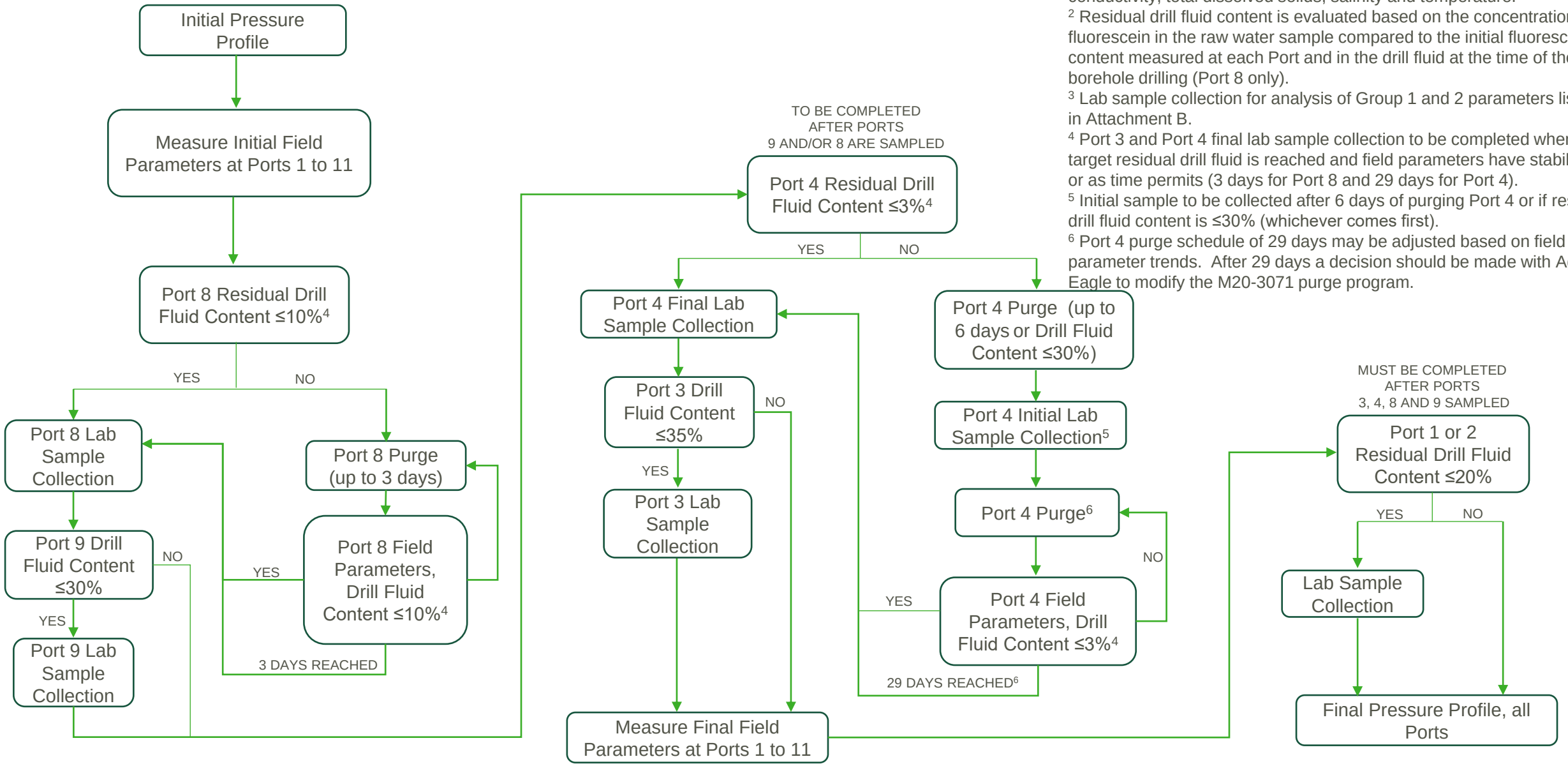
Golder Associates Ltd (Golder). 2021a. Westbay Monitoring Well System M20-3071 Water Quality Meliadine Phase II Project. Factual Report. Prepared for Agnico Eagle Mines Limited. Report Number 20136436-817-R-Rev0. May 2021.

Golder. 2021b. Installation of Westbay Monitoring Well System M20-3071 Meliadine Phase II Project. Factual Report. Prepared for Agnico Eagle Mines Limited. Report Number 20136436-820-R-Rev1. June 2021.

ATTACHMENT A

M20-3071 Workflow Diagram

Westbay Well M20-3071 Workflow



Notes:

[1] Field measured parameters include fluorescein content, electrical conductivity, total dissolved solids, salinity and temperature.

[2] Residual drill fluid content is evaluated based on the concentration of fluorescein in the raw water sample compared to the initial fluorescein content measured at each Port and in the drill fluid at the time of the borehole drilling (Port 8 only).

[3] Lab sample collection for analysis of Group 1 and 2 parameters listed in Attachment B.

[4] Port 3 and Port 4 final lab sample collection to be completed when target residual drill fluid is reached and field parameters have stabilized or as time permits (3 days for Port 8 and 29 days for Port 4).

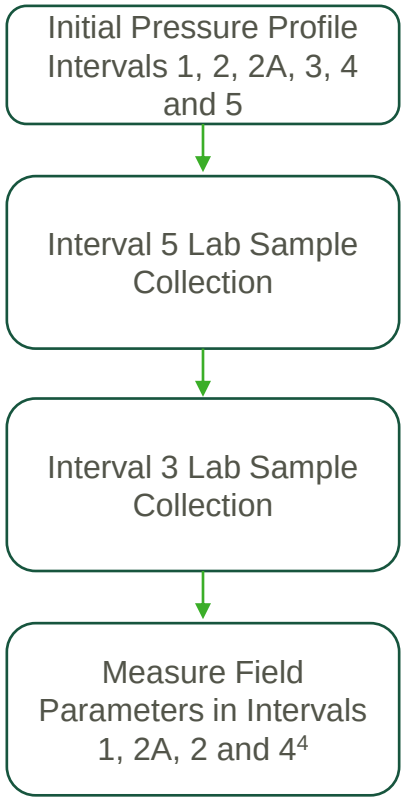
[5] Initial sample to be collected after 6 days of purging Port 4 or if residual drill fluid content is ≤30% (whichever comes first).

[6] Port 4 purge schedule of 29 days may be adjusted based on field parameter trends. After 29 days a decision should be made with Agnico Eagle to modify the M20-3071 purge program.

ATTACHMENT B

M11-1257 Workflow Diagram

Westbay Well M11-1257 Workflow



Notes:

[1] Agnico Eagle will confirm the status of the Westbay Well M11-1257 shack and condition of the well prior to start of field program.

[2] Field measured parameters include fluorescein content, electrical conductivity, total dissolved solids, salinity and temperature.

[3] Residual drill fluid content based on the amount of fluorescein measured in the raw water sample compared to the average fluorescein content measured in the drill fluid a the time of the borehole drilling (500 ppb).

[4] Lab sample collection in triplicate for analysis of full suite of parameters.

[5] To be completed if time permits.

ATTACHMENT C

Analytical Parameters

Summary of Proposed Analytical Parameters

Analysis Group	Analytical Parameters
1	■ Alkalinity (total, bicarbonate, hydroxide and phenolphthalein as $CaCO_3$), bicarbonate, carbonate, conductivity, dissolved organic carbon (DOC), hardness (total and dissolved), pH, salinity, total dissolved solids (TDS), total organic carbon (TOC), total suspended solids (TSS) and turbidity ■ Anions and nutrients including ammonia, bromide, chloride, fluoride, total kjeldahl nitrogen (TKN), nitrate, nitrite, orthophosphate, total phosphorus, silicate, and sulphate ■ Cyanides, including free, strong acid dissociable and weak acid dissociable ■ Metals (total and dissolved), including aluminium, antimony, barium, beryllium, bismuth, boron, cadmium, calcium, cesium, chromium, cobalt, copper, iron, ferrous iron (dissolved only), lead, lithium, magnesium, manganese, mercury, molybdenum, nickel, phosphorus, potassium, rubidium, selenium, silicon, silver, sodium, strontium, sulfur, tellurium, thallium, thorium, tin, titanium, tungsten, uranium, vanadium, zinc and zirconium ■ *Petroleum hydrocarbons including benzene, ethylbenzene, methyl-tert-butyl-ether (MTBE), styrene, toluene, m+p-xylene, o-xylene, and total xylenes ■ Radium 226
2	■ Isotopes: oxygen-18, deuterium, strontium and sulphur of sulphate

Notes: *Petroleum hydrocarbons included in the analysis of M20-3071 samples only to confirm presence/absence of trace concentrations measured in 2020.

ATTACHMENT D

Daily Summary Report Template

GOLDER
MEMBER OF WSP

DAILY SUMMARY

DATE DATE (Day and Night Shift), 2021 **Project No.** 21468783-2000

TO Angie Arbaiza, Michel Groleau and Colleen Prather
Agnico Eagle Mines Limited (Agnico Eagle)

CC Dale Holtze, Valerie Bertrand, David Brown, Jennifer Levenick, Lasha Young, Don Chorley, Day/Night Shift Field Personnel

FROM Golder Day and Night Shifts **EMAIL** Sr. on-site Golder field personnel (typically night shift)

2021 WESTBAY FIELD PROGRAM
AGNICO EAGLE MINES LIMITED MELIADINE EXTENSION PROJECT, NUNAVUT

SHIFT SUMMARY

Health and Safety:

With new workers on the teams, the importance of communication and patience must be highlighted. It is important to spend the first few shifts learning the new equipment and workers roles. Work rates will increase with experience.

- Add information on occurrences relating to events or issues related to field activities.

Activities Performed:

Include elements name of port(s) where activities were carried out, quantity of water purged, equipment or shift issues (achievements, staff issues, troubles, repairs, information to follow up on in next shift, existing issue resolution, etc

- Day Shift –
- Night Shift –

Table 1: M20-3071 Westbay Well Hydraulic Head Measurements

Port	Port Position (mbgs)	Port Position (masl)	Outside Casing Pressure (psi)	Initial Pressure Profile: DATE, 2021		Final Pressure Profile: DATE, 2021	
				Calculated Depth to Water[1] (mbgs)	Calculated Hydraulic Head[2] (masl)	Calculated Depth to Water[1] (mbgs)	Calculated Hydraulic Head[2] (masl)
11	243.2	-174.8					
10	274.4	-206.0					
9	292.7	-224.3					
8	311.1	-242.7					
7	327.9	-259.5					
6	383.6	-315.2					
5	394.7	-326.3					
4	438.9	-370.5					
3	458.1	-389.7					
2	531.6	-463.2					
1	543.8	-475.4					

Notes:

mbgs = metres below ground surface (vertical down from surface); masl = metres above sea level (elevation); P2 = Casing Outside Pressure measured in psi; psi = pounds per square inch; Patm = average ambient pressure reading in Westbay shack

[1] Depth to Water = [P2 - Patm] / 1.4062

[2] Hydraulic Head = 68.43 masl (top of Westbay well M20-3071 collar elevation) – Depth to Water

Golder Associates Ltd.
1931 Robertson Road Ottawa, Ontario, K2H 5B7 Canada T: +1 613 592 9600 +1 613 592 9601

Table 2: M20-3071 Field Parameters and Development Progress Summary (to update daily)

Port	Sampling Port Interval (mah)		Total Volume (L) Removed in 2020	Volume Removed During This 24-Hour Shift (L)	Cumulative Total Volume Removed (L)	Final 2020 Field Parameters[1]		Most Recent Field Parameters	
	To	From				F (ppb)	EC (mS/cm)	F (ppb)	EC (mS/cm)
11	256.2	288.8	0			Not measured	Not measured		
10	289.7	308.7	3			713.8	88.0		
9	309.6	328.5	3			234.7 [30%]	53.4		
8	329.4	346.9	272			234.5 [29 to 31%]	83.7		
7	347.8	407.8	2			434.1	103.5		
6	408.7	420.1	2			748.4	151.5		
5	421	468.9	1			699.0[2]	137.1[2]		
4	469.8	490.3	220			421.5 [51 to 52%]	92.7		
3	491.2	572.6	2			276.5 [35%]	75.6		
2	573.5	586.4	2			542.4 [68%]	117.3		
1	587.3	606	1			755.3[2] [95%]	140.4[2]		

Notes:

mah = metres along hole; L = litres; - not applicable; F = fluorescein concentration (ppb); EC = electrical conductivity (mS/cm);

[1] Date of final field measured parameters: 21 September 2020 (Port 8), 24 September 2020 (Port 2), 25 September 2020 (Ports 6 and 7) and 28 September 2020 (Ports 3, 4 and 9).

[2] Field final field parameters were not measured for Ports 1, 5 and 11. Initial field parameters for Ports 1 and 5 were measured on September 24, 2020.

[3] Percentage residual drill fluid content remaining calculated by dividing fluorescein concentration measured in field by 796 ppb for Port 9, 758 ppb and 809 ppb for Port 8, 820 ppb and 803 ppb for Port 4, 795 ppb for Ports 1, 2 and 3.

[4] [%] – denotes residual fluorescein content achieved

[5] Residual drill fluid target for sampling is ≤3% for Port 4, ≤10% for Port 8, ≤20% for Ports 1 or 2 and ≤30% for Ports 3 and 9.

Figure 1: Summary M20-3071 Ports 4 and 8 Fluorescein Concentration Development Progress Between September 7, 2020 and DATE, 2021

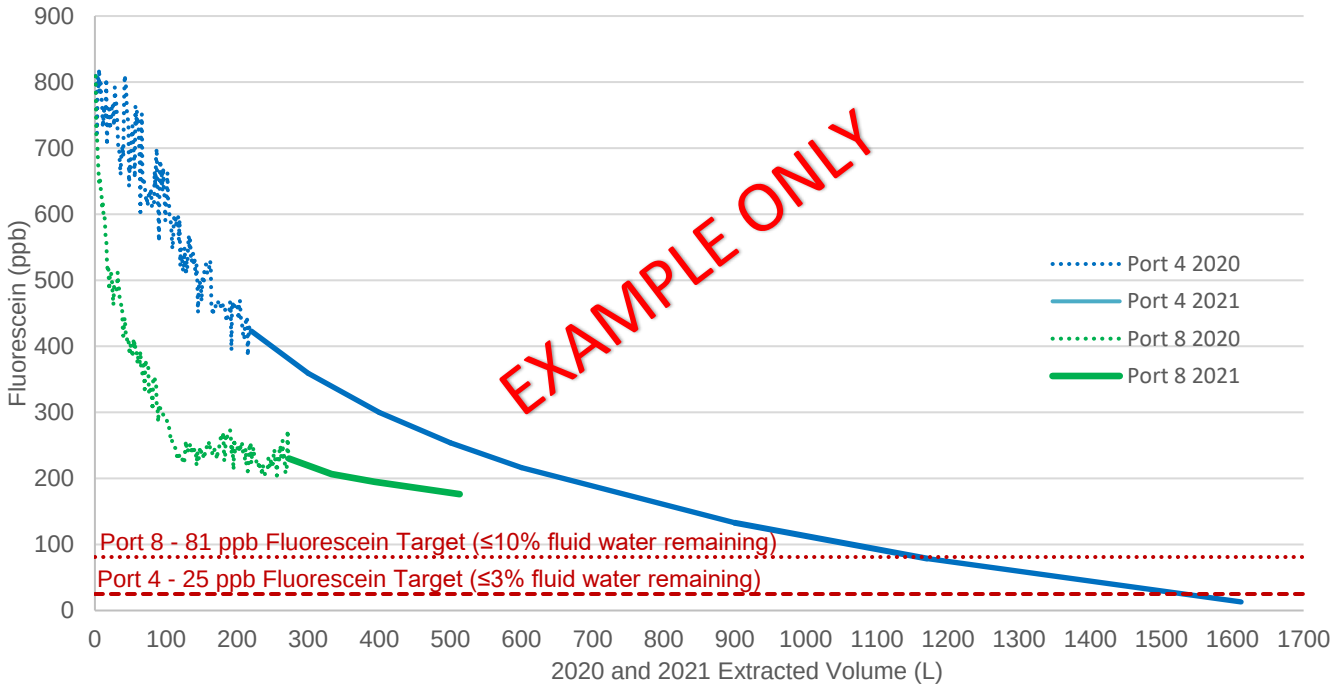
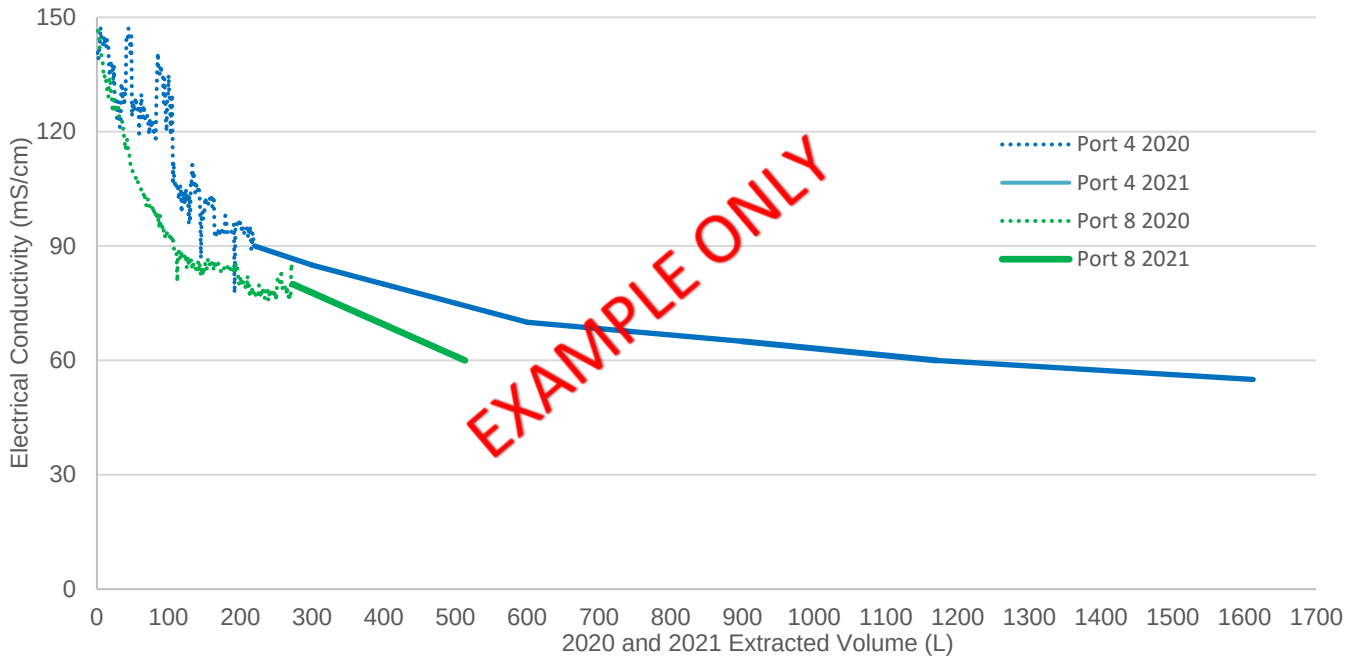


Figure 2: Summary M20-3071 Ports 4 and 8 Electrical Conductivity Development Progress Between September 7, 2020 and DATE, 2021



Delays/Comments:

- Indicate if delays occurred or other comments related to shift productivity.

Samples Collected:

- Indicate if and which samples were collected during the day.

Activities planned for the next 24 hours:

- Indicate activities planned (purging, sampling, equipment repairs, etc.)

https://golderassociates.sharepoint.com/sites/147542/project files/6 deliverables/21468783-860-tm-purge development procedure/rev0/attachment d - westbay daily report.docx

APPENDIX B

Westbay Instruments Mosdax Sampler Calibration Reports

MOSDAX Calibration Report 1: EMS - 2652 Module 3008

Full Scale: 2000 (psia)

File: E:\DATA\CAL\0-2020\200030JULY-1\02652

Pressure Reference: Paroscientific Model 42K-101 S/N 59937

Range: 2K PSI

Date of last reference to traceable standard: Oct 9 2019

EMS - 2652 Jul 30 04:57:07 2020
Range 1 Temp 3.1° C

Ref Pres (psia)	Error (psia)	(% FS)
14.717	-0.236	-0.012
194.682	-0.045	-0.002
393.193	0.039	0.002
593.290	-0.029	-0.001
792.622	0.002	0.000
991.799	-0.063	-0.003
1190.052	-0.164	-0.008
1389.975	-0.190	-0.010
1589.405	-0.164	-0.008
1789.287	-0.062	-0.003
1989.481	0.074	0.004
1814.982	0.004	0.000
1607.013	-0.032	-0.002
1406.780	-0.086	-0.004
1218.374	-0.044	-0.002
1010.297	0.061	0.003
807.964	0.082	0.004
606.635	0.088	0.004
406.364	0.118	0.006
206.021	0.099	0.005
14.731	-0.109	-0.005

EMS - 2652 Jul 30 00:19:36 2020
Range 2 Temp 10.2° C

Ref Pres (psia)	Error (psia)	(% FS)
14.704	-0.057	-0.003
193.597	-0.021	-0.001
393.192	0.127	0.006
593.535	0.142	0.007
792.075	0.129	0.006
990.394	0.092	0.005
1190.555	0.045	0.002
1390.260	0.022	0.001
1589.193	0.116	0.006
1789.426	0.207	0.010
1988.138	0.379	0.019
1816.435	0.319	0.016
1616.462	0.242	0.012
1408.660	0.156	0.008
1206.413	0.129	0.006
1010.064	0.247	0.012
808.214	0.270	0.013
606.523	0.224	0.011
406.582	0.190	0.009
205.718	0.159	0.008
14.717	-0.101	-0.005

EMS - 2652 Jul 29 19:44:31 2020
Range 3 Temp 20.0° C

Ref Pres (psia)	Error (psia)	(% FS)
14.682	-0.072	-0.004
193.991	-0.003	0.000
393.283	0.139	0.007
593.145	0.096	0.005
792.881	0.057	0.003
992.105	0.065	0.003
1191.144	-0.032	-0.002
1390.376	-0.061	-0.003
1589.796	0.067	0.003
1789.404	0.155	0.008
1989.327	0.357	0.018
1817.764	0.220	0.011
1619.446	0.164	0.008
1408.961	0.090	0.004
1208.434	0.114	0.006
1018.377	0.276	0.014
806.649	0.221	0.011
606.731	0.213	0.011
406.443	0.194	0.010
206.420	0.138	0.007
14.696	-0.001	0.000

EMS - 2652 Jul 29 15:06:43 2020
Range 4 Temp 29.8° C

Ref Pres (psia)	Error (psia)	(% FS)
14.687	-0.123	-0.006
193.327	-0.030	-0.001
389.580	0.064	0.003
593.345	0.005	0.000
786.601	-0.008	0.000
991.330	-0.060	-0.003
1191.195	-0.247	-0.012
1390.532	-0.217	-0.011
1589.961	-0.105	-0.005
1782.148	-0.046	-0.002
1989.317	0.117	0.006
1818.447	-0.030	-0.002
1606.278	-0.018	-0.001
1410.065	-0.035	-0.002
1218.546	-0.016	-0.001
1010.485	0.146	0.007
807.979	0.163	0.008
606.685	0.160	0.008
406.349	0.135	0.007
206.494	0.117	0.006
14.697	0.001	0.000

EMS - 2652 Jul 29 10:29:08 2020
Range 5 Temp 39.6° C

Ref Pres (psia)	Error (psia)	(% FS)
14.695	-0.084	-0.004
192.891	-0.027	-0.001
393.278	0.052	0.003
593.152	0.017	0.001
792.520	0.089	0.004
991.957	0.055	0.003
1190.974	-0.162	-0.008
1389.899	-0.081	-0.004
1588.889	-0.108	-0.005
1789.239	0.107	0.005
1989.238	0.229	0.011
1817.397	0.058	0.003
1607.058	0.027	0.001
1406.045	0.051	0.003
1208.259	0.043	0.002
1007.348	0.108	0.005
808.010	0.149	0.007
606.719	0.164	0.008
406.583	0.023	0.001
205.803	-0.031	-0.002
14.707	-0.128	-0.006

Issued by

Westbay Instruments

MOSDAX Calibration Report 2: EMS - 2652 Module 3008

Full Scale: 2000 (psia)

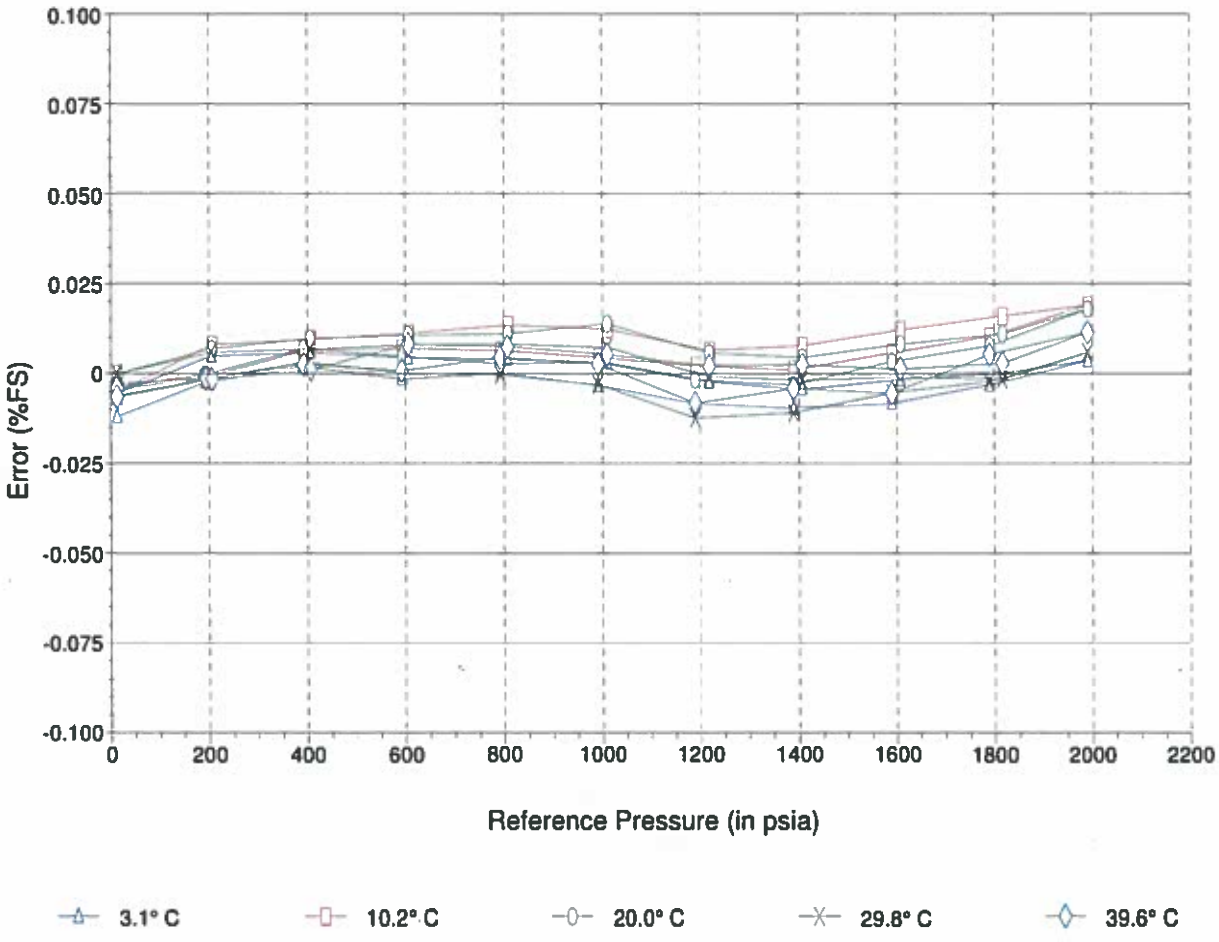
File: E:\DATA\CAL\0-2020\2000\30JULY-1\02652

Pressure Reference: Paroscientific Model 42K-101 S/N 59937

Range: 2K PSI

Date of last reference to traceable standard: Oct 9 2019

Plot of Error vs. Reference Pressure



Comments

Issued by

APPENDIX C

Westbay Equipment Troubleshooting Measures

Table C-1: Meliadine M20-3071 Westbay Development Troubleshooting

Item	Description	Field Observation	Technical Comment following Consultation with Westbay	Tips for Field Operators	Date(s)
1	Blocked Flow Restrictor	■ One flow through tube is partially blocked. Tried to free obstruction by flushing de-ionized water through unit and using hand pump. Compared flow rate of both sets of flow tube restrictors by flushing out with de-ionized water. A difference of flow rates was observed.	■ The flow restrictor has a small passage for water to flow. This can become blocked if there is suspended material present in the sampled fluid. Such an occurrence is not common. If the subject fluid has elevated viscosity, there would be difficulty for such fluid to flow through the device. ■ The flow restrictor received from the site marked with red tape to indicate the reported malfunction was successfully tested at Westbay, and it functioned normally. Perhaps the blockage had become dislodged at some point in handling.	■ Multiple flow restrictors are supplied with the rented equipment. There is no field procedure to un-block a Flow Restrictor. This can only be attempted at Westbay's facilities. ■ A blocked unit should be labelled and set aside for return to Westbay.	July 25, 2021
2	MAGI Control Unit	■ MAGI controller unit was booting into a logging mode and not the usual menu at the start of the program, like 2020. Unit was switched out for backup unit. ■ Internal checks identified internal battery in the MAGI unit is low which did not allow it to maintain the memory of its previous mode.	■ The observed field behaviour is characteristic of a low internal battery. It only occurs on first power-up after being turned off for a period of time.	■ Confirmed with Westbay unit is still useable but will have to change mode back to single probe every time it is booted. Press the menu key while the MAGI is on the datalogger screen (which it is always booting directly to). If you miss that screen and the unit goes to sleep mode, turn it on and try again. ■ There is no field procedure for replacement of the internal battery. The work-around procedure used previously by the field crew is suitable for continued operations till the MAGI unit is returned to Westbay. ■ The unit supplied to site is checked before shipment for status of the internal battery.	August 1, 2021
3	Sample Bottle O-ring (#114) is damaged	■ Wear on bottle O-rings	■ The O-rings should fit smoothly against the sealing surface of the sample container, without pinching or damage. It is unusual to require repeated replacement of these O-rings.	■ Check sample bottle connections each time before sending the assembly down the hole. Inspect bottle treads to make sure there are no rough spots. ■ O-rings on the bottle ends should tighten flush to the bottles. If they aren't tightening all the way, check the O-rings and make sure there is not damage. Some pieces of the O-rings may be pinched during tightening and can leave rubber bits that can make it tough to seal. ■ To avoid damaging the O-ring during attachment of the valve assembly to the sample container, it can be helpful to slide the valve nut away from the valve end, so the O-ring is visible. Next you can push the valve into the container to seat the O-ring, then tighten the valve nut. Westbay will supply a larger quantity of these O-rings to enable repeated field replacement as necessary.	August 4, 2021

Item	Description	Field Observation	Technical Comment following Consultation with Westbay	Tips for Field Operators	Date(s)
4	Difficulty landing sampler on Port	■ High pressure that slowly decreases to inside pressure (depth in water). Shoe broken Port 4 night shift runs at times 21:04 and 22:10 on August 5, 2021. ■ Result of 'connecting' or 'shoeing out' into a section of the blank casing wall. Port was missed (did not land on correct location). Water in the seal area is trapped and squeezed until it leaks out resulting in high pressure readings. ■ Bottle seals will not affect pressure readings unless the valve is open. ■ Suspect probe is not landing property at the port. Inside pressure is near what is expected to be at the Port depth. ■ Probe not seated correctly in the helical landing groove that orients it to the port. ■ Both rental probes were instrumented with Standard Location Arm (P/N 252315) which could be causing some issues landing on Port based on the inclined Westbay System. Arm can sometimes be pushed back in and not catch helical groove depending on orientation of probe at the port.	■ In angled boreholes a sampler fitted with a standard P/N 252315 Location Arm can occasionally have difficulty to engage the helical landing point in the port. ■ The detailed landing procedures implemented by the field crew are appropriate.	■ Ensure winch counter is tared every sample run and magnetic collar detection is option is selected. Same user should operate the MAGI unit and winch while attempting to land on sample port. Record number of rotations. ■ Replacement Arms with modified profile (P/N 252315C3) suitable for angled Westbay wells were sent by Westbay Instruments and installed August 12, 2021, day shift. ■ Monitor pressures during landing. Use hand landing technique to confirm location arm is landed in port as described below. ■ Move probe up and down past port in attempt to clean port area if debris is suspected to be present which may interfere with the docking. ■ Inside pressure casing reading (i.e., how deep probe is in the water) should be similar to previous measurements for the port during developed. The probe should only be about 1.2 to 1.3 metres above the magnetic collar when you put the arm out and lower the probe. The casing joints in the Westbay have small edges that the arm can catch on. Having the arm out higher than 1.5 metres above the magnetic collar can result in the arm catching on one of the casing joints instead of the landing groove. ■ Use hand landing technique to check whether probe has successfully landed. 1) Land the probe and then leave about 0.5 meters of slack on the cable. 2) Carefully lift up on the cable along the horizontal section between the winch and the first pulley (closer to the pulley). You should feel a bump and a weight increase when the probe is lifted off the port and then a subtle double bump as the probe is lowered back down and re-lands on the helical landing groove. This can give you a positive "feel" that the probe is landed. Do this firmly but carefully, remembering that the probe will need a bit of momentum to rotate it in the landing groove and seat it but also remember that you can move the cable faster by hand than the winch can so don't be too rough.	August 5, 2021 (Start of Rotation 2, night shift), August 12 and 15th night shifts
5	Difficulty to disconnect from a port on 'shoe-in'	■ Damage to face seal. Portions of rubber removed from seal during development of Port 3. Damage to face seal may result in inadequate seal to monitoring port. ■ Lower inside casing pressure after bringing shoe in (Port 4) ■ May happen if outside pressure is significantly lower inside the sealed area between the probe and the port, which creates a suction effect. Suction effect is only caused by pressure differentials. Port 3 is being depressurized as a result of targeted development of Port 4.	■ This 'suction effect' can occur if the zone pressure (or the pressure in the face seal) is lower than the pressure inside the Westbay casing. This can happen if the zone pressure is low, or if the incorrect face seal and plunger are used (see Item 6 below). The solution is to exercise caution when lifting the sampler to disengage from the port.	■ The best practice is to always lift the sampler from the port by manual means (lift up on the cable) then lower it again into the port to record the Inside pressure reading, before retrieving by means of the motorized cable reel. Make sure the plastic Abrasion Protectors are installed on the sampler. ■ It is normal for the face seal to have some abrasion wear from travel up and down the well. The face seal should be inspected before each trip into the well. Replace the face seal (P/N 252302) as needed	August 4, 5 and 18, 2021 (start of rotations 2 and 3),
6	No Sample collected	■ Pressure dropped to sample container pressure.	■ This can occur from several different causes: ■ Sampler is not at the correct location ■ The shoe force is weak, and sampler does not open the port ■ Plunger is worn and no longer opens the port	■ ■ Confirm the correct location of the sampler in the well ■ Test the shoe force (grip test) and clean the Actuator Nut as per instructions in the operators' manual. ■ Inspect and replace the plunger P/N 252303	August 21, 2021

Item	Description	Field Observation	Technical Comment following Consultation with Westbay	Tips for Field Operators	Date(s)
			■ Incorrect plunger and/or face seal installed on sampler. The Model 2532 is a multi-function tool whose uses include operation of Hydraulic Pumping Ports. The Spares Kit includes special Face Seals (P/N 25230290) and special Plungers (P/N 253206) in packages identified 'Not for Use in Sampling'. These face seals and plungers will not correctly operate a measurement port during sampling.	■ The special Face Seals and Plungers are visually similar to the standard face seals and plungers, and so these parts might be used by mistake. Westbay will re-package the special face seals and special plungers with very clear labelling that they are not to be used for sampling. Westbay will supply an increased number of standard face seals (P/N 252302) and plungers (P/N 252303) to allow field replacement as needed.	
7	Motorized Cable Reel P/N 9015R1	■ Winch is operational. Night shift inquired about general routine maintenance such as cleaning or lubricating chains after nearly continuous 24-hour use of winch for 3+ weeks.	■ General cleaning and maintenance are required	■ Referenced Section 6.0 Maintenance of Motorized Winch Cable Reel Manual – Model 9015R1 and 9019R1 manual which provides overview of ball screw lubrication, chain maintenance, tightness, etc. ■ Clean guide wheel and cables if they appear to be getting fouled with the deposits from the well fluid. Use shop towel to wipe down cable as the assembly is pulled up.	August 16, 2021 (Night shift)
		■ Slack observed in drive chain. Main drive train may become loose with use. Motor mount became loose and was repositioned at an angle instead of square as part of initial install. One was observed to have been already stripped before re-tightening.	■ The field crew followed procedure but in re-tightening the motor mount bolts threads in the motor body were stripped.	■ Refer to Section 6.1 Maintenance Manual. Loosen motor bolts, re-positioned mount to tighten the chain. Tightened bolts to secure motor mount in place. Caution not to over tighten bolts. ■ Adjusting the tension in the drum drive chain and the level-wind drive assembly is a normal maintenance task. Take care to not over-tighten the chain, some 'slack' in the chain is normal and desirable, as described in the operators' manual. Take care not to over-tighten bolts and nuts to avoid damage	August 18, 2021
		■ Clutch plate sticking, which is causing spooling mechanism to stick. Clutch plate sticking, removed guard and small chains were dry	■ Clutch Plate problem – related to poor lubrication of level wind drive chain. The field crew noted that the problem was resolved when the level wind drive chain was lubricated.	■ Make sure the chain drive covered by the cable reel side plate is also inspected and lubricated.	August 18, 2021
		■ The level wind guide was observed to reverse direction unexpectedly.	■ This is highly unusual and has not been observed by Westbay with this model of Cable Reel. We have not finished testing and inspection of the damaged cable reel. Such behaviour might be the result of incorrect set up of the cable reel, or unusually high side loads on the cable while retrieving cable and sampler. ■ Counter or something in the programming could be off in the spooling guide, leading to it to change directions in the spooling process.	■ Make sure the level wind mechanism, including the drive chains and horizontal lead screw are adequately lubricated. Make sure the winch is aligned at the well, so the cable path is within the cable off-axis tolerances specified in the Operations Manual: ➢ the maximum sideways angle of cable departure from the level wind is 10 degrees. ➢ the maximum vertical angle of cable departure from the level wind is 45 degrees up and 5 degrees down. ➢ note the special winch setup required if the vertical departure angle must be more than 5 degrees down (below horizontal). With this special setup, the maximum downward departure angle of the cable is 10 degrees below horizontal.	August 23, 2021 Night shift
		■ Damaged Level Wind Drive. Loud clunking noises observed from the side of the winch where the sprockets and chains are to the control the guiding arm/clutch onto the spool. Winch was shut off and inspected.	■ A chain broke and one of the sprockets was severely worn. The root cause of this is not known but may have been related to a chain / sprocket assembly that was too loose or a level wind mechanism that was subject to high sideways loads.	■ Make sure the level wind drive mechanism is inspected, adequately adjusted and lubricated. ■ During operation, the operator should be alert to unusual sounds of the cable reel mechanisms, which may indicate an unusual condition is present and needs to be resolved. For this approach to be effective, other sources of ambient noise, such as nearby electrical generator, other machinery, etc. should be minimized as much as possible. ■ Pay close attention to drive chain mechanism while operating the winch to make sure that the chain does not get mis-aligned to the sprocket. ■ While operating the winch, be prepared to operate the emergency disk brake in the event that a problem happens with the chain or sprocket.	August 24, 2021 Day shift

APPENDIX D

Water Quality Result Tables

Appendix D
Table D-1 Laboratory Results for Raw Water Quality Results from Westbay Well M20-3071
Meliadine Extension Agnico-Eagle Mines Limited

Sample Source		Drilling Fluid						Lake CH6	Port 9			Port 8			
Client Sample ID		Westbay-A-225	West bay-A-360	Westbay-A-490	Westbay-A-490-Dup	Westbay A-606	Westbay A-606-BR	Lake CH6	Westbay-A-Port 9-1	PORT-9	PORT-9-DUP-1	Westbay-A-Port 8-0.29	Westbay-A-Port 8-29%DUP-1	PORT-8	PORT-8-DUP-1
Date Sampled		17-Aug-2020	21-Aug-2020	25-Aug-2020	25-Aug-2020	27-Aug-2020	27-Aug-2020	25-Aug-21	28-Sep-20	01-Aug-21	01-Aug-21	20-Sep-2020	20-Sep-2020	1-Aug-21	1-Aug-21
Lab Sample ID		VA20B3721-001, VA20B6509-001	VA20B4004-001, VAB6509-002	VA20B4663-001	VA20B4663-002	VA20B4662-001, V20B6509-003	VA20B4662-002, VA20B6509-004	QNE944, 210832-77441	VA20B7020-006	QHF618, 210382-77438	QHF619	VA20B6509-007, L2508184-7	VA20B6509-008, L2508184-8	QHF616, 210382-77436	QHF617, 210382-77437
Sample Interval	mbgs	Surface						Surface	292.5 to 310			310.8 to 326.9			
Drilling Fluid Dye Concentration	ppb	-	-	-	-	-	-	-	796			758 to 809			
Sample Dye Concentration	ppb	752	812	710	710	867	840	-	235	264	264	237		101	101
Proportion of Drilling Fluid in Samples	%	100%	100%	100%	100%	100%	100%	-	30%	33%	33%	29 to 31%		13%	13%
Proportion of Formation Groundwater in Samples	%	0%	0%	0%	0%	0%	0%	-	70%	67%	67%	69 to 71%		87%	87%
Average Field Parameters															
conductivity	uS/cm	*	*	*	*	394	*	74.3	53400	79300	79300	78410	78410	62100	62100
pH	-	9.96	9.11	8.89	8.89	7.29	9.93	7.2	*	8.9	8.9	*	*	8.5	8.5
TDS	mg/L	-	-	-	-	-	-	68.7	34800	51500	51500	50960	50960	40400	40400
Salinity	ppt	-	-	-	-	-	-	0.1	35.1	54.1	54.1	53.3	53.3	41.3	41.3
Laboratory Measured Parameters															
conductivity	µS/cm	142000	115000	48600	48400	661	132000	81	-	75100	75400	52300	81000	61600	60900
alkalinity, total (as CaCO3)	mg/L	1040	992	367	365	55.5	1120	18	-	280	280	247	251	120	120
hardness (as CaCO3), dissolved	mg/L	120000	99200	30200	30800	90.3	120000	29.3	-	39300	40700	37000	35300	22500	21600
hardness (as CaCO3), from total Ca/Mg	mg/L	107000	116000	31700	31700	92.7	118000	29.2	-	40300	40400	-	68500	24100	22600
pH	-	9.2	9.76	9.27	9.28	7.18	10.2	7.33	-	8.95	8.97	8.99	9.01	8.54	8.56
solids, total dissolved [TDS]	mg/L	163000	136000	40400	40900	559	185000	80	-	77200	80200	62400	68500	42500	45600
solids, total suspended [TSS]	mg/L	4810	28.7	741	643	17.2	2480	4	-	65	70	163	11	47	47
turbidity	NTU	665	28.6	56.9	58	50.8	29.8	0.2	-	1.8	1.9	10.9	11.8	5.5	4.1
alkalinity, phenolphthalein (as CaCO3)	mg/L	140	97.4	100	100	<2.0	206	<1	-	79	77	44.4	-	26	28
alkalinity, hydroxide (as CaCO3)	mg/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	-	-	-	-	<2.0	<1.0	-	-
alkalinity, carbonate (as CaCO3)	mg/L	279	195	200	200	<2.0	413	-	-	-	-	88.8	139	-	-
alkalinity, bicarbonate (as CaCO3)	mg/L	757	798	167	165	55.5	712	-	-	-	-	158	112	-	-
bicarbonate	mg/L	924	973	203	202	67.7	869	21	-	150	160	193	137	80	77
salinity	psu	112	97.2	34.9	34.8	<1.0	113	<2.0	-	63	64	38.6	53.4	47	46
carbonate	mg/L	168	117	120	120	<2.0	248	<1	-	95	93	53.3	83.3	32	34
hydroxide	mg/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	-	-	-	-	<2.0	<1.0		
Anions and Nutrients															
Ammonia Nitrogen	mg/L	15.4	3.47	1.9	1.92	1.28	2.65	0.0075	-	1.7	1.7	1.12	1.09	1.4	1.4
Bromide	mg/L	259	279	115	117	0.193	353	<0.010	-	140.00	150.00	127	144	99	110
Chloride	mg/L	71200	77900	21600	22200	180	90300	9.9	-	39000	38000	32700	36800	25000	27000
Fluoride	mg/L	<20.0	<2.00	<2.00	<2.00	0.034	<2.00	<0.10	-	0.11	0.11	<2.00	<2.00	0.15	0.14
Nitrate as N	mg/L	6.38	3.2	1.05	1.02	0.208	6.37	<0.10	-	1.84	1.87	1.3	1.48	0.63	0.62
Nitrite as N	mg/L	<1.00	<0.100	<0.100	<0.100	0.0018	<0.100	<0.010	-	<0.050	<0.050	<0.100	<0.100	<0.050	<0.050
Nitrogen, Kjeldahl	mg/L	52.6	66.2	40.6	45.1	12.2	5.32	0.31	-	6.9	7.4	1.46	1.54	3.7	4.5
Phosphate, Ortho	mg/L	<0.0500	0.0174	0.0148	0.0152	0.0029	0.0685	<0.0010	-	<0.010	<0.010	0.0032	0.0032	0.014	0.013
Phosphorus	mg/L	<0.100	0.0423	<0.170	<0.160	0.0096	0.0761	0.0016	-	0.19	<0.10	0.0343	0.0317	<0.10	<0.10
Silica	mg/L	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	0.28	-	<5.0	<5.0	5.18	5.4	10	11
Sulfate	mg/L	<300	<30.0	<30.0	<30.0	5.47	41.5	6.1	-	560	560	766	861	970	970
Cyanides															
cyanide, strong acid dissociable (total)	mg/L	<0.200	<0.0200	<0.0100	<0.0100	<0.0400	<0.0400	<0.0050	-	<0.0050	<0.0050	<0.0200	<0.0200	<0.0050	<0.0050
cyanide, free	mg/L	<0.200	<0.0200	<0.0100	<0.0100	<0.0400	<0.0400	0.0012	-	0.00	0.00	<0.0200	<0.0200	0.0016	0.0018
cyanide, weak acid dissociable	mg/L	<0.200	<0.0200	<0.0100	<0.0100	<0.0400	<0.0400	<0.0010	-	<0.0010	<0.0010	<0.0200	<0.0200	<0.0010	<0.0010
Organic / Inorganic Carbon															
carbon, dissolved organic [DOC]	mg/L	165	219	170	200	13	32.6	4.4	-	8100	8100	216	218	210	340
carbon, total organic [TOC]	mg/L	233	222	211	216	86.7	30.6	4.6	-	7900	7900	212	212	210	210

Appendix D
Table D-1 Laboratory Results for Raw Water Quality Results from Westbay Well M20-3071
Meliadine Extension Agnico-Eagle Mines Limited

Sample Source		Drilling Fluid						Lake CH6	Port 9			Port 8			
Client Sample ID		Westbay-A-225	West bay-A-360	Westbay-A-490	Westbay-A-490-Dup	Westbay A-606	Westbay A-606-BR	Lake CH6	Westbay-A-Port 9-1	PORT-9	PORT-9-DUP-1	Westbay-A-Port 8-0.29	Westbay-A-Port 8-29%DUP-1	PORT-8	PORT-8-DUP-1
Date Sampled		17-Aug-2020	21-Aug-2020	25-Aug-2020	25-Aug-2020	27-Aug-2020	27-Aug-2020	25-Aug-21	28-Sep-20	01-Aug-21	01-Aug-21	20-Sep-2020	20-Sep-2020	1-Aug-21	1-Aug-21
Lab Sample ID		VA20B3721-001, VA20B6509-001	VA20B4004-001, VAB6509-002	VA20B4663-001	VA20B4663-002	VA20B4662-001, V20B6509-003	VA20B4662-002, VA20B6509-004	QNE944, 210832-77441	VA20B7020-006	QHF618, 210382-77438	QHF619	VA20B6509-007, L2508184-7	VA20B6509-008, L2508184-8	QHF616, 210382-77436	QHF617, 210382-77437
Sample Interval	mbgs	Surface						Surface	292.5 to 310			310.8 to 326.9			
Drilling Fluid Dye Concentration	ppb	-	-	-	-	-	-	-	796			758 to 809			
Sample Dye Concentration	ppb	752	812	710	710	867	840	-	235	264	264	237		101	101
Proportion of Drilling Fluid in Samples	%	100%	100%	100%	100%	100%	100%	-	30%	33%	33%	29 to 31%		13%	13%
Proportion of Formation Groundwater in Samples	%	0%	0%	0%	0%	0%	0%	-	70%	67%	67%	69 to 71%		87%	87%
Dissolved Metals															
aluminum, dissolved	mg/L	<0.500	<0.500	<0.100	<0.100	0.004	<0.500	0.00641	-	<2.5	<2.5	<0.100	<0.100	0.064	<0.05
antimony, dissolved	mg/L	<0.0500	<0.0500	<0.0100	<0.0100	<0.00010	<0.0500	<0.000020	-	<0.1	<0.1	<0.0100	<0.0100	<0.0020	<0.0020
arsenic, dissolved	mg/L	<0.0500	<0.0500	<0.0100	<0.0100	0.00065	<0.0500	0.000502	-	<0.1	<0.1	<0.0100	<0.0100	0.0041	0.0029
barium, dissolved	mg/L	13.4	11.4	3.04	2.96	0.0187	12.2	0.00972	-	3.42	3.51	3.22	2.94	1.28	1.22
beryllium, dissolved	mg/L	<0.0500	<0.0500	<0.0100	<0.0100	<0.000100	<0.0500	<0.000010	-	<0.05	<0.05	<0.00200	<0.00200	<0.0010	<0.0010
bismuth, dissolved	mg/L	<0.0250	<0.0250	<0.00500	<0.00500	<0.000050	<0.0250	<0.0000050	-	<0.025	<0.025	<0.00500	<0.00500	<0.00050	<0.00050
boron, dissolved	mg/L	175	132	41	40	0.015	159	<0.01	-	<50	<50	37	34.6	17.6	17.2
cadmium, dissolved	mg/L	<0.00250	<0.00250	<0.000500	<0.000500	0.0000139	<0.00250	<0.0000050	-	<0.025	<0.025	<0.000500	<0.000500	<0.00050	<0.00050
calcium, dissolved	mg/L	48000	39700	12100	12300	32.8	48200	9.61	-	14700	15300	13400	12800	7560	7240
cesium, dissolved	mg/L	4.21	3.63	1	1.02	0.000152	3.9	<0.000050	-	0.965	0.977	0.919	0.913	0.343	0.334
chromium, dissolved	mg/L	<0.0500	<0.0500	<0.0100	<0.0100	<0.00010	<0.0500	<0.00010	-	<0.5	<0.5	<0.0500	<0.0500	<0.01	<0.01
cobalt, dissolved	mg/L	<0.0500	<0.0500	<0.0100	<0.0100	0.00021	<0.0500	0.0000388	-	<0.025	<0.025	<0.0100	<0.0100	0.00218	0.00194
copper, dissolved	mg/L	<0.100	<0.100	<0.0200	<0.0200	0.00213	<0.100	0.00144	-	<0.25	<0.25	<0.0200	<0.0200	<0.0050	0.0069
iron, dissolved	mg/L	<5.00	<5.00	2.94	2.83	1.04	<5.00	0.0224	-	<5	<5	<1.00	<1.00	0.709	<0.1
iron, ferrous [Fe II], dissolved	mg/L	-	-	-	-	0.338	0.247	-	-	-	-	0.024	0.039	-	-
lead, dissolved	mg/L	<0.0250	<0.0250	<0.00500	<0.00500	0.000054	<0.0250	<0.0000050	-	<0.025	<0.025	<0.00500	<0.00500	<0.00050	<0.00050
lithium, dissolved	mg/L	177	156	42.9	42.6	0.0686	169	0.00378	-	43.6	44.9	39.8	37	16.7	15.9
magnesium, dissolved	mg/L	13.9	24.7	3.61	3.68	2.05	10.7	1.29	-	589	586	865	812	873	866
manganese, dissolved	mg/L	<0.0500	<0.0500	0.0393	0.0381	0.0343	<0.0500	0.000911	-	<0.25	<0.25	0.657	0.626	0.972	0.928
mercury, dissolved	mg/L	<0.0000250	<0.0000500	<0.0000050	<0.0000050	<0.0000050	<0.0000250	<0.00001	-	<0.00001	<0.00001	<0.0000050	<0.0000050	<0.00001	<0.00001
molybdenum, dissolved	mg/L	0.057	0.0297	0.0104	0.0112	0.000134	0.0274	0.000116	-	<0.25	<0.25	0.0196	0.021	0.0106	0.0103
nickel, dissolved	mg/L	<0.250	<0.250	<0.0500	<0.0500	0.00286	<0.250	0.00195	-	<0.1	<0.1	<0.0500	<0.0500	0.0039	0.0087
phosphorus, dissolved	mg/L	<25.0	<25.0	<5.00	<5.00	<0.050	<25.0	0.0077	-	<10	<10	<5.00	<5.00	<10	<10
potassium, dissolved	mg/L	2420	2060	563	561	3.62	2240	0.949	-	638	652	607	571	285	283
rubidium, dissolved	mg/L	9.48	7.92	2.2	2.11	0.00254	8.65		-	-	-	2.34	2.23	-	-
selenium, dissolved	mg/L	<0.0250	<0.0250	<0.00500	<0.00500	0.000079	<0.0250	<0.000040	-	<0.2	<0.2	<0.00500	<0.00500	<0.0040	<0.0040
silicon, dissolved	mg/L	<25.0	<25.0	<5.00	<5.00	0.221	<25.0	0.16	-	<250	<250	<5.00	<5.00	<5	<5
silver, dissolved	mg/L	<0.00500	<0.00500	<0.00100	<0.00100	<0.000010	<0.00500	<0.0000050	-	<0.025	<0.025	<0.00100	<0.00100	<0.00050	<0.00050
sodium, dissolved	mg/L	1490	1250	381	376	95.2	1430	3.65	-	4200	4320	6420	6040	6290	6090
strontium, dissolved	mg/L	2440	2080	553	564	0.294	2220	0.0718	-	868	887	642	655	359	350
sulfur, dissolved	mg/L	<250	<250	<50.0	<50.0	1.94	<250	<3.0	-	120	120	270	261	327	<300
tellurium, dissolved	mg/L	0.191	0.133	0.0396	0.0457	<0.00020	0.196	-	-	-	-	0.038	0.0438	-	-
thallium, dissolved	mg/L	0.311	0.275	0.0744	0.0757	0.000073	0.288	0.0000025	-	0.06	0.06	0.0532	0.0532	0.0194	0.0193
thorium, dissolved	mg/L	<0.0500	<0.0500	<0.0100	<0.0100	<0.00010	<0.0500	-	-	-	-	<0.0100	<0.0100	-	-
tin, dissolved	mg/L	<0.0500	<0.0500	<0.0100	<0.0100	<0.00010	<0.0500	0.00033	-	<1	<1	<0.0100	<0.0100	<0.02	<0.02
titanium, dissolved	mg/L	<0.150	<0.150	<0.0300	<0.0300	<0.00030	<0.150	-	-	<2.5	<2.5	<0.0300	<0.0300	<0.05	<0.05
tungsten, dissolved	mg/L	<0.0500	<0.0500	<0.0100	<0.0100	<0.00010	<0.0500	<0.00050	-	-	-	0.0112	0.0109	-	-
uranium, dissolved	mg/L	<0.00500	<0.00500	<0.00100	<0.00100	0.000024	<0.00500	0.0000222	-	<0.01	<0.01	0.00262	0.00259	0.00282	0.00294
vanadium, dissolved	mg/L	<0.250	<0.250	<0.0500	<0.0500	<0.00050	<0.250	<0.00020	-	<1	<1	<0.0500	<0.0500	<0.02	<0.02
zinc, dissolved	mg/L	3.13	<0.500	<0.100	<0.100	0.0097	<0.500	0.0108	-	<0.5	<0.5	<0.100	<0.100	0.274	0.207
zirconium, dissolved	mg/L	<0.100	<0.100	<0.0200	<0.0200	<0.00020	<0.100	<0.00010	-	<0.5	<0.5	<0.0300	<0.0300	<0.01	<0.01

Appendix D
Table D-1 Laboratory Results for Raw Water Quality Results from Westbay Well M20-3071
Meliadine Extension Agnico-Eagle Mines Limited

Sample Source		Drilling Fluid						Lake CH6	Port 9			Port 8			
Client Sample ID		Westbay-A-225	West bay-A-360	Westbay-A-490	Westbay-A-490-Dup	Westbay A-606	Westbay A-606-BR	Lake CH6	Westbay-A-Port 9-1	PORT-9	PORT-9-DUP-1	Westbay-A-Port 8-0.29	Westbay-A-Port 8-29%DUP-1	PORT-8	PORT-8-DUP-1
Date Sampled		17-Aug-2020	21-Aug-2020	25-Aug-2020	25-Aug-2020	27-Aug-2020	27-Aug-2020	25-Aug-21	28-Sep-20	01-Aug-21	01-Aug-21	20-Sep-2020	20-Sep-2020	1-Aug-21	1-Aug-21
Lab Sample ID		VA20B3721-001, VA20B6509-001	VA20B4004-001, VAB6509-002	VA20B4663-001	VA20B4663-002	VA20B4662-001, V20B6509-003	VA20B4662-002, VA20B6509-004	QNE944, 210832-77441	VA20B7020-006	QHF618, 210382-77438	QHF619	VA20B6509-007, L2508184-7	VA20B6509-008, L2508184-8	QHF616, 210382-77436	QHF617, 210382-77437
Sample Interval	mbgs	Surface						Surface	292.5 to 310			310.8 to 326.9			
Drilling Fluid Dye Concentration	ppb	-	-	-	-	-	-	-	796			758 to 809			
Sample Dye Concentration	ppb	752	812	710	710	867	840	-	235	264	264	237		101	101
Proportion of Drilling Fluid in Samples	%	100%	100%	100%	100%	100%	100%	-	30%	33%	33%	29 to 31%		13%	13%
Proportion of Formation Groundwater in Samples	%	0%	0%	0%	0%	0%	0%	-	70%	67%	67%	69 to 71%		87%	87%
Total Metals															
aluminum, total	mg/L	<1.50	<1.50	<0.600	<0.300	0.0191	<1.50	0.0101	-	<0.3	<0.3	<0.600	<0.600	<0.3	<0.3
antimony, total	mg/L	<0.0500	<0.0500	<0.0200	<0.0100	<0.00010	<0.0500	<0.000020	-	<0.0020	<0.0020	<0.0200	<0.0200	<0.0020	<0.0020
arsenic, total	mg/L	<0.0500	<0.0500	<0.0200	<0.0100	0.0009	<0.0500	0.000546	-	0.0098	0.0095	<0.0200	<0.0200	<0.0020	<0.0020
barium, total	mg/L	12	12.6	3.27	3.21	0.02	13.2	0.00956	-	3.32	3.29	3.06	2.97	1.41	1.35
beryllium, total	mg/L	<0.0500	<0.0500	<0.0200	<0.0100	<0.000100	<0.0500	<0.000010	-	<0.0010	<0.0010	<0.00400	<0.00400	<0.0010	<0.0010
bismuth, total	mg/L	<0.0250	<0.0250	<0.0100	<0.00500	<0.000050	<0.0250	<0.0000050	-	<0.0010	<0.0010	<0.0100	<0.0100	<0.0010	<0.0010
boron, total	mg/L	144	163	44.1	41.5	0.015	164	<0.01	-	47.4	46.7	40.4	39.5	17.2	16.4
cadmium, total	mg/L	<0.00250	<0.00250	<0.00100	<0.000500	0.0000176	<0.00250	<0.0000050	-	<0.00050	<0.00050	<0.00100	<0.00100	<0.00050	<0.00050
calcium, total	mg/L	42700	46400	12700	12700	33	47000	9.51	-	15100	15200	14900	14400	8060	7590
cesium, total	mg/L	3.82	3.8	1.04	1.17	0.000123	4.24	<0.000050	-	0.895	0.887	0.886	0.855	0.371	0.353
chromium, total	mg/L	<0.0500	<0.0500	<0.0200	<0.0100	0.00049	<0.0500	<0.00010	-	<0.01	<0.01	<0.100	<0.100	<0.01	<0.01
cobalt, total	mg/L	<0.0500	<0.0500	<0.0200	<0.0100	0.00027	<0.0500	0.0000535	-	0.0032	0.0033	<0.0200	<0.0200	0.002	0.0016
copper, total	mg/L	<0.250	<0.250	<0.100	<0.0500	0.00359	<0.250	0.00143	-	<0.01	<0.01	<0.100	<0.100	<0.01	<0.01
iron, total	mg/L	<5.00	<5.00	5.84	5.8	1.06	<5.00	0.0407	-	<0.5	<0.5	<2.00	<2.00	<0.5	<0.5
lead, total	mg/L	<0.0250	<0.0250	<0.0100	<0.00500	0.00032	<0.0250	0.00354	-	<0.0020	<0.0020	0.0109	<0.0100	<0.0020	<0.0020
lithium, total	mg/L	150	180	47	47.3	0.0641	166	1.32	-	43	43.1	40.2	39.9	19.3	18.2
magnesium, total	mg/L	12.7	34.7	4.2	5.01	2.52	12.4	0.0018	-	639	627	899	850	954	894
manganese, total	mg/L	<0.0500	<0.0500	0.0724	0.083	0.0421	<0.0500	<0.00001	-	0.239	0.22	0.696	0.65	1.04	0.963
mercury, total	mg/L	<0.000250	<0.0000250	<0.0000050	<0.0000050	<0.0000050	<0.0000500	0.000114	-	<0.00001	<0.00001	<0.0000050	<0.0000050	<0.00001	<0.00001
molybdenum, total	mg/L	0.0539	0.032	0.0102	0.0123	0.000296	0.0252	0.00199	-	0.0268	0.0261	0.0176	0.0186	0.0079	0.0084
nickel, total	mg/L	<0.250	<0.250	<0.100	<0.0500	0.00364	<0.250	0.919	-	<0.01	<0.01	<0.100	<0.100	<0.01	<0.01
phosphorus, total	mg/L	<25.0	<25.0	<10.0	<5.00	<0.050	<25.0	0.0060	-	<0.500	<0.500	<10.0	<10.0	<0.500	<0.500
potassium, total	mg/L	2110	2260	598	636	3.92	2400	0.919	-	648	639	646	610	323	304
rubidium, total	mg/L	7.95	8.46	2.28	2.42	0.00284	9.09	-	-	-	-	2.34	2.2	-	-
selenium, total	mg/L	<0.0250	<0.0250	<0.0100	<0.00500	<0.000050	<0.0250	<0.000040	-	<0.0040	<0.0040	<0.0100	<0.0100	<0.0040	<0.0040
silicon, total	mg/L	<50.0	<50.0	<20.0	<10.0	0.26	<50.0	0.159	-	<5	<5	<20.0	<20.0	<5	<5
silver, total	mg/L	<0.00500	<0.00500	<0.00200	<0.00100	<0.000010	<0.00500	<0.0000050	-	<0.0010	<0.0010	<0.00200	<0.00200	<0.0010	<0.0010
sodium, total	mg/L	1440	1300	415	428	104	1590	3.58	-	4520	4510	6760	6400	6790	6380
strontium, total	mg/L	2160	2140	591	689	0.307	2360	0.0707	-	752	751	655	631	403	387
sulfur, total	mg/L	<250	<250	<100	<50.0	2.61	<250	<3.0	-	121	119	233	196	303	364
tellurium, total	mg/L	0.166	0.219	0.0562	0.0472	<0.00020	0.227	-	-	-	-	0.0707	0.0756	-	-
thallium, total	mg/L	0.285	0.274	0.0806	0.08	0.00007	0.303	0.000003	-	0.0573	0.0576	0.0562	0.0536	0.0215	0.0213
thorium, total	mg/L	<0.0500	<0.0500	<0.0200	<0.0100	<0.00010	<0.0500	-	-	-	-	<0.0200	<0.0200	-	-
tin, total	mg/L	<0.0500	<0.0500	<0.0200	<0.0100	<0.00010	<0.0500	<0.00020	-	<0.02	<0.02	<0.0200	<0.0200	<0.02	<0.02
titanium, total	mg/L	<0.150	<0.150	<0.0600	<0.0300	0.00064	<0.150	<0.00050	-	<0.2	<0.2	<0.0600	<0.0600	<0.2	<0.2
tungsten, total	mg/L	<0.0500	<0.0500	<0.0200	<0.0100	<0.00010	<0.0500	-	-	-	-	<0.0200	<0.0200	-	-
uranium, total	mg/L	<0.00500	<0.00500	<0.00200	<0.00100	0.000024	<0.00500	0.0000242	-	0.00143	0.00153	0.00295	0.00274	0.00247	0.00267
vanadium, total	mg/L	<0.250	<0.250	<0.100	<0.0500	<0.00050	<0.250	<0.00020	-	<0.02	<0.02	<0.100	<0.100	<0.02	<0.02
zinc, total	mg/L	2.58	<1.50	<0.600	<0.300	0.0255	<1.50	0.00628	-	0.262	0.215	<0.600	<0.600	0.137	0.256
zirconium, total	mg/L	<0.100	<0.100	<0.0400	<0.0200	<0.00020	<0.100	<0.00010	-	<0.01	<0.01	<0.0400	<0.0400	<0.01	<0.01
Aggregate Organics															
biochemical oxygen demand [BOD]	mg/L	321	9.1	<6.0	<6.0	<6.0	8.2	<2	-	12000	<4000	537	621	270	260
chemical oxygen demand [COD]	mg/L	11600	7020	2240	2270	147	2390	11	-	27000	27000	2180	3770	840	880
oil & grease (gravimetric)	mg/L	688	<5.0	<5.0	<5.0	<5.0	<5.0	-	-	-	-	<5.0	<5.0	-	-
Radiological Parameters															
radium-226	Bq/L	9.2	1.5	1.8	2	<0.01	8.8	<0.0050	-	7.4	8.10	3.9	4.1	3.8	3.1

Appendix D
Table D-1 Laboratory Results for Raw Water Quality Results from Westbay Well M20-3071
Meliadine Extension Agnico-Eagle Mines Limited

Sample Source		Drilling Fluid						Lake CH6	Port 9			Port 8			
Client Sample ID		Westbay-A-225	West bay-A-360	Westbay-A-490	Westbay-A-490-Dup	Westbay A-606	Westbay A-606-BR	Lake CH6	Westbay-A-Port 9-1	PORT-9	PORT-9-DUP-1	Westbay-A-Port 8-0.29	Westbay-A-Port 8-29%DUP-1	PORT-8	PORT-8-DUP-1
Date Sampled		17-Aug-2020	21-Aug-2020	25-Aug-2020	25-Aug-2020	27-Aug-2020	27-Aug-2020	25-Aug-21	28-Sep-20	01-Aug-21	01-Aug-21	20-Sep-2020	20-Sep-2020	1-Aug-21	1-Aug-21
Lab Sample ID		VA20B3721-001, VA20B6509-001	VA20B4004-001, VAB6509-002	VA20B4663-001	VA20B4663-002	VA20B4662-001, V20B6509-003	VA20B4662-002, VA20B6509-004	QNE944, 210832-77441	VA20B7020-006	QHF618, 210382-77438	QHF619	VA20B6509-007, L2508184-7	VA20B6509-008, L2508184-8	QHF616, 210382-77436	QHF617, 210382-77437
Sample Interval	mbgs	Surface						Surface	292.5 to 310			310.8 to 326.9			
Drilling Fluid Dye Concentration	ppb	-	-	-	-	-	-	-	796			758 to 809			
Sample Dye Concentration	ppb	752	812	710	710	867	840	-	235	264	264	237		101	101
Proportion of Drilling Fluid in Samples	%	100%	100%	100%	100%	100%	100%	-	30%	33%	33%	29 to 31%		13%	13%
Proportion of Formation Groundwater in Samples	%	0%	0%	0%	0%	0%	0%	-	70%	67%	67%	69 to 71%		87%	87%
Volatile Organic Compounds [BTEXS+MTBE]															
benzene	µg/L	<0.50	<0.50	<0.50	<0.50	1.19	<0.50	<0.20	-	<0.20	<0.20	<0.50	<0.50	<0.20	<0.20
ethylbenzene	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.20	-	<0.20	<0.20	<0.50	<0.50	<0.20	<0.20
methyl-tert-butyl ether [MTBE]	µg/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
styrene	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.40	-	<0.40	<0.40	<0.50	<0.50	<0.40	<0.40
toluene	µg/L	0.63	0.47	1.55	1.36	1.12	0.7	<0.20	-	0.4	0.41	<0.50	<0.50	<0.20	<0.20
xylene, m+p-	µg/L	<0.50	<0.50	0.64	0.52	<0.50	0.93	<0.20	-	<0.20	<0.20	<0.50	<0.50	<0.20	<0.20
xylene, o-	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	0.52	<0.20	-	<0.20	<0.20	<0.50	<0.50	<0.20	<0.20
xylenes, total	µg/L	<0.75	<0.75	<0.75	<0.75	<0.75	1.44	<0.20	-	<0.20	<0.20	<0.75	<0.75	<0.20	<0.20
Hydrocarbons															
F1 (C6-C10)	µg/L	-	-	-	-	-	-	-	-	-	-	<100	<100	-	-
F2 (C10-C16)	µg/L	-	-	-	-	-	-	-	-	-	-	<100	<100	-	-
F3 (C16-C34)	µg/L	-	-	-	-	-	-	-	-	-	-	<250	<250	-	-
F4 (C34-C50)	µg/L	-	-	-	-	-	-	-	-	-	-	<250	<250	-	-
F1-BTEX	µg/L	-	-	-	-	-	-	-	-	-	-	<100	<100	-	-
TEH (C10-C50)	µg/L	-	-	-	-	-	-	-	-	-	-	<400	<400	-	-
TEH (C16-C50)	µg/L	-	-	-	-	-	-	-	-	-	-	<400	<400	-	-
EPH (C10-C19)	µg/L	208000	<250	<250	<250	880	<250	-	-	-	-	-	-	-	-
EPH (C19-C32)	µg/L	9450	<250	<250	<250	<250	<250	-	-	-	-	-	-	-	-
LEPHw	µg/L	208000	<250	<250	<250	880	<250	-	-	-	-	-	-	-	-
HEPHw	µg/L	9450	<250	<250	<250	<250	<250	-	-	-	-	-	-	-	-
Polycyclic Aromatic Hydrocarbons															
acenaphthene	µg/L	<0.421	<0.010	<0.010	<0.010	<0.020	<0.020	-	-	-	-	-	-	-	-
acenaphthylene	µg/L	<4.00	<0.010	<0.010	<0.010	<0.060	0.045	-	-	-	-	-	-	-	-
acridine	µg/L	<0.421	<0.010	<0.010	<0.010	0.072	0.026	-	-	-	-	-	-	-	-
anthracene	µg/L	<0.421	<0.010	<0.010	<0.010	<0.010	<0.010	-	-	-	-	-	-	-	-
benz(a)anthracene	µg/L	<0.421	<0.010	<0.020	<0.020	<0.020	<0.010	-	-	-	-	-	-	-	-
benzo(a)pyrene	µg/L	<0.421	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	-	-	-	-	-	-	-	-
benzo(b+j)fluoranthene	µg/L	0.531	<0.010	<0.010	<0.010	<0.010	<0.010	-	-	-	-	-	-	-	-
benzo(b+j+k)fluoranthene	µg/L	<0.595	<0.015	<0.015	<0.015	<0.015	<0.015	-	-	-	-	-	-	-	-
benzo(g,h,i)perylene	µg/L	<0.421	<0.010	<0.010	<0.010	<0.010	<0.010	-	-	-	-	-	-	-	-
benzo(k)fluoranthene	µg/L	<0.421	<0.010	<0.010	<0.010	<0.010	<0.010	-	-	-	-	-	-	-	-
chrysene	µg/L	0.612	<0.010	<0.010	<0.010	<0.010	<0.010	-	-	-	-	-	-	-	-
dibenz(a,h)anthracene	µg/L	<0.421	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	-	-	-	-	-	-	-	-
fluoranthene	µg/L	0.519	<0.010	<0.010	<0.010	0.021	0.023	-	-	-	-	-	-	-	-
fluorene	µg/L	<0.421	0.018	<0.010	<0.010	0.035	0.044	-	-	-	-	-	-	-	-
indeno(1,2,3-c,d)pyrene	µg/L	<0.421	<0.010	<0.010	<0.010	<0.010	<0.010	-	-	-	-	-	-	-	-
methylnaphthalene, 1-	µg/L	<7.00	0.018	0.048	0.045	0.202	0.117	-	-	-	-	-	-	-	-
methylnaphthalene, 2-	µg/L	<0.421	0.026	0.06	0.058	0.106	0.098	-	-	-	-	-	-	-	-
naphthalene	µg/L	<0.800	0.083	0.073	0.074	0.766	0.449	-	-	-	-	-	-	-	-
phenanthrene	µg/L	<0.500	0.052	<0.020	<0.020	0.094	0.113	-	-	-	-	-	-	-	-
pyrene	µg/L	<0.421	0.015	0.022	0.021	0.058	0.052	-	-	-	-	-	-	-	-
quinoline	µg/L	<0.060	<0.050	<0.050	<0.050	<0.800	<0.200	-	-	-	-	-	-	-	-

Appendix D
Table D-1 Laboratory Results for Raw Water Quality Results from Westbay Well M20-3071
Meliadine Extension Agnico-Eagle Mines Limited

Sample Source		Drilling Fluid						Lake CH6	Port 9			Port 8			
Client Sample ID		Westbay-A-225	West bay-A-360	Westbay-A-490	Westbay-A-490-Dup	Westbay A-606	Westbay A-606-BR	Lake CH6	Westbay-A-Port 9-1	PORT-9	PORT-9-DUP-1	Westbay-A-Port 8-0.29	Westbay-A-Port 8-29%DUP-1	PORT-8	PORT-8-DUP-1
Date Sampled		17-Aug-2020	21-Aug-2020	25-Aug-2020	25-Aug-2020	27-Aug-2020	27-Aug-2020	25-Aug-21	28-Sep-20	01-Aug-21	01-Aug-21	20-Sep-2020	20-Sep-2020	1-Aug-21	1-Aug-21
Lab Sample ID		VA20B3721-001, VA20B6509-001	VA20B4004-001, VAB6509-002	VA20B4663-001	VA20B4663-002	VA20B4662-001, V20B6509-003	VA20B4662-002, VA20B6509-004	QNE944, 210832-77441	VA20B7020-006	QHF618, 210382-77438	QHF619	VA20B6509-007, L2508184-7	VA20B6509-008, L2508184-8	QHF616, 210382-77436	QHF617, 210382-77437
Sample Interval	mbgs	Surface						Surface	292.5 to 310			310.8 to 326.9			
Drilling Fluid Dye Concentration	ppb	-	-	-	-	-	-	-	796			758 to 809			
Sample Dye Concentration	ppb	752	812	710	710	867	840	-	235	264	264	237		101	101
Proportion of Drilling Fluid in Samples	%	100%	100%	100%	100%	100%	100%	-	30%	33%	33%	29 to 31%		13%	13%
Proportion of Formation Groundwater in Samples	%	0%	0%	0%	0%	0%	0%	-	70%	67%	67%	69 to 71%		87%	87%
Volatile Organic Compounds															
bromodichloromethane	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	-	-	-	-	-	-	-	-
bromoform	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	-	-	-	-	-	-	-	-
carbon tetrachloride	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	-	-	-	-	-	-	-	-
chlorobenzene	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	-	-	-	-	-	-	-	-
chloroethane	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	-	-	-	-	-	-	-	-
chloroform	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	-	-	-	-	-	-	-	-
chloromethane	µg/L	15.7	10.6	3.5	3.18	<0.50	107	-	-	-	-	-	-	-	-
dibromochloromethane	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	-	-	-	-	-	-	-	-
dichlorobenzene, 1,2-	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	-	-	-	-	-	-	-	-
dichlorobenzene, 1,3-	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	-	-	-	-	-	-	-	-
dichlorobenzene, 1,4-	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	-	-	-	-	-	-	-	-
dichloroethane, 1,1-	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	-	-	-	-	-	-	-	-
dichloroethane, 1,2-	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	-	-	-	-	-	-	-	-
dichloroethylene, 1,1-	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	-	-	-	-	-	-	-	-
dichloroethylene, cis-1,2-	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	-	-	-	-	-	-	-	-
dichloroethylene, trans-1,2-	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	-	-	-	-	-	-	-	-
dichloromethane	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	-	-	-	-	-	-	-	-
dichloropropane, 1,2-	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	-	-	-	-	-	-	-	-
dichloropropylene, cis+trans-1,3-	µg/L	<0.75	<0.75	<0.75	<0.75	<0.75	<0.75	-	-	-	-	-	-	-	-
dichloropropylene, cis-1,3-	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	-	-	-	-	-	-	-	-
dichloropropylene, trans-1,3-	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	-	-	-	-	-	-	-	-
tetrachloroethane, 1,1,1,2-	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	-	-	-	-	-	-	-	-
tetrachloroethane, 1,1,2,2-	µg/L	<0.40	<0.20	<0.20	<0.20	<0.20	<0.20	-	-	-	-	-	-	-	-
tetrachloroethylene	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	-	-	-	-	-	-	-	-
trichloroethane, 1,1,1-	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	-	-	-	-	-	-	-	-
trichloroethane, 1,1,2-	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	-	-	-	-	-	-	-	-
trichloroethylene	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	-	-	-	-	-	-	-	-
trichlorofluoromethane	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	-	-	-	-	-	-	-	-
vinyl chloride	µg/L	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	-	-	-	-	-	-	-	-
Bacteriological Tests															
bacteria, sulfate reducing	CFU/1mL	-	-	-	-	-	-	-	-	-	-	<1	<1	-	-
Isotopes															
$\delta^{18}O$ of H_2O	‰ VSMOW	-13.32	-13.58	-	-	-12.79	-13.28	-14.73	-15.84	-15.91	-	-15.31	-15.03	-15.73	-15.82
$\delta^{2}H$ of H_2O	‰ VSMOW	-106.0	-107.3	-	-	-105.5	-106.5	-114.6	-124.2	-123.6	-	-117.3	-117.0	-119.2	-119.7
$\delta^{18}O$ of SO_4	‰ VSMOW	-	-	-	-	-	-	5.3		7.7	-	-	-	6.7	26.9
$\delta^{34}S$ of SO_4	‰ VCDT	-	-	-	-	-	-	5.0		28.6	-	-	-	7.9	24.5
$87Sr/^{86}Sr$	--	-	-	-	-	-	-	0.70966	-	0.70941	-	-	-	0.71014	0.71011
QA/QC															
Field Conductivity vs Lab Conductivity	-	-	-	-	-	0.6	-	0.9	-	1.1	1.1	1.5	1.0	1.0	1.0
Calculated TDS (lab)	mg/L	127485	124889	35989	36826	406	146316	55	-	69254	69016	56353	59501	42147	43423
Lab measured vs Calculated TDS	%	78%	92%	89%	90%	73%	79%	68%	-	90%	86%	90%	-	99%	95%
Lab measured TDS vs Lab Conductivity	-	1.1	1.2	0.8	0.8	0.8	1.4	1.0	-	1.0	1.1	1.2	-	0.7	0.7

Notes:
Average field measured parameters reported for Ports 4 and 8
- parameter was not analyzed
* parameter could not be accurately measured in field due to equipment malfunction or limitations
underline parameter exceeds laboratory calibration range

Appendix D
Table D-1 Laboratory Results for Raw Water Quality Results from Westbay Well M20-3071
Meliadine Extension Agnico-Eagle Mines Limited

Sample Source		Port 4								Port 3						
Client Sample ID		Westbay-A-Port 4-1	Westbay-A-Port 4-1	Westbay-A-Port 4-2	Westbay-A-Port 4-2-DUP-1	Westbay-A-Port 4-2-DUP-1	Westbay-A-Port 4-2	PORT-4	PORT-4-DUP	Westbay-A-Port 3-1	Westbay-A-Port 3-1	PORT-3 AUG 16	PORT-3-DUP AUG 16	PORT-3-X-AUG 17	PORT-3 AUG 18	PORT 3 -DUP AUG 18
Date Sampled		19-Sep-2020	25-Sep-2020	27-Sep-2020	27-Sep-2020	28-Sep-2020	28-Sep-2020	5-Aug-21	5-Aug-21	28-Sep-2020	28-Sep-2020	16-Aug-21	16-Aug-21	17-Aug-21	18-Aug-21	18-Aug-21
Lab Sample ID		VA20B6509-005, L2508184-5	VA20B7020-001	VA20B7020-003	VA20B7020-004	VA20B7020-007	VA20B7020-008	QIG690, 210382-77438	QIG691	VA20B7020-005	VA20B7020-005	QLQ446	QLQ447	QLQ448, 210382-77440	QLQ451	QMN858
Sample Interval	mbgs	438.7 to 457.1								491.2 to 572.6						
Drilling Fluid Dye Concentration	ppb	820								795						
Sample Dye Concentration	ppb	746	460	428	428	415	415	411	411	277	277	313	313	312	309	309
Proportion of Drilling Fluid in Samples	%	91%	56%	52%	52%	51%	51%	50%	50%	35%	35%	39%	39%	39%	39%	39%
Proportion of Formation Groundwater in Samples	%	9%	44%	48%	48%	49%	49%	50%	50%	65%	65%	61%	61%	61%	61%	61%
Average Field Parameters																
conductivity	uS/cm	125490	93593	93938	93938	91517	91517	95600	95600	75600	75600	91000	91000	87300	83300	83300
pH	-	*	*	*	*	*	*	9.3	9.3	*	*	9.3	9.3	8.6	9.1	9.1
TDS	mg/L	81500	60771	61100	61100	59383	59383	62400	62400	49100	49100	59200	59200	55700	53100	53100
Salinity	ppt	114.5	66.2	66.9	66.9	64.7	64.7	67.6	67.6	52	52	63.7	63.7	58.7	55.7	55.7
Laboratory Measured Parameters																
conductivity	µS/cm	81800	96100	95100	95000	-	-	91100	91700	-	-	73800	73500	-	80500	-
alkalinity, total (as CaCO3)	mg/L	857	448	446	439	-	-	390	390	-	-	280	280	-	-	-
hardness (as CaCO3), dissolved	mg/L	98100	60700	-	-	-	-	49200	50300	-	-	-	-	-	43500	45800
hardness (as CaCO3), from total Ca/Mg	mg/L	-	61500	-	-	-	-	48500	50400	-	-	-	-	-	45300	44800
pH	-	10.2	9.2	9.22	9.24	-	-	9.21	9.27	-	-	9.16	9.13	-	-	-
solids, total dissolved [TDS]	mg/L	130000	89000	77000	63100	-	-	88000	88600	-	-	63100	62800	-	68100	-
solids, total suspended [TSS]	mg/L	6.9	3.8	16.5	205	-	-	140	57	-	-	77	76	-	-	-
turbidity	NTU	19.4	14	12.8	12.1	-	-	2.3	2.5	-	-	3.7	3.9	-	-	-
alkalinity, phenolphthalein (as CaCO3)	mg/L	91.5	74.4	78.4	80.1	-	-	120	120	-	-	96	98	-	-	-
alkalinity, hydroxide (as CaCO3)	mg/L	<2.0	<2.0	<2.0	<2.0	-	-	-	-	-	-	-	-	-	-	-
alkalinity, carbonate (as CaCO3)	mg/L	183	149	157	160	-	-	-	-	-	-	-	-	-	-	-
alkalinity, bicarbonate (as CaCO3)	mg/L	674	300	290	278	-	-	-	-	-	-	-	-	-	-	-
bicarbonate	mg/L	823	365	353	340	-	-	190	180	-	-	110	110	-	-	-
salinity	psu	64.5	67	66.2	66.1	-	-	74	77	-	-	64	63	-	-	-
carbonate	mg/L	110	89.3	94.1	96.1	-	-	140	140	-	-	120	120	-	-	-
hydroxide	mg/L	<2.0	<2.0	<2.0	<2.0	-	-	-	-	-	-	-	-	-	-	-
Anions and Nutrients																
Ammonia Nitrogen	mg/L	1.84	1.01	-	-	-	0.952	1.5	1.4	0.952	0.952	1.2	1.3	-	-	-
Bromide	mg/L	298	205	188	200	-	-	160	160	-	-	140	140	-	-	-
Chloride	mg/L	77700	51700	47300	50200	-	-	45000	45000	-	-	37000	37000	-	-	-
Fluoride	mg/L	<2.00	<2.00	<2.00	<2.00	-	-	0.16	0.16	-	-	0.17	0.18	-	-	-
Nitrate as N	mg/L	5.2	3.2	2.78	2.96	-	-	2.42	2.42	-	-	1.95	1.86	-	-	-
Nitrite as N	mg/L	<0.100	<0.100	<0.100	<0.100	-	-	<0.050	<0.050	-	-	<0.050	<0.050	-	-	-
Nitrogen, Kjeldahl	mg/L	5.07	2.4	-	-	-	2.35	9.2	8.9	2.35	2.35	-	-	4.8	-	-
Phosphate, Ortho	mg/L	0.0118	0.0471	0.0825	0.0778	-	-	0.02	0.03	-	-	0.011	0.009	--	-	-
Phosphorus	mg/L	0.0338	<0.200	-	-	-	0.0158	<0.10	<0.10	0.0158	0.0158	-	-	0.017	<1	<1
Silica	mg/L	<25.0	<5.00	<5.00	<5.00	-	-	<5.0	6.90	-	-	130	21	-	-	-
Sulfate	mg/L	80.7	375	403	427	-	-	500	490	-	-	580	570	-	-	-
Cyanides																
cyanide, strong acid dissociable (total)	mg/L	<0.0200	<0.0100	<0.0050	<0.0200	-	-	<0.0050	<0.0050	-	-	-	-	-	<0.0050	<0.0050
cyanide, free	mg/L	<0.0200	<0.0500	<0.0050	<0.0200	-	-	0.0045	0.0056	-	-	-	-	0.004	0.0029	0.0025
cyanide, weak acid dissociable	mg/L	<0.0200	<0.0100	<0.0050	<0.0200	-	-	<0.0010	<0.0010	-	-	-	-	<0.0010	<0.0010	<0.0010
Organic / Inorganic Carbon																
carbon, dissolved organic [DOC]	mg/L	2780	8880	6270	6570	-	-	2600	2600	-	-	--	--	--	740	760
carbon, total organic [TOC]	mg/L	3040	9860	8860	8000	-	7760	2500	2500	-	-	--	--	700	--	--

Appendix D
Table D-1 Laboratory Results for Raw Water Quality Results from Westbay Well M20-3071
Meliadine Extension Agnico-Eagle Mines Limited

Sample Source		Port 4								Port 3						
Client Sample ID		Westbay-A-Port 4-1	Westbay-A-Port 4-1	Westbay-A-Port 4-2	Westbay-A-Port 4-2-DUP-1	Westbay-A-Port 4-2-DUP-1	Westbay-A-Port 4-2	PORT-4	PORT-4-DUP	Westbay-A-Port 3-1	Westbay-A-Port 3-1	PORT-3 AUG 16	PORT-3-DUP AUG 16	PORT-3-X-AUG 17	PORT-3 AUG 18	PORT 3 -DUP AUG 18
Date Sampled		19-Sep-2020	25-Sep-2020	27-Sep-2020	27-Sep-2020	28-Sep-2020	28-Sep-2020	5-Aug-21	5-Aug-21	28-Sep-2020	28-Sep-2020	16-Aug-21	16-Aug-21	17-Aug-21	18-Aug-21	18-Aug-21
Lab Sample ID		VA20B6509-005, L2508184-5	VA20B7020-001	VA20B7020-003	VA20B7020-004	VA20B7020-007	VA20B7020-008	QIG690, 210382-77438	QIG691	VA20B7020-005	VA20B7020-005	QLQ446	QLQ447	QLQ448, 210382-77440	QLQ451	QMN858
Sample Interval	mbgs	438.7 to 457.1								491.2 to 572.6						
Drilling Fluid Dye Concentration	ppb	820								795						
Sample Dye Concentration	ppb	746	460	428	428	415	415	411	411	277	277	313	313	312	309	309
Proportion of Drilling Fluid in Samples	%	91%	56%	52%	52%	51%	51%	50%	50%	35%	35%	39%	39%	39%	39%	39%
Proportion of Formation Groundwater in Samples	%	9%	44%	48%	48%	49%	49%	50%	50%	65%	65%	61%	61%	61%	61%	61%
Dissolved Metals																
aluminum, dissolved	mg/L	<0.500	<0.200	-	-	<0.200	<0.200	<0.25	<0.25	-	-	-	-	-	0.185	0.227
antimony, dissolved	mg/L	<0.0500	<0.0200	-	-	<0.0200	<0.0200	<0.01	<0.01	-	-	-	-	-	<0.0040	<0.0040
arsenic, dissolved	mg/L	<0.0500	<0.0200	-	-	<0.0200	<0.0200	<0.01	<0.01	-	-	-	-	-	0.0084	0.008
barium, dissolved	mg/L	11.6	5.56	-	-	5.13	5.27	4.45	4.53	-	-	-	-	-	3.79	3.88
beryllium, dissolved	mg/L	<0.0100	<0.0200	-	-	<0.00400	<0.00400	<0.0050	<0.0050	-	-	-	-	-	<0.0020	<0.0020
bismuth, dissolved	mg/L	<0.0250	<0.0100	-	-	<0.0100	<0.0100	<0.0025	<0.0025	-	-	-	-	-	<0.0010	<0.0010
boron, dissolved	mg/L	118	72.1	-	-	70.2	69.3	62.8	62.7	-	-	-	-	-	55	55.9
cadmium, dissolved	mg/L	<0.00250	<0.00100	-	-	<0.00100	<0.00100	<0.0025	<0.0025	-	-	-	-	-	<0.0010	<0.0010
calcium, dissolved	mg/L	39200	23800	-	-	22700	22000	19200	19600	-	-	-	-	-	16700	17500
cesium, dissolved	mg/L	3.26	1.56	-	-	1.56	1.58	1.31	1.34	-	-	-	-	-	1.1	1.13
chromium, dissolved	mg/L	<0.250	<0.0200	-	-	<0.100	<0.100	<0.05	<0.05	-	-	-	-	-	<0.02	<0.02
cobalt, dissolved	mg/L	<0.0500	<0.0200	-	-	<0.0200	<0.0200	0.0051	0.0057	-	-	-	-	-	0.0042	0.0043
copper, dissolved	mg/L	<0.100	<0.0400	-	-	<0.0400	<0.0400	<0.025	<0.025	-	-	-	-	-	0.014	0.011
iron, dissolved	mg/L	<5.00	<2.00	-	-	<2.00	<2.00	<0.5	<0.5	-	-	-	-	-	<0.2	<0.2
iron, ferrous [Fe II], dissolved	mg/L	0.096	0.02	-	-	0.054	0.022	-	-	-	-	-	-	-	-	-
lead, dissolved	mg/L	<0.0250	<0.0100	-	-	<0.0100	<0.0100	<0.0025	<0.0025	-	-	-	-	-	<0.0010	<0.0010
lithium, dissolved	mg/L	135	75.4	-	-	70	70.7	59.5	62.4	-	-	-	-	-	52.3	54.1
magnesium, dissolved	mg/L	32.8	309	-	-	340	344	319	330	-	-	-	-	-	457	473
manganese, dissolved	mg/L	<0.0500	<0.0200	-	-	<0.0200	<0.0200	0.128	0.093	-	-	-	-	-	0.222	0.222
mercury, dissolved	mg/L	<0.0000050	<0.0000050	-	-	<0.0000050	<0.0000050	<0.00001	<0.00001	-	-	-	-	<0.00001	<0.00001	<0.00001
molybdenum, dissolved	mg/L	0.0732	0.0401	-	-	0.0364	0.0378	0.033	0.031	-	-	-	-	-	0.029	0.029
nickel, dissolved	mg/L	<0.250	<0.100	-	-	<0.100	<0.100	0.014	0.021	-	-	-	-	-	0.0056	0.007
phosphorus, dissolved	mg/L	<25.0	<10.0	-	-	<10.0	<10.0	<1	<1	-	-	-	-	-	<0.4	<0.4
potassium, dissolved	mg/L	1920	1080	-	-	1020	1030	852	875	-	-	-	-	-	689	715
rubidium, dissolved	mg/L	7.78	3.68	-	-	3.47	3.5	-	-	-	-	-	-	-	-	-
selenium, dissolved	mg/L	<0.0250	0.0186	-	-	<0.0100	0.0145	<0.02	<0.02	-	-	-	-	-	<0.0080	<0.0080
silicon, dissolved	mg/L	<25.0	<10.0	-	-	<10.0	<10.0	<25	<25	-	-	-	-	-	<10	<10
silver, dissolved	mg/L	<0.00500	<0.00200	-	-	<0.00200	<0.00200	<0.0025	<0.0025	-	-	-	-	-	<0.0010	<0.0010
sodium, dissolved	mg/L	1550	2950	-	-	3190	3260	2930	3050	-	-	-	-	-	3810	3900
strontium, dissolved	mg/L	2060	1070	-	-	1060	1080	950	992	-	-	-	-	-	827	842
sulfur, dissolved	mg/L	<250	<100	-	-	<100	109	110	110	-	-	-	-	-	140	141
tellurium, dissolved	mg/L	0.131	0.0577	-	-	0.075	0.0631	-	-	-	-	-	-	-	-	-
thallium, dissolved	mg/L	0.198	0.1	-	-	0.0945	0.0992	0.0668	0.0747	-	-	-	-	-	0.0534	0.0548
thorium, dissolved	mg/L	<0.0500	<0.0200	-	-	<0.0200	<0.0200	-	-	-	-	-	-	-	-	-
tin, dissolved	mg/L	<0.0500	<0.0200	-	-	<0.0200	<0.0200	<0.1	<0.1	-	-	-	-	-	<0.04	<0.04
titanium, dissolved	mg/L	<0.150	<0.0600	-	-	<0.0600	<0.0600	<0.25	<0.25	-	-	-	-	-	<0.1	<0.1
tungsten, dissolved	mg/L	<0.0500	<0.0200	-	-	<0.0200	<0.0200	-	-	-	-	-	-	-	-	-
uranium, dissolved	mg/L	<0.00500	<0.00200	-	-	<0.00200	<0.00200	<0.0010	<0.0010	-	-	-	-	-	0.00053	0.00041
vanadium, dissolved	mg/L	<0.250	<0.100	-	-	<0.100	<0.100	<0.1	<0.1	-	-	-	-	-	<0.04	<0.04
zinc, dissolved	mg/L	<0.500	<0.200	-	-	<0.200	0.531	0.186	0.169	-	-	-	-	-	0.266	0.233
zirconium, dissolved	mg/L	<0.150	<0.0400	-	-	<0.0600	<0.0600	<0.05	<0.05	-	-	-	-	-	<0.02	<0.02

Appendix D
Table D-1 Laboratory Results for Raw Water Quality Results from Westbay Well M20-3071
Meliadine Extension Agnico-Eagle Mines Limited

Sample Source		Port 4								Port 3						
Client Sample ID		Westbay-A-Port 4-1	Westbay-A-Port 4-1	Westbay-A-Port 4-2	Westbay-A-Port 4-2-DUP-1	Westbay-A-Port 4-2-DUP-1	Westbay-A-Port 4-2	PORT-4	PORT-4-DUP	Westbay-A-Port 3-1	Westbay-A-Port 3-1	PORT-3 AUG 16	PORT-3-DUP AUG 16	PORT-3-X-AUG 17	PORT-3 AUG 18	PORT 3 -DUP AUG 18
Date Sampled		19-Sep-2020	25-Sep-2020	27-Sep-2020	27-Sep-2020	28-Sep-2020	28-Sep-2020	5-Aug-21	5-Aug-21	28-Sep-2020	28-Sep-2020	16-Aug-21	16-Aug-21	17-Aug-21	18-Aug-21	18-Aug-21
Lab Sample ID		VA20B6509-005, L2508184-5	VA20B7020-001	VA20B7020-003	VA20B7020-004	VA20B7020-007	VA20B7020-008	QIG690, 210382-77438	QIG691	VA20B7020-005	VA20B7020-005	QLQ446	QLQ447	QLQ448, 210382-77440	QLQ451	QMN858
Sample Interval	mbgs	438.7 to 457.1								491.2 to 572.6						
Drilling Fluid Dye Concentration	ppb	820								795						
Sample Dye Concentration	ppb	746	460	428	428	415	415	411	411	277	277	313	313	312	309	309
Proportion of Drilling Fluid in Samples	%	91%	56%	52%	52%	51%	51%	50%	50%	35%	35%	39%	39%	39%	39%	39%
Proportion of Formation Groundwater in Samples	%	9%	44%	48%	48%	49%	49%	50%	50%	65%	65%	61%	61%	61%	61%	61%
Total Metals																
aluminum, total	mg/L	<1.50	<0.600	-	-	<0.600	<0.600	<1.5	<1.5	-	-	-	-	-	<0.6	<0.6
antimony, total	mg/L	<0.0500	<0.0200	-	-	<0.0200	<0.0200	<0.01	<0.01	-	-	-	-	-	<0.0040	<0.0040
arsenic, total	mg/L	<0.0500	<0.0200	-	-	<0.0200	<0.0200	<0.01	<0.01	-	-	-	-	-	0.0048	0.0075
barium, total	mg/L	10	5.84	-	-	5.36	5.48	4.28	4.34	-	-	-	-	-	3.7	3.81
beryllium, total	mg/L	<0.0100	<0.0200	-	-	<0.00400	<0.00400	<0.0050	<0.0050	-	-	-	-	-	<0.0020	<0.0020
bismuth, total	mg/L	<0.0250	<0.0100	-	-	<0.0100	<0.0100	<0.0050	<0.0050	-	-	-	-	-	<0.0020	<0.0020
boron, total	mg/L	138	73.2	-	-	71.4	72.9	61.5	62.4	-	-	-	-	-	47.4	48.4
cadmium, total	mg/L	<0.00250	<0.00100	-	-	<0.00100	<0.00100	0.0026	<0.0025	-	-	-	-	-	<0.0010	<0.0010
calcium, total	mg/L	42500	24100	-	-	22900	23500	18900	19700	-	-	-	-	-	17400	17200
cesium, total	mg/L	2.98	1.75	-	-	1.62	1.69	1.22	1.24	-	-	-	-	-	1.08	1.13
chromium, total	mg/L	<0.250	<0.0200	-	-	<0.100	<0.100	<0.05	<0.05	-	-	-	-	-	<0.02	<0.02
cobalt, total	mg/L	<0.0500	<0.0200	-	-	<0.0200	<0.0200	0.0074	0.0057	-	-	-	-	-	0.0041	0.0047
copper, total	mg/L	<0.250	<0.100	-	-	<0.100	<0.100	0.189	0.111	-	-	-	-	-	<0.02	<0.02
iron, total	mg/L	<5.00	<2.00	-	-	<2.00	<2.00	<2.5	<2.5	-	-	-	-	-	<1	<1
lead, total	mg/L	<0.0250	<0.0100	-	-	<0.0100	<0.0100	<0.01	<0.01	-	-	-	-	-	<0.0040	<0.0040
lithium, total	mg/L	133	69.2	-	-	66.4	71.3	58.5	58.7	-	-	-	-	-	45.8	47.5
magnesium, total	mg/L	32.7	333	-	-	374	381	321	324	-	-	-	-	-	476	463
manganese, total	mg/L	<0.0500	0.212	-	-	0.229	0.239	0.08	0.061	-	-	-	-	-	0.291	0.262
mercury, total	mg/L	<0.0000050	<0.0000050	-	-	-	-	<0.00001	<0.00001	-	-	-	-	<0.00001	<0.00001	<0.00001
molybdenum, total	mg/L	0.0704	0.0434	-	-	0.038	0.0407	0.033	0.031	-	-	-	-	-	0.027	0.027
nickel, total	mg/L	<0.250	<0.100	-	-	<0.100	<0.100	0.286	0.188	-	-	-	-	-	<0.02	<0.02
phosphorus, total	mg/L	<25.0	<10.0	-	-	<10.0	<10.0	<2.5	<2.5	-	-	-	-	-	<1	<1
potassium, total	mg/L	1820	1090	-	-	1010	1030	825	839	-	-	-	-	-	678	700
rubidium, total	mg/L	7.17	4.01	-	-	3.6	3.7	-	-	-	-	-	-	-		
selenium, total	mg/L	<0.0250	0.0572	-	-	0.0368	0.0369	<0.02	<0.02	-	-	-	-	-	<0.0080	<0.0080
silicon, total	mg/L	<50.0	<20.0	-	-	<20.0	<20.0	<25	<25	-	-	-	-	-	<10	<10
silver, total	mg/L	<0.00500	<0.00200	-	-	<0.00200	<0.00200	<0.0050	<0.0050	-	-	-	-	-	<0.0020	<0.0020
sodium, total	mg/L	1460	3120	-	-	3360	3460	2970	3050	-	-	-	-	-	3900	3830
strontium, total	mg/L	1940	1170	-	-	1090	1100	891	887	-	-	-	-	-	788	781
sulfur, total	mg/L	<250	123	-	-	138	131	114	110	-	-	-	-	-	143	146
tellurium, total	mg/L	0.243	0.0704	-	-	0.064	0.0704	-	-	-	-	-	-	-	-	-
thallium, total	mg/L	0.198	0.11	-	-	0.0973	0.103	0.0665	0.0675	-	-	-	-	-	0.0535	0.0552
thorium, total	mg/L	<0.0500	<0.0200	-	-	<0.0200	<0.0200	-	-	-	-	-	-	-	-	-
tin, total	mg/L	<0.0500	<0.0200	-	-	<0.0200	<0.0200	<0.1	<0.1	-	-	-	-	-	<0.04	<0.04
titanium, total	mg/L	<0.150	<0.0600	-	-	<0.0600	<0.0600	<1	<1	-	-	-	-	-	<0.4	<0.4
tungsten, total	mg/L	<0.0500	<0.0200	-	-	<0.0200	<0.0200	-	-	-	-	-	-	-	-	-
uranium, total	mg/L	<0.00500	<0.00200	-	-	<0.00200	<0.00200	<0.0025	<0.0025	-	-	-	-	-	<0.0010	<0.0010
vanadium, total	mg/L	<0.250	<0.100	-	-	<0.100	<0.100	<0.1	<0.1	-	-	-	-	-	<0.04	<0.04
zinc, total	mg/L	<1.50	<0.600	-	-	<0.600	<0.600	2.6	1.53	-	-	-	-	-	0.945	0.619
zirconium, total	mg/L	<0.100	<0.0400	-	-	<0.0400	<0.0400	<0.05	<0.05	-	-	-	-	-	<0.02	<0.02
Aggregate Organics																
biochemical oxygen demand [BOD]	mg/L	57.2	-	-	-	-	-	6400	5200	-	-	--	--	--	1500	1500
chemical oxygen demand [COD]	mg/L	9450	23900	-	-	-	17000	8700	8600	-	-	--	--	2600	--	--
oil & grease (gravimetric)	mg/L	<5.0	<5.0	<5.0	<5.0	-	-	-	-	-	-	-	-	-	-	-
Radiological Parameters																
radium-226	Bq/L	11	8.8	8.2	9.6	-	-	6.7	9.1	-	-	9.3	11	-	-	-

Appendix D
Table D-1 Laboratory Results for Raw Water Quality Results from Westbay Well M20-3071
Meliadine Extension Agnico-Eagle Mines Limited

Sample Source		Port 4								Port 3						
Client Sample ID		Westbay-A-Port 4-1	Westbay-A-Port 4-1	Westbay-A-Port 4-2	Westbay-A-Port 4-2-DUP-1	Westbay-A-Port 4-2-DUP-1	Westbay-A-Port 4-2	PORT-4	PORT-4-DUP	Westbay-A-Port 3-1	Westbay-A-Port 3-1	PORT-3 AUG 16	PORT-3-DUP AUG 16	PORT-3-X-AUG 17	PORT-3 AUG 18	PORT 3 -DUP AUG 18
Date Sampled		19-Sep-2020	25-Sep-2020	27-Sep-2020	27-Sep-2020	28-Sep-2020	28-Sep-2020	5-Aug-21	5-Aug-21	28-Sep-2020	28-Sep-2020	16-Aug-21	16-Aug-21	17-Aug-21	18-Aug-21	18-Aug-21
Lab Sample ID		VA20B6509-005, L2508184-5	VA20B7020-001	VA20B7020-003	VA20B7020-004	VA20B7020-007	VA20B7020-008	QIG690, 210382-77438	QIG691	VA20B7020-005	VA20B7020-005	QLQ446	QLQ447	QLQ448, 210382-77440	QLQ451	QMN858
Sample Interval	mbgs	438.7 to 457.1								491.2 to 572.6						
Drilling Fluid Dye Concentration	ppb	820								795						
Sample Dye Concentration	ppb	746	460	428	428	415	415	411	411	277	277	313	313	312	309	309
Proportion of Drilling Fluid in Samples	%	91%	56%	52%	52%	51%	51%	50%	50%	35%	35%	39%	39%	39%	39%	39%
Proportion of Formation Groundwater in Samples	%	9%	44%	48%	48%	49%	49%	50%	50%	65%	65%	61%	61%	61%	61%	61%
Volatile Organic Compounds [BTEXS+MTBE]																
benzene	µg/L	<0.50	<0.50	<0.50	<0.50	-	-	<0.20	<0.20	-	-	-	-	<0.20	-	-
ethylbenzene	µg/L	<0.50	<0.50	<0.50	<0.50	-	-	<0.20	<0.20	-	-	-	-	<0.20	-	-
methyl-tert-butyl ether [MTBE]	µg/L	<0.50	<0.50	<0.50	<0.50	-	-	<0.50	<0.50	-	-	-	-	<0.50	-	-
styrene	µg/L	<0.50	<0.50	<0.50	<0.50	-	-	<0.40	<0.40	-	-	-	-	<0.40	-	-
toluene	µg/L	0.67	0.74	0.6	0.85	-	-	0.24	0.26	-	-	-	-	<0.20	-	-
xylene, m+p-	µg/L	0.71	<0.50	<0.50	0.68	-	-	<0.20	<0.20	-	-	-	-	<0.20	-	-
xylene, o-	µg/L	<0.50	<0.50	<0.50	<0.50	-	-	<0.20	<0.20	-	-	-	-	<0.20	-	-
xylenes, total	µg/L	<0.75	<0.75	<0.75	<0.75	-	-	<0.20	<0.20	-	-	-	-	<0.20	-	-
Hydrocarbons																
F1 (C6-C10)	µg/L	<100	<100	<100	<100	-	-	-	-	-	-	-	-	-	-	-
F2 (C10-C16)	µg/L	<100	<100	<100	<100	-	-	-	-	-	-	-	-	-	-	-
F3 (C16-C34)	µg/L	<250	<250	<250	<250	-	-	-	-	-	-	-	-	-	-	-
F4 (C34-C50)	µg/L	<250	<250	<250	<250	-	-	-	-	-	-	-	-	-	-	-
F1-BTEX	µg/L	<100	<100	<100	<100	-	-	-	-	-	-	-	-	-	-	-
TEH (C10-C50)	µg/L	<400	<400	<400	<400	-	-	-	-	-	-	-	-	-	-	-
TEH (C16-C50)	µg/L	<400	<400	<400	<400	-	-	-	-	-	-	-	-	-	-	-
EPH (C10-C19)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EPH (C19-C32)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LEPHw	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HEPHw	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Polycyclic Aromatic Hydrocarbons																
acenaphthene	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
acenaphthylene	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
acridine	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
anthracene	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
benz(a)anthracene	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
benzo(a)pyrene	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
benzo(b+j)fluoranthene	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
benzo(b+j+k)fluoranthene	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
benzo(g,h,i)perylene	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
benzo(k)fluoranthene	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
chrysene	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
dibenz(a,h)anthracene	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
fluoranthene	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
fluorene	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
indeno(1,2,3-c,d)pyrene	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
methylnaphthalene, 1-	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
methylnaphthalene, 2-	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
naphthalene	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
phenanthrene	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
pyrene	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
quinoline	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix D
Table D-1 Laboratory Results for Raw Water Quality Results from Westbay Well M20-3071
Meliadine Extension Agnico-Eagle Mines Limited

Sample Source		Port 4								Port 3						
Client Sample ID		Westbay-A-Port 4-1	Westbay-A-Port 4-1	Westbay-A-Port 4-2	Westbay-A-Port 4-2-DUP-1	Westbay-A-Port 4-2-DUP-1	Westbay-A-Port 4-2	PORT-4	PORT-4-DUP	Westbay-A-Port 3-1	Westbay-A-Port 3-1	PORT-3 AUG 16	PORT-3-DUP AUG 16	PORT-3-X-AUG 17	PORT-3 AUG 18	PORT 3 -DUP AUG 18
Date Sampled		19-Sep-2020	25-Sep-2020	27-Sep-2020	27-Sep-2020	28-Sep-2020	28-Sep-2020	5-Aug-21	5-Aug-21	28-Sep-2020	28-Sep-2020	16-Aug-21	16-Aug-21	17-Aug-21	18-Aug-21	18-Aug-21
Lab Sample ID		VA20B6509-005, L2508184-5	VA20B7020-001	VA20B7020-003	VA20B7020-004	VA20B7020-007	VA20B7020-008	QIG690, 210382-77438	QIG691	VA20B7020-005	VA20B7020-005	QLQ446	QLQ447	QLQ448, 210382-77440	QLQ451	QMN858
Sample Interval	mbgs	438.7 to 457.1								491.2 to 572.6						
Drilling Fluid Dye Concentration	ppb	820								795						
Sample Dye Concentration	ppb	746	460	428	428	415	415	411	411	277	277	313	313	312	309	309
Proportion of Drilling Fluid in Samples	%	91%	56%	52%	52%	51%	51%	50%	50%	35%	35%	39%	39%	39%	39%	39%
Proportion of Formation Groundwater in Samples	%	9%	44%	48%	48%	49%	49%	50%	50%	65%	65%	61%	61%	61%	61%	61%
Volatile Organic Compounds																
bromodichloromethane	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
bromoform	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
carbon tetrachloride	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
chlorobenzene	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
chloroethane	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
chloroform	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
chloromethane	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
dibromochloromethane	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
dichlorobenzene, 1,2-	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
dichlorobenzene, 1,3-	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
dichlorobenzene, 1,4-	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
dichloroethane, 1,1-	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
dichloroethane, 1,2-	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
dichloroethylene, 1,1-	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
dichloroethylene, cis-1,2-	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
dichloroethylene, trans-1,2-	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
dichloromethane	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
dichloropropane, 1,2-	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
dichloropropylene, cis+trans-1,3-	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
dichloropropylene, cis-1,3-	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
dichloropropylene, trans-1,3-	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
tetrachloroethane, 1,1,1,2-	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
tetrachloroethane, 1,1,2,2-	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
tetrachloroethylene	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
trichloroethane, 1,1,1-	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
trichloroethane, 1,1,2-	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
trichloroethylene	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
trichlorofluoromethane	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
vinyl chloride	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bacteriological Tests																
bacteria, sulfate reducing	CFU/1mL	<1	<1	<1	<1	-	-	-	-	-	-	-	-	-	-	-
Isotopes																
$\delta^{18}O$ of H_2O	‰ VSMOW	-	-14.63	-	-	-	-14.74	-14.78	-	-15.87	-15.87	-	-	-15.38	-	-
$\delta^{2}H$ of H_2O	‰ VSMOW	-	-116.2	-	-	-	-116.5	-115.9	-	-121.8	-121.8	-	-	-119.1	-	-
$\delta^{18}O$ of SO_4	‰ VSMOW		-	-	-	-	-	11.2	-	-	-	-	-	10.9		-
$\delta^{34}S$ of SO_4	‰ VCDT		-	-	-	-	-	38.9	-	-	-	-	-	39.3	-	-
$87Sr/^{86}Sr$	--	-	-	-	-	-	-	0.70917	-	-	-	-	-	0.70928	-	-
QA/QC																
Field Conductivity vs Lab Conductivity	-	1.5	1.0	1.0	1.0	-	-	1.0	1.0	-	-	1.2	1.2	-	1.0	-
Calculated TDS (lab)	mg/L	126767	90982	54610	57839	-	-	73153	73748	-	-	-	-	-	-	-
Lab measured vs Calculated TDS	%	98%	102%	71%	92%	-	-	83%	83%	-	-	-	-	-	-	-
Lab measured TDS vs Lab Conductivity	-	1.6	0.9	0.8	0.7	-	-	97%	97%	-	-	86%	85%	-	85%	-

Notes:
Average field measured parameters reported for Ports 4 and 8
- parameter was not analyzed
* parameter could not be accurately measured in field due to equipn
underline parameter exceeds laboratory calibration range

Appendix D
Table D-2 - Corrected Water Quality Results for Westbay Well M20-3071 Port 8
Meliadine Extension Agnico Eagle Mines Limited

Location			Raw Results Port 8				Corrected Results Port 8											
Client Sample ID		Drilling Fluid (Average 225 and 360 mah)	Westbay-A-Port 8-0.29	Westbay-A-Port 8-29%DUP-1	Port-8	Port-8 DUP	Westbay-A-Port 8-0.29			Westbay-A-Port 8-29%DUP-1			Port-8			Port-8 DUP		
Date Sampled			20-Sep-2020	20-Sep-2020	1-Aug-21	1-Aug-21	20-Sep-2020		20-Sep-2020	20-Sep-2020			1-Aug-21		1-Aug-21	1-Aug-21		1-Aug-21
Golder ID			-	-	-	-	2020 Sample 1		2020 Sample 1 average	2020 Sample 1 Duplicate		2020 Sample 1 duplicate average	2021 Sample 1		2020 Sample 1 Average	2021 Sample 1 Duplicate		2020 Sample 1 Average
Lab Sample ID			VA20B6509-007	VA20B6509-008	QHF616	QHF617	VA20B6509-007		Average VA20B6509-007	VA20B6509-008		Average VA20B6509-008	QHF616		Average QHF616	QHF617		Average QHF616
Sample Interval	mbgs	-	310.8 to 326.9		310.8 to 326.9		310.8 to 326.9		310.8 to 326.9	310.8 to 326.9		310.8 to 326.9	310.8 to 326.9			310.8 to 326.9		
Drilling Fluid Dye Concentration	ppb	-	758 to 809		758 to 809		758	809	758 to 809	758	809	758 to 809	758	809	809	758	809	809
Sample Dye Concentration	ppb	-	237		101		237	237	237	237	237	237	101	101	101	101	101	101
Proportion of Drilling Fluid in Samples	%	100%	29 to 31%		13%		31%	29%	29% to 31%	31%	29%	29% to 31%	13%	13%	13%	13%	13%	13%
Proportion of Formation Groundwater in Samples	%	0%	69 to 71%		87%		69%	71%	69 to 71%	69%	71%	69 to 71%	87%	87%	87%	87%	87%	87%
electrical conductivity	µS/cm	128500	52300	81000	61600	60900	17660	20728	19194	59407	61319	60363	51296	52034	51665	50488	51234	50861
alkalinity, total (as CaCO3)	mg/L	1016	247	251	120	120												
hardness (as CaCO3), dissolved	mg/L	109600	37000	35300	22500	21600	3996	6919	5458	1523	4515	3019	9085	10045	9565	8046	9016	8531
pH	-	9.48	8.99	9.01	9	9	8.77	8.79	8.78	8.80	8.82	8.81	8.49	8.50	8.49	8.51	8.52	8.52
Lab Measured TDS	mg/L	149500	62400	68500	42500	45600	22805	26311	24558	31678	34939	33308						
Calculated TDS (Cl, SO4, Ca, Mg, Na, K, Sr)	mg/L	124304	55400	58539	41337	42799	24798	26637	25914	29835	31135	30485	26020	27200	26610	29598	30743	30170
solids, total suspended [TSS]	mg/L	2419	163	11	47	47												
turbidity	NTU	346.8	10.9	11.8	6	4												
alkalinity, phenolphthalein (as CaCO3)	mg/L	118.7	44.4	-	26	28	10.6	13.6	12.1	-	-	-	11.7	12.7	12.2	14.0	15.0	14.5
alkalinity, hydroxide (as CaCO3)	mg/L	<2.0	<2.0	<1.0	-	-	<2.0	<2.0	<2.0	<1.0	<1.0	<1.0						
alkalinity, carbonate (as CaCO3)	mg/L	237	88.8	139	-	-	21	27	24	94	98	96						
alkalinity, bicarbonate (as CaCO3)	mg/L	777.5	158	112	-	-												
bicarbonate	mg/L	948.5	193	137	80	77												
salinity	psu	104.6	38.6	53.4	47	46	8.6	11.3	9.9	30	32	31	38	39	38	37	38	37
carbonate	mg/L	142.5	53.3	83.3	32	34	12.7	16.3	14.5	56.4	58.8	57.6	15.0	16.2	15.6	17.3	18.5	17.9
hydroxide	mg/L	<2.0	<2.0	<1.0	-	-	<2.0	<2.0	<2.0	<1.0	<1.0	<1.0						
Anions and Nutrients																		
Kjeldahl nitrogen, total [TKN]	mg/L	59.4	1.46	1.54	3.7	4.5												
ammonia, total (as N)	mg/L	9.435	1.12	1.09	1.4	1.4							0.2	0.3	0.2	0.2	0.3	0.2
bromide	mg/L	269	127	144	99	110	62	68	65	87	92	90	73	75	74	86	87	86
chloride	mg/L	74550	32700	36800	25000	27000	13675	15360	14518	19639	21159	20399	17368	17915	17642	19676	20201	19939
fluoride	mg/L	<2.00	<2.00	<2.00	0.15	0.14	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	0.15	0.15	0.15	0.14	0.14	0.14
nitrate (as N)	mg/L	4.79	1.3	1.48	0.63	0.62					0.11	0.05	0.00	0.04	0.02	0.00	0.02	0.01
nitrite (as N)	mg/L	<0.100	<0.100	<0.100	<0.050	<0.050	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
phosphate, ortho-, dissolved (as P)	mg/L	0.0337	0.0032	0.0032	0.014	0.013							0.011	0.011	0.011	0.010	0.010	0.010
phosphorus, total	mg/L	0.0423	0.0343	0.0317	<0.10	<0.10	0.0307	0.0310	0.0308	0.0269	0.0273	0.0271	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
silicate (as SiO2)	mg/L	<25.0	5.18	5.4	10	11	5.18	5.18	5.18	5.4	5.4	5.4	10.0	10.0	10.0	11.0	11.0	11.0
sulphate (as SO4)	mg/L	15	766	861	970	970	766	766	766	861	861	861	1115	1104	1110	1115	1104	1110
Cyanides																		
cyanide, free	mg/L	<0.0200	<0.0200	<0.0200	0.0016	0.0018	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	0.0016	0.0016	0.0016	0.0018	0.0018	0.0018
cyanide, strong acid dissociable (total)	mg/L	<0.0200	<0.0200	<0.0200	<0.0050	<0.0050	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
cyanide, weak acid dissociable	mg/L	<0.0200	<0.0200	<0.0200	<0.0010	<0.0010	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Organic / Inorganic Carbon																		
carbon, dissolved organic [DOC]	mg/L	192	216	218	210	340	227	226	226	230	229	229	213	213	213	363	361	362
carbon, total organic [TOC]	mg/L	228	212	212	210	210	205	206	205	205	206	205	207	207	207	207	207	207
Dissolved Metals																		
aluminum, dissolved	mg/L	<0.500	<0.100	<0.100	0.064	<0.05	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	0.064	0.064	0.064	<0.05	<0.05	<0.05
antimony, dissolved	mg/L	<0.0500	<0.0100	<0.0100	<0.0020	<0.0020	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
arsenic, dissolved	mg/L	<0.0500	<0.0100	<0.0100	0.0041	0.0029	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	0.0041	0.0041	0.0041	0.0029	0.0029	0.0029
barium, dissolved	mg/L	12.4	3.22	2.94	1.28	1.22												
beryllium, dissolved	mg/L	<0.0500	<0.00200	<0.00200	<0.0010	<0.0010	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
bismuth, dissolved	mg/L	<0.0250	<0.00500	<0.00500	<0.00050	<0.00050	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00050	<0.00050	<0.00500	<0.00050	<0.00050	<0.00050
boron, dissolved	mg/L	153.5	37	34.6	17.6	17.2												
cadmium, dissolved	mg/L	<0.00250	<0.000500	<0.000500	<0.00050	<0.00050	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
calcium, dissolved	mg/L	43850	13400	12800	7560	7240		783	783				1971	2371	2171	1601	2005	1803

Appendix D
Table D-2 - Corrected Water Quality Results for Westbay Well M20-3071 Port 8
Meliadine Extension Agnico Eagle Mines Limited

Location			Raw Results Port 8				Corrected Results Port 8											
Client Sample ID		Drilling Fluid (Average 225 and 360 mah)	Westbay-A-Port 8-0.29	Westbay-A-Port 8-29%DUP-1	Port-8	Port-8 DUP	Westbay-A-Port 8-0.29			Westbay-A-Port 8-29%DUP-1			Port-8			Port-8 DUP		
Date Sampled			20-Sep-2020	20-Sep-2020	1-Aug-21	1-Aug-21	20-Sep-2020		20-Sep-2020	20-Sep-2020		20-Sep-2020	1-Aug-21		1-Aug-21	1-Aug-21		1-Aug-21
Golder ID			-	-	-	-	2020 Sample 1		2020 Sample 1 average	2020 Sample 1 Duplicate		2020 Sample 1 duplicate average	2021 Sample 1		2020 Sample 1 Average	2021 Sample 1 Duplicate		2020 Sample 1 Average
Lab Sample ID			VA20B6509-007	VA20B6509-008	QHF616	QHF617	VA20B6509-007		Average VA20B6509-007	VA20B6509-008		Average VA20B6509-008	QHF616		Average QHF616	QHF617		Average QHF616
Sample Interval	**mbgs**	-	310.8 to 326.9		310.8 to 326.9		310.8 to 326.9		310.8 to 326.9	310.8 to 326.9		310.8 to 326.9	310.8 to 326.9			310.8 to 326.9		
Drilling Fluid Dye Concentration	**ppb**	-	758 to 809		758 to 809		758	809	758 to 809	758	809	758 to 809	758	809	809	758	809	809
Sample Dye Concentration	**ppb**	-	237		101		237	237	237	237	237	237	101	101	101	101	101	101
Proportion of Drilling Fluid in Samples	**%**	100%	29 to 31%		13%		31%	29%	29% to 31%	31%	29%	29% to 31%	13%	13%	13%	13%	13%	13%
Proportion of Formation Groundwater in Samples	**%**	0%	69 to 71%		87%		69%	71%	69 to 71%	69%	71%	69 to 71%	87%	87%	87%	87%	87%	87%
cesium, dissolved	mg/L	3.92	0.919	0.913	343	334							395	391	393	385	381	383
chromium, dissolved	mg/L	<0.0500	<0.0500	<0.0500	<0.01	<0.01	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
cobalt, dissolved	mg/L	<0.0500	<0.0100	<0.0100	0.00218	0.00194	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	0.00218	0.00218	0.00218	0.00194	0.00194	0.00194
copper, dissolved	mg/L	<0.100	<0.0200	<0.0200	<0.0050	0.0069	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0050	<0.0050	<0.0050	0.0069	0.0069	0.0069
iron, dissolved	mg/L	<5.00	<1.00	<1.00	0.709	<0.1	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	0.709	0.709	0.709	<0.1	<0.1	<0.1
iron, ferrous [Fe II], dissolved	mg/L	-	0.024	0.039	-	-	0.024	0.024	0.024	0.039	0.039	0.039	-	-	-	-	-	-
lead, dissolved	mg/L	<0.0250	<0.00500	<0.00500	<0.00050	<0.00050	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00050	<0.00050	<0.00500	<0.00050	<0.00050	<0.00500
lithium, dissolved	mg/L	166.5	39.8	37	16.7	15.9												
magnesium, dissolved	mg/L	19.3	865	812	873	866	1249	1215	1232	1172	1140	1156	1004	995	1000	996	987	992
manganese, dissolved	mg/L	<0.0500	0.657	0.626	0.972	0.928	0.657	0.657	0.657	0.626	0.626	0.626	0.972	0.972	0.972	0.928	0.928	0.928
mercury, dissolved	mg/L	<0.0000500	<0.0000050	<0.0000050	<0.00001	<0.00001	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
molybdenum, dissolved	mg/L	0.043	0.0196	0.021	0.0106	0.0103	0.009	0.010	0.009	0.011	0.012	0.011	0.005555903	0.005917	0.00574	0.00521	0.00557	0.00539
nickel, dissolved	mg/L	<0.250	<0.0500	<0.0500	0.0039	0.0087	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	0.004	0.004	0.004	0.009	0.009	<0.0500
phosphorus, dissolved	mg/L	<25.0	<5.00	<5.00	<0.200	<0.200	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200
potassium, dissolved	mg/L	2240	607	571	285	283								5.45	5.45		3	
rubidium, dissolved	mg/L	8.7	2.34	2.23	-	-							-	-	-	-	-	-
selenium, dissolved	mg/L	<0.0250	<0.00500	<0.00500	<0.0040	<0.0040	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.0040	<0.0040	<0.00500	<0.0040	<0.0040	<0.0040
silicon, dissolved	mg/L	<25.0	<5.00	<5.00	<5	<5	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5	<5	<5.00	<5	<5	<5
silver, dissolved	mg/L	<0.00500	<0.00100	<0.00100	<0.00050	<0.00050	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
sodium, dissolved	mg/L	1370	6420	6040	6290	6090	8716	8512	8614	8163	7975	8069	7048	6994	7021	6817	6765	6791
strontium, dissolved	mg/L	2260	642	655	359	350							66	87	77	56	77	66
sulfur, dissolved	mg/L	<250	270	261	327	<300	270	270	270	261	261	261	327	327	327	<300	<300	<300
tellurium, dissolved	mg/L	0.162	0.038	0.0438	-	-							-	-	-	-	-	-
thallium, dissolved	mg/L	0.293	0.0532	0.0532	0.0194	0.0193												
thorium, dissolved	mg/L	<0.0500	<0.0100	<0.0100	-	-	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	-	-	-	-	-	-
tin, dissolved	mg/L	<0.0500	<0.0100	<0.0100	<0.02	<0.02	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
titanium, dissolved	mg/L	<0.150	<0.0300	<0.0300	<0.05	<0.05	<0.0300	<0.0300	<0.0300	<0.0300	<0.0300	<0.0300	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
tungsten, dissolved	mg/L	<0.0500	0.0112	0.0109	-	-	0.0112	0.0112	0.0112	0.0109	0.0109	0.0109	-	-	-	-	-	-
uranium, dissolved	mg/L	<0.00500	0.00262	0.00259	0.00282	0.00294	0.00262	0.00262	0.00262	0.00259	0.00259	0.00259	0.00	0.00	0.00	0.00294	0.00294	0.00294
vanadium, dissolved	mg/L	<0.250	<0.0500	<0.0500	<0.02	<0.02	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
zinc, dissolved	mg/L	1.815	<0.100	<0.100	0.274	0.207	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	0.04	0.05	0.05			
zirconium, dissolved	mg/L	<0.100	<0.0300	<0.0300	<0.01	<0.01	<0.0300	<0.0300	<0.0300	<0.0300	<0.0300	<0.0300	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Aggregate Organics																		
biochemical oxygen demand [BOD]	mg/L	165	537	621	270	260	706	691	699	828	810	819	286	285	286	275	274	274
chemical oxygen demand [COD]	mg/L	9310	2180	3770	840	880				1252	1475	1363						
oil & grease (gravimetric)	mg/L	<5.0	<5.0	<5.0	-	-	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	-	-	-	-	-	-
Radiological Parameters																		
radium-226	Bq/L	5.4	3.9	4.1	3.8	3.1	3.2	3.3	3.3	3.5	3.6	3.6	3.6	3.6	3.6	2.8	2.8	2.8
Volatile Organic Compounds [BTEXS+MTBE]																		
benzene	µg/L	<0.50	<0.50	<0.50	<0.20	<0.20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
ethylbenzene	µg/L	<0.50	<0.50	<0.50	<0.20	<0.20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
methyl-tert-butyl ether [MTBE]	µg/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
styrene	µg/L	<0.50	<0.50	<0.50	<0.40	<0.40	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40
toluene	µg/L	0.55	<0.50	<0.50	<0.20	<0.20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
xylene, m+p-	µg/L	<0.50	<0.50	<0.50	<0.20	<0.20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
xylene, o-	µg/L	<0.50	<0.50	<0.50	<0.20	<0.20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
xylenes, total	µg/L	<0.75	<0.75	<0.75	<0.20	<0.20	<0.75	<0.75	<0.75	<0.75	<0.75	<0.75	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Hydrocarbons																		
F1 (C6-C10)	µg/L	-	<100	<100	-	-	<100	<100	<100	<100	<100	<100	-	-	-	-	-	-
F2 (C10-C16)	µg/L	-	<100	<100	-	-	<100	<100	<100	<100	<100	<100	-	-	-	-	-	-
F3 (C16-C34)	µg/L	-	<250	<250	-	-	<250	<250	<250	<250	<250	<250	-	-	-	-	-	-
F4 (C34-C50)	µg/L	-	<250	<250	-	-	<250	<250	<250	<250	<250	<250	-	-	-	-	-	-
F1-BTEX	µg/L	-	<100	<100	-	-	<100	<100	<100	<100	<100	<100	-	-	-	-	-	-
TEH (C10-C50)	µg/L	-	<400	<400	-	-	<400	<400	<400	<400	<400	<400	-	-	-	-	-	-
TEH (C16-C50)	µg/L	-	<400	<400	-	-	<400	<400	<400	<400	<400	<400	-	-	-	-	-	-

Notes:
Shaded result indicates a low estimated concentration (calculations returned a negative value)
underline parameter exceeds laboratory calibration range
- parameter was not analyzed

Appendix D
Table D-3 - Salinity Corrected Water Isotope Results for Westbay Well M20-3071
Meliadine Extension Agnico Eagle Mines Limited

Sample ID	Laboratory Result					Salinity corrected (‰ VSMOW)		Proportion Drill Water in Sample	Proportion Formation Groundwater in Sample	Drill Fluid Corrected	
	(‰ VSMOW)			VCDT ± 0.5‰	-	(‰ VSMOW)				(‰ VSMOW)	
	δ2H	δ18O	δ18O of SO4	δ34S of SO4	$^{87}Sr/^{86}Sr$	δ2H	δ18O			δ2H	δ18O
225-BR Drilling Fluid	-106.00	-13.32	--	--	--	-99.29	-12.77	--	--	--	--
360-BR Drilling Fluid	-107.28	-13.58	--	--	--	-101.73	-13.13	--	--	--	--
606 Drilling Fluid	-105.51	-12.79	--	--	--	--	--	--	--	--	--
606-BR BH Flush	-106.51	-13.28	--	--	--	-99.79	-12.72	--	--	--	--
Port 8-29% (20-Sep-20)	-117.30	-15.31	--	--	--	-115.20	-15.11	0.29	0.71	-120.70	-15.93
Port 8-29% (20-Sep-20)	-117.30	-15.31	--	--	--	-115.20	-15.11	0.31	0.69	-121.25	-16.01
Port 8-29% (20-Sep-20) - DUP	-117.04	-15.03	--	--	--	-115.04	-14.85	0.29	0.71	-120.48	-15.55
Port 8-29% (20-Sep-20) - DUP	-117.04	-15.03	--	--	--	-115.04	-14.85	0.31	0.69	-121.02	-15.62
Port 4-95% (19-Sep-20)	-105.73	-12.74	--	--	--	-100.24	-12.30	0.95	0.05	--	--
Port 4-56% (25-Sep-20)	-116.24	-14.63	--	--	--	-112.86	-14.34	0.56	0.44	-128.93	-16.95
Port 3-35% (28-Sep-20)	-121.76	-15.87	--	--	--	--	--	0.35	0.65	-133.35	-17.79
Port 9-30% (28-Sep-20)	-124.23	-15.84	--	--	--	--	--	0.30	0.70	-133.87	-17.00
Port 4-51% (28-Sep-20)	-116.49	-14.74	--	--	--	-113.35	-14.47	0.51	0.49	-127.00	-16.73
Port 8-13% (1-Aug-21)	-119.24	-15.73	6.7	26.9	0.71	-117.95	-15.61	0.13	0.87	-120.37	-15.98
Port 8-13% (1-Aug-21) - DUP	-119.71	-15.82	7.9	24.5	0.71	-118.47	-15.70	0.13	0.87	-120.97	-16.08
Port 9-33% (1-Aug-21)	-123.64	-15.91	7.7	28.6	0.71	-121.50	-15.72	0.33	0.67	-131.23	-17.00
Port 4-50% (5-Aug-21)	-115.92	-14.78	11.2	38.9	0.71	-113.19	-14.55	0.50	0.50	-126.15	-16.80
Port 3-39% (17-Aug-21)	-119.11	-15.38	10.9	39.3	0.71	-116.69	-15.17	0.39	0.61	-127.21	-17.02
Lake CH6 (25-Aug-21)	-114.55	-14.73	5.3	5.0	0.71	--	--	--	--	--	--

Notes:
-- Not applicable
Ports 8 and 9 data corrected for drill fluid using 360-BR Drilling Fluid salinity corrected isotope results.
Ports 3 and 4 data corrected for drill fluid using Port-4-95% salinity corrected isotope results.
NES - not enough sample to complete analysis (analysis result of on Lake CH6 dup expected end of January 2022)
Drill fluid corrections only apply to parameters analyzed in drill fluid

APPENDIX E

2021 Laboratory Certificates of Analysis

Laboratory Report No. R6832141 – 1 August 2021
Laboratory Report No. R6832150 – 5 August 2021
Laboratory Report No. R6832131 – 16, 17 and 18 August 2021
Laboratory Report No. R6815934 – 24 August 2021
Laboratory Report No. R6815941 – 25 August 2021
Laboratory Report No. 210382 (Isotopes) – various dates

Sample Identification	Sample Description	Sample Date	Laboratory Report No.
Port-8	Raw water sample collected from Port 8 containing 13%	1-Aug-21	R6832141, 210382
Port-8-DUP-1	Raw water sample collected from Port 8 containing 13% drill fluid duplicate for QA/QC purposes		
Port-9	Raw water sample collected from Port 9 containing 39% drill fluid		
Port-9-DUP-1	Raw water sample collected from Port 9 containing 39% drill fluid duplicate for QA/QC purposes		
Port-4	Raw water sample collected from Port 4 containing 50-51% drill fluid	5-Aug-21	R6832150, 210382
Port-4-DUP	Raw water sample collected from Port 4 containing 50-51% drill fluid duplicate for QA/QC purposes		
Port-3 AUG 16	Raw water sample collected from Port 3 containing 41% drill fluid (missing parameters)	16-Aug-21	R6832131, 210382
Port-3 DUP AUG 16	Raw water sample collected from Port 3 containing 41% drill fluid duplicate for QA/QC purposes (missing parameters)		
Port-3-X AUG 17	Raw water sample collected from Port 3 containing 39% drill fluid (missing parameters)	17-Aug-21	
Port-3 AUG 18	Raw water sample collected from Port 3 containing 39% drill fluid (missing parameters)	18-Aug-21	
Port-3 DUP AUG 18	Raw water sample collected from Port 3 containing 39% drill fluid duplicate for QA/QC purposes (missing parameters)		
Trip Blank	Trip blank for QA/QC purposes	24-Aug-21	R6815934, 210382
Equipment Blank	Equipment blank for QA/QC purposes		
Lake CH6	Surface water sample collected from Lake CH6 (source of drill fluid)	25-Aug-21	R6815941, 210382

Your Project #: 21468783
Site Location: Westbay - Meliadine Mine
Your C.O.C. #: 383243

Attention: Dale Holtze

Golder Associates Ltd
1931 Robertson Rd
Ottawa, ON
CANADA K2H 5B7

Report Date: 2021/09/29
Report #: R6832141
Version: 3 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BV LABS JOB #: C1L9664
Received: 2021/08/04, 09:30

Sample Matrix: Sea Water
Samples Received: 4

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Biochemical Oxygen Demand (BOD) (1)	4	2021/08/12	2021/08/17	CAM SOP-00427	SM 23 5210B m
Chemical Oxygen Demand (1)	4	N/A	2021/08/13	CAM SOP-00416	SM 23 5220 D m
Conductivity (1)	4	N/A	2021/08/16	CAM SOP-00414	SM 23 2510 m
Free (WAD) Cyanide (1)	4	N/A	2021/08/16	CAM SOP-00457	OMOE E3015 m
Total Cyanide (1)	4	2021/08/16	2021/08/16	CAM SOP-00457	OMOE E3015 5 m
Dissolved Organic Carbon (DOC) (1, 6)	3	N/A	2021/08/13	CAM SOP-00446	SM 23 5310 B m
Dissolved Organic Carbon (DOC) (1, 6)	1	N/A	2021/08/19	CAM SOP-00446	SM 23 5310 B m
Field Measured Conductivity (1, 7)	2	N/A	2021/08/04		Field Meter
Field Measured Conductivity (1, 7)	2	N/A	2021/08/05		Field Meter
Field Measured TDS (1, 7)	4	N/A	2021/08/05		Field TDS Meter
Fluoride (1)	4	2021/08/14	2021/08/16	CAM SOP-00449	SM 23 4500-F C m
Dissolved Mercury (low level) (1)	4	2021/08/17	2021/08/17	CAM SOP-00453	EPA 7470 m
Mercury (low level) (1)	1	2021/08/16	2021/08/16	CAM SOP-00453	EPA 7470 m
Mercury (low level) (1)	3	2021/08/17	2021/08/17	CAM SOP-00453	EPA 7470 m
Alkalinity @ 25C (pp,total), CO3,HCO3,OH (2)	4	N/A	2021/08/14		
Bromide in water by IC (2)	4	N/A	2021/08/14		
Low Level Chloride and Sulphate by AC (2)	4	N/A	2021/08/17	AB SOP-00020 / AB SOP-00018	SM23 4500-CL/SO4-E m
Cyanide (Free) (2)	4	2021/08/17	2021/08/17	CAL SOP-00266	EPA 9016d R0 m
Hardness Total (calculated as CaCO3) (3, 8)	2	N/A	2021/08/18	BBY WI-00033	Auto Calc
Hardness Total (calculated as CaCO3) (3, 8)	2	N/A	2021/08/20	BBY WI-00033	Auto Calc
Hardness (calculated as CaCO3) (3)	2	N/A	2021/08/16	BBY WI-00033	Auto Calc
Hardness (calculated as CaCO3) (3)	2	N/A	2021/08/20	BBY WI-00033	Auto Calc
ICP-OES Dissolved Metals in Water (3)	2	N/A	2021/09/28		
ICP-OES Total Metals in Water (3)	2	2021/09/27	2021/09/28		
Na, K, Ca, Mg, S by CRC ICPMS (diss.) (3)	2	N/A	2021/08/16	BBY WI-00033	Auto Calc
Na, K, Ca, Mg, S by CRC ICPMS (diss.) (3)	2	N/A	2021/08/20	BBY WI-00033	Auto Calc
Elements by ICPMS Low Level (dissolved) (3)	2	N/A	2021/08/14	BBY7SOP-00002	EPA 6020B R2 m
Elements by ICPMS Low Level (dissolved) (3)	2	N/A	2021/08/19	BBY7SOP-00002	EPA 6020B R2 m
Elements by ICPMS Low Level (total) (3)	2	2021/08/17	2021/08/17	BBY7SOP-00003 / BBY7SOP-00002	EPA 6020b R2 m

Your Project #: 21468783
Site Location: Westbay - Meliadine Mine
Your C.O.C. #: 383243

Attention: Dale Holtze

Golder Associates Ltd
1931 Robertson Rd
Ottawa, ON
CANADA K2H 5B7

Report Date: 2021/09/29
Report #: R6832141
Version: 3 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BV LABS JOB #: C1L9664
Received: 2021/08/04, 09:30

Sample Matrix: Sea Water
Samples Received: 4

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Elements by ICPMS Low Level (total) (3)	2	2021/08/19	2021/08/19	BBY7SOP-00003 / BBY7SOP-00002	EPA 6020b R2 m
Na, K, Ca, Mg, S by CRC ICPMS (total) (3)	2	N/A	2021/08/18	BBY WI-00033	Auto Calc
Na, K, Ca, Mg, S by CRC ICPMS (total) (3)	2	N/A	2021/08/20	BBY WI-00033	Auto Calc
Ammonia-N Unpreserved Low Level seawater (2, 9)	4	N/A	2021/08/18	AB SOP-00007	SM 23 4500 NH3 A G m
pH @25°C (2, 10)	4	N/A	2021/08/14	AB SOP-00005	SM 23 4500-H+B m
Orthophosphate by Konelab (low level) (3)	4	N/A	2021/08/13		
Silica (Reactive) (2)	4	N/A	2021/08/21	AB SOP-00011	EPA370.1 R1978 m
Total Phosphorus Low Level Total (2)	4	2021/08/18	2021/08/19	AB SOP-00024	SM 23 4500-P A,B,F m
Total Ammonia (as NH3) (1)	4	N/A	2021/08/24	Auto Calc.	
Nitrate (NO3) and Nitrite (NO2) in Water (1, 11)	2	N/A	2021/08/16	CAM SOP-00440	SM 23 4500-NO3I/NO2B
Nitrate (NO3) and Nitrite (NO2) in Water (1, 11)	2	N/A	2021/08/17	CAM SOP-00440	SM 23 4500-NO3I/NO2B
pH (1)	4	2021/08/14	2021/08/16	CAM SOP-00413	SM 4500H+ B m
Field Measured pH (1, 7)	4	N/A	2021/08/05		Field pH Meter
Radium-226 Low Level (4, 12)	4	N/A	2021/08/21	BQL SOP-00006 BQL SOP-00017 BQL SOP-00032	Alpha Spectrometry
Salinity (5, 13)	4	N/A	2021/08/20		SM 22 2520B
Total Dissolved Solids (1)	4	2021/08/13	2021/08/14	CAM SOP-00428	SM 23 2540C m
Field Temperature (1, 7)	4	N/A	2021/08/05		Field Thermometer
Total Kjeldahl Nitrogen in Water (1)	4	2021/08/13	2021/08/13	CAM SOP-00938	OMOE E3516 m
Total Organic Carbon (TOC) (1, 14)	3	N/A	2021/08/14	CAM SOP-00446	SM 23 5310B m
Total Organic Carbon (TOC) (1, 14)	1	N/A	2021/08/20	CAM SOP-00446	SM 23 5310B m
Low Level Total Suspended Solids (1)	4	2021/08/14	2021/08/16	CAM SOP-00428	SM 23 2540D m
Turbidity (1)	4	N/A	2021/08/13	CAM SOP-00417	SM 23 2130 B m
Volatile Organic Compounds in Water (1)	4	N/A	2021/08/16	CAM SOP-00228	EPA 8260C 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

Your Project #: 21468783
Site Location: Westbay - Meliadine Mine
Your C.O.C. #: 383243

Attention: Dale Holtze

Golder Associates Ltd
1931 Robertson Rd
Ottawa, ON
CANADA K2H 5B7

Report Date: 2021/09/29
Report #: R6832141
Version: 3 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BV LABS JOB #: C1L9664
Received: 2021/08/04, 09:30

writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

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

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

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

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

(1) This test was performed by Bureau Veritas Mississauga, 6740 Campobello Rd , Mississauga, ON, L5N 2L8
(2) This test was performed by Bureau Veritas Calgary (19th), 4000 19th Street NE , Calgary, AB, T2E 6P8
(3) This test was performed by Bureau Veritas Burnaby, 4606 Canada Way , Burnaby, BC, V5G 1K5
(4) This test was performed by Bureau Veritas Kitimat, 6790 Kitimat Road, Unit 4 , Mississauga, ON, L5N 5L9
(5) This test was performed by Bureau Veritas Bedford, 200 Bluewater Rd Suite 105, Bedford, NS, B4B 1G9
(6) Dissolved Organic Carbon (DOC) present in the sample should be considered as non-purgeable DOC.
(7) This is a field test, therefore, the results relate to items that were not analysed at Bureau Veritas Laboratories.
(8) "Total Hardness" was calculated from Total Ca and Mg concentrations and may be biased high (Hardness, or Dissolved Hardness, calculated from Dissolved Ca and Mg, should be used for compliance if available).
(9) Dissolved Ammonia > Total Ammonia Imbalance: When applicable, Dissolved Ammonia and Total Ammonia results were reviewed and data quality meets acceptable levels unless otherwise noted. Dissolved Ammonia > Dissolved Total Kjeldahl Nitrogen Imbalance: When applicable, Dissolved Ammonia and Dissolved Total Kjeldahl Nitrogen results were reviewed and data quality meets acceptable levels unless otherwise noted.
(10) The CCME method requires pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the CCME holding time. Bureau Veritas Laboratories endeavours to analyze samples as soon as possible after receipt.
(11) Values for calculated parameters may not appear to add up due to rounding of raw data and significant figures.
(12) Radium-226 results have not been corrected for blanks.
(13) Non-accredited test method
(14) Total Organic Carbon (TOC) present in the sample should be considered as non-purgeable TOC.

Your Project #: 21468783
Site Location: Westbay - Meliadine Mine
Your C.O.C. #: 383243

Attention: Dale Holtze

Golder Associates Ltd
1931 Robertson Rd
Ottawa, ON
CANADA K2H 5B7

Report Date: 2021/09/29
Report #: R6832141
Version: 3 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BV LABS JOB #: C1L9664
Received: 2021/08/04, 09:30

Encryption Key

Katherine Szozda
Project Manager
29 Sep 2021 11:02:43

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Katherine Szozda, Project Manager
Email: Katherine.Szozda@bureauveritas.com
Phone# (613)274-0573 Ext:7063633
==========
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 #: C1L9664
Report Date: 2021/09/29

Golder Associates Ltd
Client Project #: 21468783
Site Location: Westbay - Meliadine Mine
Sampler Initials: DH

RESULTS OF ANALYSES OF SEA WATER

BV Labs ID		QHF616			QHF616			QHF617		
Sampling Date		2021/08/01 01:30			2021/08/01 01:30			2021/08/01 01:30		
COC Number		383243			383243			383243		
	UNITS	Port-8	RDL	QC Batch	Port-8 Lab-Dup	RDL	QC Batch	Port-8-DUP-1	RDL	QC Batch
Calculated Parameters										
Total Ammonia (as NH3)	mg/L	1.7	0.0061	7516198				1.7	0.0061	7516198
Dissolved Hardness (CaCO3)	mg/L	22500	0.50	7533028				21600	0.50	7533028
Field Measurements										
Field Measured Dissolved Solids	mg/L	62.1 G/L		ONSITE				62.1		ONSITE
Field Temperature	Celsius	7.1	N/A	ONSITE				7.1	N/A	ONSITE
Field Measured pH	pH	8.52		ONSITE				8.52		ONSITE
Inorganics										
Alkalinity (Total as CaCO3)	mg/L	120	1	7534931				120	1	7534931
Bicarbonate (HCO3)	mg/L	80	1	7534931				77	1	7534931
Total BOD	mg/L	270	2	7515365				260	2	7515365
Dissolved Bromide (Br-)	mg/L	99 (1)	1.0	7534932				110 (1)	1.0	7534932
Carbonate (CO3)	mg/L	32	1	7534931				34	1	7534931
Total Chemical Oxygen Demand (COD)	mg/L	840	40	7518212				880	40	7518212
Conductivity	mS/cm	61.6	0.001	7520858	61.9	0.001	7520858	60.9	0.001	7520858
Free Cyanide (CN)	ug/L	1.6 (2)	1.0	7525934				1.8 (2)	1.0	7525934
Total Dissolved Solids	mg/L	42500	20	7518724				45600	20	7518724
Fluoride (F-)	mg/L	0.15	0.10	7520856	0.13	0.10	7520856	0.14	0.10	7520856
Hydroxide (OH)	mg/L	<1	1	7534931				<1	1	7534931
Total Kjeldahl Nitrogen (TKN)	mg/L	3.7	2.0	7518023				4.5	2.0	7518023
Dissolved Organic Carbon	mg/L	210	8.0	7519061				340	2.0	7529033
Total Organic Carbon (TOC)	mg/L	210	8.0	7518665				210	2.0	7529786
Orthophosphate (P)	mg/L	0.014 (3)	0.010	7533020				0.013 (3)	0.010	7533020
p-Alkalinity	mg/L	26	1	7534931				28	1	7534931
pH	pH	8.54		7520859	8.58		7520859	8.56		7520859
Salinity	N/A	47	10	7531590				46	10	7531590
Reactive Silica (SiO2)	mg/L	10 (4)	0.50	7534929				11 (4)	0.50	7534929
Total Suspended Solids	mg/L	47	1	7518062				47	1	7518062
Total Cyanide (CN)	mg/L	<0.0050	0.0050	7522367				<0.0050	0.0050	7522367

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
N/A = Not Applicable
(1) Detection limits raised due to sample matrix.
(2) Sample pH <12, preservation incomplete. Due to volatility of analyte, a low bias in the results is likely.
(3) RDL raised due to sample matrix interference.
(4) Due to the sample matrix, sample required dilution. Detection limit was adjusted accordingly.

BV Labs Job #: C1L9664
Report Date: 2021/09/29

Golder Associates Ltd
Client Project #: 21468783
Site Location: Westbay - Meliadine Mine
Sampler Initials: DH

RESULTS OF ANALYSES OF SEA WATER

BV Labs ID		QHF616			QHF616			QHF617		
Sampling Date		2021/08/01 01:30			2021/08/01 01:30			2021/08/01 01:30		
COC Number		383243			383243			383243		
	UNITS	Port-8	RDL	QC Batch	Port-8 Lab-Dup	RDL	QC Batch	Port-8-DUP-1	RDL	QC Batch
Turbidity	NTU	5.5	0.1	7517351				4.1	0.1	7517351
WAD Cyanide (Free)	mg/L	<0.0010	0.0010	7522364				<0.0010	0.0010	7522364
Dissolved Chloride (Cl-)	mg/L	25000	250	7534933				27000	250	7534933
Nitrite (N)	mg/L	<0.050	0.050	7517460				<0.050	0.050	7517460
Nitrate (N)	mg/L	0.63	0.50	7517460				0.62	0.50	7517460
Dissolved Sulphate (SO4)	mg/L	970	5.0	7534933				970	5.0	7534933
Nitrate + Nitrite (N)	mg/L	0.63	0.50	7517460				0.62	0.50	7517460
Metals										
Dissolved Aluminum (Al)	ug/L	64	50	7533027				<50	50	7533027
Total Aluminum (Al)	ug/L	<300	300	7533025				<300	300	7533025
Dissolved Antimony (Sb)	ug/L	<2.0	2.0	7533027				<2.0	2.0	7533027
Total Antimony (Sb)	ug/L	<2.0	2.0	7533025				<2.0	2.0	7533025
Dissolved Arsenic (As)	ug/L	4.1	2.0	7533027				2.9	2.0	7533027
Total Arsenic (As)	ug/L	<2.0	2.0	7533025				<2.0	2.0	7533025
Dissolved Barium (Ba)	ug/L	1280	2.0	7533027				1220	2.0	7533027
Total Barium (Ba)	ug/L	1410	5.0	7533025				1350	5.0	7533025
Dissolved Beryllium (Be)	ug/L	<1.0	1.0	7533027				<1.0	1.0	7533027
Total Beryllium (Be)	ug/L	<1.0	1.0	7533025				<1.0	1.0	7533025
Dissolved Bismuth (Bi)	ug/L	<0.50	0.50	7533027				<0.50	0.50	7533027
Total Bismuth (Bi)	ug/L	<1.0	1.0	7533025				<1.0	1.0	7533025
Dissolved Boron (B)	ug/L	17600	1000	7533027				17200	1000	7533027
Total Boron (B)	ug/L	17200	1000	7533025				16400	1000	7533025
Dissolved Cadmium (Cd)	ug/L	<0.50	0.50	7533027				<0.50	0.50	7533027
Total Cadmium (Cd)	ug/L	<0.50	0.50	7533025				<0.50	0.50	7533025
Dissolved Chromium (Cr)	ug/L	<10	10	7533027				<10	10	7533027
Total Chromium (Cr)	ug/L	<10	10	7533025				<10	10	7533025
Dissolved Cobalt (Co)	ug/L	2.18	0.50	7533027				1.94	0.50	7533027
Total Cobalt (Co)	ug/L	2.0	1.0	7533025				1.6	1.0	7533025
Dissolved Copper (Cu)	ug/L	<5.0	5.0	7533027				6.9	5.0	7533027
Total Copper (Cu)	ug/L	<10	10	7533025				<10	10	7533025
Dissolved Iron (Fe)	ug/L	709	100	7533027				<100	100	7533027
Total Iron (Fe)	ug/L	<500	500	7533025				<500	500	7533025
Dissolved Lead (Pb)	ug/L	<0.50	0.50	7533027				<0.50	0.50	7533027
Total Lead (Pb)	ug/L	<2.0	2.0	7533025				<2.0	2.0	7533025

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

BV Labs Job #: C1L9664
Report Date: 2021/09/29

Golder Associates Ltd
Client Project #: 21468783
Site Location: Westbay - Meliadine Mine
Sampler Initials: DH

RESULTS OF ANALYSES OF SEA WATER

BV Labs ID		QHF616			QHF616			QHF617		
Sampling Date		2021/08/01 01:30			2021/08/01 01:30			2021/08/01 01:30		
COC Number		383243			383243			383243		
	UNITS	Port-8	RDL	QC Batch	Port-8 Lab-Dup	RDL	QC Batch	Port-8-DUP-1	RDL	QC Batch
Dissolved Lithium (Li)	ug/L	16700	50	7533027				15900	50	7533027
Total Lithium (Li)	ug/L	19300	50	7533025				18200	50	7533025
Dissolved Manganese (Mn)	ug/L	972	5.0	7533027				928	5.0	7533027
Total Manganese (Mn)	ug/L	1040	10	7533025				963	10	7533025
Dissolved Molybdenum (Mo)	ug/L	10.6	5.0	7533027				10.3	5.0	7533027
Total Molybdenum (Mo)	ug/L	7.9	5.0	7533025				8.4	5.0	7533025
Dissolved Nickel (Ni)	ug/L	3.9	2.0	7533027				8.7	2.0	7533027
Total Nickel (Ni)	ug/L	<10	10	7533025				<10	10	7533025
Dissolved Phosphorus (P)	ug/L	<200	200	7533027				<200	200	7533027
Total Phosphorus (P)	ug/L	<500	500	7533025				<500	500	7533025
Dissolved Selenium (Se)	ug/L	<4.0	4.0	7533027				<4.0	4.0	7533027
Total Selenium (Se)	ug/L	<4.0	4.0	7533025				<4.0	4.0	7533025
Dissolved Silicon (Si)	ug/L	<5000	5000	7533027				<5000	5000	7533027
Total Silicon (Si)	ug/L	<5000	5000	7533025				<5000	5000	7533025
Dissolved Silver (Ag)	ug/L	<0.50	0.50	7533027				<0.50	0.50	7533027
Total Silver (Ag)	ug/L	<1.0	1.0	7533025				<1.0	1.0	7533025
Dissolved Strontium (Sr)	ug/L	359000	5.0	7533027				350000	5.0	7533027
Total Strontium (Sr)	ug/L	403000	5.0	7533025				387000	5.0	7533025
Dissolved Thallium (Tl)	ug/L	19.4	0.20	7533027				19.3	0.20	7533027
Total Thallium (Tl)	ug/L	21.5	0.20	7533025				21.3	0.20	7533025
Dissolved Tin (Sn)	ug/L	<20	20	7533027				<20	20	7533027
Total Tin (Sn)	ug/L	<20	20	7533025				<20	20	7533025
Dissolved Titanium (Ti)	ug/L	<50	50	7533027				<50	50	7533027
Total Titanium (Ti)	ug/L	<200	200	7533025				<200	200	7533025
Dissolved Uranium (U)	ug/L	2.82	0.20	7533027				2.94	0.20	7533027
Total Uranium (U)	ug/L	2.47	0.50	7533025				2.67	0.50	7533025
Dissolved Vanadium (V)	ug/L	<20	20	7533027				<20	20	7533027
Total Vanadium (V)	ug/L	<20	20	7533025				<20	20	7533025
Dissolved Zinc (Zn)	ug/L	274	10	7533027				207	10	7533027
Total Zinc (Zn)	ug/L	137	100	7533025				256	100	7533025
Dissolved Zirconium (Zr)	ug/L	<10	10	7533027				<10	10	7533027
Total Zirconium (Zr)	ug/L	<10	10	7533025				<10	10	7533025
Dissolved Calcium (Ca)	mg/L	7560	5.0	7533021				7240	5.0	7533021
Total Calcium (Ca)	mg/L	8060	25	7533022				7590	25	7533022

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

BV Labs Job #: C1L9664
Report Date: 2021/09/29

Golder Associates Ltd
Client Project #: 21468783
Site Location: Westbay - Meliadine Mine
Sampler Initials: DH

RESULTS OF ANALYSES OF SEA WATER

BV Labs ID		QHF616			QHF616			QHF617		
Sampling Date		2021/08/01 01:30			2021/08/01 01:30			2021/08/01 01:30		
COC Number		383243			383243			383243		
	UNITS	Port-8	RDL	QC Batch	Port-8 Lab-Dup	RDL	QC Batch	Port-8-DUP-1	RDL	QC Batch
Dissolved Cesium (Cs)	ug/L	343	5.0	7533027				334	5.0	7533027
Total Cesium (Cs)	ug/L	371	5.0	7533025				353	5.0	7533025
Dissolved Magnesium (Mg)	mg/L	873	5.0	7533021				866	5.0	7533021
Total Magnesium (Mg)	mg/L	954	25	7533022				894	25	7533022
Dissolved Potassium (K)	mg/L	285	5.0	7533021				283	5.0	7533021
Total Potassium (K)	mg/L	323	25	7533022				304	25	7533022
Dissolved Sodium (Na)	mg/L	6290	5.0	7533021				6090	5.0	7533021
Total Sodium (Na)	mg/L	6790	25	7533022				6380	25	7533022
Dissolved Sulphur (S)	mg/L	327	300	7533021				<300	300	7533021
Total Sulphur (S)	mg/L	303	300	7533022				364	300	7533022
Nutritional Parameters										
Total Ammonia-N	mg/L	1.4	0.0050	7530107				1.4	0.0050	7530107
Total Phosphorus (P)	mg/L	<0.10 (1)	0.10	7534938				<0.10 (1)	0.10	7534938
RADIONUCLIDE										
Radium-226	Bq/L	3.8	0.0050	7522032				3.1	0.0050	7522032

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
(1) Due to the sample matrix, sample required dilution. Detection limit was adjusted accordingly.

Bureau Veritas Laboratories 100 – 36 Antares Dr. Nepean, ON, K2E 7W5 Phone: 613-274-0573 Website: www.bvlabs.com

BV Labs Job #: C1L9664
Report Date: 2021/09/29

Golder Associates Ltd
Client Project #: 21468783
Site Location: Westbay - Meliadine Mine
Sampler Initials: DH

RESULTS OF ANALYSES OF SEA WATER

BV Labs ID		QHF617			QHF618		QHF619		
Sampling Date		2021/08/01 01:30			2021/08/01 15:00		2021/08/01 15:00		
COC Number		383243			383243		383243		
	UNITS	Port-8-DUP-1 Lab-Dup	RDL	QC Batch	Port-9	RDL	Port-9-DUP-1	RDL	QC Batch
Calculated Parameters									
Total Ammonia (as NH3)	mg/L				2.0	0.0061	2.0	0.0061	7516198
Dissolved Hardness (CaCO3)	mg/L				39300	0.50	40700	0.50	7527383
Field Measurements									
Field Measured Conductivity	uS/cm				79.1 MS/CM	N/A	79.1 MS/CM	N/A	ONSITE
Field Measured Dissolved Solids	mg/L				51.4 G/L		51.4 G/L		ONSITE
Field Temperature	Celsius				6.5	N/A	6.5	N/A	ONSITE
Field Measured pH	pH				8.85		8.85		ONSITE
Inorganics									
Alkalinity (Total as CaCO3)	mg/L				280	1	280	1	7534931
Bicarbonate (HCO3)	mg/L				150	1	160	1	7534931
Total BOD	mg/L				12000	2	<4000	4000	7515365
Dissolved Bromide (Br-)	mg/L				140 (1)	1.0	150 (1)	1.0	7534932
Carbonate (CO3)	mg/L				95	1	93	1	7534931
Total Chemical Oxygen Demand (COD)	mg/L				27000	800	27000	800	7518212
Conductivity	mS/cm				75.1	0.001	75.4	0.001	7520858
Free Cyanide (CN)	ug/L				1.8 (2)	1.0	2.5 (3)	1.0	7525934
Total Dissolved Solids	mg/L				77200	20	80200	20	7518724
Fluoride (F-)	mg/L				0.11	0.10	0.11	0.10	7520856
Hydroxide (OH)	mg/L				<1	1	<1	1	7534931
Total Kjeldahl Nitrogen (TKN)	mg/L				6.9	2.0	7.4	2.0	7518023
Dissolved Organic Carbon	mg/L				8100	100	8100	100	7519061
Total Organic Carbon (TOC)	mg/L				7900	100	7900	100	7518665
Orthophosphate (P)	mg/L				<0.010 (4)	0.010	<0.010 (4)	0.010	7533020
p-Alkalinity	mg/L				79	1	77	1	7534931
pH	pH				8.95		8.97		7520859
Salinity	N/A				63	10	64	10	7531590

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
N/A = Not Applicable
(1) Detection limits raised due to sample matrix.
(2) Sample pH <12, preservation incomplete. Due to volatility of analyte, a low bias in the results is likely.
(3) Interference checks not performed at the time of sampling. The lab cannot guarantee that interferences were not present at the time of sampling and that there is no low bias in results

Sample pH <12, preservation incomplete. Due to volatility of analyte, a low bias in the results is likely.
(4) RDL raised due to sample matrix interference.

Bureau Veritas Laboratories 100 – 36 Antares Dr. Nepean, ON, K2E 7W5 Phone: 613-274-0573 Website: www.bvlabs.com

BV Labs Job #: C1L9664
Report Date: 2021/09/29

Golder Associates Ltd
Client Project #: 21468783
Site Location: Westbay - Meliadine Mine
Sampler Initials: DH

RESULTS OF ANALYSES OF SEA WATER

BV Labs ID		QHF617			QHF618		QHF619		
Sampling Date		2021/08/01 01:30			2021/08/01 15:00		2021/08/01 15:00		
COC Number		383243			383243		383243		
	UNITS	Port-8-DUP-1 Lab-Dup	RDL	QC Batch	Port-9	RDL	Port-9-DUP-1	RDL	QC Batch
Reactive Silica (SiO2)	mg/L				<5.0 (1)	5.0	<5.0 (1)	5.0	7534929
Total Suspended Solids	mg/L				65	1	70	1	7518062
Total Cyanide (CN)	mg/L				<0.0050	0.0050	<0.0050	0.0050	7522367
Turbidity	NTU	4.0	0.1	7517351	1.8	0.1	1.9	0.1	7517351
WAD Cyanide (Free)	mg/L				<0.0010	0.0010	<0.0010	0.0010	7522364
Dissolved Chloride (Cl-)	mg/L				39000	250	38000	250	7534933
Nitrite (N)	mg/L	<0.050	0.050	7517460	<0.050	0.050	<0.050	0.050	7517460
Nitrate (N)	mg/L	0.62	0.50	7517460	1.84	0.50	1.87	0.50	7517460
Dissolved Sulphate (SO4)	mg/L				560	5.0	560	5.0	7534933
Nitrate + Nitrite (N)	mg/L	0.62	0.50	7517460	1.88	0.50	1.91	0.50	7517460
Metals									
Dissolved Aluminum (Al)	ug/L				<2500	2500	<2500	2500	7525432
Total Aluminum (Al)	ug/L				<300	300	<300	300	7533023
Dissolved Antimony (Sb)	ug/L				<100	100	<100	100	7525432
Total Antimony (Sb)	ug/L				<2.0	2.0	<2.0	2.0	7533023
Dissolved Arsenic (As)	ug/L				<100	100	<100	100	7525432
Total Arsenic (As)	ug/L				9.8	2.0	9.5	2.0	7533023
Dissolved Barium (Ba)	ug/L				3420	100	3510	100	7525432
Total Barium (Ba)	ug/L				3320	5.0	3290	5.0	7533023
Dissolved Beryllium (Be)	ug/L				<50	50	<50	50	7525432
Total Beryllium (Be)	ug/L				<1.0	1.0	<1.0	1.0	7533023
Dissolved Bismuth (Bi)	ug/L				<25	25	<25	25	7525432
Total Bismuth (Bi)	ug/L				<1.0	1.0	<1.0	1.0	7533023
Dissolved Boron (B)	ug/L				<50000	50000	<50000	50000	7525432
Total Boron (B)	ug/L				47400	1000	46700	1000	7533023
Dissolved Cadmium (Cd)	ug/L				<25	25	<25	25	7525432
Total Cadmium (Cd)	ug/L				<0.50	0.50	<0.50	0.50	7533023
Dissolved Chromium (Cr)	ug/L				<500	500	<500	500	7525432
Total Chromium (Cr)	ug/L				<10	10	<10	10	7533023
Dissolved Cobalt (Co)	ug/L				<25	25	<25	25	7525432
Total Cobalt (Co)	ug/L				3.2	1.0	3.3	1.0	7533023
Dissolved Copper (Cu)	ug/L				<250	250	<250	250	7525432
Total Copper (Cu)	ug/L				<10	10	<10	10	7533023

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
(1) Due to the sample matrix, sample required dilution. Detection limit was adjusted accordingly.

BV Labs Job #: C1L9664
Report Date: 2021/09/29

Golder Associates Ltd
Client Project #: 21468783
Site Location: Westbay - Meliadine Mine
Sampler Initials: DH

RESULTS OF ANALYSES OF SEA WATER

BV Labs ID		QHF617			QHF618		QHF619		
Sampling Date		2021/08/01 01:30			2021/08/01 15:00		2021/08/01 15:00		
COC Number		383243			383243		383243		
	UNITS	Port-8-DUP-1 Lab-Dup	RDL	QC Batch	Port-9	RDL	Port-9-DUP-1	RDL	QC Batch
Dissolved Iron (Fe)	ug/L				<5000	5000	<5000	5000	7525432
Total Iron (Fe)	ug/L				<500	500	<500	500	7533023
Dissolved Lead (Pb)	ug/L				<25	25	<25	25	7525432
Total Lead (Pb)	ug/L				<2.0	2.0	<2.0	2.0	7533023
Dissolved Lithium (Li)	ug/L				43600	2500	44900	2500	7525432
Total Lithium (Li)	ug/L				43000	50	43100	50	7533023
Dissolved Manganese (Mn)	ug/L				<250	250	<250	250	7525432
Total Manganese (Mn)	ug/L				239	10	220	10	7533023
Dissolved Molybdenum (Mo)	ug/L				<250	250	<250	250	7525432
Total Molybdenum (Mo)	ug/L				26.8	5.0	26.1	5.0	7533023
Dissolved Nickel (Ni)	ug/L				<100	100	<100	100	7525432
Total Nickel (Ni)	ug/L				<10	10	<10	10	7533023
Dissolved Phosphorus (P)	ug/L				<10000	10000	<10000	10000	7525432
Total Phosphorus (P)	ug/L				<500	500	<500	500	7533023
Dissolved Selenium (Se)	ug/L				<200	200	<200	200	7525432
Total Selenium (Se)	ug/L				<4.0	4.0	<4.0	4.0	7533023
Dissolved Silicon (Si)	ug/L				<250000	250000	<250000	250000	7525432
Total Silicon (Si)	ug/L				<5000	5000	<5000	5000	7533023
Dissolved Silver (Ag)	ug/L				<25	25	<25	25	7525432
Total Silver (Ag)	ug/L				<1.0	1.0	<1.0	1.0	7533023
Dissolved Strontium (Sr)	ug/L				868000	250	887000	250	7525432
Total Strontium (Sr)	ug/L				752000	5.0	751000	5.0	7533023
Dissolved Thallium (Tl)	ug/L				60	10	60	10	7525432
Total Thallium (Tl)	ug/L				57.3	0.20	57.6	0.20	7533023
Dissolved Tin (Sn)	ug/L				<1000	1000	<1000	1000	7525432
Total Tin (Sn)	ug/L				<20	20	<20	20	7533023
Dissolved Titanium (Ti)	ug/L				<2500	2500	<2500	2500	7525432
Total Titanium (Ti)	ug/L				<200	200	<200	200	7533023
Dissolved Uranium (U)	ug/L				<10	10	<10	10	7525432
Total Uranium (U)	ug/L				1.43	0.50	1.53	0.50	7533023
Dissolved Vanadium (V)	ug/L				<1000	1000	<1000	1000	7525432
Total Vanadium (V)	ug/L				<20	20	<20	20	7533023
Dissolved Zinc (Zn)	ug/L				<500	500	<500	500	7525432
Total Zinc (Zn)	ug/L				262	100	215	100	7533023

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

BV Labs Job #: C1L9664
Report Date: 2021/09/29

Golder Associates Ltd
Client Project #: 21468783
Site Location: Westbay - Meliadine Mine
Sampler Initials: DH

RESULTS OF ANALYSES OF SEA WATER

BV Labs ID		QHF617			QHF618		QHF619		
Sampling Date		2021/08/01 01:30			2021/08/01 15:00		2021/08/01 15:00		
COC Number		383243			383243		383243		
	UNITS	Port-8-DUP-1 Lab-Dup	RDL	QC Batch	Port-9	RDL	Port-9-DUP-1	RDL	QC Batch
Dissolved Zirconium (Zr)	ug/L				<500	500	<500	500	7525432
Total Zirconium (Zr)	ug/L				<10	10	<10	10	7533023
Dissolved Calcium (Ca)	mg/L				14700	250	15300	250	7533021
Total Calcium (Ca)	mg/L				15100	25	15200	25	7533022
Dissolved Cesium (Cs)	ug/L				965	250	977	250	7525432
Total Cesium (Cs)	ug/L				895	5.0	887	5.0	7533023
Dissolved Magnesium (Mg)	mg/L				589	250	586	250	7533021
Total Magnesium (Mg)	mg/L				639	25	627	25	7533022
Dissolved Potassium (K)	mg/L				638	250	652	250	7533021
Total Potassium (K)	mg/L				648	25	639	25	7533022
Dissolved Sodium (Na)	mg/L				4200	250	4320	250	7533021
Total Sodium (Na)	mg/L				4520	25	4510	25	7533022
Dissolved Sulphur (S)	mg/L				120	0.10	120	0.10	7606429
Total Sulphur (S)	mg/L				121	0.10	119	0.10	7606430
Nutritional Parameters									
Total Ammonia-N	mg/L	1.4	0.0050	7530107	1.7	0.0050	1.7	0.0050	7530107
Total Phosphorus (P)	mg/L				0.19 (1)	0.10	<0.10 (1)	0.10	7534938
RADIONUCLIDE									
Radium-226	Bq/L				7.4	0.0050	8.1	0.0050	7522032

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
(1) Due to the sample matrix, sample required dilution. Detection limit was adjusted accordingly.

Bureau Veritas Laboratories 100 – 36 Antares Dr. Nepean, ON, K2E 7W5 Phone: 613-274-0573 Website: www.bvlabs.com

ELEMENTS BY ATOMIC SPECTROSCOPY (SEA WATER)

BV Labs ID		QHF616		QHF617		QHF618			QHF618		
Sampling Date		2021/08/01 01:30		2021/08/01 01:30		2021/08/01 15:00			2021/08/01 15:00		
COC Number		383243		383243		383243			383243		
	UNITS	Port-8	QC Batch	Port-8-DUP-1	QC Batch	Port-9	RDL	QC Batch	Port-9 Lab-Dup	RDL	QC Batch
Calculated Parameters											
Total Hardness (CaCO3)	mg/L	24100	7525510	22600	7525510	40300	0.50	7527380			
Metals											
Mercury (Hg)	ug/L	<0.01	7524430	<0.01	7522088	<0.01	0.01	7524430	<0.01	0.01	7524430
Dissolved Mercury (Hg)	ug/L	<0.01	7524460	<0.01	7524460	<0.01	0.01	7524460			

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

BV Labs ID		QHF619			QHF619		
Sampling Date		2021/08/01 15:00			2021/08/01 15:00		
COC Number		383243			383243		
	UNITS	Port-9-DUP-1	RDL	QC Batch	Port-9-DUP-1 Lab-Dup	RDL	QC Batch
Calculated Parameters							
Total Hardness (CaCO3)	mg/L	40400	0.50	7527380			
Metals							
Mercury (Hg)	ug/L	<0.01	0.01	7524430			
Dissolved Mercury (Hg)	ug/L	<0.01	0.01	7524460	<0.01	0.01	7524460

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

Golder Associates Ltd
Client Project #: 21468783
Site Location: Westbay - Meliadine Mine
Sampler Initials: DH

VOLATILE ORGANICS BY GC/MS (SEA WATER)

BV Labs ID		QHF616	QHF617	QHF618	QHF619		
Sampling Date		2021/08/01 01:30	2021/08/01 01:30	2021/08/01 15:00	2021/08/01 15:00		
COC Number		383243	383243	383243	383243		
	UNITS	Port-8	Port-8-DUP-1	Port-9	Port-9-DUP-1	RDL	QC Batch
Volatile Organics							
Benzene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	7517961
Ethylbenzene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	7517961
Methyl t-butyl ether (MTBE)	ug/L	<0.50	<0.50	<0.50	<0.50	0.50	7517961
Styrene	ug/L	<0.40	<0.40	<0.40	<0.40	0.40	7517961
Toluene	ug/L	<0.20	<0.20	0.40	0.41	0.20	7517961
p+m-Xylene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	7517961
o-Xylene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	7517961
Total Xylenes	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	7517961
Surrogate Recovery (%)							
4-Bromofluorobenzene	%	98	98	97	96		7517961
D4-1,2-Dichloroethane	%	95	96	88	90		7517961
D8-Toluene	%	96	96	98	98		7517961

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

BV Labs Job #: C1L9664
Report Date: 2021/09/29

Golder Associates Ltd
Client Project #: 21468783
Site Location: Westbay - Meliadine Mine
Sampler Initials: DH

TEST SUMMARY

BV Labs ID: QHF616
Sample ID: Port-8
Matrix: Sea Water

Collected: 2021/08/01
Shipped:
Received: 2021/08/04

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Biochemical Oxygen Demand (BOD)	DO	7515365	2021/08/12	2021/08/17	Surleen Kaur Romana
Chemical Oxygen Demand	SPEC	7518212	N/A	2021/08/13	Nimarta Singh
Conductivity	AT	7520858	N/A	2021/08/16	Yogesh Patel
Free (WAD) Cyanide	SKAL/CN	7522364	N/A	2021/08/16	Aditiben Patel
Total Cyanide	SKAL/CN	7522367	2021/08/16	2021/08/16	Aditiben Patel
Dissolved Organic Carbon (DOC)	TOCV/NDIR	7519061	N/A	2021/08/13	Julianna Castiglione
Filtration of a Sample for DOC Analysis	PH	0	N/A		Vipandeep Kaur
Field Measured TDS		ONSITE	N/A	2021/08/05	Mandeep Kaur (Mandy)
Fluoride	ISE	7520856	2021/08/14	2021/08/16	Yogesh Patel
Dissolved Mercury (low level)	CV/AA	7524460	2021/08/17	2021/08/17	Medhat Nasr
Mercury (low level)	CV/AA	7524430	2021/08/17	2021/08/17	Medhat Nasr
Alkalinity @ 25C (pp,total), CO3,HCO3,OH	AT	7534931	N/A	2021/08/14	Karen Graham
Bromide in water by IC	IC/UV	7534932	N/A	2021/08/14	Ian Bullecer
Low Level Chloride and Sulphate by AC	KONE	7534933	N/A	2021/08/17	Bradley Freake
Cyanide (Free)	SPEC	7525934	2021/08/17	2021/08/17	Riazuddin Khan
Hardness Total (calculated as CaCO3)	CALC	7525510	N/A	2021/08/20	Automated Statchk
Hardness (calculated as CaCO3)	CALC	7533028	N/A	2021/08/20	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP	7533021	N/A	2021/08/20	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/MS	7533027	N/A	2021/08/19	Andrew An
Elements by ICPMS Low Level (total)	ICP/MS	7533025	2021/08/19	2021/08/19	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP	7533022	N/A	2021/08/20	Automated Statchk
Ammonia-N Unpreserved Low Level seawater	KONE	7530107	N/A	2021/08/18	Shanna McKort
pH @25°C	AT/PH	7534934	N/A	2021/08/14	Karen Graham
Orthophosphate by Konelab (low level)	KONE	7533020	N/A	2021/08/13	Tajinder Sohal-Inactive
Silica (Reactive)	KONE	7534929	N/A	2021/08/21	Zafar Iqbal
Total Phosphorus Low Level Total	KONE	7534938	2021/08/18	2021/08/19	Fadia Mostafa
Total Ammonia (as NH3)	CALC	7516198	N/A	2021/08/24	Automated Statchk
Nitrate (NO3) and Nitrite (NO2) in Water	LACH	7517460	N/A	2021/08/17	Chandra Nandlal
pH	AT	7520859	2021/08/14	2021/08/16	Yogesh Patel
Field Measured pH	PH	ONSITE	N/A	2021/08/05	Mandeep Kaur (Mandy)
Radium-226 Low Level	AS	7522032	N/A	2021/08/21	Magdalena Onderco
Salinity		7531590	N/A	2021/08/20	Brent Boudreau
Total Dissolved Solids	BAL	7518724	2021/08/13	2021/08/14	Sandeep Kaur
Field Measured pH	PH	ONSITE	N/A	2021/08/05	Mandeep Kaur (Mandy)
Total Kjeldahl Nitrogen in Water	SKAL	7518023	2021/08/13	2021/08/13	Rajni Tyagi
Total Organic Carbon (TOC)	TOCV/NDIR	7518665	N/A	2021/08/14	Julianna Castiglione
Low Level Total Suspended Solids	BAL	7518062	2021/08/14	2021/08/16	Shivani Desai
Turbidity	AT	7517351	N/A	2021/08/13	Neil Dassanayake
Volatile Organic Compounds in Water	GC/MS	7517961	N/A	2021/08/16	Chandni Khawas

BV Labs Job #: C1L9664
Report Date: 2021/09/29

Golder Associates Ltd
Client Project #: 21468783
Site Location: Westbay - Meliadine Mine
Sampler Initials: DH

TEST SUMMARY

BV Labs ID: QHF616 Dup
Sample ID: Port-8
Matrix: Sea Water

Collected: 2021/08/01
Shipped:
Received: 2021/08/04

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Conductivity	AT	7520858	N/A	2021/08/16	Yogesh Patel
Fluoride	ISE	7520856	2021/08/14	2021/08/16	Yogesh Patel
pH	AT	7520859	2021/08/14	2021/08/16	Yogesh Patel

BV Labs ID: QHF617
Sample ID: Port-8-DUP-1
Matrix: Sea Water

Collected: 2021/08/01
Shipped:
Received: 2021/08/04

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Biochemical Oxygen Demand (BOD)	DO	7515365	2021/08/12	2021/08/17	Surleen Kaur Romana
Chemical Oxygen Demand	SPEC	7518212	N/A	2021/08/13	Nimarta Singh
Conductivity	AT	7520858	N/A	2021/08/16	Yogesh Patel
Free (WAD) Cyanide	SKAL/CN	7522364	N/A	2021/08/16	Aditiben Patel
Total Cyanide	SKAL/CN	7522367	2021/08/16	2021/08/16	Aditiben Patel
Dissolved Organic Carbon (DOC)	TOCV/NDIR	7529033	N/A	2021/08/19	Julianna Castiglione
Filtration of a Sample for DOC Analysis	PH	0	N/A		Vipandeep Kaur
Field Measured TDS		ONSITE	N/A	2021/08/05	Mandeep Kaur (Mandy)
Fluoride	ISE	7520856	2021/08/14	2021/08/16	Yogesh Patel
Dissolved Mercury (low level)	CV/AA	7524460	2021/08/17	2021/08/17	Medhat Nasr
Mercury (low level)	CV/AA	7522088	2021/08/16	2021/08/16	Gagandeep Rai
Alkalinity @ 25C (pp,total), CO3,HCO3,OH	AT	7534931	N/A	2021/08/14	Karen Graham
Bromide in water by IC	IC/UV	7534932	N/A	2021/08/14	Ian Bullecer
Low Level Chloride and Sulphate by AC	KONE	7534933	N/A	2021/08/17	Bradley Freake
Cyanide (Free)	SPEC	7525934	2021/08/17	2021/08/17	Riazuddin Khan
Hardness Total (calculated as CaCO3)	CALC	7525510	N/A	2021/08/20	Automated Statchk
Hardness (calculated as CaCO3)	CALC	7533028	N/A	2021/08/20	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP	7533021	N/A	2021/08/20	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/MS	7533027	N/A	2021/08/19	Andrew An
Elements by ICPMS Low Level (total)	ICP/MS	7533025	2021/08/19	2021/08/19	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP	7533022	N/A	2021/08/20	Automated Statchk
Ammonia-N Unpreserved Low Level seawater	KONE	7530107	N/A	2021/08/18	Shanna McKort
pH @25°C	AT/PH	7534934	N/A	2021/08/14	Karen Graham
Orthophosphate by Konelab (low level)	KONE	7533020	N/A	2021/08/13	Tajinder Sohal-Inactive
Silica (Reactive)	KONE	7534929	N/A	2021/08/21	Zafar Iqbal
Total Phosphorus Low Level Total	KONE	7534938	2021/08/18	2021/08/19	Fadia Mostafa
Total Ammonia (as NH3)	CALC	7516198	N/A	2021/08/24	Automated Statchk
Nitrate (NO3) and Nitrite (NO2) in Water	LACH	7517460	N/A	2021/08/17	Chandra Nandlal
pH	AT	7520859	2021/08/14	2021/08/16	Yogesh Patel
Field Measured pH	PH	ONSITE	N/A	2021/08/05	Mandeep Kaur (Mandy)
Radium-226 Low Level	AS	7522032	N/A	2021/08/21	Magdalena Onderco
Salinity		7531590	N/A	2021/08/20	Brent Boudreau
Total Dissolved Solids	BAL	7518724	2021/08/13	2021/08/14	Sandeep Kaur
Field Measured pH	PH	ONSITE	N/A	2021/08/05	Mandeep Kaur (Mandy)
Total Kjeldahl Nitrogen in Water	SKAL	7518023	2021/08/13	2021/08/13	Rajni Tyagi
Total Organic Carbon (TOC)	TOCV/NDIR	7529786	N/A	2021/08/20	Julianna Castiglione

TEST SUMMARY

BV Labs ID: QHF617
Sample ID: Port-8-DUP-1
Matrix: Sea Water

Collected: 2021/08/01
Shipped:
Received: 2021/08/04

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Low Level Total Suspended Solids	BAL	7518062	2021/08/14	2021/08/16	Shivani Desai
Turbidity	AT	7517351	N/A	2021/08/13	Neil Dassanayake
Volatile Organic Compounds in Water	GC/MS	7517961	N/A	2021/08/16	Chandni Khawas

BV Labs ID: QHF617 Dup
Sample ID: Port-8-DUP-1
Matrix: Sea Water

Collected: 2021/08/01
Shipped:
Received: 2021/08/04

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Ammonia-N Unpreserved Low Level seawater	KONE	7530107	N/A	2021/08/18	Shanna McKort
Nitrate (NO3) and Nitrite (NO2) in Water	LACH	7517460	N/A	2021/08/17	Chandra Nandlal
Turbidity	AT	7517351	N/A	2021/08/13	Neil Dassanayake

BV Labs ID: QHF618
Sample ID: Port-9
Matrix: Sea Water

Collected: 2021/08/01
Shipped:
Received: 2021/08/04

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Biochemical Oxygen Demand (BOD)	DO	7515365	2021/08/12	2021/08/17	Surleen Kaur Romana
Chemical Oxygen Demand	SPEC	7518212	N/A	2021/08/13	Nimarta Singh
Conductivity	AT	7520858	N/A	2021/08/16	Yogesh Patel
Free (WAD) Cyanide	SKAL/CN	7522364	N/A	2021/08/16	Aditiben Patel
Total Cyanide	SKAL/CN	7522367	2021/08/16	2021/08/16	Aditiben Patel
Dissolved Organic Carbon (DOC)	TOCV/NDIR	7519061	N/A	2021/08/13	Julianna Castiglione
Field Measured Conductivity	PH	ONSITE	N/A	2021/08/05	Mandeep Kaur (Mandy)
Field Measured TDS		ONSITE	N/A	2021/08/05	Mandeep Kaur (Mandy)
Fluoride	ISE	7520856	2021/08/14	2021/08/16	Yogesh Patel
Dissolved Mercury (low level)	CV/AA	7524460	2021/08/17	2021/08/17	Medhat Nasr
Mercury (low level)	CV/AA	7524430	2021/08/17	2021/08/17	Medhat Nasr
Alkalinity @ 25C (pp,total), CO3,HCO3,OH	AT	7534931	N/A	2021/08/14	Karen Graham
Bromide in water by IC	IC/UV	7534932	N/A	2021/08/14	Ian Bullecer
Low Level Chloride and Sulphate by AC	KONE	7534933	N/A	2021/08/17	Bradley Freake
Cyanide (Free)	SPEC	7525934	2021/08/17	2021/08/17	Riazuddin Khan
Hardness Total (calculated as CaCO3)	CALC	7527380	N/A	2021/08/18	Automated Statchk
Hardness (calculated as CaCO3)	CALC	7527383	N/A	2021/08/16	Automated Statchk
ICP-OES Dissolved Metals in Water	ICP/AES	7606429	N/A	2021/09/28	Jocelyn Baron-Inactive
ICP-OES Total Metals in Water	ICP/AES	7606430	2021/09/27	2021/09/28	Jocelyn Baron-Inactive
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP	7533021	N/A	2021/08/16	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/MS	7525432	N/A	2021/08/14	Andrew An
Elements by ICPMS Low Level (total)	ICP/MS	7533023	2021/08/17	2021/08/17	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP	7533022	N/A	2021/08/18	Automated Statchk
Ammonia-N Unpreserved Low Level seawater	KONE	7530107	N/A	2021/08/18	Shanna McKort
pH @25°C	AT/PH	7534934	N/A	2021/08/14	Karen Graham
Orthophosphate by Konelab (low level)	KONE	7533020	N/A	2021/08/13	Tajinder Sohal-Inactive
Silica (Reactive)	KONE	7534929	N/A	2021/08/21	Zafar Iqbal

BV Labs Job #: C1L9664
Report Date: 2021/09/29

Golder Associates Ltd
Client Project #: 21468783
Site Location: Westbay - Meliadine Mine
Sampler Initials: DH

TEST SUMMARY

BV Labs ID: QHF618
Sample ID: Port-9
Matrix: Sea Water

Collected: 2021/08/01
Shipped:
Received: 2021/08/04

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Total Phosphorus Low Level Total	KONE	7534938	2021/08/18	2021/08/19	Fadia Mostafa
Total Ammonia (as NH3)	CALC	7516198	N/A	2021/08/24	Automated Statchk
Nitrate (NO3) and Nitrite (NO2) in Water	LACH	7517460	N/A	2021/08/16	Chandra Nandlal
pH	AT	7520859	2021/08/14	2021/08/16	Yogesh Patel
Field Measured Conductivity	PH	ONSITE	N/A	2021/08/05	Mandeep Kaur (Mandy)
Radium-226 Low Level	AS	7522032	N/A	2021/08/21	Magdalena Onderco
Salinity		7531590	N/A	2021/08/20	Brent Boudreau
Total Dissolved Solids	BAL	7518724	2021/08/13	2021/08/14	Sandeep Kaur
Field Measured Conductivity	PH	ONSITE	N/A	2021/08/05	Mandeep Kaur (Mandy)
Total Kjeldahl Nitrogen in Water	SKAL	7518023	2021/08/13	2021/08/13	Rajni Tyagi
Total Organic Carbon (TOC)	TOCV/NDIR	7518665	N/A	2021/08/14	Julianna Castiglione
Low Level Total Suspended Solids	BAL	7518062	2021/08/14	2021/08/16	Shivani Desai
Turbidity	AT	7517351	N/A	2021/08/13	Neil Dassanayake
Volatile Organic Compounds in Water	GC/MS	7517961	N/A	2021/08/16	Chandni Khawas

BV Labs ID: QHF618 Dup
Sample ID: Port-9
Matrix: Sea Water

Collected: 2021/08/01
Shipped:
Received: 2021/08/04

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Mercury (low level)	CV/AA	7524430	2021/08/17	2021/08/17	Medhat Nasr

BV Labs ID: QHF619
Sample ID: Port-9-DUP-1
Matrix: Sea Water

Collected: 2021/08/01
Shipped:
Received: 2021/08/04

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Biochemical Oxygen Demand (BOD)	DO	7515365	2021/08/12	2021/08/17	Surleen Kaur Romana
Chemical Oxygen Demand	SPEC	7518212	N/A	2021/08/13	Nimarta Singh
Conductivity	AT	7520858	N/A	2021/08/16	Yogesh Patel
Free (WAD) Cyanide	SKAL/CN	7522364	N/A	2021/08/16	Aditiben Patel
Total Cyanide	SKAL/CN	7522367	2021/08/16	2021/08/16	Aditiben Patel
Dissolved Organic Carbon (DOC)	TOCV/NDIR	7519061	N/A	2021/08/13	Julianna Castiglione
Field Measured Conductivity	PH	ONSITE	N/A	2021/08/05	Mandeep Kaur (Mandy)
Field Measured TDS		ONSITE	N/A	2021/08/05	Mandeep Kaur (Mandy)
Fluoride	ISE	7520856	2021/08/14	2021/08/16	Yogesh Patel
Dissolved Mercury (low level)	CV/AA	7524460	2021/08/17	2021/08/17	Medhat Nasr
Mercury (low level)	CV/AA	7524430	2021/08/17	2021/08/17	Medhat Nasr
Alkalinity @ 25C (pp,total), CO3,HCO3,OH	AT	7534931	N/A	2021/08/14	Karen Graham
Bromide in water by IC	IC/UV	7534932	N/A	2021/08/14	Ian Bullecer
Low Level Chloride and Sulphate by AC	KONE	7534933	N/A	2021/08/17	Bradley Freake
Cyanide (Free)	SPEC	7525934	2021/08/17	2021/08/17	Riazuddin Khan
Hardness Total (calculated as CaCO3)	CALC	7527380	N/A	2021/08/18	Automated Statchk
Hardness (calculated as CaCO3)	CALC	7527383	N/A	2021/08/16	Automated Statchk
ICP-OES Dissolved Metals in Water	ICP/AES	7606429	N/A	2021/09/28	Jocelyn Baron-Inactive

BV Labs Job #: C1L9664
Report Date: 2021/09/29

Golder Associates Ltd
Client Project #: 21468783
Site Location: Westbay - Meliadine Mine
Sampler Initials: DH

TEST SUMMARY

BV Labs ID: QHF619
Sample ID: Port-9-DUP-1
Matrix: Sea Water

Collected: 2021/08/01
Shipped:
Received: 2021/08/04

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
ICP-OES Total Metals in Water	ICP/AES	7606430	2021/09/27	2021/09/28	Jocelyn Baron-Inactive
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP	7533021	N/A	2021/08/16	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/MS	7525432	N/A	2021/08/14	Andrew An
Elements by ICPMS Low Level (total)	ICP/MS	7533023	2021/08/17	2021/08/17	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP	7533022	N/A	2021/08/18	Automated Statchk
Ammonia-N Unpreserved Low Level seawater	KONE	7530107	N/A	2021/08/18	Shanna McKort
pH @25°C	AT/PH	7534934	N/A	2021/08/14	Karen Graham
Orthophosphate by Konelab (low level)	KONE	7533020	N/A	2021/08/13	Tajinder Sohal-Inactive
Silica (Reactive)	KONE	7534929	N/A	2021/08/21	Zafar Iqbal
Total Phosphorus Low Level Total	KONE	7534938	2021/08/18	2021/08/19	Fadia Mostafa
Total Ammonia (as NH3)	CALC	7516198	N/A	2021/08/24	Automated Statchk
Nitrate (NO3) and Nitrite (NO2) in Water	LACH	7517460	N/A	2021/08/16	Chandra Nandlal
pH	AT	7520859	2021/08/14	2021/08/16	Yogesh Patel
Field Measured Conductivity	PH	ONSITE	N/A	2021/08/05	Mandeep Kaur (Mandy)
Radium-226 Low Level	AS	7522032	N/A	2021/08/21	Magdalena Onderco
Salinity		7531590	N/A	2021/08/20	Brent Boudreau
Total Dissolved Solids	BAL	7518724	2021/08/13	2021/08/14	Sandeep Kaur
Field Measured Conductivity	PH	ONSITE	N/A	2021/08/05	Mandeep Kaur (Mandy)
Total Kjeldahl Nitrogen in Water	SKAL	7518023	2021/08/13	2021/08/13	Rajni Tyagi
Total Organic Carbon (TOC)	TOCV/NDIR	7518665	N/A	2021/08/14	Julianna Castiglione
Low Level Total Suspended Solids	BAL	7518062	2021/08/14	2021/08/16	Shivani Desai
Turbidity	AT	7517351	N/A	2021/08/13	Neil Dassanayake
Volatile Organic Compounds in Water	GC/MS	7517961	N/A	2021/08/16	Chandni Khawas

BV Labs ID: QHF619 Dup
Sample ID: Port-9-DUP-1
Matrix: Sea Water

Collected: 2021/08/01
Shipped:
Received: 2021/08/04

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Dissolved Mercury (low level)	CV/AA	7524460	2021/08/17	2021/08/17	Medhat Nasr

GENERAL COMMENTS

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

Package 1	7.3°C

Revised Report (2021/09/29): Total and Dissolved Sulpur run by ICP-OES
Revised Report (2021/09/10): Total and dissolved Cesium added to report per client request

Sample QHF616 [Port-8] : Nitrite/Nitrate: Due to the sample matrix, sample required dilution. Detection limit was adjusted accordingly.
Sample was analyzed past method specified hold time for Orthophosphate by Konelab (low level). Exceedance of hold time increases the uncertainty of test results but does not necessarily imply that results are compromised. Sample received past method specified hold time for Orthophosphate by Konelab (low level). Sample was analyzed past method specified hold time for Cyanide (Free). Exceedance of hold time increases the uncertainty of test results but does not necessarily imply that results are compromised. Sample was analyzed past method specified hold time for Ammonia-N Unpreserved Low Level. TOC< DOC: Both values fall within the method uncertainty for duplicates and are likely equivalent.

Sample QHF617 [Port-8-DUP-1] : Nitrite/Nitrate: Due to the sample matrix, sample required dilution. Detection limit was adjusted accordingly.
TOC>DOC The results were confirmed by re-analysis.
Sample was analyzed past method specified hold time for Orthophosphate by Konelab (low level). Exceedance of hold time increases the uncertainty of test results but does not necessarily imply that results are compromised. Sample received past method specified hold time for Orthophosphate by Konelab (low level). Sample was analyzed past method specified hold time for Cyanide (Free). Exceedance of hold time increases the uncertainty of test results but does not necessarily imply that results are compromised. Sample was analyzed past method specified hold time for Ammonia-N Unpreserved Low Level.

Sample QHF618 [Port-9] : TOC< DOC: Both values fall within the method uncertainty for duplicates and are likely equivalent.

Nitrite/Nitrate: Due to the sample matrix, sample required dilution. Detection limit was adjusted accordingly.
Sample was analyzed past method specified hold time for Orthophosphate by Konelab (low level). Exceedance of hold time increases the uncertainty of test results but does not necessarily imply that results are compromised. Sample received past method specified hold time for Orthophosphate by Konelab (low level). Sample was analyzed past method specified hold time for Cyanide (Free). Exceedance of hold time increases the uncertainty of test results but does not necessarily imply that results are compromised. Sample was analyzed past method specified hold time for Ammonia-N Unpreserved Low Level.

Sample QHF619 [Port-9-DUP-1] : TOC< DOC: Both values fall within the method uncertainty for duplicates and are likely equivalent.

Nitrite/Nitrate: Due to the sample matrix, sample required dilution. Detection limit was adjusted accordingly.

Biochemical Oxygen Demand (BOD) Analysis: Elevated DL reported using the lowest dilution of sample Sample was analyzed past method specified hold time for Orthophosphate by Konelab (low level). Exceedance of hold time increases the uncertainty of test results but does not necessarily imply that results are compromised. Sample received past method specified hold time for Orthophosphate by Konelab (low level). Sample was analyzed past method specified hold time for Cyanide (Free). Exceedance of hold time increases the uncertainty of test results but does not necessarily imply that results are compromised. Sample was analyzed past method specified hold time for Ammonia-N Unpreserved Low Level.

Results relate only to the items tested.

BV Labs Job #: C1L9664
Report Date: 2021/09/29

QUALITY ASSURANCE REPORT

Golder Associates Ltd
Client Project #: 21468783
Site Location: Westbay - Meliadine Mine
Sampler Initials: DH

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
7517961	4-Bromofluorobenzene	2021/08/16	99	70 - 130	99	70 - 130	102	%				
7517961	D4-1,2-Dichloroethane	2021/08/16	98	70 - 130	102	70 - 130	93	%				
7517961	D8-Toluene	2021/08/16	103	70 - 130	102	70 - 130	97	%				
7515365	Total BOD	2021/08/17					<2	mg/L	14	30	94	80 - 120
7517351	Turbidity	2021/08/13			98	85 - 115	<0.1	NTU	2.5	20		
7517460	Nitrate (N)	2021/08/17	96	80 - 120	107	80 - 120	<0.10	mg/L	0.89	20		
7517460	Nitrite (N)	2021/08/17	103	80 - 120	110	80 - 120	<0.010	mg/L	NC	20		
7517961	Benzene	2021/08/16	91	70 - 130	91	70 - 130	<0.20	ug/L	NC	30		
7517961	Ethylbenzene	2021/08/16	94	70 - 130	94	70 - 130	<0.20	ug/L	NC	30		
7517961	Methyl t-butyl ether (MTBE)	2021/08/16	97	70 - 130	97	70 - 130	<0.50	ug/L	NC	30		
7517961	o-Xylene	2021/08/16	89	70 - 130	92	70 - 130	<0.20	ug/L	NC	30		
7517961	p+m-Xylene	2021/08/16	98	70 - 130	97	70 - 130	<0.20	ug/L	NC	30		
7517961	Styrene	2021/08/16	102	70 - 130	105	70 - 130	<0.40	ug/L	NC	30		
7517961	Toluene	2021/08/16	92	70 - 130	91	70 - 130	<0.20	ug/L	NC	30		
7517961	Total Xylenes	2021/08/16					<0.20	ug/L	NC	30		
7518023	Total Kjeldahl Nitrogen (TKN)	2021/08/13	99	80 - 120	101	80 - 120	<0.10	mg/L	13	20	102	80 - 120
7518062	Total Suspended Solids	2021/08/16					<1	mg/L	NC	25	96	85 - 115
7518212	Total Chemical Oxygen Demand (COD)	2021/08/13	100	80 - 120	105	80 - 120	<4.0	mg/L	12	20		
7518665	Total Organic Carbon (TOC)	2021/08/14	98	80 - 120	97	80 - 120	<0.40	mg/L	0	20		
7518724	Total Dissolved Solids	2021/08/14					<10	mg/L	2.7	25	100	90 - 110
7519061	Dissolved Organic Carbon	2021/08/13	97	80 - 120	97	80 - 120	<0.40	mg/L	1.4	20		
7520856	Fluoride (F-)	2021/08/16	39 (1)	80 - 120	100	80 - 120	<0.10	mg/L	8.5	20		
7520858	Conductivity	2021/08/16			101	85 - 115	<0.001	mS/cm	0.49	25		
7520859	pH	2021/08/16			102	98 - 103			0.53	N/A		
7522032	Radium-226	2021/08/21			95	85 - 115	<0.0050	Bq/L	NC	N/A		
7522088	Mercury (Hg)	2021/08/16	96	75 - 125	94	80 - 120	<0.01	ug/L	NC	20		
7522364	WAD Cyanide (Free)	2021/08/16	89	80 - 120	92	80 - 120	<0.0010	mg/L	0	20		
7522367	Total Cyanide (CN)	2021/08/16	91	80 - 120	96	80 - 120	<0.0050	mg/L	NC	20		
7524430	Mercury (Hg)	2021/08/17	94	75 - 125	95	80 - 120	<0.01	ug/L	NC	20		
7524460	Dissolved Mercury (Hg)	2021/08/17	95	75 - 125	90	80 - 120	<0.01	ug/L	NC	20		
7525432	Dissolved Aluminum (Al)	2021/08/14	93	80 - 120	98	80 - 120	<0.50	ug/L				
7525432	Dissolved Antimony (Sb)	2021/08/14	97	80 - 120	101	80 - 120	<0.020	ug/L				

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
7525432	Dissolved Arsenic (As)	2021/08/14	97	80 - 120	99	80 - 120	<0.020	ug/L				
7525432	Dissolved Barium (Ba)	2021/08/14	96	80 - 120	99	80 - 120	<0.020	ug/L				
7525432	Dissolved Beryllium (Be)	2021/08/14	88	80 - 120	95	80 - 120	<0.010	ug/L				
7525432	Dissolved Bismuth (Bi)	2021/08/14	92	80 - 120	98	80 - 120	<0.0050	ug/L				
7525432	Dissolved Boron (B)	2021/08/14	89	80 - 120	95	80 - 120	<10	ug/L				
7525432	Dissolved Cadmium (Cd)	2021/08/14	97	80 - 120	103	80 - 120	<0.0050	ug/L				
7525432	Dissolved Cesium (Cs)	2021/08/14	95	80 - 120	98	80 - 120	<0.050	ug/L				
7525432	Dissolved Chromium (Cr)	2021/08/14	97	80 - 120	101	80 - 120	<0.10	ug/L				
7525432	Dissolved Cobalt (Co)	2021/08/14	NC	80 - 120	98	80 - 120	<0.0050	ug/L				
7525432	Dissolved Copper (Cu)	2021/08/14	91	80 - 120	99	80 - 120	<0.050	ug/L				
7525432	Dissolved Iron (Fe)	2021/08/14	NC	80 - 120	100	80 - 120	<1.0	ug/L				
7525432	Dissolved Lead (Pb)	2021/08/14	93	80 - 120	98	80 - 120	<0.0050	ug/L				
7525432	Dissolved Lithium (Li)	2021/08/14	85	80 - 120	89	80 - 120	<0.50	ug/L				
7525432	Dissolved Manganese (Mn)	2021/08/14	NC	80 - 120	101	80 - 120	<0.050	ug/L				
7525432	Dissolved Molybdenum (Mo)	2021/08/14	103	80 - 120	101	80 - 120	<0.050	ug/L				
7525432	Dissolved Nickel (Ni)	2021/08/14	NC	80 - 120	100	80 - 120	<0.020	ug/L				
7525432	Dissolved Phosphorus (P)	2021/08/14	96	80 - 120	101	80 - 120	<2.0	ug/L				
7525432	Dissolved Selenium (Se)	2021/08/14	100	80 - 120	102	80 - 120	<0.040	ug/L				
7525432	Dissolved Silicon (Si)	2021/08/14	94	80 - 120	96	80 - 120	<50	ug/L				
7525432	Dissolved Silver (Ag)	2021/08/14	95	80 - 120	98	80 - 120	<0.0050	ug/L				
7525432	Dissolved Strontium (Sr)	2021/08/14	NC	80 - 120	98	80 - 120	<0.050	ug/L				
7525432	Dissolved Thallium (Tl)	2021/08/14	98	80 - 120	97	80 - 120	<0.0020	ug/L				
7525432	Dissolved Tin (Sn)	2021/08/14	98	80 - 120	100	80 - 120	<0.20	ug/L				
7525432	Dissolved Titanium (Ti)	2021/08/14	101	80 - 120	101	80 - 120	<0.50	ug/L				
7525432	Dissolved Uranium (U)	2021/08/14	100	80 - 120	99	80 - 120	<0.0020	ug/L				
7525432	Dissolved Vanadium (V)	2021/08/14	99	80 - 120	100	80 - 120	<0.20	ug/L				
7525432	Dissolved Zinc (Zn)	2021/08/14	NC	80 - 120	109	80 - 120	<0.10	ug/L				
7525432	Dissolved Zirconium (Zr)	2021/08/14	102	80 - 120	100	80 - 120	<0.10	ug/L				
7525934	Free Cyanide (CN)	2021/08/17	84	80 - 120	100	80 - 120	<1.0	ug/L				
7529033	Dissolved Organic Carbon	2021/08/19	99	80 - 120	99	80 - 120	<0.40	mg/L	0.26	20		
7529786	Total Organic Carbon (TOC)	2021/08/19	98	80 - 120	99	80 - 120	<0.40	mg/L	0.23	20		
7530107	Total Ammonia-N	2021/08/18	NC	80 - 120	100	80 - 120	<0.0050	mg/L	1.9	20	116	80 - 120

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
7531590	Salinity	2021/08/20					<2.0	N/A	NC	25	102	80 - 120
7533020	Orthophosphate (P)	2021/08/13			100	80 - 120	<0.0010	mg/L				
7533023	Total Aluminum (Al)	2021/08/17	NC	80 - 120	101	80 - 120	<3.0	ug/L				
7533023	Total Antimony (Sb)	2021/08/17	99	80 - 120	100	80 - 120	<0.020	ug/L				
7533023	Total Arsenic (As)	2021/08/17	104	80 - 120	100	80 - 120	<0.020	ug/L				
7533023	Total Barium (Ba)	2021/08/17	NC	80 - 120	98	80 - 120	<0.050	ug/L				
7533023	Total Beryllium (Be)	2021/08/17	95	80 - 120	99	80 - 120	<0.010	ug/L				
7533023	Total Bismuth (Bi)	2021/08/17	93	80 - 120	98	80 - 120	<0.010	ug/L				
7533023	Total Boron (B)	2021/08/17	NC	80 - 120	102	80 - 120	<10	ug/L				
7533023	Total Cadmium (Cd)	2021/08/17	99	80 - 120	101	80 - 120	<0.0050	ug/L				
7533023	Total Cesium (Cs)	2021/08/17	96	80 - 120	95	80 - 120	<0.050	ug/L				
7533023	Total Chromium (Cr)	2021/08/17	101	80 - 120	101	80 - 120	<0.10	ug/L				
7533023	Total Cobalt (Co)	2021/08/17	98	80 - 120	100	80 - 120	<0.010	ug/L				
7533023	Total Copper (Cu)	2021/08/17	95	80 - 120	99	80 - 120	<0.10	ug/L				
7533023	Total Iron (Fe)	2021/08/17	124 (1)	80 - 120	105	80 - 120	<5.0	ug/L				
7533023	Total Lead (Pb)	2021/08/17	96	80 - 120	100	80 - 120	<0.020	ug/L				
7533023	Total Lithium (Li)	2021/08/17	NC	80 - 120	93	80 - 120	<0.50	ug/L				
7533023	Total Manganese (Mn)	2021/08/17	NC	80 - 120	99	80 - 120	<0.10	ug/L				
7533023	Total Molybdenum (Mo)	2021/08/17	NC	80 - 120	103	80 - 120	<0.050	ug/L				
7533023	Total Nickel (Ni)	2021/08/17	97	80 - 120	100	80 - 120	<0.10	ug/L				
7533023	Total Phosphorus (P)	2021/08/17	104	80 - 120	101	80 - 120	<5.0	ug/L				
7533023	Total Selenium (Se)	2021/08/17	101	80 - 120	97	80 - 120	<0.040	ug/L				
7533023	Total Silicon (Si)	2021/08/17	113	80 - 120	110	80 - 120	<50	ug/L				
7533023	Total Silver (Ag)	2021/08/17	97	80 - 120	98	80 - 120	<0.010	ug/L				
7533023	Total Strontium (Sr)	2021/08/17	NC	80 - 120	96	80 - 120	<0.050	ug/L				
7533023	Total Thallium (Tl)	2021/08/17	99	80 - 120	99	80 - 120	<0.0020	ug/L				
7533023	Total Tin (Sn)	2021/08/17	99	80 - 120	101	80 - 120	<0.20	ug/L				
7533023	Total Titanium (Ti)	2021/08/17	73 (1)	80 - 120	104	80 - 120	<2.0	ug/L				
7533023	Total Uranium (U)	2021/08/17	101	80 - 120	99	80 - 120	<0.0050	ug/L				
7533023	Total Vanadium (V)	2021/08/17	105	80 - 120	101	80 - 120	<0.20	ug/L				
7533023	Total Zinc (Zn)	2021/08/17	98	80 - 120	100	80 - 120	<1.0	ug/L				
7533023	Total Zirconium (Zr)	2021/08/17	NC	80 - 120	98	80 - 120	<0.10	ug/L				

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
7533025	Total Aluminum (Al)	2021/08/19	103	80 - 120	103	80 - 120	<3.0	ug/L				
7533025	Total Antimony (Sb)	2021/08/19	105	80 - 120	104	80 - 120	<0.020	ug/L				
7533025	Total Arsenic (As)	2021/08/19	104	80 - 120	100	80 - 120	<0.020	ug/L				
7533025	Total Barium (Ba)	2021/08/19	103	80 - 120	102	80 - 120	<0.050	ug/L				
7533025	Total Beryllium (Be)	2021/08/19	106	80 - 120	104	80 - 120	<0.010	ug/L				
7533025	Total Bismuth (Bi)	2021/08/19	94	80 - 120	100	80 - 120	<0.010	ug/L				
7533025	Total Boron (B)	2021/08/19	103	80 - 120	107	80 - 120	<10	ug/L				
7533025	Total Cadmium (Cd)	2021/08/19	104	80 - 120	101	80 - 120	<0.0050	ug/L				
7533025	Total Cesium (Cs)	2021/08/19	100	80 - 120	100	80 - 120	<0.050	ug/L				
7533025	Total Chromium (Cr)	2021/08/19	96	80 - 120	97	80 - 120	<0.10	ug/L				
7533025	Total Cobalt (Co)	2021/08/19	95	80 - 120	98	80 - 120	<0.010	ug/L				
7533025	Total Copper (Cu)	2021/08/19	93	80 - 120	97	80 - 120	<0.10	ug/L				
7533025	Total Iron (Fe)	2021/08/19	106	80 - 120	104	80 - 120	<5.0	ug/L				
7533025	Total Lead (Pb)	2021/08/19	101	80 - 120	103	80 - 120	<0.020	ug/L				
7533025	Total Lithium (Li)	2021/08/19	104	80 - 120	102	80 - 120	<0.50	ug/L				
7533025	Total Manganese (Mn)	2021/08/19	95	80 - 120	100	80 - 120	<0.10	ug/L				
7533025	Total Molybdenum (Mo)	2021/08/19	107	80 - 120	105	80 - 120	<0.050	ug/L				
7533025	Total Nickel (Ni)	2021/08/19	93	80 - 120	98	80 - 120	<0.10	ug/L				
7533025	Total Phosphorus (P)	2021/08/19	106	80 - 120	102	80 - 120	<5.0	ug/L				
7533025	Total Selenium (Se)	2021/08/19	104	80 - 120	101	80 - 120	<0.040	ug/L				
7533025	Total Silicon (Si)	2021/08/19	NC	80 - 120	117	80 - 120	<50	ug/L				
7533025	Total Silver (Ag)	2021/08/19	98	80 - 120	100	80 - 120	<0.010	ug/L				
7533025	Total Strontium (Sr)	2021/08/19	NC	80 - 120	102	80 - 120	<0.050	ug/L				
7533025	Total Thallium (Tl)	2021/08/19	103	80 - 120	101	80 - 120	<0.0020	ug/L				
7533025	Total Tin (Sn)	2021/08/19	101	80 - 120	100	80 - 120	<0.20	ug/L				
7533025	Total Titanium (Ti)	2021/08/19	103	80 - 120	103	80 - 120	<2.0	ug/L				
7533025	Total Uranium (U)	2021/08/19	106	80 - 120	106	80 - 120	<0.0050	ug/L				
7533025	Total Vanadium (V)	2021/08/19	99	80 - 120	99	80 - 120	<0.20	ug/L				
7533025	Total Zinc (Zn)	2021/08/19	80	80 - 120	99	80 - 120	<1.0	ug/L				
7533025	Total Zirconium (Zr)	2021/08/19	105	80 - 120	101	80 - 120	<0.10	ug/L				
7533027	Dissolved Aluminum (Al)	2021/08/19	97	80 - 120	96	80 - 120	<0.50	ug/L				
7533027	Dissolved Antimony (Sb)	2021/08/19	102	80 - 120	101	80 - 120	<0.020	ug/L				

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
7533027	Dissolved Arsenic (As)	2021/08/19	103	80 - 120	98	80 - 120	<0.020	ug/L				
7533027	Dissolved Barium (Ba)	2021/08/19	99	80 - 120	98	80 - 120	<0.020	ug/L				
7533027	Dissolved Beryllium (Be)	2021/08/19	95	80 - 120	100	80 - 120	<0.010	ug/L				
7533027	Dissolved Bismuth (Bi)	2021/08/19	98	80 - 120	98	80 - 120	<0.0050	ug/L				
7533027	Dissolved Boron (B)	2021/08/19	98	80 - 120	101	80 - 120	<10	ug/L				
7533027	Dissolved Cadmium (Cd)	2021/08/19	99	80 - 120	99	80 - 120	<0.0050	ug/L				
7533027	Dissolved Cesium (Cs)	2021/08/19	100	80 - 120	97	80 - 120	<0.050	ug/L				
7533027	Dissolved Chromium (Cr)	2021/08/19	98	80 - 120	97	80 - 120	<0.10	ug/L				
7533027	Dissolved Cobalt (Co)	2021/08/19	95	80 - 120	96	80 - 120	<0.0050	ug/L				
7533027	Dissolved Copper (Cu)	2021/08/19	91	80 - 120	96	80 - 120	<0.050	ug/L				
7533027	Dissolved Iron (Fe)	2021/08/19	103	80 - 120	102	80 - 120	<1.0	ug/L				
7533027	Dissolved Lead (Pb)	2021/08/19	100	80 - 120	100	80 - 120	<0.0050	ug/L				
7533027	Dissolved Lithium (Li)	2021/08/19	95	80 - 120	96	80 - 120	<0.50	ug/L				
7533027	Dissolved Manganese (Mn)	2021/08/19	NC	80 - 120	97	80 - 120	<0.050	ug/L				
7533027	Dissolved Molybdenum (Mo)	2021/08/19	110	80 - 120	98	80 - 120	<0.050	ug/L				
7533027	Dissolved Nickel (Ni)	2021/08/19	92	80 - 120	96	80 - 120	<0.020	ug/L				
7533027	Dissolved Phosphorus (P)	2021/08/19	102	80 - 120	96	80 - 120	<2.0	ug/L				
7533027	Dissolved Selenium (Se)	2021/08/19	104	80 - 120	100	80 - 120	<0.040	ug/L				
7533027	Dissolved Silicon (Si)	2021/08/19	108	80 - 120	108	80 - 120	<50	ug/L				
7533027	Dissolved Silver (Ag)	2021/08/19	98	80 - 120	96	80 - 120	<0.0050	ug/L				
7533027	Dissolved Strontium (Sr)	2021/08/19	NC	80 - 120	98	80 - 120	<0.050	ug/L				
7533027	Dissolved Thallium (Tl)	2021/08/19	103	80 - 120	98	80 - 120	<0.0020	ug/L				
7533027	Dissolved Tin (Sn)	2021/08/19	102	80 - 120	98	80 - 120	<0.20	ug/L				
7533027	Dissolved Titanium (Ti)	2021/08/19	104	80 - 120	98	80 - 120	<0.50	ug/L				
7533027	Dissolved Uranium (U)	2021/08/19	103	80 - 120	97	80 - 120	<0.0020	ug/L				
7533027	Dissolved Vanadium (V)	2021/08/19	101	80 - 120	97	80 - 120	<0.20	ug/L				
7533027	Dissolved Zinc (Zn)	2021/08/19	NC	80 - 120	100	80 - 120	<0.10	ug/L				
7533027	Dissolved Zirconium (Zr)	2021/08/19	109	80 - 120	98	80 - 120	<0.10	ug/L				
7534929	Reactive Silica (SiO2)	2021/08/21	98	80 - 120	105	80 - 120	<0.050	mg/L				
7534931	Alkalinity (Total as CaCO3)	2021/08/14			97	80 - 120	<1	mg/L				
7534931	Bicarbonate (HCO3)	2021/08/14					<1	mg/L				
7534931	Carbonate (CO3)	2021/08/14					<1	mg/L				

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
7534931	Hydroxide (OH)	2021/08/14					<1	mg/L				
7534931	p-Alkalinity	2021/08/14					<1	mg/L				
7534932	Dissolved Bromide (Br-)	2021/08/14	101	80 - 120	103	80 - 120	<0.010	mg/L				
7534933	Dissolved Chloride (Cl-)	2021/08/17	NC	80 - 120	105	80 - 120	0.54, RDL=0.50 (2)	mg/L				
7534933	Dissolved Sulphate (SO4)	2021/08/17	NC	80 - 120	101	80 - 120	<0.50	mg/L				
7534934	pH	2021/08/14			100	97 - 103						
7534938	Total Phosphorus (P)	2021/08/19	98	80 - 120	105	80 - 120	<0.0010	mg/L			88	80 - 120
7606429	Dissolved Sulphur (S)	2021/09/28	NC	80 - 120	99	80 - 120	<0.10	mg/L	0.31	20		
7606430	Total Sulphur (S)	2021/09/28	NC	80 - 120	103	80 - 120	<0.10	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.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

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.

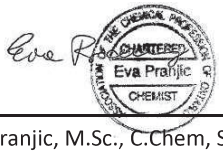
(2) Method blank is <2x RDL.

VALIDATION SIGNATURE PAGE

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

David Huang, BBY Scientific Specialist

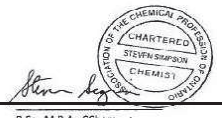
Ghayasuddin Khan, M.Sc., P.Chem., QP, Scientific Specialist, Inorganics



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

Katherine Szozda, Project Manager

Mike MacGillivray, Scientific Specialist (Inorganics)



Steven Simpson, Lab Director

Sandy Yuan, M.Sc., QP, Scientific Specialist

Bureau Veritas Laboratories 100 – 36 Antares Dr. Nepean, ON, K2E 7W5 Phone: 613-274-0573 Website: www.bvlabs.com

VALIDATION SIGNATURE PAGE(CONT'D)

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

For Service Group specific validation please refer to the Validation Signature Page.

Bureau Veritas Laboratories 100 – 36 Antares Dr. Nepean, ON, K2E 7W5 Phone: 613-274-0573 Website: www.bvlabs.com

04-Aug-21 09:30
Katherine Szozda
C1L9664

KTN ENV-1113

CAUTION
Reason: Sea Water

g Form

eCOC Number
T383243

...tructions via eCOC (electronic Chain of Custody). Please ensure your form has a **barcode or a Bureau Veritas eCOC confirmation number** in the top right hand side. This number links your electronic submission to your samples. This form should be **placed in the cooler with your samples.**

Relinquished By				Received By			
Brian Cooper Heather McGuire		Date	Aug 2/21	Alisha Sullivan	Temp 7, 7, 8	Date	2021/08/04
		Time (24 HR)	6:00			Time (24 HR)	09:30
		Date		Mashp	Mashp Dr	Date	2021/08/05
		Time (24 HR)				Time (24 HR)	08:20
		Date				Date	
		Time (24 HR)				Time (24 HR)	

Unless otherwise agreed to, submissions and use of services are governed by Bureau Veritas' standard terms and conditions which can be found at www.bvna.com.

Triage Information

Sampled By (Print)	# of Coolers/Pkgs				
Brian, Heather, Matt	2	Rush ☐	Immediate Test ☐	Food Residue ☐	
		Micro ☐		Food Chemistry ☐	

***** Laboratory Use Only *****

Received At

Labeled By

Verified By

Lab Comments:

Custody Seal		Cooling Media	Temperature °C		
Present (Y/N)	Intact (Y/N)	Present (Y/N)	1	2	3
Y Y	Y Y	Y	5 8	4 9	5 8

Drinking Water Metals Preservation Check Done (Circle) YES NO

COR FCD-00340 /5 PAGE 1 of 1

Your Project #: 21468783
Site Location: Westbay - Meliadine Mine
Your C.O.C. #: 383730

Attention: Dale Holtze

Golder Associates Ltd
1931 Robertson Rd
Ottawa, ON
CANADA K2H 5B7

Report Date: 2021/09/29
Report #: R6832150
Version: 3 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BV LABS JOB #: C1M4548
Received: 2021/08/09, 09:00

Sample Matrix: Sea Water
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Biochemical Oxygen Demand (BOD) (1)	2	2021/08/10	2021/08/15	CAM SOP-00427	SM 23 5210B m
Chemical Oxygen Demand (1)	2	N/A	2021/08/13	CAM SOP-00416	SM 23 5220 D m
Conductivity (1)	2	N/A	2021/08/12	CAM SOP-00414	SM 23 2510 m
Free (WAD) Cyanide (1)	2	N/A	2021/08/12	CAM SOP-00457	OMOE E3015 m
Total Cyanide (1)	2	2021/08/11	2021/08/13	CAM SOP-00457	OMOE E3015 5 m
Dissolved Organic Carbon (DOC) (1, 6)	2	N/A	2021/08/13	CAM SOP-00446	SM 23 5310 B m
Field Measured Conductivity (1, 7)	2	N/A	2021/08/10		Field Meter
Field Measured TDS (1, 7)	2	N/A	2021/08/10		Field TDS Meter
Fluoride (1)	2	2021/08/11	2021/08/12	CAM SOP-00449	SM 23 4500-F C m
Dissolved Mercury (low level) (1)	2	2021/08/11	2021/08/12	CAM SOP-00453	EPA 7470 m
Mercury (low level) (1)	2	2021/08/11	2021/08/11	CAM SOP-00453	EPA 7470 m
Alkalinity @ 25C (pp,total), CO3,HCO3,OH (2)	2	N/A	2021/08/12		
Bromide in water by IC (2)	2	N/A	2021/08/12		
Low Level Chloride and Sulphate by AC (2)	2	N/A	2021/08/16	AB SOP-00020 / AB SOP-00018	SM23 4500-CL/SO4-E m
Cyanide (Free) (2)	2	2021/08/16	2021/08/16	CAL SOP-00266	EPA 9016d R0 m
Hardness Total (calculated as CaCO3) (3, 8)	2	N/A	2021/08/17	BBY WI-00033	Auto Calc
Hardness (calculated as CaCO3) (3)	2	N/A	2021/08/16	BBY WI-00033	Auto Calc
ICP-OES Dissolved Metals in Water (3)	2	N/A	2021/09/28		
ICP-OES Total Metals in Water (3)	2	2021/09/27	2021/09/28		
Na, K, Ca, Mg, S by CRC ICPMS (diss.) (3)	2	N/A	2021/08/16	BBY WI-00033	Auto Calc
Elements by ICPMS Low Level (dissolved) (3)	2	N/A	2021/08/14	BBY7SOP-00002	EPA 6020B R2 m
Elements by ICPMS Low Level (total) (3)	2	2021/08/13	2021/08/17	BBY7SOP-00003 / BBY7SOP-00002	EPA 6020b R2 m
Na, K, Ca, Mg, S by CRC ICPMS (total) (3)	2	N/A	2021/08/17	BBY WI-00033	Auto Calc
Ammonia-N Unpreserved Low Level seawater (2, 9)	2	N/A	2021/08/18	AB SOP-00007	SM 23 4500 NH3 A G m
pH @25°C (2, 10)	2	N/A	2021/08/12	AB SOP-00005	SM 23 4500-H+B m
Orthophosphate by Konelab (low level) (3)	2	N/A	2021/08/12		
Silica (Reactive) (2)	2	N/A	2021/08/24	AB SOP-00011	EPA370.1 R1978 m
Total Phosphorus Low Level Total (2)	1	2021/08/12	2021/08/13	AB SOP-00024	SM 23 4500-P A,B,F m
Total Phosphorus Low Level Total (2)	1	2021/08/16	2021/08/17	AB SOP-00024	SM 23 4500-P A,B,F m
Total Ammonia (as NH3) (1)	2	N/A	2021/08/20	Auto Calc.	

Your Project #: 21468783
Site Location: Westbay - Meliadine Mine
Your C.O.C. #: 383730

Attention: Dale Holtze

Golder Associates Ltd
1931 Robertson Rd
Ottawa, ON
CANADA K2H 5B7

Report Date: 2021/09/29
Report #: R6832150
Version: 3 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BV LABS JOB #: C1M4548
Received: 2021/08/09, 09:00

Sample Matrix: Sea Water
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Nitrate (NO3) and Nitrite (NO2) in Water (1, 11)	2	N/A	2021/08/11	CAM SOP-00440	SM 23 4500-NO3I/NO2B
pH (1)	2	2021/08/11	2021/08/12	CAM SOP-00413	SM 4500H+ B m
Field Measured pH (1, 7)	2	N/A	2021/08/10		Field pH Meter
Radium-226 Low Level (4, 12)	2	N/A	2021/08/19	BQL SOP-00006 BQL SOP-00017 BQL SOP-00032	Alpha Spectrometry
Salinity (5, 13)	2	N/A	2021/08/18		SM 22 2520B
Total Dissolved Solids (1)	2	2021/08/12	2021/08/13	CAM SOP-00428	SM 23 2540C m
Field Temperature (1, 7)	2	N/A	2021/08/10		Field Thermometer
Total Kjeldahl Nitrogen in Water (1)	2	2021/08/11	2021/08/12	CAM SOP-00938	OMOE E3516 m
Total Organic Carbon (TOC) (1, 14)	2	N/A	2021/08/12	CAM SOP-00446	SM 23 5310B m
Low Level Total Suspended Solids (1)	2	2021/08/11	2021/08/13	CAM SOP-00428	SM 23 2540D m
Turbidity (1)	2	N/A	2021/08/11	CAM SOP-00417	SM 23 2130 B m
Volatile Organic Compounds in Water (1)	2	N/A	2021/08/13	CAM SOP-00228	EPA 8260C 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.

Your Project #: 21468783
Site Location: Westbay - Meliadine Mine
Your C.O.C. #: 383730

Attention: Dale Holtze

Golder Associates Ltd
1931 Robertson Rd
Ottawa, ON
CANADA K2H 5B7

Report Date: 2021/09/29
Report #: R6832150
Version: 3 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BV LABS JOB #: C1M4548
Received: 2021/08/09, 09:00

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) This test was performed by Bureau Veritas Mississauga, 6740 Campobello Rd , Mississauga, ON, L5N 2L8
(2) This test was performed by Bureau Veritas Calgary (19th), 4000 19th Street NE , Calgary, AB, T2E 6P8
(3) This test was performed by Bureau Veritas Burnaby, 4606 Canada Way , Burnaby, BC, V5G 1K5
(4) This test was performed by Bureau Veritas Kitimat, 6790 Kitimat Road, Unit 4 , Mississauga, ON, L5N 5L9
(5) This test was performed by Bureau Veritas Bedford, 200 Bluewater Rd Suite 105, Bedford, NS, B4B 1G9
(6) Dissolved Organic Carbon (DOC) present in the sample should be considered as non-purgeable DOC.
(7) This is a field test, therefore, the results relate to items that were not analysed at Bureau Veritas Laboratories.
(8) "Total Hardness" was calculated from Total Ca and Mg concentrations and may be biased high (Hardness, or Dissolved Hardness, calculated from Dissolved Ca and Mg, should be used for compliance if available).
(9) Dissolved Ammonia > Total Ammonia Imbalance: When applicable, Dissolved Ammonia and Total Ammonia results were reviewed and data quality meets acceptable levels unless otherwise noted. Dissolved Ammonia > Dissolved Total Kjeldahl Nitrogen Imbalance: When applicable, Dissolved Ammonia and Dissolved Total Kjeldahl Nitrogen results were reviewed and data quality meets acceptable levels unless otherwise noted.
(10) The CCME method requires pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the CCME holding time. Bureau Veritas Laboratories endeavours to analyze samples as soon as possible after receipt.
(11) Values for calculated parameters may not appear to add up due to rounding of raw data and significant figures.
(12) Radium-226 results have not been corrected for blanks.
(13) Non-accredited test method
(14) Total Organic Carbon (TOC) present in the sample should be considered as non-purgeable TOC.

Encryption Key

Katherine Szozda
Project Manager
29 Sep 2021 11:03:43

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Katherine Szozda, Project Manager
Email: Katherine.Szozda@bureauveritas.com
Phone# (613)274-0573 Ext:7063633

==========

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 #: C1M4548
Report Date: 2021/09/29

Golder Associates Ltd
Client Project #: 21468783
Site Location: Westbay - Meliadine Mine
Sampler Initials: DH

RESULTS OF ANALYSES OF SEA WATER

BV Labs ID		QIG690			QIG690		
Sampling Date		2021/08/05 00:30			2021/08/05 00:30		
COC Number		383730			383730		
	UNITS	Port-4	RDL	QC Batch	Port-4 Lab-Dup	RDL	QC Batch
Calculated Parameters							
Total Ammonia (as NH3)	mg/L	1.8	0.0061	7511011			
Dissolved Hardness (CaCO3)	mg/L	49200	0.50	7525431			
Field Measurements							
Field Measured Conductivity	uS/cm	95.9 MS/CM	N/A	ONSITE			
Field Measured Dissolved Solids	mg/L	62.4 G/L		ONSITE			
Field Temperature	Celsius	6.1	N/A	ONSITE			
Field Measured pH	pH	9.3		ONSITE			
Inorganics							
Alkalinity (Total as CaCO3)	mg/L	390	1	7530104			
Bicarbonate (HCO3)	mg/L	190	1	7530104			
Total BOD	mg/L	6400	2	7512292			
Dissolved Bromide (Br-)	mg/L	160	1.0	7518956			
Carbonate (CO3)	mg/L	140	1	7530104			
Total Chemical Oxygen Demand (COD)	mg/L	8700	320	7514117			
Conductivity	mS/cm	91.1	0.001	7513802			
Free Cyanide (CN)	ug/L	4.5 (1)	1.0	7523600			
Total Dissolved Solids	mg/L	88000	20	7515806			
Fluoride (F-)	mg/L	0.16	0.10	7513807			
Hydroxide (OH)	mg/L	<1	1	7530104			
Total Kjeldahl Nitrogen (TKN)	mg/L	9.2	2.0	7514119			
Dissolved Organic Carbon	mg/L	2600	20	7514840			
Total Organic Carbon (TOC)	mg/L	2500	20	7512933			
Orthophosphate (P)	mg/L	0.020 (2)	0.010	7525436			
p-Alkalinity	mg/L	120	1	7530104			
pH	pH	9.21		7514072			
Salinity	N/A	74	10	7526460	74	10	7526460
Reactive Silica (SiO2)	mg/L	<5.0 (3)	5.0	7539009			
Total Suspended Solids	mg/L	140	1	7513534			

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
N/A = Not Applicable
(1) Sample pH <12, preservation incomplete. Due to volatility of analyte, a low bias in the results is likely.

(2) RDL raised due to sample matrix interference.
(3) Detection limits raised due to matrix interference.

BV Labs Job #: C1M4548
Report Date: 2021/09/29

Golder Associates Ltd
Client Project #: 21468783
Site Location: Westbay - Meliadine Mine
Sampler Initials: DH

RESULTS OF ANALYSES OF SEA WATER

BV Labs ID		QIG690			QIG690		
Sampling Date		2021/08/05 00:30			2021/08/05 00:30		
COC Number		383730			383730		
	UNITS	Port-4	RDL	QC Batch	Port-4 Lab-Dup	RDL	QC Batch
Total Cyanide (CN)	mg/L	<0.0050	0.0050	7514179			
Turbidity	NTU	2.3	0.1	7511762			
WAD Cyanide (Free)	mg/L	<0.0010	0.0010	7514176			
Dissolved Chloride (Cl-)	mg/L	45000	130	7530103			
Nitrite (N)	mg/L	<0.050	0.050	7512273			
Nitrate (N)	mg/L	2.42	0.50	7512273			
Dissolved Sulphate (SO4)	mg/L	500	5.0	7530103			
Nitrate + Nitrite (N)	mg/L	2.46	0.50	7512273			
Metals							
Dissolved Aluminum (Al)	ug/L	<250	250	7525432			
Total Aluminum (Al)	ug/L	<1500	1500	7524767			
Dissolved Antimony (Sb)	ug/L	<10	10	7525432			
Total Antimony (Sb)	ug/L	<10	10	7524767			
Dissolved Arsenic (As)	ug/L	<10	10	7525432			
Total Arsenic (As)	ug/L	<10	10	7524767			
Dissolved Barium (Ba)	ug/L	4450	10	7525432			
Total Barium (Ba)	ug/L	4280	25	7524767			
Dissolved Beryllium (Be)	ug/L	<5.0	5.0	7525432			
Total Beryllium (Be)	ug/L	<5.0	5.0	7524767			
Dissolved Bismuth (Bi)	ug/L	<2.5	2.5	7525432			
Total Bismuth (Bi)	ug/L	<5.0	5.0	7524767			
Dissolved Boron (B)	ug/L	62800	5000	7525432			
Total Boron (B)	ug/L	61500	5000	7524767			
Dissolved Cadmium (Cd)	ug/L	<2.5	2.5	7525432			
Total Cadmium (Cd)	ug/L	2.6	2.5	7524767			
Dissolved Chromium (Cr)	ug/L	<50	50	7525432			
Total Chromium (Cr)	ug/L	<50	50	7524767			
Dissolved Cobalt (Co)	ug/L	5.1	2.5	7525432			
Total Cobalt (Co)	ug/L	7.4	5.0	7524767			
Dissolved Copper (Cu)	ug/L	<25	25	7525432			
Total Copper (Cu)	ug/L	189	50	7524767			
Dissolved Iron (Fe)	ug/L	<500	500	7525432			
Total Iron (Fe)	ug/L	<2500	2500	7524767			
Dissolved Lead (Pb)	ug/L	<2.5	2.5	7525432			

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

RESULTS OF ANALYSES OF SEA WATER

BV Labs ID		QIG690			QIG690		
Sampling Date		2021/08/05 00:30			2021/08/05 00:30		
COC Number		383730			383730		
	UNITS	Port-4	RDL	QC Batch	Port-4 Lab-Dup	RDL	QC Batch
Total Lead (Pb)	ug/L	<10	10	7524767			
Dissolved Lithium (Li)	ug/L	59500	250	7525432			
Total Lithium (Li)	ug/L	58500	250	7524767			
Dissolved Manganese (Mn)	ug/L	128	25	7525432			
Total Manganese (Mn)	ug/L	80	50	7524767			
Dissolved Molybdenum (Mo)	ug/L	33	25	7525432			
Total Molybdenum (Mo)	ug/L	33	25	7524767			
Dissolved Nickel (Ni)	ug/L	14	10	7525432			
Total Nickel (Ni)	ug/L	286	50	7524767			
Dissolved Phosphorus (P)	ug/L	<1000	1000	7525432			
Total Phosphorus (P)	ug/L	<2500	2500	7524767			
Dissolved Selenium (Se)	ug/L	<20	20	7525432			
Total Selenium (Se)	ug/L	<20	20	7524767			
Dissolved Silicon (Si)	ug/L	<25000	25000	7525432			
Total Silicon (Si)	ug/L	<25000	25000	7524767			
Dissolved Silver (Ag)	ug/L	<2.5	2.5	7525432			
Total Silver (Ag)	ug/L	<5.0	5.0	7524767			
Dissolved Strontium (Sr)	ug/L	950000	25	7525432			
Total Strontium (Sr)	ug/L	891000	25	7524767			
Dissolved Thallium (Tl)	ug/L	66.8	1.0	7525432			
Total Thallium (Tl)	ug/L	66.5	1.0	7524767			
Dissolved Tin (Sn)	ug/L	<100	100	7525432			
Total Tin (Sn)	ug/L	<100	100	7524767			
Dissolved Titanium (Ti)	ug/L	<250	250	7525432			
Total Titanium (Ti)	ug/L	<1000	1000	7524767			
Dissolved Uranium (U)	ug/L	<1.0	1.0	7525432			
Total Uranium (U)	ug/L	<2.5	2.5	7524767			
Dissolved Vanadium (V)	ug/L	<100	100	7525432			
Total Vanadium (V)	ug/L	<100	100	7524767			
Dissolved Zinc (Zn)	ug/L	186	50	7525432			
Total Zinc (Zn)	ug/L	2600	500	7524767			
Dissolved Zirconium (Zr)	ug/L	<50	50	7525432			
Total Zirconium (Zr)	ug/L	<50	50	7524767			
Dissolved Calcium (Ca)	mg/L	19200	25	7525433			

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

BV Labs Job #: C1M4548
Report Date: 2021/09/29

Golder Associates Ltd
Client Project #: 21468783
Site Location: Westbay - Meliadine Mine
Sampler Initials: DH

RESULTS OF ANALYSES OF SEA WATER

BV Labs ID		QIG690			QIG690		
Sampling Date		2021/08/05 00:30			2021/08/05 00:30		
COC Number		383730			383730		
	UNITS	Port-4	RDL	QC Batch	Port-4 Lab-Dup	RDL	QC Batch
Total Calcium (Ca)	mg/L	18900	130	7525435			
Dissolved Cesium (Cs)	ug/L	1310	25	7525432			
Total Cesium (Cs)	ug/L	1220	25	7524767			
Dissolved Magnesium (Mg)	mg/L	319	25	7525433			
Total Magnesium (Mg)	mg/L	321	130	7525435			
Dissolved Potassium (K)	mg/L	852	25	7525433			
Total Potassium (K)	mg/L	825	130	7525435			
Dissolved Sodium (Na)	mg/L	2930	25	7525433			
Total Sodium (Na)	mg/L	2970	130	7525435			
Dissolved Sulphur (S)	mg/L	110	0.10	7606429	110	0.10	7606429
Total Sulphur (S)	mg/L	114	0.10	7606430			
Nutritional Parameters							
Total Ammonia-N	mg/L	1.5	0.0050	7530107			
Total Phosphorus (P)	mg/L	<0.10 (1)	0.10	7530108			
RADIONUCLIDE							
Radium-226	Bq/L	6.7	0.0050	7521607			

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
(1) Due to the sample matrix, sample required dilution. Detection limit was adjusted accordingly.

BV Labs Job #: C1M4548
Report Date: 2021/09/29

Golder Associates Ltd
Client Project #: 21468783
Site Location: Westbay - Meliadine Mine
Sampler Initials: DH

RESULTS OF ANALYSES OF SEA WATER

BV Labs ID		QIG691		
Sampling Date		2021/08/05 00:30		
COC Number		383730		
	UNITS	Port-4-DUP	RDL	QC Batch
Calculated Parameters				
Total Ammonia (as NH3)	mg/L	1.7	0.0061	7511011
Dissolved Hardness (CaCO3)	mg/L	50300	0.50	7525431
Field Measurements				
Field Measured Conductivity	uS/cm	95.9 MS/CM	N/A	ONSITE
Field Measured Dissolved Solids	mg/L	62.4 G/L		ONSITE
Field Temperature	Celsius	6.1	N/A	ONSITE
Field Measured pH	pH	9.3		ONSITE
Inorganics				
Alkalinity (Total as CaCO3)	mg/L	390	1	7530104
Bicarbonate (HCO3)	mg/L	180	1	7530104
Total BOD	mg/L	5200	2	7512292
Dissolved Bromide (Br-)	mg/L	160	1.0	7518956
Carbonate (CO3)	mg/L	140	1	7530104
Total Chemical Oxygen Demand (COD)	mg/L	8600	320	7514117
Conductivity	mS/cm	91.7	0.001	7513802
Free Cyanide (CN)	ug/L	5.6 (1)	1.0	7523600
Total Dissolved Solids	mg/L	88600	20	7515806
Fluoride (F-)	mg/L	0.16	0.10	7513807
Hydroxide (OH)	mg/L	<1	1	7530104
Total Kjeldahl Nitrogen (TKN)	mg/L	8.9	2.0	7514119
Dissolved Organic Carbon	mg/L	2600	20	7514840
Total Organic Carbon (TOC)	mg/L	2500	20	7512933
Orthophosphate (P)	mg/L	0.033 (2)	0.010	7525436
p-Alkalinity	mg/L	120	1	7530104
pH	pH	9.27		7514072
Salinity	N/A	77	10	7526460
Reactive Silica (SiO2)	mg/L	6.9 (3)	5.0	7539009
Total Suspended Solids	mg/L	57	1	7513534
Total Cyanide (CN)	mg/L	<0.0050	0.0050	7514179

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable
(1) Sample pH <12, preservation incomplete. Due to volatility of analyte, a low bias in the results is likely.
(2) RDL raised due to sample matrix interference.
(3) Detection limits raised due to matrix interference.

Golder Associates Ltd
Client Project #: 21468783
Site Location: Westbay - Meliadine Mine
Sampler Initials: DH

RESULTS OF ANALYSES OF SEA WATER

BV Labs ID		QIG691		
Sampling Date		2021/08/05 00:30		
COC Number		383730		
	UNITS	Port-4-DUP	RDL	QC Batch
Turbidity	NTU	2.5	0.1	7511762
WAD Cyanide (Free)	mg/L	<0.0010	0.0010	7514176
Dissolved Chloride (Cl-)	mg/L	45000	130	7530103
Nitrite (N)	mg/L	<0.050	0.050	7512273
Nitrate (N)	mg/L	2.42	0.50	7512273
Dissolved Sulphate (SO4)	mg/L	490	5.0	7530103
Nitrate + Nitrite (N)	mg/L	2.44	0.50	7512273
Metals				
Dissolved Aluminum (Al)	ug/L	<250	250	7525432
Total Aluminum (Al)	ug/L	<1500	1500	7524767
Dissolved Antimony (Sb)	ug/L	<10	10	7525432
Total Antimony (Sb)	ug/L	<10	10	7524767
Dissolved Arsenic (As)	ug/L	<10	10	7525432
Total Arsenic (As)	ug/L	<10	10	7524767
Dissolved Barium (Ba)	ug/L	4530	10	7525432
Total Barium (Ba)	ug/L	4340	25	7524767
Dissolved Beryllium (Be)	ug/L	<5.0	5.0	7525432
Total Beryllium (Be)	ug/L	<5.0	5.0	7524767
Dissolved Bismuth (Bi)	ug/L	<2.5	2.5	7525432
Total Bismuth (Bi)	ug/L	<5.0	5.0	7524767
Dissolved Boron (B)	ug/L	62700	5000	7525432
Total Boron (B)	ug/L	62400	5000	7524767
Dissolved Cadmium (Cd)	ug/L	<2.5	2.5	7525432
Total Cadmium (Cd)	ug/L	<2.5	2.5	7524767
Dissolved Chromium (Cr)	ug/L	<50	50	7525432
Total Chromium (Cr)	ug/L	<50	50	7524767
Dissolved Cobalt (Co)	ug/L	5.7	2.5	7525432
Total Cobalt (Co)	ug/L	5.7	5.0	7524767
Dissolved Copper (Cu)	ug/L	<25	25	7525432
Total Copper (Cu)	ug/L	111	50	7524767
Dissolved Iron (Fe)	ug/L	<500	500	7525432
Total Iron (Fe)	ug/L	<2500	2500	7524767
Dissolved Lead (Pb)	ug/L	<2.5	2.5	7525432
Total Lead (Pb)	ug/L	<10	10	7524767

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

RESULTS OF ANALYSES OF SEA WATER

BV Labs ID		QIG691		
Sampling Date		2021/08/05 00:30		
COC Number		383730		
	UNITS	Port-4-DUP	RDL	QC Batch
Dissolved Lithium (Li)	ug/L	62400	250	7525432
Total Lithium (Li)	ug/L	58700	250	7524767
Dissolved Manganese (Mn)	ug/L	93	25	7525432
Total Manganese (Mn)	ug/L	61	50	7524767
Dissolved Molybdenum (Mo)	ug/L	31	25	7525432
Total Molybdenum (Mo)	ug/L	31	25	7524767
Dissolved Nickel (Ni)	ug/L	21	10	7525432
Total Nickel (Ni)	ug/L	188	50	7524767
Dissolved Phosphorus (P)	ug/L	<1000	1000	7525432
Total Phosphorus (P)	ug/L	<2500	2500	7524767
Dissolved Selenium (Se)	ug/L	<20	20	7525432
Total Selenium (Se)	ug/L	<20	20	7524767
Dissolved Silicon (Si)	ug/L	<25000	25000	7525432
Total Silicon (Si)	ug/L	<25000	25000	7524767
Dissolved Silver (Ag)	ug/L	<2.5	2.5	7525432
Total Silver (Ag)	ug/L	<5.0	5.0	7524767
Dissolved Strontium (Sr)	ug/L	992000	25	7525432
Total Strontium (Sr)	ug/L	887000	25	7524767
Dissolved Thallium (Tl)	ug/L	74.7	1.0	7525432
Total Thallium (Tl)	ug/L	67.5	1.0	7524767
Dissolved Tin (Sn)	ug/L	<100	100	7525432
Total Tin (Sn)	ug/L	<100	100	7524767
Dissolved Titanium (Ti)	ug/L	<250	250	7525432
Total Titanium (Ti)	ug/L	<1000	1000	7524767
Dissolved Uranium (U)	ug/L	<1.0	1.0	7525432
Total Uranium (U)	ug/L	<2.5	2.5	7524767
Dissolved Vanadium (V)	ug/L	<100	100	7525432
Total Vanadium (V)	ug/L	<100	100	7524767
Dissolved Zinc (Zn)	ug/L	169	50	7525432
Total Zinc (Zn)	ug/L	1530	500	7524767
Dissolved Zirconium (Zr)	ug/L	<50	50	7525432
Total Zirconium (Zr)	ug/L	<50	50	7524767
Dissolved Calcium (Ca)	mg/L	19600	25	7525433
Total Calcium (Ca)	mg/L	19700	130	7525435

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

BV Labs Job #: C1M4548
Report Date: 2021/09/29

Golder Associates Ltd
Client Project #: 21468783
Site Location: Westbay - Meliadine Mine
Sampler Initials: DH

RESULTS OF ANALYSES OF SEA WATER

BV Labs ID		QIG691		
Sampling Date		2021/08/05 00:30		
COC Number		383730		
	UNITS	Port-4-DUP	RDL	QC Batch
Dissolved Cesium (Cs)	ug/L	1340	25	7525432
Total Cesium (Cs)	ug/L	1240	25	7524767
Dissolved Magnesium (Mg)	mg/L	330	25	7525433
Total Magnesium (Mg)	mg/L	324	130	7525435
Dissolved Potassium (K)	mg/L	875	25	7525433
Total Potassium (K)	mg/L	839	130	7525435
Dissolved Sodium (Na)	mg/L	3050	25	7525433
Total Sodium (Na)	mg/L	3050	130	7525435
Dissolved Sulphur (S)	mg/L	110	0.10	7606429
Total Sulphur (S)	mg/L	110	0.10	7606430
Nutritional Parameters				
Total Ammonia-N	mg/L	1.4	0.0050	7530107
Total Phosphorus (P)	mg/L	<0.10 (1)	0.10	7526186
RADIONUCLIDE				
Radium-226	Bq/L	9.1	0.0050	7521607

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
(1) Due to the sample matrix, sample required dilution. Detection limit was adjusted accordingly.

ELEMENTS BY ATOMIC SPECTROSCOPY (SEA WATER)

BV Labs ID		QIG690	QIG691		
Sampling Date		2021/08/05 00:30	2021/08/05 00:30		
COC Number		383730	383730		
	UNITS	Port-4	Port-4-DUP	RDL	QC Batch
Calculated Parameters					
Total Hardness (CaCO3)	mg/L	48500	50400	0.50	7525434
Metals					
Mercury (Hg)	ug/L	<0.01	<0.01	0.01	7512942
Dissolved Mercury (Hg)	ug/L	<0.01	<0.01	0.01	7513469

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

VOLATILE ORGANICS BY GC/MS (SEA WATER)

BV Labs ID		QIG690	QIG691		
Sampling Date		2021/08/05 00:30	2021/08/05 00:30		
COC Number		383730	383730		
	UNITS	Port-4	Port-4-DUP	RDL	QC Batch
Volatile Organics					
Benzene	ug/L	<0.20	<0.20	0.20	7510617
Ethylbenzene	ug/L	<0.20	<0.20	0.20	7510617
Methyl t-butyl ether (MTBE)	ug/L	<0.50	<0.50	0.50	7510617
Styrene	ug/L	<0.40	<0.40	0.40	7510617
Toluene	ug/L	0.24	0.26	0.20	7510617
p+m-Xylene	ug/L	<0.20	<0.20	0.20	7510617
o-Xylene	ug/L	<0.20	<0.20	0.20	7510617
Total Xylenes	ug/L	<0.20	<0.20	0.20	7510617
Surrogate Recovery (%)					
4-Bromofluorobenzene	%	91	92		7510617
D4-1,2-Dichloroethane	%	82	85		7510617
D8-Toluene	%	103	101		7510617

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

BV Labs Job #: C1M4548
Report Date: 2021/09/29

Golder Associates Ltd
Client Project #: 21468783
Site Location: Westbay - Meliadine Mine
Sampler Initials: DH

TEST SUMMARY

BV Labs ID: QIG690
Sample ID: Port-4
Matrix: Sea Water

Collected: 2021/08/05
Shipped:
Received: 2021/08/09

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Biochemical Oxygen Demand (BOD)	DO	7512292	2021/08/10	2021/08/15	Frank Zhang
Chemical Oxygen Demand	SPEC	7514117	N/A	2021/08/13	Nimarta Singh
Conductivity	AT	7513802	N/A	2021/08/12	Surinder Rai
Free (WAD) Cyanide	SKAL/CN	7514176	N/A	2021/08/12	Aditiben Patel
Total Cyanide	SKAL/CN	7514179	2021/08/11	2021/08/13	Aditiben Patel
Dissolved Organic Carbon (DOC)	TOCV/NDIR	7514840	N/A	2021/08/13	Julianna Castiglione
Field Measured Conductivity	PH	ONSITE	N/A	2021/08/10	Mandeep Kaur (Mandy)
Field Measured TDS		ONSITE	N/A	2021/08/10	Mandeep Kaur (Mandy)
Fluoride	ISE	7513807	2021/08/11	2021/08/12	Surinder Rai
Dissolved Mercury (low level)	CV/AA	7513469	2021/08/11	2021/08/12	Meghaben Patel
Mercury (low level)	CV/AA	7512942	2021/08/11	2021/08/11	Meghaben Patel
Alkalinity @ 25C (pp,total), CO3,HCO3,OH	AT	7530104	N/A	2021/08/12	Karen Graham
Bromide in water by IC	IC/UV	7518956	N/A	2021/08/12	Kathleen Dalton
Low Level Chloride and Sulphate by AC	KONE	7530103	N/A	2021/08/16	Bradley Freake
Cyanide (Free)	SPEC	7523600	2021/08/16	2021/08/16	Riazuddin Khan
Hardness Total (calculated as CaCO3)	CALC	7525434	N/A	2021/08/17	Automated Statchk
Hardness (calculated as CaCO3)	CALC	7525431	N/A	2021/08/16	Automated Statchk
ICP-OES Dissolved Metals in Water	ICP/AES	7606429	N/A	2021/09/28	Jocelyn Baron-Inactive
ICP-OES Total Metals in Water	ICP/AES	7606430	2021/09/27	2021/09/28	Jocelyn Baron-Inactive
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP	7525433	N/A	2021/08/16	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/MS	7525432	N/A	2021/08/14	Andrew An
Elements by ICPMS Low Level (total)	ICP/MS	7524767	2021/08/13	2021/08/17	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP	7525435	N/A	2021/08/17	Automated Statchk
Ammonia-N Unpreserved Low Level seawater	KONE	7530107	N/A	2021/08/18	Shanna McKort
pH @25°C	AT/PH	7528466	N/A	2021/08/12	Karen Graham
Orthophosphate by Konelab (low level)	KONE	7525436	N/A	2021/08/12	Tajinder Sohal-Inactive
Silica (Reactive)	KONE	7539009	N/A	2021/08/24	Bradley Freake
Total Phosphorus Low Level Total	KONE	7530108	2021/08/12	2021/08/13	Fadia Mostafa
Total Ammonia (as NH3)	CALC	7511011	N/A	2021/08/20	Automated Statchk
Nitrate (NO3) and Nitrite (NO2) in Water	LACH	7512273	N/A	2021/08/11	Chandra Nandlal
pH	AT	7514072	2021/08/11	2021/08/12	Surinder Rai
Field Measured Conductivity	PH	ONSITE	N/A	2021/08/10	Mandeep Kaur (Mandy)
Radium-226 Low Level	AS	7521607	N/A	2021/08/19	Ryan Wong
Salinity		7526460	N/A	2021/08/18	Brent Boudreau
Total Dissolved Solids	BAL	7515806	2021/08/12	2021/08/13	Shivani Desai
Field Measured Conductivity	PH	ONSITE	N/A	2021/08/10	Mandeep Kaur (Mandy)
Total Kjeldahl Nitrogen in Water	SKAL	7514119	2021/08/11	2021/08/12	Rajni Tyagi
Total Organic Carbon (TOC)	TOCV/NDIR	7512933	N/A	2021/08/12	Julianna Castiglione
Low Level Total Suspended Solids	BAL	7513534	2021/08/11	2021/08/13	Kristen Chan
Turbidity	AT	7511762	N/A	2021/08/11	Neil Dassanayake
Volatile Organic Compounds in Water	GC/MS	7510617	N/A	2021/08/13	Ancheol Jeong

BV Labs Job #: C1M4548
Report Date: 2021/09/29

Golder Associates Ltd
Client Project #: 21468783
Site Location: Westbay - Meliadine Mine
Sampler Initials: DH

TEST SUMMARY

BV Labs ID: QIG690 Dup
Sample ID: Port-4
Matrix: Sea Water

Collected: 2021/08/05
Shipped:
Received: 2021/08/09

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
ICP-OES Dissolved Metals in Water	ICP/AES	7606429	N/A	2021/09/28	Jocelyn Baron-Inactive
Salinity		7526460	N/A	2021/08/18	Brent Boudreau

BV Labs ID: QIG691
Sample ID: Port-4-DUP
Matrix: Sea Water

Collected: 2021/08/05
Shipped:
Received: 2021/08/09

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Biochemical Oxygen Demand (BOD)	DO	7512292	2021/08/10	2021/08/15	Frank Zhang
Chemical Oxygen Demand	SPEC	7514117	N/A	2021/08/13	Nimarta Singh
Conductivity	AT	7513802	N/A	2021/08/12	Surinder Rai
Free (WAD) Cyanide	SKAL/CN	7514176	N/A	2021/08/12	Aditiben Patel
Total Cyanide	SKAL/CN	7514179	2021/08/11	2021/08/13	Aditiben Patel
Dissolved Organic Carbon (DOC)	TOCV/NDIR	7514840	N/A	2021/08/13	Julianna Castiglione
Field Measured Conductivity	PH	ONSITE	N/A	2021/08/10	Mandeep Kaur (Mandy)
Field Measured TDS		ONSITE	N/A	2021/08/10	Mandeep Kaur (Mandy)
Fluoride	ISE	7513807	2021/08/11	2021/08/12	Surinder Rai
Dissolved Mercury (low level)	CV/AA	7513469	2021/08/11	2021/08/12	Meghaben Patel
Mercury (low level)	CV/AA	7512942	2021/08/11	2021/08/11	Meghaben Patel
Alkalinity @ 25C (pp,total), CO3,HCO3,OH	AT	7530104	N/A	2021/08/12	Karen Graham
Bromide in water by IC	IC/UV	7518956	N/A	2021/08/12	Kathleen Dalton
Low Level Chloride and Sulphate by AC	KONE	7530103	N/A	2021/08/16	Bradley Freake
Cyanide (Free)	SPEC	7523600	2021/08/16	2021/08/16	Riazuddin Khan
Hardness Total (calculated as CaCO3)	CALC	7525434	N/A	2021/08/17	Automated Statchk
Hardness (calculated as CaCO3)	CALC	7525431	N/A	2021/08/16	Automated Statchk
ICP-OES Dissolved Metals in Water	ICP/AES	7606429	N/A	2021/09/28	Jocelyn Baron-Inactive
ICP-OES Total Metals in Water	ICP/AES	7606430	2021/09/27	2021/09/28	Jocelyn Baron-Inactive
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP	7525433	N/A	2021/08/16	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/MS	7525432	N/A	2021/08/14	Andrew An
Elements by ICPMS Low Level (total)	ICP/MS	7524767	2021/08/13	2021/08/17	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP	7525435	N/A	2021/08/17	Automated Statchk
Ammonia-N Unpreserved Low Level seawater	KONE	7530107	N/A	2021/08/18	Shanna McKort
pH @25°C	AT/PH	7528466	N/A	2021/08/12	Karen Graham
Orthophosphate by Konelab (low level)	KONE	7525436	N/A	2021/08/12	Tajinder Sohal-Inactive
Silica (Reactive)	KONE	7539009	N/A	2021/08/24	Bradley Freake
Total Phosphorus Low Level Total	KONE	7526186	2021/08/16	2021/08/17	Fadia Mostafa
Total Ammonia (as NH3)	CALC	7511011	N/A	2021/08/20	Automated Statchk
Nitrate (NO3) and Nitrite (NO2) in Water	LACH	7512273	N/A	2021/08/11	Chandra Nandlal
pH	AT	7514072	2021/08/11	2021/08/12	Surinder Rai
Field Measured pH	PH	ONSITE	N/A	2021/08/10	Mandeep Kaur (Mandy)
Radium-226 Low Level	AS	7521607	N/A	2021/08/19	Ryan Wong
Salinity		7526460	N/A	2021/08/18	Brent Boudreau
Total Dissolved Solids	BAL	7515806	2021/08/12	2021/08/13	Shivani Desai
Field Measured pH	PH	ONSITE	N/A	2021/08/10	Mandeep Kaur (Mandy)
Total Kjeldahl Nitrogen in Water	SKAL	7514119	2021/08/11	2021/08/12	Rajni Tyagi

BV Labs Job #: C1M4548
Report Date: 2021/09/29

Golder Associates Ltd
Client Project #: 21468783
Site Location: Westbay - Meliadine Mine
Sampler Initials: DH

TEST SUMMARY

BV Labs ID: QIG691
Sample ID: Port-4-DUP
Matrix: Sea Water

Collected: 2021/08/05
Shipped:
Received: 2021/08/09

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Total Organic Carbon (TOC)	TOCV/NDIR	7512933	N/A	2021/08/12	Julianna Castiglione
Low Level Total Suspended Solids	BAL	7513534	2021/08/11	2021/08/13	Kristen Chan
Turbidity	AT	7511762	N/A	2021/08/11	Neil Dassanayake
Volatile Organic Compounds in Water	GC/MS	7510617	N/A	2021/08/13	Ancheol Jeong

GENERAL COMMENTS

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

Package 1	20.7°C

Revised Report (2021/09/29): Total and Dissolved Sulpur run by ICP-OES
Revised Report (2021/09/10): Total and dissolved Cesium, Dissolved Sulphur added to report per client request

Sample QIG690 [Port-4] : Nitrite/Nitrate: Due to colour interferences, sample required dilution. Detection limit was adjusted accordingly.

TOC< DOC: Both values fall within the method uncertainty for duplicates and are likely equivalent. Sample was analyzed past method specified hold time for Orthophosphate by Konelab (low level). Exceedance of hold time increases the uncertainty of test results but does not necessarily imply that results are compromised. Sample received past method specified hold time for Orthophosphate by Konelab (low level). Sample was analyzed past method specified hold time for Ammonia-N Unpreserved Low Level. Exceedance of hold time increases the uncertainty of test results but does not necessarily imply that results are compromised.

Sample QIG691 [Port-4-DUP] : Nitrite/Nitrate: Due to colour interferences, sample required dilution. Detection limit was adjusted accordingly.

TOC< DOC: Both values fall within the method uncertainty for duplicates and are likely equivalent. Sample was analyzed past method specified hold time for Orthophosphate by Konelab (low level). Exceedance of hold time increases the uncertainty of test results but does not necessarily imply that results are compromised. Sample received past method specified hold time for Orthophosphate by Konelab (low level). Sample was analyzed past method specified hold time for Ammonia-N Unpreserved Low Level. Exceedance of hold time increases the uncertainty of test results but does not necessarily imply that results are compromised.

Results relate only to the items tested.

BV Labs Job #: C1M4548
Report Date: 2021/09/29

QUALITY ASSURANCE REPORT

Golder Associates Ltd
Client Project #: 21468783
Site Location: Westbay - Meliadine Mine
Sampler Initials: DH

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
7510617	4-Bromofluorobenzene	2021/08/12	101	70 - 130	100	70 - 130	99	%				
7510617	D4-1,2-Dichloroethane	2021/08/12	100	70 - 130	97	70 - 130	102	%				
7510617	D8-Toluene	2021/08/12	101	70 - 130	101	70 - 130	97	%				
7510617	Benzene	2021/08/12	87	70 - 130	86	70 - 130	<0.20	ug/L	NC	30		
7510617	Ethylbenzene	2021/08/12	91	70 - 130	88	70 - 130	<0.20	ug/L	NC	30		
7510617	Methyl t-butyl ether (MTBE)	2021/08/12	90	70 - 130	89	70 - 130	<0.50	ug/L	NC	30		
7510617	o-Xylene	2021/08/12	88	70 - 130	88	70 - 130	<0.20	ug/L	NC	30		
7510617	p+m-Xylene	2021/08/12	96	70 - 130	93	70 - 130	<0.20	ug/L	NC	30		
7510617	Styrene	2021/08/12	102	70 - 130	100	70 - 130	<0.40	ug/L	NC	30		
7510617	Toluene	2021/08/12	91	70 - 130	89	70 - 130	<0.20	ug/L	NC	30		
7510617	Total Xylenes	2021/08/12					<0.20	ug/L	NC	30		
7511762	Turbidity	2021/08/11			96	85 - 115	<0.1	NTU	4.2	20		
7512273	Nitrate (N)	2021/08/11	NC	80 - 120	94	80 - 120	<0.10	mg/L	1.0	20		
7512273	Nitrite (N)	2021/08/11	NC	80 - 120	107	80 - 120	<0.010	mg/L	1.5	20		
7512292	Total BOD	2021/08/15					<2	mg/L	NC	30	103	80 - 120
7512933	Total Organic Carbon (TOC)	2021/08/12	93	80 - 120	92	80 - 120	<0.40	mg/L	1.6	20		
7512942	Mercury (Hg)	2021/08/11	106	75 - 125	107	80 - 120	<0.01	ug/L	NC	20		
7513469	Dissolved Mercury (Hg)	2021/08/12	95	75 - 125	96	80 - 120	<0.01	ug/L	NC	20		
7513534	Total Suspended Solids	2021/08/13					<1	mg/L	18	25	97	85 - 115
7513802	Conductivity	2021/08/12			99	85 - 115	<0.001	mS/cm	0.35	25		
7513807	Fluoride (F-)	2021/08/12	107	80 - 120	98	80 - 120	<0.10	mg/L				
7514072	pH	2021/08/12			102	98 - 103			0.54	N/A		
7514117	Total Chemical Oxygen Demand (COD)	2021/08/12	93	80 - 120	98	80 - 120	<4.0	mg/L	11	20		
7514119	Total Kjeldahl Nitrogen (TKN)	2021/08/12	100	80 - 120	97	80 - 120	<0.10	mg/L	NC	20	98	80 - 120
7514176	WAD Cyanide (Free)	2021/08/12	96	80 - 120	96	80 - 120	<0.0010	mg/L	NC	20		
7514179	Total Cyanide (CN)	2021/08/13	102	80 - 120	99	80 - 120	<0.0050	mg/L	NC	20		
7514840	Dissolved Organic Carbon	2021/08/12	101	80 - 120	100	80 - 120	<0.40	mg/L	0.26	20		
7515806	Total Dissolved Solids	2021/08/13					<10	mg/L	13	25	98	90 - 110
7518956	Dissolved Bromide (Br-)	2021/08/12	108	80 - 120	102	80 - 120	<0.010	mg/L	NC	20		
7521607	Radium-226	2021/08/19			95	85 - 115	<0.0050	Bq/L	NC	N/A		
7523600	Free Cyanide (CN)	2021/08/16	87	80 - 120	99	80 - 120	<1.0	ug/L				
7524767	Total Aluminum (Al)	2021/08/16	97	80 - 120	98	80 - 120	<3.0	ug/L				

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
7524767	Total Antimony (Sb)	2021/08/16	100	80 - 120	99	80 - 120	<0.020	ug/L				
7524767	Total Arsenic (As)	2021/08/16	99	80 - 120	98	80 - 120	<0.020	ug/L				
7524767	Total Barium (Ba)	2021/08/16	99	80 - 120	100	80 - 120	<0.050	ug/L				
7524767	Total Beryllium (Be)	2021/08/16	91	80 - 120	91	80 - 120	<0.010	ug/L				
7524767	Total Bismuth (Bi)	2021/08/16	97	80 - 120	99	80 - 120	<0.010	ug/L				
7524767	Total Boron (B)	2021/08/16	95	80 - 120	96	80 - 120	<10	ug/L				
7524767	Total Cadmium (Cd)	2021/08/16	98	80 - 120	98	80 - 120	<0.0050	ug/L				
7524767	Total Cesium (Cs)	2021/08/16	98	80 - 120	97	80 - 120	<0.050	ug/L				
7524767	Total Chromium (Cr)	2021/08/16	97	80 - 120	97	80 - 120	<0.10	ug/L				
7524767	Total Cobalt (Co)	2021/08/16	95	80 - 120	96	80 - 120	<0.010	ug/L				
7524767	Total Copper (Cu)	2021/08/16	94	80 - 120	95	80 - 120	<0.10	ug/L				
7524767	Total Iron (Fe)	2021/08/16	95	80 - 120	101	80 - 120	<5.0	ug/L				
7524767	Total Lead (Pb)	2021/08/16	101	80 - 120	101	80 - 120	<0.020	ug/L				
7524767	Total Lithium (Li)	2021/08/16	90	80 - 120	88	80 - 120	<0.50	ug/L				
7524767	Total Manganese (Mn)	2021/08/16	84	80 - 120	97	80 - 120	<0.10	ug/L				
7524767	Total Molybdenum (Mo)	2021/08/16	102	80 - 120	98	80 - 120	<0.050	ug/L				
7524767	Total Nickel (Ni)	2021/08/16	96	80 - 120	97	80 - 120	<0.10	ug/L				
7524767	Total Phosphorus (P)	2021/08/16	100	80 - 120	98	80 - 120	<5.0	ug/L				
7524767	Total Selenium (Se)	2021/08/16	98	80 - 120	96	80 - 120	<0.040	ug/L				
7524767	Total Silicon (Si)	2021/08/16	NC	80 - 120	96	80 - 120	<50	ug/L				
7524767	Total Silver (Ag)	2021/08/16	98	80 - 120	96	80 - 120	<0.010	ug/L				
7524767	Total Strontium (Sr)	2021/08/16	NC	80 - 120	98	80 - 120	<0.050	ug/L				
7524767	Total Thallium (Tl)	2021/08/16	100	80 - 120	99	80 - 120	<0.0020	ug/L				
7524767	Total Tin (Sn)	2021/08/16	99	80 - 120	100	80 - 120	<0.20	ug/L				
7524767	Total Titanium (Ti)	2021/08/16	100	80 - 120	99	80 - 120	<2.0	ug/L				
7524767	Total Uranium (U)	2021/08/16	95	80 - 120	96	80 - 120	<0.0050	ug/L				
7524767	Total Vanadium (V)	2021/08/16	100	80 - 120	99	80 - 120	<0.20	ug/L				
7524767	Total Zinc (Zn)	2021/08/16	104	80 - 120	97	80 - 120	<1.0	ug/L				
7524767	Total Zirconium (Zr)	2021/08/16	101	80 - 120	100	80 - 120	<0.10	ug/L				
7525432	Dissolved Aluminum (Al)	2021/08/14	93	80 - 120	98	80 - 120	<0.50	ug/L				
7525432	Dissolved Antimony (Sb)	2021/08/14	97	80 - 120	101	80 - 120	<0.020	ug/L				
7525432	Dissolved Arsenic (As)	2021/08/14	97	80 - 120	99	80 - 120	<0.020	ug/L				

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
7525432	Dissolved Barium (Ba)	2021/08/14	96	80 - 120	99	80 - 120	<0.020	ug/L				
7525432	Dissolved Beryllium (Be)	2021/08/14	88	80 - 120	95	80 - 120	<0.010	ug/L				
7525432	Dissolved Bismuth (Bi)	2021/08/14	92	80 - 120	98	80 - 120	<0.0050	ug/L				
7525432	Dissolved Boron (B)	2021/08/14	89	80 - 120	95	80 - 120	<10	ug/L				
7525432	Dissolved Cadmium (Cd)	2021/08/14	97	80 - 120	103	80 - 120	<0.0050	ug/L				
7525432	Dissolved Cesium (Cs)	2021/08/14	95	80 - 120	98	80 - 120	<0.050	ug/L				
7525432	Dissolved Chromium (Cr)	2021/08/14	97	80 - 120	101	80 - 120	<0.10	ug/L				
7525432	Dissolved Cobalt (Co)	2021/08/14	NC	80 - 120	98	80 - 120	<0.0050	ug/L				
7525432	Dissolved Copper (Cu)	2021/08/14	91	80 - 120	99	80 - 120	<0.050	ug/L				
7525432	Dissolved Iron (Fe)	2021/08/14	NC	80 - 120	100	80 - 120	<1.0	ug/L				
7525432	Dissolved Lead (Pb)	2021/08/14	93	80 - 120	98	80 - 120	<0.0050	ug/L				
7525432	Dissolved Lithium (Li)	2021/08/14	85	80 - 120	89	80 - 120	<0.50	ug/L				
7525432	Dissolved Manganese (Mn)	2021/08/14	NC	80 - 120	101	80 - 120	<0.050	ug/L				
7525432	Dissolved Molybdenum (Mo)	2021/08/14	103	80 - 120	101	80 - 120	<0.050	ug/L				
7525432	Dissolved Nickel (Ni)	2021/08/14	NC	80 - 120	100	80 - 120	<0.020	ug/L				
7525432	Dissolved Phosphorus (P)	2021/08/14	96	80 - 120	101	80 - 120	<2.0	ug/L				
7525432	Dissolved Selenium (Se)	2021/08/14	100	80 - 120	102	80 - 120	<0.040	ug/L				
7525432	Dissolved Silicon (Si)	2021/08/14	94	80 - 120	96	80 - 120	<50	ug/L				
7525432	Dissolved Silver (Ag)	2021/08/14	95	80 - 120	98	80 - 120	<0.0050	ug/L				
7525432	Dissolved Strontium (Sr)	2021/08/14	NC	80 - 120	98	80 - 120	<0.050	ug/L				
7525432	Dissolved Thallium (Tl)	2021/08/14	98	80 - 120	97	80 - 120	<0.0020	ug/L				
7525432	Dissolved Tin (Sn)	2021/08/14	98	80 - 120	100	80 - 120	<0.20	ug/L				
7525432	Dissolved Titanium (Ti)	2021/08/14	101	80 - 120	101	80 - 120	<0.50	ug/L				
7525432	Dissolved Uranium (U)	2021/08/14	100	80 - 120	99	80 - 120	<0.0020	ug/L				
7525432	Dissolved Vanadium (V)	2021/08/14	99	80 - 120	100	80 - 120	<0.20	ug/L				
7525432	Dissolved Zinc (Zn)	2021/08/14	NC	80 - 120	109	80 - 120	<0.10	ug/L				
7525432	Dissolved Zirconium (Zr)	2021/08/14	102	80 - 120	100	80 - 120	<0.10	ug/L				
7525436	Orthophosphate (P)	2021/08/12			111	80 - 120	<0.0010	mg/L				
7526186	Total Phosphorus (P)	2021/08/17	99	80 - 120	110	80 - 120	<0.0010	mg/L			93	80 - 120
7526460	Salinity	2021/08/18					<2.0	N/A	0	25	101	80 - 120
7528466	pH	2021/08/12			100	97 - 103						

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
7530103	Dissolved Chloride (Cl-)	2021/08/16	100	80 - 120	104	80 - 120	0.51, RDL=0.50 (1)	mg/L				
7530103	Dissolved Sulphate (SO4)	2021/08/16	NC	80 - 120	100	80 - 120	<0.50	mg/L				
7530104	Alkalinity (Total as CaCO3)	2021/08/12			98	80 - 120	<1	mg/L				
7530104	Bicarbonate (HCO3)	2021/08/12					<1	mg/L				
7530104	Carbonate (CO3)	2021/08/12					<1	mg/L				
7530104	Hydroxide (OH)	2021/08/12					<1	mg/L				
7530104	p-Alkalinity	2021/08/12					<1	mg/L				
7530107	Total Ammonia-N	2021/08/18	NC	80 - 120	100	80 - 120	<0.0050	mg/L	1.9	20	116	80 - 120
7530108	Total Phosphorus (P)	2021/08/13	54 (2)	80 - 120	88	80 - 120	0.0018, RDL=0.0010 (3)	mg/L			93	80 - 120
7539009	Reactive Silica (SiO2)	2021/08/24	100	80 - 120	107	80 - 120	<0.050	mg/L	3.6	20		
7606429	Dissolved Sulphur (S)	2021/09/28	NC	80 - 120	99	80 - 120	<0.10	mg/L	0.31	20		
7606430	Total Sulphur (S)	2021/09/28	NC	80 - 120	103	80 - 120	<0.10	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.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

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) Method blank is <2x RDL.

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

(3) Method Blank <2X RDL.

BV Labs Job #: C1M4548
Report Date: 2021/09/29

Golder Associates Ltd
Client Project #: 21468783
Site Location: Westbay - Meliadine Mine
Sampler Initials: DH

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

David Huang, BBY Scientific Specialist

Eric Dearman, Scientific Specialist

Maria Magdalena Florescu, Ph.D., P.Chem., QP, Inorganics Manager

Steven Simpson, Lab Director

Sandy Yuan, M.Sc., QP, 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.

Bureau Veritas Laboratories 100 – 36 Antares Dr. Nepean, ON, K2E 7W5 Phone: 613-274-0573 Website: www.bvlabs.com

09-Aug-21 09:00

Katherine Szozda

C1M4548

KTN ENV-600

ustody Tracking Form

CAUTION

Reason: Sea Water

eCOC Number: T383730

Please use this form for custody tracking v
barcode or a Bureau Veritas eCOC confir
form should be placed in the cooler with your samples.

C (electronic Chain of Custody). Please ensure your form has a
s number links your electronic submission to your samples. This

Relinquished By				Received By			
		Date	Aug-5/21			Date	2021/08/09
		Time (24 HR)				Time (24 HR)	9:00
		Date				Date	2021/08/10
		Time (24 HR)				Time (24 HR)	08:00
		Date				Date	
		Time (24 HR)				Time (24 HR)	

RECEIVED IN OTTAWA

Unless otherwise agreed to, submissions and use of services are governed by Bureau Veritas' standard terms and conditions which can be found at www.bvna.com.

Triage Information

Sampled By (Print)	# of Coolers/Pkgs				
Heather M. Kelsey P. Nill. V	1	Rush ☐	Immediate Test ☐	Food Residue ☐	
		Micro ☐		Food Chemistry ☐	

***** Laboratory Use Only *****

Received At

Labeled By

Verified By

Lab Comments:

Custody Seal		Cooling Media	Temperature °C		
Present (Y/N)	Intact (Y/N)	Present (Y/N)	1	2	3
✓	✓	✓	21	21	20
✓	✓	✓	4	2	4

Drinking Water Metals Preservation Check Done (Circle) YES NO

Fed Paddy

COR FCD-00340 /5 PAGE 1 of 1

Your Project #: 21468783
Site Location: Westbay - Meliadine Mine
Your C.O.C. #: 392132

Attention: Dale Holtze

Golder Associates Ltd
1931 Robertson Rd
Ottawa, ON
CANADA K2H 5B7

Report Date: 2021/09/29
Report #: R6832131
Version: 3 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BV LABS JOB #: C1O0945
Received: 2021/08/23, 08:00

Sample Matrix: Sea Water
Samples Received: 6

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Biochemical Oxygen Demand (BOD) (1)	2	2021/08/27	2021/09/01	CAM SOP-00427	SM 23 5210B m
Chemical Oxygen Demand (1)	1	N/A	2021/08/30	CAM SOP-00416	SM 23 5220 D m
Conductivity (1)	2	N/A	2021/08/30	CAM SOP-00414	SM 23 2510 m
Conductivity (1)	1	N/A	2021/09/01	CAM SOP-00414	SM 23 2510 m
Free (WAD) Cyanide (1)	3	N/A	2021/08/30	CAM SOP-00457	OMOE E3015 m
Total Cyanide (1)	2	2021/08/30	2021/08/30	CAM SOP-00457	OMOE E3015 5 m
Dissolved Organic Carbon (DOC) (1, 6)	2	N/A	2021/08/27	CAM SOP-00446	SM 23 5310 B m
Field Measured Conductivity (1, 7)	5	N/A	2021/08/24		Field Meter
Field Measured Conductivity (1, 7)	1	N/A	N/A		Field Meter
Field Measured TDS (1, 7)	5	N/A	2021/08/24		Field TDS Meter
Field Measured TDS (1, 7)	1	N/A	N/A		Field TDS Meter
Fluoride (1)	2	2021/08/28	2021/08/30	CAM SOP-00449	SM 23 4500-F C m
Dissolved Mercury (low level) (1)	3	2021/08/30	2021/08/30	CAM SOP-00453	EPA 7470 m
Mercury (low level) (1)	3	2021/08/30	2021/08/30	CAM SOP-00453	EPA 7470 m
Alkalinity @ 25C (pp,total), CO3,HCO3,OH (2)	2	N/A	2021/09/01		
Bromide in water by IC (2)	2	N/A	2021/09/01		
Low Level Chloride and Sulphate by AC (2)	2	N/A	2021/09/01	AB SOP-00020 / AB SOP-00018	SM23 4500-CL/SO4-E m
Cyanide (Free) (2)	3	2021/09/01	2021/09/01	CAL SOP-00266	EPA 9016d R0 m
Hardness Total (calculated as CaCO3) (3, 8)	2	N/A	2021/09/03	BBY WI-00033	Auto Calc
Hardness (calculated as CaCO3) (3)	2	N/A	2021/09/03	BBY WI-00033	Auto Calc
ICP-OES Dissolved Metals in Water (3)	2	N/A	2021/09/28		
ICP-OES Total Metals in Water (3)	2	2021/09/27	2021/09/28		
Na, K, Ca, Mg, S by CRC ICPMS (diss.) (3)	2	N/A	2021/09/03	BBY WI-00033	Auto Calc
Elements by ICPMS Low Level (dissolved) (3)	2	N/A	2021/09/03	BBY7SOP-00002	EPA 6020B R2 m
Elements by ICPMS Low Level (total) (3)	2	2021/09/01	2021/09/02	BBY7SOP-00003 / BBY7SOP-00002	EPA 6020b R2 m
Na, K, Ca, Mg, S by CRC ICPMS (total) (3)	2	N/A	2021/09/03	BBY WI-00033	Auto Calc
Ammonia-N Unpreserved Low Level seawater (2, 9)	2	N/A	2021/09/08	AB SOP-00007	SM 23 4500 NH3 A G m
pH @25°C (2, 10)	2	N/A	2021/09/01	AB SOP-00005	SM 23 4500-H+B m
Orthophosphate by Konelab (low level) (2)	2	N/A	2021/09/03		
Silica (Reactive) (2)	2	N/A	2021/09/05	AB SOP-00011	EPA370.1 R1978 m

Your Project #: 21468783
Site Location: Westbay - Meliadine Mine
Your C.O.C. #: 392132

Attention: Dale Holtze

Golder Associates Ltd
1931 Robertson Rd
Ottawa, ON
CANADA K2H 5B7

Report Date: 2021/09/29
Report #: R6832131
Version: 3 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BV LABS JOB #: C1O0945
Received: 2021/08/23, 08:00

Sample Matrix: Sea Water
Samples Received: 6

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Total Phosphorus Low Level Total (2)	1	2021/09/01	2021/09/01	AB SOP-00024	SM 23 4500-P A,B,F m
Total Ammonia (as NH3) (1)	2	N/A	2021/09/10	Auto Calc.	
Nitrate (NO3) and Nitrite (NO2) in Water (1, 11)	2	N/A	2021/08/30	CAM SOP-00440	SM 23 4500-NO3I/NO2B
pH (1)	2	2021/08/28	2021/08/30	CAM SOP-00413	SM 4500H+ B m
Field Measured pH (1, 7)	5	N/A	2021/08/24		Field pH Meter
Field Measured pH (1, 7)	1	N/A	N/A		Field pH Meter
Radium-226 Low Level (4, 12)	2	N/A	2021/09/04	BQL SOP-00006 BQL SOP-00017 BQL SOP-00032	Alpha Spectrometry
Salinity (5, 13)	2	N/A	2021/09/01		SM 22 2520B
Total Dissolved Solids (1)	2	2021/08/28	2021/08/30	CAM SOP-00428	SM 23 2540C m
Total Dissolved Solids (1)	1	2021/09/02	2021/09/03	CAM SOP-00428	SM 23 2540C m
Field Temperature (1, 7)	5	N/A	2021/08/24		Field Thermometer
Field Temperature (1, 7)	1	N/A	N/A		Field Thermometer
Total Kjeldahl Nitrogen in Water (1)	1	2021/08/30	2021/08/30	CAM SOP-00938	OMOE E3516 m
Total Organic Carbon (TOC) (1, 14)	1	N/A	2021/08/30	CAM SOP-00446	SM 23 5310B m
Low Level Total Suspended Solids (1)	2	2021/08/28	2021/08/28	CAM SOP-00428	SM 23 2540D m
Turbidity (1)	2	N/A	2021/08/30	CAM SOP-00417	SM 23 2130 B m
Volatile Organic Compounds in Water (1)	1	N/A	2021/08/30	CAM SOP-00228	EPA 8260C 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

Your Project #: 21468783
Site Location: Westbay - Meliadine Mine
Your C.O.C. #: 392132

Attention: Dale Holtze

Golder Associates Ltd
1931 Robertson Rd
Ottawa, ON
CANADA K2H 5B7

Report Date: 2021/09/29
Report #: R6832131
Version: 3 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BV LABS JOB #: C1O0945
Received: 2021/08/23, 08:00
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) This test was performed by Bureau Veritas Mississauga, 6740 Campobello Rd , Mississauga, ON, L5N 2L8
(2) This test was performed by Bureau Veritas Calgary (19th), 4000 19th Street NE , Calgary, AB, T2E 6P8
(3) This test was performed by Bureau Veritas Burnaby, 4606 Canada Way , Burnaby, BC, V5G 1K5
(4) This test was performed by Bureau Veritas Kitimat, 6790 Kitimat Road, Unit 4 , Mississauga, ON, L5N 5L9
(5) This test was performed by Bureau Veritas Bedford, 200 Bluewater Rd Suite 105, Bedford, NS, B4B 1G9
(6) Dissolved Organic Carbon (DOC) present in the sample should be considered as non-purgeable DOC.
(7) This is a field test, therefore, the results relate to items that were not analysed at Bureau Veritas Laboratories.
(8) "Total Hardness" was calculated from Total Ca and Mg concentrations and may be biased high (Hardness, or Dissolved Hardness, calculated from Dissolved Ca and Mg, should be used for compliance if available).
(9) Dissolved Ammonia > Total Ammonia Imbalance: When applicable, Dissolved Ammonia and Total Ammonia results were reviewed and data quality meets acceptable levels unless otherwise noted. Dissolved Ammonia > Dissolved Total Kjeldahl Nitrogen Imbalance: When applicable, Dissolved Ammonia and Dissolved Total Kjeldahl Nitrogen results were reviewed and data quality meets acceptable levels unless otherwise noted.
(10) The CCME method requires pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the CCME holding time. Bureau Veritas Laboratories endeavours to analyze samples as soon as possible after receipt.
(11) Values for calculated parameters may not appear to add up due to rounding of raw data and significant figures.
(12) Radium-226 results have not been corrected for blanks.
(13) Non-accredited test method
(14) Total Organic Carbon (TOC) present in the sample should be considered as non-purgeable TOC.

Encryption Key

Katherine Szozda
Project Manager
29 Sep 2021 10:42:38

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Katherine Szozda, Project Manager
Email: Katherine.Szozda@bureauveritas.com
Phone# (613)274-0573 Ext:7063633
==========
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 Laboratories 100 – 36 Antares Dr. Nepean, ON, K2E 7W5 Phone: 613-274-0573 Website: www.bvlabs.com

BV Labs Job #: C1O0945
Report Date: 2021/09/29

Golder Associates Ltd
Client Project #: 21468783
Site Location: Westbay - Meliadine Mine
Sampler Initials: DH

RESULTS OF ANALYSES OF SEA WATER

BV Labs ID		QLQ446			QLQ446		
Sampling Date		2021/08/16 21:10			2021/08/16 21:10		
COC Number		392132			392132		
	UNITS	Port-3 AUG 16	RDL	QC Batch	Port-3 AUG 16 Lab-Dup	RDL	QC Batch
Calculated Parameters							
Total Ammonia (as NH3)	mg/L	1.5	0.0061	7567724			
Field Measurements							
Field Measured Conductivity	uS/cm	92.5 MS/CM	N/A	ONSITE			
Field Measured Dissolved Solids	mg/L	60.2 G/L		ONSITE			
Field Temperature	Celsius	4.2	N/A	ONSITE			
Field Measured pH	pH	9.2		ONSITE			
Inorganics							
Alkalinity (Total as CaCO3)	mg/L	280	1	7555291			
Bicarbonate (HCO3)	mg/L	110	1	7555291			
Dissolved Bromide (Br-)	mg/L	140 (1)	1.0	7555293			
Carbonate (CO3)	mg/L	120	1	7555291			
Conductivity	mS/cm	73.8	0.001	7547926			
Total Dissolved Solids	mg/L	63100	20	7547498			
Fluoride (F-)	mg/L	0.17	0.10	7547930			
Hydroxide (OH)	mg/L	<1	1	7555291			
Orthophosphate (P)	mg/L	0.011	0.0010	7561342			
p-Alkalinity	mg/L	96	1	7555291			
pH	pH	9.30	N/A	7555292			
Salinity	N/A	64	10	7553199	64	10	7553199
Reactive Silica (SiO2)	mg/L	130	2.5	7561341			
Total Suspended Solids	mg/L	77	1	7547507			
Turbidity	NTU	3.7	0.1	7547804			
Dissolved Chloride (Cl-)	mg/L	37000	250	7555294			
Nitrite (N)	mg/L	<0.050	0.050	7547921			
Nitrate (N)	mg/L	1.95	0.50	7547921			
Dissolved Sulphate (SO4)	mg/L	580 (1)	50	7555294			
Nitrate + Nitrite (N)	mg/L	1.95	0.50	7547921			
Nutritional Parameters							
Total Ammonia-N	mg/L	1.2	0.0050	7566141	1.3	0.0050	7566141

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
N/A = Not Applicable
(1) Detection limits raised due to sample matrix.

BV Labs Job #: C1O0945
Report Date: 2021/09/29

Golder Associates Ltd
Client Project #: 21468783
Site Location: Westbay - Meliadine Mine
Sampler Initials: DH

RESULTS OF ANALYSES OF SEA WATER

BV Labs ID		QLQ446			QLQ446		
Sampling Date		2021/08/16 21:10			2021/08/16 21:10		
COC Number		392132			392132		
	UNITS	Port-3 AUG 16	RDL	QC Batch	Port-3 AUG 16 Lab-Dup	RDL	QC Batch
RADIONUCLIDE							
Radium-226	Bq/L	9.3	0.0050	7551124			

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

BV Labs Job #: C1O0945
Report Date: 2021/09/29

Golder Associates Ltd
Client Project #: 21468783
Site Location: Westbay - Meliadine Mine
Sampler Initials: DH

RESULTS OF ANALYSES OF SEA WATER

BV Labs ID		QLQ447			QLQ447		
Sampling Date		2021/08/16 21:10			2021/08/16 21:10		
COC Number		392132			392132		
	UNITS	Port-3-DUP AUG 16	RDL	QC Batch	Port-3-DUP AUG 16 Lab-Dup	RDL	QC Batch
Calculated Parameters							
Total Ammonia (as NH3)	mg/L	1.5	0.0061	7567724			
Field Measurements							
Field Measured Conductivity	uS/cm	92.5 MS/CM	N/A	ONSITE			
Field Measured Dissolved Solids	mg/L	60.2 G/L		ONSITE			
Field Temperature	Celsius	4.2	N/A	ONSITE			
Field Measured pH	pH	9.2		ONSITE			
Inorganics							
Alkalinity (Total as CaCO3)	mg/L	280	1	7555291			
Bicarbonate (HCO3)	mg/L	110	1	7555291			
Dissolved Bromide (Br-)	mg/L	140 (1)	1.0	7555293			
Carbonate (CO3)	mg/L	120	1	7555291			
Conductivity	mS/cm	73.5	0.001	7547926	73.8	0.001	7547926
Total Dissolved Solids	mg/L	62800	20	7547498			
Fluoride (F-)	mg/L	0.18	0.10	7547930			
Hydroxide (OH)	mg/L	<1	1	7555291			
Orthophosphate (P)	mg/L	0.0090	0.0010	7561342			
p-Alkalinity	mg/L	98	1	7555291			
pH	pH	9.31	N/A	7555292	9.19		7547927
Salinity	N/A	63	10	7553199			
Reactive Silica (SiO2)	mg/L	21	1.0	7561341			
Total Suspended Solids	mg/L	76	1	7547507			
Turbidity	NTU	3.9	0.1	7547804			
Dissolved Chloride (Cl-)	mg/L	37000	250	7555294			
Nitrite (N)	mg/L	<0.050	0.050	7547921			
Nitrate (N)	mg/L	1.86	0.50	7547921			
Dissolved Sulphate (SO4)	mg/L	570 (1)	50	7555294			
Nitrate + Nitrite (N)	mg/L	1.86	0.50	7547921			
Nutritional Parameters							
Total Ammonia-N	mg/L	1.3	0.0050	7566141			

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
N/A = Not Applicable
(1) Detection limits raised due to sample matrix.

BV Labs Job #: C1O0945
Report Date: 2021/09/29

Golder Associates Ltd
Client Project #: 21468783
Site Location: Westbay - Meliadine Mine
Sampler Initials: DH

RESULTS OF ANALYSES OF SEA WATER

BV Labs ID		QLQ447			QLQ447		
Sampling Date		2021/08/16 21:10			2021/08/16 21:10		
COC Number		392132			392132		
	UNITS	Port-3-DUP AUG 16	RDL	QC Batch	Port-3-DUP AUG 16 Lab-Dup	RDL	QC Batch
RADIONUCLIDE							
Radium-226	Bq/L	11	0.0050	7551124			

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

BV Labs Job #: C1O0945
Report Date: 2021/09/29

Golder Associates Ltd
Client Project #: 21468783
Site Location: Westbay - Meliadine Mine
Sampler Initials: DH

RESULTS OF ANALYSES OF SEA WATER

BV Labs ID		QLQ448			QLQ450	
Sampling Date		2021/08/17 06:25			2021/08/17 06:25	
COC Number		392132			392132	
	UNITS	Port-3-X AUG 17	RDL	QC Batch	Port-3-X-DUP AUG 17	QC Batch
Field Measurements						
Field Measured Conductivity	uS/cm	87.3 MS/CM	N/A	ONSITE	87.3 MS/CM	ONSITE
Field Measured Dissolved Solids	mg/L	55.7 G/L		ONSITE	55.7 G/L	ONSITE
Field Temperature	Celsius	4.3	N/A	ONSITE	4.3	ONSITE
Field Measured pH	pH	8.6		ONSITE	8.6	ONSITE
Inorganics						
Total Chemical Oxygen Demand (COD)	mg/L	2600	80	7548947		
Free Cyanide (CN)	ug/L	4.0 (1)	1.0	7555297		
Total Kjeldahl Nitrogen (TKN)	mg/L	4.8	2.0	7548689		
Total Organic Carbon (TOC)	mg/L	700	4.0	7548960		
WAD Cyanide (Free)	mg/L	<0.0010	0.0010	7548702		
Nutritional Parameters						
Total Phosphorus (P)	mg/L	0.017 (2)	0.010	7555296		

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable
(1) Interference checks not performed at the time of sampling. The lab cannot guarantee that interferences were not present at the time of sampling and that there is no low bias in results

Sample pH <12, preservation incomplete. Due to volatility of analyte, a low bias in the results is likely.
(2) Due to the sample matrix, sample required dilution. Detection limit was adjusted accordingly.

BV Labs Job #: C1O0945
Report Date: 2021/09/29

Golder Associates Ltd
Client Project #: 21468783
Site Location: Westbay - Meliadine Mine
Sampler Initials: DH

RESULTS OF ANALYSES OF SEA WATER

BV Labs ID		QLQ451			QMN858		
Sampling Date		2021/08/18 07:30			2021/08/18 07:30		
COC Number		392132			392132		
	UNITS	Port-3 AUG 18	RDL	QC Batch	PORT 3 -DUP AUG 18	RDL	QC Batch
Calculated Parameters							
Dissolved Hardness (CaCO3)	mg/L	43500	0.50	7554451	45800	0.50	7554451
Field Measurements							
Field Measured Conductivity	uS/cm	83.4 MS/CM	N/A	ONSITE			0
Field Measured Dissolved Solids	mg/L	53.6 G/L		ONSITE			0
Field Temperature	Celsius	4.1	N/A	ONSITE			0
Field Measured pH	pH	9.0		ONSITE			0
Inorganics							
Total BOD	mg/L	1500	2	7546582	1500	2	7546582
Conductivity	mS/cm	80.5	0.001	7552717			
Free Cyanide (CN)	ug/L	2.9 (1)	1.0	7555297	2.5 (1)	1.0	7555297
Total Dissolved Solids	mg/L	68100	20	7556125			
Dissolved Organic Carbon	mg/L	740	4.0	7546311	760	4.0	7546311
Total Cyanide (CN)	mg/L	<0.0050	0.0050	7548700	<0.0050	0.0050	7548700
WAD Cyanide (Free)	mg/L	<0.0010	0.0010	7548702	<0.0010	0.0010	7548702
Metals							
Dissolved Aluminum (Al)	ug/L	185	100	7560972	227	100	7560972
Total Aluminum (Al)	ug/L	<600	600	7562369	<600	600	7562369
Dissolved Antimony (Sb)	ug/L	<4.0	4.0	7560972	<4.0	4.0	7560972
Total Antimony (Sb)	ug/L	<4.0	4.0	7562369	<4.0	4.0	7562369
Dissolved Arsenic (As)	ug/L	8.4	4.0	7560972	8.0	4.0	7560972
Total Arsenic (As)	ug/L	4.8	4.0	7562369	7.5	4.0	7562369
Dissolved Barium (Ba)	ug/L	3790	4.0	7560972	3880	4.0	7560972
Total Barium (Ba)	ug/L	3700	10	7562369	3810	10	7562369
Dissolved Beryllium (Be)	ug/L	<2.0	2.0	7560972	<2.0	2.0	7560972
Total Beryllium (Be)	ug/L	<2.0	2.0	7562369	<2.0	2.0	7562369
Dissolved Bismuth (Bi)	ug/L	<1.0	1.0	7560972	<1.0	1.0	7560972
Total Bismuth (Bi)	ug/L	<2.0	2.0	7562369	<2.0	2.0	7562369
Dissolved Boron (B)	ug/L	55000	2000	7560972	55900	2000	7560972

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable
(1) Interference checks not performed at the time of sampling. The lab cannot guarantee that interferences were not present at the time of sampling and that there is no low bias in results

Sample pH <12, preservation incomplete. Due to volatility of analyte, a low bias in the results is likely.

RESULTS OF ANALYSES OF SEA WATER

BV Labs ID		QLQ451			QMN858		
Sampling Date		2021/08/18 07:30			2021/08/18 07:30		
COC Number		392132			392132		
	UNITS	Port-3 AUG 18	RDL	QC Batch	PORT 3 -DUP AUG 18	RDL	QC Batch
Total Boron (B)	ug/L	47400	2000	7562369	48400	2000	7562369
Dissolved Cadmium (Cd)	ug/L	<1.0	1.0	7560972	<1.0	1.0	7560972
Total Cadmium (Cd)	ug/L	<1.0	1.0	7562369	<1.0	1.0	7562369
Dissolved Chromium (Cr)	ug/L	<20	20	7560972	<20	20	7560972
Total Chromium (Cr)	ug/L	<20	20	7562369	<20	20	7562369
Dissolved Cobalt (Co)	ug/L	4.2	1.0	7560972	4.3	1.0	7560972
Total Cobalt (Co)	ug/L	4.1	2.0	7562369	4.7	2.0	7562369
Dissolved Copper (Cu)	ug/L	14	10	7560972	11	10	7560972
Total Copper (Cu)	ug/L	<20	20	7562369	<20	20	7562369
Dissolved Iron (Fe)	ug/L	<200	200	7560972	<200	200	7560972
Total Iron (Fe)	ug/L	<1000	1000	7562369	<1000	1000	7562369
Dissolved Lead (Pb)	ug/L	<1.0	1.0	7560972	<1.0	1.0	7560972
Total Lead (Pb)	ug/L	<4.0	4.0	7562369	<4.0	4.0	7562369
Dissolved Lithium (Li)	ug/L	52300	100	7560972	54100	100	7560972
Total Lithium (Li)	ug/L	45800	100	7562369	47500	100	7562369
Dissolved Manganese (Mn)	ug/L	222	10	7560972	222	10	7560972
Total Manganese (Mn)	ug/L	291	20	7562369	262	20	7562369
Dissolved Molybdenum (Mo)	ug/L	29	10	7560972	29	10	7560972
Total Molybdenum (Mo)	ug/L	27	10	7562369	27	10	7562369
Dissolved Nickel (Ni)	ug/L	5.6	4.0	7560972	7.0	4.0	7560972
Total Nickel (Ni)	ug/L	<20	20	7562369	<20	20	7562369
Dissolved Phosphorus (P)	ug/L	<400	400	7560972	<400	400	7560972
Total Phosphorus (P)	ug/L	<1000	1000	7562369	<1000	1000	7562369
Dissolved Selenium (Se)	ug/L	<8.0	8.0	7560972	<8.0	8.0	7560972
Total Selenium (Se)	ug/L	<8.0	8.0	7562369	<8.0	8.0	7562369
Dissolved Silicon (Si)	ug/L	<10000	10000	7560972	<10000	10000	7560972
Total Silicon (Si)	ug/L	<10000	10000	7562369	<10000	10000	7562369
Dissolved Silver (Ag)	ug/L	<1.0	1.0	7560972	<1.0	1.0	7560972
Total Silver (Ag)	ug/L	<2.0	2.0	7562369	<2.0	2.0	7562369
Dissolved Strontium (Sr)	ug/L	827000	10	7560972	842000	10	7560972
Total Strontium (Sr)	ug/L	788000	10	7562369	781000	10	7562369
Dissolved Thallium (Tl)	ug/L	53.4	0.40	7560972	54.8	0.40	7560972
Total Thallium (Tl)	ug/L	53.5	0.40	7562369	55.2	0.40	7562369
Dissolved Tin (Sn)	ug/L	<40	40	7560972	<40	40	7560972

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

BV Labs Job #: C1O0945
Report Date: 2021/09/29

Golder Associates Ltd
Client Project #: 21468783
Site Location: Westbay - Meliadine Mine
Sampler Initials: DH

RESULTS OF ANALYSES OF SEA WATER

BV Labs ID		QLQ451			QMN858		
Sampling Date		2021/08/18 07:30			2021/08/18 07:30		
COC Number		392132			392132		
	UNITS	Port-3 AUG 18	RDL	QC Batch	PORT 3 -DUP AUG 18	RDL	QC Batch
Total Tin (Sn)	ug/L	<40	40	7562369	<40	40	7562369
Dissolved Titanium (Ti)	ug/L	<100	100	7560972	<100	100	7560972
Total Titanium (Ti)	ug/L	<400	400	7562369	<400	400	7562369
Dissolved Uranium (U)	ug/L	0.53	0.40	7560972	0.41	0.40	7560972
Total Uranium (U)	ug/L	<1.0	1.0	7562369	<1.0	1.0	7562369
Dissolved Vanadium (V)	ug/L	<40	40	7560972	<40	40	7560972
Total Vanadium (V)	ug/L	<40	40	7562369	<40	40	7562369
Dissolved Zinc (Zn)	ug/L	266	20	7560972	233	20	7560972
Total Zinc (Zn)	ug/L	945	200	7562369	619	200	7562369
Dissolved Zirconium (Zr)	ug/L	<20	20	7560972	<20	20	7560972
Total Zirconium (Zr)	ug/L	<20	20	7562369	<20	20	7562369
Dissolved Calcium (Ca)	mg/L	16700	10	7560971	17500	10	7562370
Total Calcium (Ca)	mg/L	17400	50	7560973	17200	50	7562371
Dissolved Cesium (Cs)	ug/L	1100	10	7560972	1130	10	7560972
Total Cesium (Cs)	ug/L	1080	10	7562369	1130	10	7562369
Dissolved Magnesium (Mg)	mg/L	457	10	7560971	473	10	7562370
Total Magnesium (Mg)	mg/L	476	50	7560973	463	50	7562371
Dissolved Potassium (K)	mg/L	689	10	7560971	715	10	7562370
Total Potassium (K)	mg/L	678	50	7560973	700	50	7562371
Dissolved Sodium (Na)	mg/L	3810	10	7560971	3900	10	7562370
Total Sodium (Na)	mg/L	3900	50	7560973	3830	50	7562371
Dissolved Sulphur (S)	mg/L	140	0.10	7606429	141	0.10	7606429
Total Sulphur (S)	mg/L	143	0.10	7606430	146	0.10	7606430

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

RESULTS OF ANALYSES OF SEA WATER

BV Labs ID		QMN858		
Sampling Date		2021/08/18 07:30		
COC Number		392132		
	UNITS	**PORT 3 -DUP AUG 18 Lab-Dup**	**RDL**	**QC Batch**
Inorganics				
Total Cyanide (CN)	mg/L	<0.0050	0.0050	7548700
WAD Cyanide (Free)	mg/L	<0.0010	0.0010	7548702

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

BV Labs Job #: C1O0945
Report Date: 2021/09/29

Golder Associates Ltd
Client Project #: 21468783
Site Location: Westbay - Meliadine Mine
Sampler Initials: DH

ELEMENTS BY ATOMIC SPECTROSCOPY (SEA WATER)

BV Labs ID		QLQ448			QLQ451	QMN858		
Sampling Date		2021/08/17 06:25			2021/08/18 07:30	2021/08/18 07:30		
COC Number		392132			392132	392132		
	UNITS	Port-3-X AUG 17	RDL	QC Batch	Port-3 AUG 18	PORT 3 -DUP AUG 18	RDL	QC Batch
Calculated Parameters								
Total Hardness (CaCO3)	mg/L				45300	44800	0.50	7554448
Metals								
Mercury (Hg)	ug/L	<0.01	0.01	7548980	<0.01	<0.01	0.01	7548980
Dissolved Mercury (Hg)	ug/L	<0.01	0.01	7549137	<0.01	<0.01	0.01	7549137

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

VOLATILE ORGANICS BY GC/MS (SEA WATER)

BV Labs ID		QLQ448		
Sampling Date		2021/08/17 06:25		
COC Number		392132		
	UNITS	Port-3-X AUG 17	RDL	QC Batch
Volatile Organics				
Benzene	ug/L	<0.20	0.20	7547617
Ethylbenzene	ug/L	<0.20	0.20	7547617
Methyl t-butyl ether (MTBE)	ug/L	<0.50	0.50	7547617
Styrene	ug/L	<0.40	0.40	7547617
Toluene	ug/L	<0.20	0.20	7547617
p+m-Xylene	ug/L	<0.20	0.20	7547617
o-Xylene	ug/L	<0.20	0.20	7547617
Total Xylenes	ug/L	<0.20	0.20	7547617
Surrogate Recovery (%)				
4-Bromofluorobenzene	%	91		7547617
D4-1,2-Dichloroethane	%	99		7547617
D8-Toluene	%	97		7547617

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

BV Labs Job #: C1O0945
Report Date: 2021/09/29

Golder Associates Ltd
Client Project #: 21468783
Site Location: Westbay - Meliadine Mine
Sampler Initials: DH

TEST SUMMARY

BV Labs ID: QLQ446
Sample ID: Port-3 AUG 16
Matrix: Sea Water

Collected: 2021/08/16
Shipped:
Received: 2021/08/23

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Conductivity	AT	7547926	N/A	2021/08/30	Surinder Rai
Field Measured Conductivity	PH	ONSITE	N/A	2021/08/24	Mandeep Kaur
Field Measured TDS		ONSITE	N/A	2021/08/24	Mandeep Kaur
Fluoride	ISE	7547930	2021/08/28	2021/08/30	Surinder Rai
Alkalinity @ 25C (pp,total), CO3,HCO3,OH	AT	7555291	N/A	2021/09/01	Ilonka Kovac
Bromide in water by IC	IC/UV	7555293	N/A	2021/09/01	Kathleen Dalton
Low Level Chloride and Sulphate by AC	KONE	7555294	N/A	2021/09/01	Bradley Freake
Ammonia-N Unpreserved Low Level seawater	KONE	7566141	N/A	2021/09/08	Jacqueline Fahrner
pH @25°C	AT/PH	7555292	N/A	2021/09/01	Ilonka Kovac
Orthophosphate by Konelab (low level)	KONE	7561342	N/A	2021/09/03	Fadia Mostafa
Silica (Reactive)	KONE	7561341	N/A	2021/09/05	Serena Tian
Total Ammonia (as NH3)	CALC	7567724	N/A	2021/09/10	Automated Statchk
Nitrate (NO3) and Nitrite (NO2) in Water	LACH	7547921	N/A	2021/08/30	Chandra Nandlal
pH	AT	7547927	2021/08/28	2021/08/30	Surinder Rai
Field Measured pH	PH	ONSITE	N/A	2021/08/24	Mandeep Kaur
Radium-226 Low Level	AS	7551124	N/A	2021/09/04	Ryan Wong
Salinity		7553199	N/A	2021/09/01	Brent Boudreau
Total Dissolved Solids	BAL	7547498	2021/08/28	2021/08/30	Sandeep Kaur
Field Measured pH	PH	ONSITE	N/A	2021/08/24	Mandeep Kaur
Low Level Total Suspended Solids	BAL	7547507	2021/08/28	2021/08/28	Sandeep Kaur
Turbidity	AT	7547804	N/A	2021/08/30	Neil Dassanayake

BV Labs ID: QLQ446 Dup
Sample ID: Port-3 AUG 16
Matrix: Sea Water

Collected: 2021/08/16
Shipped:
Received: 2021/08/23

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Ammonia-N Unpreserved Low Level seawater	KONE	7566141	N/A	2021/09/08	Jacqueline Fahrner
Salinity		7553199	N/A	2021/09/01	Brent Boudreau

BV Labs ID: QLQ447
Sample ID: Port-3-DUP AUG 16
Matrix: Sea Water

Collected: 2021/08/16
Shipped:
Received: 2021/08/23

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Conductivity	AT	7547926	N/A	2021/08/30	Surinder Rai
Field Measured Conductivity	PH	ONSITE	N/A	2021/08/24	Mandeep Kaur
Field Measured TDS		ONSITE	N/A	2021/08/24	Mandeep Kaur
Fluoride	ISE	7547930	2021/08/28	2021/08/30	Surinder Rai
Alkalinity @ 25C (pp,total), CO3,HCO3,OH	AT	7555291	N/A	2021/09/01	Ilonka Kovac
Bromide in water by IC	IC/UV	7555293	N/A	2021/09/01	Kathleen Dalton
Low Level Chloride and Sulphate by AC	KONE	7555294	N/A	2021/09/01	Bradley Freake
Ammonia-N Unpreserved Low Level seawater	KONE	7566141	N/A	2021/09/08	Jacqueline Fahrner
pH @25°C	AT/PH	7555292	N/A	2021/09/01	Ilonka Kovac
Orthophosphate by Konelab (low level)	KONE	7561342	N/A	2021/09/03	Fadia Mostafa

TEST SUMMARY

BV Labs ID: QLQ447
Sample ID: Port-3-DUP AUG 16
Matrix: Sea Water

Collected: 2021/08/16
Shipped:
Received: 2021/08/23

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Silica (Reactive)	KONE	7561341	N/A	2021/09/05	Serena Tian
Total Ammonia (as NH3)	CALC	7567724	N/A	2021/09/10	Automated Statchk
Nitrate (NO3) and Nitrite (NO2) in Water	LACH	7547921	N/A	2021/08/30	Chandra Nandlal
pH	AT	7547927	2021/08/28	2021/08/30	Surinder Rai
Field Measured pH	PH	ONSITE	N/A	2021/08/24	Mandeep Kaur
Radium-226 Low Level	AS	7551124	N/A	2021/09/04	Ryan Wong
Salinity		7553199	N/A	2021/09/01	Brent Boudreau
Total Dissolved Solids	BAL	7547498	2021/08/28	2021/08/30	Sandeep Kaur
Field Measured pH	PH	ONSITE	N/A	2021/08/24	Mandeep Kaur
Low Level Total Suspended Solids	BAL	7547507	2021/08/28	2021/08/28	Sandeep Kaur
Turbidity	AT	7547804	N/A	2021/08/30	Neil Dassanayake

BV Labs ID: QLQ447 Dup
Sample ID: Port-3-DUP AUG 16
Matrix: Sea Water

Collected: 2021/08/16
Shipped:
Received: 2021/08/23

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Conductivity	AT	7547926	N/A	2021/08/30	Surinder Rai
pH	AT	7547927	2021/08/28	2021/08/30	Surinder Rai

BV Labs ID: QLQ448
Sample ID: Port-3-X AUG 17
Matrix: Sea Water

Collected: 2021/08/17
Shipped:
Received: 2021/08/23

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Chemical Oxygen Demand	SPEC	7548947	N/A	2021/08/30	Nimarta Singh
Free (WAD) Cyanide	SKAL/CN	7548702	N/A	2021/08/30	Aditiben Patel
Field Measured Conductivity	PH	ONSITE	N/A	2021/08/24	Mandeep Kaur
Field Measured Conductivity		ONSITE	N/A	2021/08/24	Mandeep Kaur
Dissolved Mercury (low level)	CV/AA	7549137	2021/08/30	2021/08/30	Meghaben Patel
Mercury (low level)	CV/AA	7548980	2021/08/30	2021/08/30	Meghaben Patel
Cyanide (Free)	SPEC	7555297	2021/09/01	2021/09/01	Riazuddin Khan
Total Phosphorus Low Level Total	KONE	7555296	2021/09/01	2021/09/01	Fadia Mostafa
Field Measured Conductivity	PH	ONSITE	N/A	2021/08/24	Mandeep Kaur
Field Measured Conductivity	PH	ONSITE	N/A	2021/08/24	Mandeep Kaur
Total Kjeldahl Nitrogen in Water	SKAL	7548689	2021/08/30	2021/08/30	Massarat Jan
Total Organic Carbon (TOC)	TOCV/NDIR	7548960	N/A	2021/08/30	Julianna Castiglione
Volatile Organic Compounds in Water	GC/MS	7547617	N/A	2021/08/30	Juan Pangilinan

BV Labs ID: QLQ450
Sample ID: Port-3-X-DUP AUG 17
Matrix: Sea Water

Collected: 2021/08/17
Shipped:
Received: 2021/08/23

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Field Temperature	PH	ONSITE	N/A	2021/08/24	Mandeep Kaur

Golder Associates Ltd
Client Project #: 21468783
Site Location: Westbay - Meliadine Mine
Sampler Initials: DH

TEST SUMMARY

BV Labs ID: QLQ450 **Collected:** 2021/08/17
Sample ID: Port-3-X-DUP AUG 17 **Shipped:**
Matrix: Sea Water **Received:** 2021/08/23

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Field Temperature		ONSITE	N/A	2021/08/24	Mandeep Kaur
Field Temperature	PH	ONSITE	N/A	2021/08/24	Mandeep Kaur
Field Temperature	PH	ONSITE	N/A	2021/08/24	Mandeep Kaur

BV Labs ID: QLQ451 **Collected:** 2021/08/18
Sample ID: Port-3 AUG 18 **Shipped:**
Matrix: Sea Water **Received:** 2021/08/23

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Biochemical Oxygen Demand (BOD)	DO	7546582	2021/08/27	2021/09/01	Surleen Kaur Romana
Conductivity	AT	7552717	N/A	2021/09/01	Surinder Rai
Free (WAD) Cyanide	SKAL/CN	7548702	N/A	2021/08/30	Aditiben Patel
Total Cyanide	SKAL/CN	7548700	2021/08/30	2021/08/30	Aditiben Patel
Dissolved Organic Carbon (DOC)	TOCV/NDIR	7546311	N/A	2021/08/27	Julianna Castiglione
Field Measured Conductivity	PH	ONSITE	N/A	2021/08/24	Mandeep Kaur
Field Measured Conductivity		ONSITE	N/A	2021/08/24	Mandeep Kaur
Dissolved Mercury (low level)	CV/AA	7549137	2021/08/30	2021/08/30	Meghaben Patel
Mercury (low level)	CV/AA	7548980	2021/08/30	2021/08/30	Meghaben Patel
Cyanide (Free)	SPEC	7555297	2021/09/01	2021/09/01	Riazuddin Khan
Hardness Total (calculated as CaCO3)	CALC	7554448	N/A	2021/09/03	Automated Statchk
Hardness (calculated as CaCO3)	CALC	7554451	N/A	2021/09/03	Automated Statchk
ICP-OES Dissolved Metals in Water	ICP/AES	7606429	N/A	2021/09/28	Jocelyn Baron-Inactive
ICP-OES Total Metals in Water	ICP/AES	7606430	2021/09/27	2021/09/28	Jocelyn Baron-Inactive
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP	7560971	N/A	2021/09/03	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/MS	7560972	N/A	2021/09/03	Jeffrey Laporte
Elements by ICPMS Low Level (total)	ICP/MS	7562369	2021/09/01	2021/09/02	Jeffrey Laporte
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP	7560973	N/A	2021/09/03	Automated Statchk
Field Measured Conductivity	PH	ONSITE	N/A	2021/08/24	Mandeep Kaur
Total Dissolved Solids	BAL	7556125	2021/09/02	2021/09/03	Shaneil Hall
Field Measured Conductivity	PH	ONSITE	N/A	2021/08/24	Mandeep Kaur

BV Labs ID: QMN858 **Collected:** 2021/08/18
Sample ID: PORT 3 -DUP AUG 18 **Shipped:**
Matrix: Sea Water **Received:** 2021/08/23

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Biochemical Oxygen Demand (BOD)	DO	7546582	2021/08/27	2021/09/01	Surleen Kaur Romana
Free (WAD) Cyanide	SKAL/CN	7548702	N/A	2021/08/30	Aditiben Patel
Total Cyanide	SKAL/CN	7548700	2021/08/30	2021/08/30	Aditiben Patel
Dissolved Organic Carbon (DOC)	TOCV/NDIR	7546311	N/A	2021/08/27	Julianna Castiglione
Field Temperature	PH	0	N/A		Lims Auto Schedule Runner
Field Temperature		0	N/A		Lims Auto Schedule Runner
Dissolved Mercury (low level)	CV/AA	7549137	2021/08/30	2021/08/30	Meghaben Patel
Mercury (low level)	CV/AA	7548980	2021/08/30	2021/08/30	Meghaben Patel
Cyanide (Free)	SPEC	7555297	2021/09/01	2021/09/01	Riazuddin Khan

BV Labs Job #: C1O0945
Report Date: 2021/09/29

Golder Associates Ltd
Client Project #: 21468783
Site Location: Westbay - Meliadine Mine
Sampler Initials: DH

TEST SUMMARY

BV Labs ID: QMN858
Sample ID: PORT 3 -DUP AUG 18
Matrix: Sea Water

Collected: 2021/08/18
Shipped:
Received: 2021/08/23

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Hardness Total (calculated as CaCO3)	CALC	7554448	N/A	2021/09/03	Automated Statchk
Hardness (calculated as CaCO3)	CALC	7554451	N/A	2021/09/03	Automated Statchk
ICP-OES Dissolved Metals in Water	ICP/AES	7606429	N/A	2021/09/28	Jocelyn Baron-Inactive
ICP-OES Total Metals in Water	ICP/AES	7606430	2021/09/27	2021/09/28	Jocelyn Baron-Inactive
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP	7562370	N/A	2021/09/03	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/MS	7560972	N/A	2021/09/03	Jeffrey Laporte
Elements by ICPMS Low Level (total)	ICP/MS	7562369	2021/09/01	2021/09/02	Jeffrey Laporte
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP	7562371	N/A	2021/09/03	Automated Statchk
Field Temperature	PH	0	N/A		Lims Auto Schedule Runner
Field Temperature	PH	0	N/A		Lims Auto Schedule Runner

BV Labs ID: QMN858 Dup
Sample ID: PORT 3 -DUP AUG 18
Matrix: Sea Water

Collected: 2021/08/18
Shipped:
Received: 2021/08/23

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Free (WAD) Cyanide	SKAL/CN	7548702	N/A	2021/08/30	Aditiben Patel
Total Cyanide	SKAL/CN	7548700	2021/08/30	2021/08/30	Aditiben Patel

GENERAL COMMENTS

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

Package 1	2.3°C
Package 2	4.7°C

Revised Report (2021/09/29): Total and Dissolved Sulpur run by ICP-OES

Sample QLQ446 [Port-3 AUG 16] : Nitrite/Nitrate: Due to colour interferences, sample required dilution. Detection limit was adjusted accordingly.

Sample was analyzed past method specified hold time for Alkalinity @25C (pp, total), CO3,HCO3,OH. Exceedance of hold time increases the uncertainty of test results but does not necessarily imply that results are compromised. Sample was analyzed past method specified hold time for Alkalinity @25C (pp, total), CO3,HCO3,OH. Exceedance of hold time increases the uncertainty of test results but does not necessarily imply that results are compromised. Sample was analyzed past method specified hold time for Orthophosphate by Konelab (low level). Sample was analyzed past method specified hold time for Orthophosphate by Konelab (low level). Exceedance of hold time increases the uncertainty of test results but does not necessarily imply that results are compromised. Sample was analyzed past method specified hold time for Alkalinity @25C (pp, total), CO3,HCO3,OH. Exceedance of hold time increases the uncertainty of test results but does not necessarily imply that results are compromised. Sample was analyzed past method specified hold time for Orthophosphate by Konelab (low level). Sample was analyzed past method specified hold time for Ammonia-N Unpreserved Low Level.

Sample QLQ447 [Port-3-DUP AUG 16] : Nitrite/Nitrate: Due to colour interferences, sample required dilution. Detection limit was adjusted accordingly.

Sample was analyzed past method specified hold time for Alkalinity @25C (pp, total), CO3,HCO3,OH. Exceedance of hold time increases the uncertainty of test results but does not necessarily imply that results are compromised. Sample was analyzed past method specified hold time for Alkalinity @25C (pp, total), CO3,HCO3,OH. Exceedance of hold time increases the uncertainty of test results but does not necessarily imply that results are compromised. Sample was analyzed past method specified hold time for Orthophosphate by Konelab (low level). Sample was analyzed past method specified hold time for Orthophosphate by Konelab (low level). Exceedance of hold time increases the uncertainty of test results but does not necessarily imply that results are compromised. Sample was analyzed past method specified hold time for Alkalinity @25C (pp, total), CO3,HCO3,OH. Exceedance of hold time increases the uncertainty of test results but does not necessarily imply that results are compromised. Sample was analyzed past method specified hold time for Orthophosphate by Konelab (low level). Sample was analyzed past method specified hold time for Ammonia-N Unpreserved Low Level.

Sample QLQ448 [Port-3-X AUG 17] : Sample was analyzed past method specified hold time for Cyanide (Free). Exceedance of hold time increases the uncertainty of test results but does not necessarily imply that results are compromised.

Results relate only to the items tested.

BV Labs Job #: C1O0945
Report Date: 2021/09/29

QUALITY ASSURANCE REPORT

Golder Associates Ltd
Client Project #: 21468783
Site Location: Westbay - Meliadine Mine
Sampler Initials: DH

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
7547617	4-Bromofluorobenzene	2021/08/29	101	70 - 130	102	70 - 130	99	%				
7547617	D4-1,2-Dichloroethane	2021/08/29	115	70 - 130	112	70 - 130	117	%				
7547617	D8-Toluene	2021/08/29	104	70 - 130	103	70 - 130	94	%				
7546311	Dissolved Organic Carbon	2021/08/27	93	80 - 120	96	80 - 120	<0.40	mg/L	0.99	20		
7546582	Total BOD	2021/09/01					<2	mg/L	18	30	91	80 - 120
7547498	Total Dissolved Solids	2021/08/30					<10	mg/L	4.3	25	100	90 - 110
7547507	Total Suspended Solids	2021/08/28					<1	mg/L	0	25	98	85 - 115
7547617	Benzene	2021/08/29	94	70 - 130	94	70 - 130	<0.20	ug/L	NC	30		
7547617	Ethylbenzene	2021/08/29	84	70 - 130	85	70 - 130	<0.20	ug/L	NC	30		
7547617	Methyl t-butyl ether (MTBE)	2021/08/29	91	70 - 130	91	70 - 130	<0.50	ug/L	NC	30		
7547617	o-Xylene	2021/08/29	85	70 - 130	89	70 - 130	<0.20	ug/L	NC	30		
7547617	p+m-Xylene	2021/08/29	88	70 - 130	90	70 - 130	<0.20	ug/L	NC	30		
7547617	Styrene	2021/08/29	97	70 - 130	100	70 - 130	<0.40	ug/L	NC	30		
7547617	Toluene	2021/08/29	92	70 - 130	92	70 - 130	<0.20	ug/L	NC	30		
7547617	Total Xylenes	2021/08/29					<0.20	ug/L	NC	30		
7547804	Turbidity	2021/08/30			102	85 - 115	<0.1	NTU	8.6	20		
7547921	Nitrate (N)	2021/08/30	98	80 - 120	101	80 - 120	<0.10	mg/L	NC	20		
7547921	Nitrite (N)	2021/08/30	106	80 - 120	107	80 - 120	<0.010	mg/L	NC	20		
7547926	Conductivity	2021/08/30			102	85 - 115	<0.001	mS/cm	0.42	25		
7547927	pH	2021/08/30			102	98 - 103			0.70	N/A		
7547930	Fluoride (F-)	2021/08/30	105	80 - 120	103	80 - 120	<0.10	mg/L	3.7	20		
7548689	Total Kjeldahl Nitrogen (TKN)	2021/08/30	98	80 - 120	104	80 - 120	<0.10	mg/L	4.1	20	96	80 - 120
7548700	Total Cyanide (CN)	2021/08/30	103	80 - 120	103	80 - 120	<0.0050	mg/L	NC	20		
7548702	WAD Cyanide (Free)	2021/08/30	107	80 - 120	106	80 - 120	<0.0010	mg/L	NC	20		
7548947	Total Chemical Oxygen Demand (COD)	2021/08/30	96	80 - 120	102	80 - 120	<4.0	mg/L	8.9	20		
7548960	Total Organic Carbon (TOC)	2021/08/30	96	80 - 120	96	80 - 120	<0.40	mg/L	0.20	20		
7548980	Mercury (Hg)	2021/08/30	92	75 - 125	94	80 - 120	<0.01	ug/L	NC	20		
7549137	Dissolved Mercury (Hg)	2021/08/30	96	75 - 125	94	80 - 120	<0.01	ug/L	NC	20		
7551124	Radium-226	2021/09/04			98	85 - 115	<0.0050	Bq/L	NC	N/A		
7552717	Conductivity	2021/09/01			102	85 - 115	<0.001	mS/cm	0.82	25		
7553199	Salinity	2021/09/01					<2.0	N/A	0	25	100	80 - 120
7555291	Alkalinity (Total as CaCO3)	2021/09/01			96	80 - 120	<1	mg/L				

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
7555291	Bicarbonate (HCO3)	2021/09/01					<1	mg/L				
7555291	Carbonate (CO3)	2021/09/01					<1	mg/L				
7555291	Hydroxide (OH)	2021/09/01					<1	mg/L				
7555291	p-Alkalinity	2021/09/01					<1	mg/L				
7555292	pH	2021/09/01			100	97 - 103						
7555293	Dissolved Bromide (Br-)	2021/09/01	103	80 - 120	102	80 - 120	<0.010	mg/L				
7555294	Dissolved Chloride (Cl-)	2021/09/01	NC	80 - 120	106	80 - 120	0.72, RDL=0.50 (1)	mg/L				
7555294	Dissolved Sulphate (SO4)	2021/09/01	NC	80 - 120	97	80 - 120	0.63, RDL=0.50 (1)	mg/L				
7555296	Total Phosphorus (P)	2021/09/01	113	80 - 120	113	80 - 120	<0.0010	mg/L			94	80 - 120
7555297	Free Cyanide (CN)	2021/09/01	94	80 - 120	101	80 - 120	<1.0	ug/L				
7556125	Total Dissolved Solids	2021/09/03					<10	mg/L	3.0	25	95	90 - 110
7560972	Dissolved Aluminum (Al)	2021/09/03	103	80 - 120	98	80 - 120	<0.50	ug/L				
7560972	Dissolved Antimony (Sb)	2021/09/03	102	80 - 120	99	80 - 120	<0.020	ug/L				
7560972	Dissolved Arsenic (As)	2021/09/03	102	80 - 120	99	80 - 120	<0.020	ug/L				
7560972	Dissolved Barium (Ba)	2021/09/03	NC	80 - 120	99	80 - 120	<0.020	ug/L				
7560972	Dissolved Beryllium (Be)	2021/09/03	95	80 - 120	98	80 - 120	<0.010	ug/L				
7560972	Dissolved Bismuth (Bi)	2021/09/03	94	80 - 120	98	80 - 120	<0.0050	ug/L				
7560972	Dissolved Boron (B)	2021/09/03	NC	80 - 120	97	80 - 120	<10	ug/L				
7560972	Dissolved Cadmium (Cd)	2021/09/03	98	80 - 120	99	80 - 120	<0.0050	ug/L				
7560972	Dissolved Cesium (Cs)	2021/09/03	98	80 - 120	96	80 - 120	<0.050	ug/L				
7560972	Dissolved Chromium (Cr)	2021/09/03	97	80 - 120	98	80 - 120	<0.10	ug/L				
7560972	Dissolved Cobalt (Co)	2021/09/03	94	80 - 120	96	80 - 120	<0.0050	ug/L				
7560972	Dissolved Copper (Cu)	2021/09/03	91	80 - 120	96	80 - 120	<0.050	ug/L				
7560972	Dissolved Iron (Fe)	2021/09/03	100	80 - 120	98	80 - 120	<1.0	ug/L				
7560972	Dissolved Lead (Pb)	2021/09/03	95	80 - 120	98	80 - 120	<0.0050	ug/L				
7560972	Dissolved Lithium (Li)	2021/09/03	NC	80 - 120	95	80 - 120	<0.50	ug/L				
7560972	Dissolved Manganese (Mn)	2021/09/03	97	80 - 120	98	80 - 120	<0.050	ug/L				
7560972	Dissolved Molybdenum (Mo)	2021/09/03	NC	80 - 120	98	80 - 120	<0.050	ug/L				
7560972	Dissolved Nickel (Ni)	2021/09/03	92	80 - 120	96	80 - 120	<0.020	ug/L				
7560972	Dissolved Phosphorus (P)	2021/09/03	103	80 - 120	100	80 - 120	<2.0	ug/L				

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
7560972	Dissolved Selenium (Se)	2021/09/03	93	80 - 120	98	80 - 120	<0.040	ug/L				
7560972	Dissolved Silicon (Si)	2021/09/03	104	80 - 120	104	80 - 120	<50	ug/L				
7560972	Dissolved Silver (Ag)	2021/09/03	95	80 - 120	95	80 - 120	<0.0050	ug/L				
7560972	Dissolved Strontium (Sr)	2021/09/03	NC	80 - 120	99	80 - 120	<0.050	ug/L				
7560972	Dissolved Thallium (Tl)	2021/09/03	96	80 - 120	97	80 - 120	<0.0020	ug/L				
7560972	Dissolved Tin (Sn)	2021/09/03	101	80 - 120	100	80 - 120	<0.20	ug/L				
7560972	Dissolved Titanium (Ti)	2021/09/03	101	80 - 120	100	80 - 120	<0.50	ug/L				
7560972	Dissolved Uranium (U)	2021/09/03	102	80 - 120	99	80 - 120	<0.0020	ug/L				
7560972	Dissolved Vanadium (V)	2021/09/03	102	80 - 120	99	80 - 120	<0.20	ug/L				
7560972	Dissolved Zinc (Zn)	2021/09/03	91	80 - 120	101	80 - 120	<0.10	ug/L				
7560972	Dissolved Zirconium (Zr)	2021/09/03	100	80 - 120	96	80 - 120	<0.10	ug/L				
7561341	Reactive Silica (SiO2)	2021/09/05	99	80 - 120	109	80 - 120	<0.050	mg/L				
7561342	Orthophosphate (P)	2021/09/03	103	80 - 120	110	80 - 120	<0.0010	mg/L				
7562369	Total Aluminum (Al)	2021/09/02	109	80 - 120	103	80 - 120	<3.0	ug/L				
7562369	Total Antimony (Sb)	2021/09/02	105	80 - 120	100	80 - 120	<0.020	ug/L				
7562369	Total Arsenic (As)	2021/09/02	105	80 - 120	100	80 - 120	<0.020	ug/L				
7562369	Total Barium (Ba)	2021/09/02	NC	80 - 120	101	80 - 120	<0.050	ug/L				
7562369	Total Beryllium (Be)	2021/09/02	104	80 - 120	104	80 - 120	<0.010	ug/L				
7562369	Total Bismuth (Bi)	2021/09/02	103	80 - 120	100	80 - 120	<0.010	ug/L				
7562369	Total Boron (B)	2021/09/02	102	80 - 120	102	80 - 120	<10	ug/L				
7562369	Total Cadmium (Cd)	2021/09/02	104	80 - 120	100	80 - 120	<0.0050	ug/L				
7562369	Total Cesium (Cs)	2021/09/02	102	80 - 120	99	80 - 120	<0.050	ug/L				
7562369	Total Chromium (Cr)	2021/09/02	106	80 - 120	100	80 - 120	<0.10	ug/L				
7562369	Total Cobalt (Co)	2021/09/02	103	80 - 120	99	80 - 120	<0.010	ug/L				
7562369	Total Copper (Cu)	2021/09/02	101	80 - 120	99	80 - 120	<0.10	ug/L				
7562369	Total Iron (Fe)	2021/09/02	109	80 - 120	107	80 - 120	<5.0	ug/L				
7562369	Total Lead (Pb)	2021/09/02	108	80 - 120	104	80 - 120	<0.020	ug/L				
7562369	Total Lithium (Li)	2021/09/02	103	80 - 120	100	80 - 120	<0.50	ug/L				
7562369	Total Manganese (Mn)	2021/09/02	104	80 - 120	100	80 - 120	<0.10	ug/L				
7562369	Total Molybdenum (Mo)	2021/09/02	112	80 - 120	104	80 - 120	<0.050	ug/L				
7562369	Total Nickel (Ni)	2021/09/02	103	80 - 120	100	80 - 120	<0.10	ug/L				
7562369	Total Phosphorus (P)	2021/09/02	111	80 - 120	102	80 - 120	<5.0	ug/L				

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
7562369	Total Selenium (Se)	2021/09/02	113	80 - 120	109	80 - 120	<0.040	ug/L				
7562369	Total Silicon (Si)	2021/09/02	108	80 - 120	109	80 - 120	<50	ug/L				
7562369	Total Silver (Ag)	2021/09/02	103	80 - 120	99	80 - 120	<0.010	ug/L				
7562369	Total Strontium (Sr)	2021/09/02	NC	80 - 120	99	80 - 120	<0.050	ug/L				
7562369	Total Thallium (Tl)	2021/09/02	106	80 - 120	101	80 - 120	<0.0020	ug/L				
7562369	Total Tin (Sn)	2021/09/02	104	80 - 120	99	80 - 120	<0.20	ug/L				
7562369	Total Titanium (Ti)	2021/09/02	109	80 - 120	103	80 - 120	<2.0	ug/L				
7562369	Total Uranium (U)	2021/09/02	110	80 - 120	105	80 - 120	<0.0050	ug/L				
7562369	Total Vanadium (V)	2021/09/02	108	80 - 120	100	80 - 120	<0.20	ug/L				
7562369	Total Zinc (Zn)	2021/09/02	104	80 - 120	101	80 - 120	<1.0	ug/L				
7562369	Total Zirconium (Zr)	2021/09/02	110	80 - 120	102	80 - 120	<0.10	ug/L				
7566141	Total Ammonia-N	2021/09/08	NC	80 - 120	100	80 - 120	<0.0050	mg/L	2.3	20	99	80 - 120
7606429	Dissolved Sulphur (S)	2021/09/28	NC	80 - 120	99	80 - 120	<0.10	mg/L	0.31	20		
7606430	Total Sulphur (S)	2021/09/28	NC	80 - 120	103	80 - 120	<0.10	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.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

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).

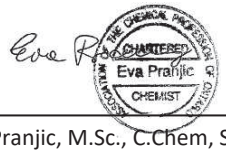
(1) Method blank is <2x RDL.

VALIDATION SIGNATURE PAGE

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

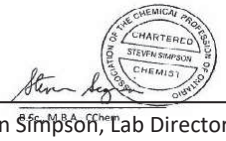
David Huang, BBY Scientific Specialist

Ghayasuddin Khan, M.Sc., P.Chem., QP, Scientific Specialist, Inorganics



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

Mike MacGillivray, Scientific Specialist (Inorganics)



Steven Simpson, Lab Director

Sandy Yuan, M.Sc., QP, 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.

23-Aug-21 08:00
Katherine Szozda
C1O0945
M2K ENV-606

eCOC: T392132

use this

Results Required By: 2021/08/31 17:05
Expected Arrival: 2021/08/24 17:05
Submitted By: Dale Holtze
Submitted To: Ottawa, ON

Invoice Information
Attn: Accounts Payable
Golder Associates Ltd
1931 Robertson Rd
Ottawa , ON , K2H 5B7
Email to:
canadaaccountspayableinvoices@golder.com

Report Information
Attn: Dale Holtze
Golder Associates Ltd
1931 Robertson Rd
Ottawa , ON , K2H 5B7
Email to:
dale_holtze@golder.com
dholtze@golder.com
vbertrand@golder.com
jennifer_range@golder.com

Project Information
Quote #: C11859
PO/AFE#:
Project #: 21468783
Site Location: Westbay - Meliadine Mine

Analytical Summary

CAUTION
Reason: Sea water

A: 2021/08/31 17:05
M: Manually added test

Client Sample ID	Clnt Ref	Sampling Date/Time	Matrix	#Cont	Alkalinity @ 25C (pp,total), CO3,HCO3,OH	Ammonia-N Low Level	Biochemical Oxygen Demand (BOD)	Bromide in water by IC	Chemical Oxygen Demand	Conductance - water	Conductivity	Cyanide (Free)	Dissolved calcium	Dissolved magnesium	Set Number
Port-3	1	2021/08/16 21:10	SEA WATER	6	A			A		A	A				1
Port-3-DUP	2	2021/08/16 21:10	SEA WATER	6	A			A		A	A				1
Port-3-X	3	2021/08/17 06:25	SEA WATER	8		A			A			A			2
Port-3-X-DUP	4	2021/08/17 06:25	SEA WATER	8											
Port-3	5	2021/08/18 07:30	SEA WATER	8			A					A	M	M	3
Port-3-X	6	2021/08/18 07:30	SEA WATER	8											

A: 2021/08/31 17:05

Client Sample ID	Clnt Ref	Sampling Date/Time	Matrix	#Cont	Dissolved Mercury (low level)	Dissolved Organic Carbon (DOC)	Dissolved potassium	Dissolved sodium	Elements by ICPMS Low Level (dissolved)	Elements by ICPMS Low Level (total)	Fluoride	Free (WAD) Cyanide	Hardness (calculated as CaCO3)	Hardness Total (calculated as CaCO3)	Set Number
Port-3	1	2021/08/16 21:10	SEA WATER	6							A				1
Port-3-DUP	2	2021/08/16 21:10	SEA WATER	6							A				1
Port-3-X	3	2021/08/17 06:25	SEA WATER	8	A							A			2
Port-3-X-DUP	4	2021/08/17 06:25	SEA WATER	8											
Port-3	5	2021/08/18 07:30	SEA WATER	8	A	A	M	M	A	A		A	A	A	3
Port-3-X	6	2021/08/18 07:30	SEA WATER	8											

Page 1 of 8

BUREAU VERITAS

Custody Tracking Form

eCOC Number: T383243

Please use this form for custody tracking when submitting the work instructions via eCOC (electronic Chain of Custody). Please ensure your form **has a barcode or a Bureau Veritas eCOC confirmation number** in the top right hand side. This number links your electronic submission to your samples. This form should be **placed in the cooler with your samples.**

Relinquished By				Received By			
Brian Cooper		Date	Aug 19/21	Ian Jeng		Date	2021/08/23
		Time (24 HR)	07.00			Time (24 HR)	9:00
		Date		Mandip Randhy		Date	2021/08/24
		Time (24 HR)				Time (24 HR)	08:40
		Date		RECEIVED IN OTTAWA		Date	
		Time (24 HR)				Time (24 HR)	

Unless otherwise agreed to, submissions and use of services are governed by Bureau Veritas' standard terms and conditions which can be found at www.bvna.com.

Triage Information

Sampled By (Print)	# of Coolers/Pkgs	Rush	Immediate Test	Food Residue
BTC, OC	1	☐	☐	☐
		Micro ☐		Food Chemistry ☐

***** Laboratory Use Only *****

Received At:

Labeled By:

Verified By:

Lab Comments:

Custody Seal Present (Y/N)	Custody Seal Intact (Y/N)	Cooling Media Present (Y/N)	Temperature °C 1	2	3
✓	—	✓	18	18	17
✓	✓	✓	2	2	3
—	—		5	4	5

Drinking Water Metals Preservation Check Done (Circle) YES NO

Ice packs

COR FCD-00340 /5 PAGE 1 of 1

Your Project #: 21468783
Site Location: Westbay - Meliadine Mine
Your C.O.C. #: 396738

Attention: Dale Holtze

Golder Associates Ltd
1931 Robertson Rd
Ottawa, ON
CANADA K2H 5B7

Report Date: 2021/09/17
Report #: R6815934
Version: 2 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BV LABS JOB #: C1O6519
Received: 2021/08/27, 09:30

Sample Matrix: Water
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Biochemical Oxygen Demand (BOD) (1)	2	2021/08/28	2021/09/02	CAM SOP-00427	SM 23 5210B m
Chemical Oxygen Demand (1)	2	N/A	2021/09/01	CAM SOP-00416	SM 23 5220 D m
Conductivity (1)	2	N/A	2021/09/01	CAM SOP-00414	SM 23 2510 m
Free (WAD) Cyanide (1)	2	N/A	2021/09/02	CAM SOP-00457	OMOE E3015 m
Total Cyanide (1)	2	2021/09/02	2021/09/02	CAM SOP-00457	OMOE E3015 5 m
Dissolved Organic Carbon (DOC) (1, 6)	2	N/A	2021/09/01	CAM SOP-00446	SM 23 5310 B m
Fluoride (1)	2	2021/08/31	2021/09/01	CAM SOP-00449	SM 23 4500-F C m
Dissolved Mercury (low level) (1)	1	2021/08/31	2021/08/31	CAM SOP-00453	EPA 7470 m
Dissolved Mercury (low level) (1)	1	2021/09/01	2021/09/02	CAM SOP-00453	EPA 7470 m
Mercury (low level) (1)	2	2021/08/31	2021/09/01	CAM SOP-00453	EPA 7470 m
Alkalinity @ 25C (pp,total), CO3,HCO3,OH (2)	2	N/A	2021/09/02		
Bromide in water by IC (2)	2	N/A	2021/09/02		
Low Level Chloride and Sulphate by AC (2)	2	N/A	2021/09/02	AB SOP-00020 / AB SOP-00018	SM23 4500-CL/SO4-E m
Cyanide (Free) (2)	2	2021/09/02	2021/09/02	CAL SOP-00266	EPA 9016d R0 m
Hardness Total (calculated as CaCO3) (3, 7)	1	N/A	2021/09/07	BBY WI-00033	Auto Calc
Hardness (calculated as CaCO3) (3)	1	N/A	2021/09/07	BBY WI-00033	Auto Calc
Na, K, Ca, Mg, S by CRC ICPMS (diss.) (3)	1	N/A	2021/09/17	BBY WI-00033	Auto Calc
Elements by ICPMS Low Level (dissolved) (3)	1	N/A	2021/09/03	BBY7SOP-00002	EPA 6020B R2 m
Na, K, Ca, Mg, S by CRC ICPMS (total) (3)	1	N/A	2021/09/17	BBY WI-00033	Auto Calc
Elements by ICPMS Low Level (total) (3)	1	N/A	2021/09/03	BBY7SOP-00002	EPA 6020B R2 m
Ammonia-N Low Level (2)	2	2021/08/31	2021/09/01	AB SOP-00007	SM23 4500 NH3 A G m
pH @25°C (2, 8)	2	N/A	2021/09/02	AB SOP-00005	SM 23 4500-H+B m
Orthophosphate by Konelab (low level) (3)	2	N/A	2021/09/01		
Silica (Reactive) (2)	2	N/A	2021/09/05	AB SOP-00011	EPA370.1 R1978 m
Total Phosphorus Low Level Total (2)	2	2021/09/02	2021/09/03	AB SOP-00024	SM 23 4500-P A,B,F m
Total Ammonia (as NH3) (1)	2	N/A	2021/09/10	Auto Calc.	
Nitrate (NO3) and Nitrite (NO2) in Water (1, 9)	1	N/A	2021/09/01	CAM SOP-00440	SM 23 4500-NO3I/NO2B
Nitrate (NO3) and Nitrite (NO2) in Water (1, 9)	1	N/A	2021/09/03	CAM SOP-00440	SM 23 4500-NO3I/NO2B
pH (1)	2	2021/08/31	2021/09/01	CAM SOP-00413	SM 4500H+ B m

Your Project #: 21468783
Site Location: Westbay - Meliadine Mine
Your C.O.C. #: 396738

Attention: Dale Holtze

Golder Associates Ltd
1931 Robertson Rd
Ottawa, ON
CANADA K2H 5B7

Report Date: 2021/09/17
Report #: R6815934
Version: 2 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BV LABS JOB #: C1O6519
Received: 2021/08/27, 09:30

Sample Matrix: Water
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Radium-226 Low Level (4, 10)	2	N/A	2021/09/08	BQL SOP-00006 BQL SOP-00017 BQL SOP-00032	Alpha Spectrometry
Salinity (5, 11)	2	N/A	2021/09/07		SM 22 2520B
Total Dissolved Solids (1)	2	2021/08/31	2021/09/01	CAM SOP-00428	SM 23 2540C m
Total Kjeldahl Nitrogen in Water (1)	2	2021/08/31	2021/09/02	CAM SOP-00938	OMOE E3516 m
Total Organic Carbon (TOC) (1, 12)	2	N/A	2021/08/31	CAM SOP-00446	SM 23 5310B m
Low Level Total Suspended Solids (1)	1	2021/08/31	2021/09/01	CAM SOP-00428	SM 23 2540D m
Low Level Total Suspended Solids (1)	1	2021/09/02	2021/09/03	CAM SOP-00428	SM 23 2540D m
Turbidity (1)	2	N/A	2021/08/31	CAM SOP-00417	SM 23 2130 B m
Volatile Organic Compounds in Water (1)	2	N/A	2021/09/01	CAM SOP-00228	EPA 8260C 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) This test was performed by Bureau Veritas Mississauga

Your Project #: 21468783
Site Location: Westbay - Meliadine Mine
Your C.O.C. #: 396738

Attention: Dale Holtze

Golder Associates Ltd
1931 Robertson Rd
Ottawa, ON
CANADA K2H 5B7

Report Date: 2021/09/17
Report #: R6815934
Version: 2 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BV LABS JOB #: C1O6519
Received: 2021/08/27, 09:30

(2) This test was performed by Bureau Veritas Calgary via Mississauga
(3) This test was performed by Bureau Veritas Burnaby via Mississauga
(4) This test was performed by Bureau Veritas Kitimat
(5) This test was performed by Bureau Veritas Bedford
(6) Dissolved Organic Carbon (DOC) present in the sample should be considered as non-purgeable DOC.
(7) "Total Hardness" was calculated from Total Ca and Mg concentrations and may be biased high (Hardness, or Dissolved Hardness, calculated from Dissolved Ca and Mg, should be used for compliance if available).
(8) The CCME method requires pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the CCME holding time. Bureau Veritas Laboratories endeavours to analyze samples as soon as possible after receipt.
(9) Values for calculated parameters may not appear to add up due to rounding of raw data and significant figures.
(10) Radium-226 results have not been corrected for blanks.
(11) Non-accredited test method
(12) Total Organic Carbon (TOC) present in the sample should be considered as non-purgeable TOC.

Encryption Key

Katherine Szozda
Project Manager
17 Sep 2021 18:42:42

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Katherine Szozda, Project Manager
Email: Katherine.Szozda@bureauveritas.com
Phone# (613)274-0573 Ext:7063633

==========

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 #: C1O6519
Report Date: 2021/09/17

Golder Associates Ltd
Client Project #: 21468783
Site Location: Westbay - Meliadine Mine
Sampler Initials: DH

RESULTS OF ANALYSES OF WATER

BV Labs ID		QMT567			QMT567		
Sampling Date		2021/08/24 15:00			2021/08/24 15:00		
COC Number		396738			396738		
	UNITS	Equipment Blank	RDL	QC Batch	Equipment Blank Lab-Dup	RDL	QC Batch
CONVENTIONALS							
Total Nitrogen (Ammonia Nitrogen)	mg/L	0.017	0.0050	7555295			
Calculated Parameters							
Total Ammonia (as NH3)	mg/L	0.020	0.0061	7549636			
Dissolved Hardness (CaCO3)	mg/L	4.14	0.50	7564575			
Inorganics							
Alkalinity (Total as CaCO3)	mg/L	6	1	7565055			
Bicarbonate (HCO3)	mg/L	7	1	7565055			
Total BOD	mg/L	3	2	7547392			
Dissolved Bromide (Br-)	mg/L	<0.010	0.010	7565057			
Carbonate (CO3)	mg/L	<1	1	7565055			
Total Chemical Oxygen Demand (COD)	mg/L	<4.0	4.0	7551028			
Conductivity	mS/cm	0.010	0.001	7552717			
Free Cyanide (CN)	ug/L	<1.0 (1)	1.0	7557712			
Total Dissolved Solids	mg/L	<10	10	7551805			
Fluoride (F-)	mg/L	<0.10	0.10	7552715			
Hydroxide (OH)	mg/L	<1	1	7565055			
Total Kjeldahl Nitrogen (TKN)	mg/L	<0.10	0.10	7551624			
Dissolved Organic Carbon	mg/L	0.43	0.40	7550265			
Total Organic Carbon (TOC)	mg/L	0.76	0.40	7551534			
Orthophosphate (P)	mg/L	0.035	0.0010	7565365			
p-Alkalinity	mg/L	<1	1	7565055			
pH	pH	6.06	N/A	7565056			
Salinity	N/A	<2.0	2.0	7561819	<2.0	2.0	7561819
Reactive Silica (SiO2)	mg/L	0.054	0.050	7561318			
Total Suspended Solids	mg/L	<1	1	7557259			
Total Cyanide (CN)	mg/L	<0.0050	0.0050	7556310	<0.0050	0.0050	7556310
Turbidity	NTU	<0.1	0.1	7551583			
WAD Cyanide (Free)	mg/L	<0.0010	0.0010	7556313	<0.0010	0.0010	7556313
Dissolved Chloride (Cl-)	mg/L	3.4	0.50	7565054			

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
N/A = Not Applicable
(1) Interference checks not performed at the time of sampling. The lab cannot guarantee that interferences were not present at the time of sampling and that there is no low bias in results

RESULTS OF ANALYSES OF WATER

BV Labs ID		QMT567			QMT567		
Sampling Date		2021/08/24 15:00			2021/08/24 15:00		
COC Number		396738			396738		
	UNITS	Equipment Blank	RDL	QC Batch	Equipment Blank Lab-Dup	RDL	QC Batch
Nitrite (N)	mg/L	<0.010	0.010	7552713			
Nitrate (N)	mg/L	<0.10	0.10	7552713			
Dissolved Sulphate (SO4)	mg/L	0.53	0.50	7565054			
Nitrate + Nitrite (N)	mg/L	<0.10	0.10	7552713			
Metals							
Dissolved Aluminum (Al)	ug/L	1.49	0.50	7564576	1.49	0.50	7564576
Total Aluminum (Al)	ug/L	6.66	0.50	7565366			
Dissolved Antimony (Sb)	ug/L	<0.020	0.020	7564576	<0.020	0.020	7564576
Total Antimony (Sb)	ug/L	<0.020	0.020	7565366			
Dissolved Arsenic (As)	ug/L	0.227	0.020	7564576	0.224	0.020	7564576
Total Arsenic (As)	ug/L	0.293	0.020	7565366			
Dissolved Barium (Ba)	ug/L	0.286	0.020	7564576	0.317	0.020	7564576
Total Barium (Ba)	ug/L	0.492	0.020	7565366			
Dissolved Beryllium (Be)	ug/L	<0.010	0.010	7564576	<0.010	0.010	7564576
Total Beryllium (Be)	ug/L	<0.010	0.010	7565366			
Dissolved Bismuth (Bi)	ug/L	<0.0050	0.0050	7564576	<0.0050	0.0050	7564576
Total Bismuth (Bi)	ug/L	<0.0050	0.0050	7565366			
Dissolved Boron (B)	ug/L	<10	10	7564576	<10	10	7564576
Total Boron (B)	ug/L	17	10	7565366			
Dissolved Cadmium (Cd)	ug/L	<0.0050	0.0050	7564576	<0.0050	0.0050	7564576
Total Cadmium (Cd)	ug/L	<0.0050	0.0050	7565366			
Dissolved Chromium (Cr)	ug/L	<0.10	0.10	7564576	<0.10	0.10	7564576
Total Chromium (Cr)	ug/L	<0.10	0.10	7565366			
Dissolved Cobalt (Co)	ug/L	0.0052	0.0050	7564576	<0.0050	0.0050	7564576
Total Cobalt (Co)	ug/L	0.0054	0.0050	7565366			
Dissolved Copper (Cu)	ug/L	0.066	0.050	7564576	<0.050	0.050	7564576
Total Copper (Cu)	ug/L	0.086	0.050	7565366			
Dissolved Iron (Fe)	ug/L	<1.0	1.0	7564576	<1.0	1.0	7564576
Total Iron (Fe)	ug/L	1.7	1.0	7565366			
Dissolved Lead (Pb)	ug/L	0.0053	0.0050	7564576	<0.0050	0.0050	7564576
Total Lead (Pb)	ug/L	<0.0050	0.0050	7565366			
Dissolved Lithium (Li)	ug/L	0.99	0.50	7564576	1.14	0.50	7564576
Total Lithium (Li)	ug/L	3.33	0.50	7565366			

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

RESULTS OF ANALYSES OF WATER

BV Labs ID		QMT567			QMT567		
Sampling Date		2021/08/24 15:00			2021/08/24 15:00		
COC Number		396738			396738		
	UNITS	Equipment Blank	RDL	QC Batch	Equipment Blank Lab-Dup	RDL	QC Batch
Dissolved Manganese (Mn)	ug/L	0.141	0.050	7564576	0.227	0.050	7564576
Total Manganese (Mn)	ug/L	0.207	0.050	7565366			
Dissolved Molybdenum (Mo)	ug/L	<0.050	0.050	7564576	<0.050	0.050	7564576
Total Molybdenum (Mo)	ug/L	0.056	0.050	7565366			
Dissolved Nickel (Ni)	ug/L	0.027	0.020	7564576	<0.020	0.020	7564576
Total Nickel (Ni)	ug/L	0.037	0.020	7565366			
Dissolved Phosphorus (P)	ug/L	67.8	2.0	7564576	74.8	2.0	7564576
Total Phosphorus (P)	ug/L	126	2.0	7565366			
Dissolved Selenium (Se)	ug/L	<0.040	0.040	7564576	<0.040	0.040	7564576
Total Silicon (Si)	ug/L	<50	50	7565366			
Total Selenium (Se)	ug/L	<0.040	0.040	7565366			
Dissolved Silicon (Si)	ug/L	<50	50	7564576	<50	50	7564576
Dissolved Silver (Ag)	ug/L	<0.0050	0.0050	7564576	<0.0050	0.0050	7564576
Total Silver (Ag)	ug/L	<0.0050	0.0050	7565366			
Dissolved Strontium (Sr)	ug/L	37.3	0.050	7564576	39.4	0.050	7564576
Total Strontium (Sr)	ug/L	81.4	0.050	7565366			
Dissolved Thallium (Tl)	ug/L	0.0211	0.0020	7564576	0.0198	0.0020	7564576
Total Thallium (Tl)	ug/L	0.0345	0.0020	7565366			
Dissolved Tin (Sn)	ug/L	0.24	0.20	7564576	0.22	0.20	7564576
Total Tin (Sn)	ug/L	<0.20	0.20	7565366			
Dissolved Titanium (Ti)	ug/L	<0.50	0.50	7564576	<0.50	0.50	7564576
Total Titanium (Ti)	ug/L	<0.50	0.50	7565366			
Dissolved Uranium (U)	ug/L	0.0042	0.0020	7564576	<0.0020	0.0020	7564576
Total Uranium (U)	ug/L	0.0022	0.0020	7565366			
Dissolved Vanadium (V)	ug/L	<0.20	0.20	7564576	<0.20	0.20	7564576
Total Vanadium (V)	ug/L	<0.20	0.20	7565366			
Dissolved Zinc (Zn)	ug/L	10.8	0.10	7564576	10.8	0.10	7564576
Total Zinc (Zn)	ug/L	20.6	0.10	7565366			
Dissolved Zirconium (Zr)	ug/L	<0.10	0.10	7564576	<0.10	0.10	7564576
Total Zirconium (Zr)	ug/L	<0.10	0.10	7565366			
Dissolved Calcium (Ca)	mg/L	1.66	0.050	7585180			
Total Calcium (Ca)	mg/L	2.51	0.050	7585181			
Dissolved Cesium (Cs)	ug/L	<0.050	0.050	7564576			

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

BV Labs Job #: C1O6519
Report Date: 2021/09/17

Golder Associates Ltd
Client Project #: 21468783
Site Location: Westbay - Meliadine Mine
Sampler Initials: DH

RESULTS OF ANALYSES OF WATER

BV Labs ID		QMT567			QMT567		
Sampling Date		2021/08/24 15:00			2021/08/24 15:00		
COC Number		396738			396738		
	UNITS	Equipment Blank	RDL	QC Batch	Equipment Blank Lab-Dup	RDL	QC Batch
Total Cesium (Cs)	ug/L	0.056	0.050	7565366			
Dissolved Magnesium (Mg)	mg/L	<0.050	0.050	7585180			
Total Magnesium (Mg)	mg/L	<0.050	0.050	7585181			
Dissolved Potassium (K)	mg/L	<0.050	0.050	7585180			
Total Potassium (K)	mg/L	<0.050	0.050	7585181			
Dissolved Sodium (Na)	mg/L	0.130	0.050	7585180			
Total Sodium (Na)	mg/L	0.247	0.050	7585181			
Dissolved Sulphur (S)	mg/L	<3.0	3.0	7585180			
Total Sulphur (S)	mg/L	<3.0	3.0	7585181			
Nutritional Parameters							
Total Phosphorus (P)	mg/L	0.073	0.0010	7559595			
RADIONUCLIDE							
Radium-226	Bq/L	<0.0050	0.0050	7554482			

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

Golder Associates Ltd
Client Project #: 21468783
Site Location: Westbay - Meliadine Mine
Sampler Initials: DH

RESULTS OF ANALYSES OF WATER

BV Labs ID		QMT569		
Sampling Date		2021/08/24 14:00		
COC Number		396738		
	UNITS	Trip Blank	RDL	QC Batch
CONVENTIONALS				
Total Nitrogen (Ammonia Nitrogen)	mg/L	<0.0050	0.0050	7555295
Calculated Parameters				
Total Ammonia (as NH3)	mg/L	<0.0061	0.0061	7549636
Inorganics				
Alkalinity (Total as CaCO3)	mg/L	<1	1	7565055
Bicarbonate (HCO3)	mg/L	<1	1	7565055
Total BOD	mg/L	<2	2	7547392
Dissolved Bromide (Br-)	mg/L	<0.010	0.010	7565057
Carbonate (CO3)	mg/L	<1	1	7565055
Total Chemical Oxygen Demand (COD)	mg/L	<4.0	4.0	7551028
Conductivity	mS/cm	0.001	0.001	7552717
Free Cyanide (CN)	ug/L	3.4 (1)	1.0	7562861
Total Dissolved Solids	mg/L	<10	10	7551805
Fluoride (F-)	mg/L	<0.10	0.10	7552715
Hydroxide (OH)	mg/L	<1	1	7565055
Total Kjeldahl Nitrogen (TKN)	mg/L	<0.10	0.10	7551624
Dissolved Organic Carbon	mg/L	<0.40	0.40	7550265
Total Organic Carbon (TOC)	mg/L	<0.40	0.40	7551534
Orthophosphate (P)	mg/L	<0.0010	0.0010	7565365
p-Alkalinity	mg/L	<1	1	7565055
pH	pH	5.82		7552716
Salinity	N/A	<2.0	2.0	7561819
Reactive Silica (SiO2)	mg/L	<0.050	0.050	7561318
Total Suspended Solids	mg/L	<1	1	7551910
Total Cyanide (CN)	mg/L	<0.0050	0.0050	7556520
Turbidity	NTU	<0.1	0.1	7551583

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
(1) Interference checks not performed at the time of sampling. The lab cannot guarantee that interferences were not present at the time of sampling and that there is no low bias in results

Sample was not submitted in an appropriate container for CNFREE-W analysis. Results may have a high bias due to decomposition of hexacyanoferrate and some other metal-cyanide complexes to free cyanide

BV Labs Job #: C1O6519
Report Date: 2021/09/17

Golder Associates Ltd
Client Project #: 21468783
Site Location: Westbay - Meliadine Mine
Sampler Initials: DH

RESULTS OF ANALYSES OF WATER

BV Labs ID		QMT569		
Sampling Date		2021/08/24 14:00		
COC Number		396738		
	UNITS	Trip Blank	RDL	QC Batch
WAD Cyanide (Free)	mg/L	<0.0010	0.0010	7556522
Dissolved Chloride (Cl-)	mg/L	0.79	0.50	7565054
Nitrite (N)	mg/L	<0.010	0.010	7551957
Nitrate (N)	mg/L	<0.10	0.10	7551957
Dissolved Sulphate (SO4)	mg/L	<0.50	0.50	7565054
Nitrate + Nitrite (N)	mg/L	<0.10	0.10	7551957
Nutritional Parameters				
Total Phosphorus (P)	mg/L	<0.0010	0.0010	7559595
RADIONUCLIDE				
Radium-226	Bq/L	<0.0050	0.0050	7554482

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

BV Labs Job #: C1O6519
Report Date: 2021/09/17

Golder Associates Ltd
Client Project #: 21468783
Site Location: Westbay - Meliadine Mine
Sampler Initials: DH

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

BV Labs ID		QMT567			QMT569		
Sampling Date		2021/08/24 15:00			2021/08/24 14:00		
COC Number		396738			396738		
	UNITS	Equipment Blank	RDL	QC Batch	Trip Blank	RDL	QC Batch
Calculated Parameters							
Total Hardness (CaCO3)	mg/L	6.34	0.50	7559801			
Metals							
Mercury (Hg)	ug/L	<0.01	0.01	7551330	<0.01	0.01	7551330
Dissolved Mercury (Hg)	ug/L	<0.01	0.01	7554097	<0.01	0.01	7550894

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

VOLATILE ORGANICS BY GC/MS (WATER)

BV Labs ID		QMT567	QMT569		
Sampling Date		2021/08/24 15:00	2021/08/24 14:00		
COC Number		396738	396738		
	UNITS	Equipment Blank	Trip Blank	RDL	QC Batch
Volatile Organics					
Benzene	ug/L	<0.20	<0.20	0.20	7550773
Ethylbenzene	ug/L	<0.20	<0.20	0.20	7550773
Methyl t-butyl ether (MTBE)	ug/L	<0.50	<0.50	0.50	7550773
Styrene	ug/L	<0.40	<0.40	0.40	7550773
Toluene	ug/L	0.38	<0.20	0.20	7550773
p+m-Xylene	ug/L	<0.20	<0.20	0.20	7550773
o-Xylene	ug/L	<0.20	<0.20	0.20	7550773
Total Xylenes	ug/L	<0.20	<0.20	0.20	7550773
Surrogate Recovery (%)					
4-Bromofluorobenzene	%	94	95		7550773
D4-1,2-Dichloroethane	%	105	104		7550773
D8-Toluene	%	92	92		7550773

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

BV Labs Job #: C1O6519
Report Date: 2021/09/17

Golder Associates Ltd
Client Project #: 21468783
Site Location: Westbay - Meliadine Mine
Sampler Initials: DH

TEST SUMMARY

BV Labs ID: QMT567
Sample ID: Equipment Blank
Matrix: Water

Collected: 2021/08/24
Shipped:
Received: 2021/08/27

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Biochemical Oxygen Demand (BOD)	DO	7547392	2021/08/28	2021/09/02	Nusrat Naz
Chemical Oxygen Demand	SPEC	7551028	N/A	2021/09/01	Nimarta Singh
Conductivity	AT	7552717	N/A	2021/09/01	Surinder Rai
Free (WAD) Cyanide	SKAL/CN	7556313	N/A	2021/09/02	Aditiben Patel
Total Cyanide	SKAL/CN	7556310	2021/09/02	2021/09/02	Aditiben Patel
Dissolved Organic Carbon (DOC)	TOCV/NDIR	7550265	N/A	2021/09/01	Julianna Castiglione
Fluoride	ISE	7552715	2021/08/31	2021/09/01	Surinder Rai
Dissolved Mercury (low level)	CV/AA	7554097	2021/09/01	2021/09/02	Meghaben Patel
Mercury (low level)	CV/AA	7551330	2021/08/31	2021/09/01	Meghaben Patel
Alkalinity @ 25C (pp,total), CO3,HCO3,OH	AT	7565055	N/A	2021/09/02	Ilonka Kovac
Bromide in water by IC	IC/UV	7565057	N/A	2021/09/02	Karen Graham
Low Level Chloride and Sulphate by AC	KONE	7565054	N/A	2021/09/02	Bradley Freake
Cyanide (Free)	SPEC	7557712	2021/09/02	2021/09/02	Riazuddin Khan
Hardness Total (calculated as CaCO3)	CALC	7559801	N/A	2021/09/07	Automated Statchk
Hardness (calculated as CaCO3)	CALC	7564575	N/A	2021/09/07	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP	7585180	N/A	2021/09/17	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/MS	7564576	N/A	2021/09/03	Jeffrey Laporte
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP	7585181	N/A	2021/09/17	Automated Statchk
Elements by ICPMS Low Level (total)	ICP/MS	7565366	N/A	2021/09/03	Jeffrey Laporte
Ammonia-N Low Level	KONE/UVVS	7555295	2021/09/01	2021/09/01	Ian Bullecer
pH @25°C	AT/PH	7565056	N/A	2021/09/02	Ilonka Kovac
Orthophosphate by Konelab (low level)	KONE	7565365	N/A	2021/09/01	Tingting Li
Silica (Reactive)	KONE	7561318	N/A	2021/09/05	Serena Tian
Total Phosphorus Low Level Total	KONE	7559595	2021/09/02	2021/09/03	Fadia Mostafa
Total Ammonia (as NH3)	CALC	7549636	N/A	2021/09/10	Automated Statchk
Nitrate (NO3) and Nitrite (NO2) in Water	LACH	7552713	N/A	2021/09/01	Viorica Rotaru
pH	AT	7552716	2021/08/31	2021/09/01	Surinder Rai
Radium-226 Low Level	AS	7554482	N/A	2021/09/08	Fariba Kashavarz
Salinity		7561819	N/A	2021/09/07	Brent Boudreau
Total Dissolved Solids	BAL	7551805	2021/08/31	2021/09/01	Shaneil Hall
Total Kjeldahl Nitrogen in Water	SKAL	7551624	2021/08/31	2021/09/02	Rajni Tyagi
Total Organic Carbon (TOC)	TOCV/NDIR	7551534	N/A	2021/08/31	Julianna Castiglione
Low Level Total Suspended Solids	BAL	7557259	2021/09/02	2021/09/03	Shaneil Hall
Turbidity	AT	7551583	N/A	2021/08/31	Surinder Rai
Volatile Organic Compounds in Water	GC/MS	7550773	N/A	2021/09/01	Dina Wang

BV Labs ID: QMT567 Dup
Sample ID: Equipment Blank
Matrix: Water

Collected: 2021/08/24
Shipped:
Received: 2021/08/27

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Free (WAD) Cyanide	SKAL/CN	7556313	N/A	2021/09/02	Aditiben Patel
Total Cyanide	SKAL/CN	7556310	2021/09/02	2021/09/02	Aditiben Patel
Elements by ICPMS Low Level (dissolved)	ICP/MS	7564576	N/A	2021/09/04	Jeffrey Laporte
Salinity		7561819	N/A	2021/09/07	Brent Boudreau

BV Labs Job #: C1O6519
Report Date: 2021/09/17

Golder Associates Ltd
Client Project #: 21468783
Site Location: Westbay - Meliadine Mine
Sampler Initials: DH

TEST SUMMARY

BV Labs ID: QMT569
Sample ID: Trip Blank
Matrix: Water

Collected: 2021/08/24
Shipped:
Received: 2021/08/27

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Biochemical Oxygen Demand (BOD)	DO	7547392	2021/08/28	2021/09/02	Nusrat Naz
Chemical Oxygen Demand	SPEC	7551028	N/A	2021/09/01	Nimarta Singh
Conductivity	AT	7552717	N/A	2021/09/01	Surinder Rai
Free (WAD) Cyanide	SKAL/CN	7556522	N/A	2021/09/02	Aditiben Patel
Total Cyanide	SKAL/CN	7556520	2021/09/02	2021/09/02	Aditiben Patel
Dissolved Organic Carbon (DOC)	TOCV/NDIR	7550265	N/A	2021/09/01	Julianna Castiglione
Fluoride	ISE	7552715	2021/08/31	2021/09/01	Surinder Rai
Dissolved Mercury (low level)	CV/AA	7550894	2021/08/31	2021/08/31	Meghaben Patel
Mercury (low level)	CV/AA	7551330	2021/08/31	2021/09/01	Meghaben Patel
Alkalinity @ 25C (pp,total), CO3,HCO3,OH	AT	7565055	N/A	2021/09/02	Ilonka Kovac
Bromide in water by IC	IC/UV	7565057	N/A	2021/09/02	Karen Graham
Low Level Chloride and Sulphate by AC	KONE	7565054	N/A	2021/09/02	Bradley Freake
Cyanide (Free)	SPEC	7562861	2021/09/02	2021/09/02	Riazuddin Khan
Ammonia-N Low Level	KONE/UVVS	7555295	2021/09/01	2021/09/01	Ian Bullecer
pH @25°C	AT/PH	7565056	N/A	2021/09/02	Ilonka Kovac
Orthophosphate by Konelab (low level)	KONE	7565365	N/A	2021/09/01	Tingting Li
Silica (Reactive)	KONE	7561318	N/A	2021/09/05	Serena Tian
Total Phosphorus Low Level Total	KONE	7559595	2021/09/02	2021/09/03	Fadia Mostafa
Total Ammonia (as NH3)	CALC	7549636	N/A	2021/09/10	Automated Statchk
Nitrate (NO3) and Nitrite (NO2) in Water	LACH	7551957	N/A	2021/09/03	Viorica Rotaru
pH	AT	7552716	2021/08/31	2021/09/01	Surinder Rai
Radium-226 Low Level	AS	7554482	N/A	2021/09/08	Fariba Kashavarz
Salinity		7561819	N/A	2021/09/07	Brent Boudreau
Total Dissolved Solids	BAL	7551805	2021/08/31	2021/09/01	Shaneil Hall
Total Kjeldahl Nitrogen in Water	SKAL	7551624	2021/08/31	2021/09/02	Rajni Tyagi
Total Organic Carbon (TOC)	TOCV/NDIR	7551534	N/A	2021/08/31	Julianna Castiglione
Low Level Total Suspended Solids	BAL	7551910	2021/08/31	2021/09/01	Shaneil Hall
Turbidity	AT	7551583	N/A	2021/08/31	Surinder Rai
Volatile Organic Compounds in Water	GC/MS	7550773	N/A	2021/09/01	Dina Wang

BV Labs Job #: C1O6519
Report Date: 2021/09/17

Golder Associates Ltd
Client Project #: 21468783
Site Location: Westbay - Meliadine Mine
Sampler Initials: DH

GENERAL COMMENTS

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

Package 1	18.3°C
Package 2	17.7°C

Revised Report (2021/09/17): Major ions added for total and dissolved metals

Sample QMT567 [Equipment Blank] : COD < BOD: Both values fall within the method uncertainty for duplicates and are likely equivalent. Sample was analyzed past method specified hold time for Orthophosphate by Konelab (low level). Exceedance of hold time increases the uncertainty of test results but does not necessarily imply that results are compromised. Sample received past method specified hold time for Orthophosphate by Konelab (low level).

Sample QMT569 [Trip Blank] : Sample was analyzed past method specified hold time for Orthophosphate by Konelab (low level). Exceedance of hold time increases the uncertainty of test results but does not necessarily imply that results are compromised. Sample received past method specified hold time for Orthophosphate by Konelab (low level).

Results relate only to the items tested.

BV Labs Job #: C1O6519
Report Date: 2021/09/17

QUALITY ASSURANCE REPORT

Golder Associates Ltd
Client Project #: 21468783
Site Location: Westbay - Meliadine Mine
Sampler Initials: DH

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
7550773	4-Bromofluorobenzene	2021/09/01	103	70 - 130	103	70 - 130	99	%				
7550773	D4-1,2-Dichloroethane	2021/09/01	101	70 - 130	97	70 - 130	103	%				
7550773	D8-Toluene	2021/09/01	105	70 - 130	106	70 - 130	92	%				
7547392	Total BOD	2021/09/02					<2	mg/L	NC	30	100	80 - 120
7550265	Dissolved Organic Carbon	2021/09/01	92	80 - 120	96	80 - 120	<0.40	mg/L	7.7	20		
7550773	Benzene	2021/09/01	88	70 - 130	85	70 - 130	<0.20	ug/L	NC	30		
7550773	Ethylbenzene	2021/09/01	94	70 - 130	92	70 - 130	<0.20	ug/L	NC	30		
7550773	Methyl t-butyl ether (MTBE)	2021/09/01	92	70 - 130	87	70 - 130	<0.50	ug/L	NC	30		
7550773	o-Xylene	2021/09/01	93	70 - 130	94	70 - 130	<0.20	ug/L	NC	30		
7550773	p+m-Xylene	2021/09/01	102	70 - 130	100	70 - 130	<0.20	ug/L	NC	30		
7550773	Styrene	2021/09/01	109	70 - 130	108	70 - 130	<0.40	ug/L	NC	30		
7550773	Toluene	2021/09/01	99	70 - 130	96	70 - 130	<0.20	ug/L	NC	30		
7550773	Total Xylenes	2021/09/01					<0.20	ug/L	NC	30		
7550894	Dissolved Mercury (Hg)	2021/08/31	93	75 - 125	95	80 - 120	<0.01	ug/L	NC	20		
7551028	Total Chemical Oxygen Demand (COD)	2021/09/01	100	80 - 120	102	80 - 120	<4.0	mg/L	3.4	20		
7551330	Mercury (Hg)	2021/09/01	76	75 - 125	93	80 - 120	<0.01	ug/L	3.1	20		
7551534	Total Organic Carbon (TOC)	2021/08/31	94	80 - 120	96	80 - 120	<0.40	mg/L	3.2	20		
7551583	Turbidity	2021/08/31			94	85 - 115	<0.1	NTU	6.7	20		
7551624	Total Kjeldahl Nitrogen (TKN)	2021/09/02	NC	80 - 120	98	80 - 120	<0.10	mg/L	2.1 (1)	20	91	80 - 120
7551805	Total Dissolved Solids	2021/09/01					<10	mg/L	0.82	25	97	90 - 110
7551910	Total Suspended Solids	2021/09/01					<1	mg/L	1.1	25	98	85 - 115
7551957	Nitrate (N)	2021/09/03	102	80 - 120	102	80 - 120	<0.10	mg/L	1.7	20		
7551957	Nitrite (N)	2021/09/03	103	80 - 120	104	80 - 120	<0.010	mg/L	3.0	20		
7552713	Nitrate (N)	2021/09/01	90	80 - 120	92	80 - 120	<0.10	mg/L	NC	20		
7552713	Nitrite (N)	2021/09/01	102	80 - 120	105	80 - 120	<0.010	mg/L	NC	20		
7552715	Fluoride (F-)	2021/09/01	100	80 - 120	98	80 - 120	<0.10	mg/L	0	20		
7552716	pH	2021/09/01			102	98 - 103			1.0	N/A		
7552717	Conductivity	2021/09/01			102	85 - 115	<0.001	mS/cm	0.82	25		
7554097	Dissolved Mercury (Hg)	2021/09/02	93	75 - 125	95	80 - 120	<0.01	ug/L	NC	20		
7554482	Radium-226	2021/09/05			93	85 - 115	<0.0050	Bq/L	0	N/A		
7555295	Total Nitrogen (Ammonia Nitrogen)	2021/09/01	101	N/A	99	N/A	<0.0050	mg/L				
7556310	Total Cyanide (CN)	2021/09/02	98	80 - 120	101	80 - 120	<0.0050	mg/L	NC	20		

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
7556313	WAD Cyanide (Free)	2021/09/02	99	80 - 120	102	80 - 120	<0.0010	mg/L	NC	20		
7556520	Total Cyanide (CN)	2021/09/02	61 (2)	80 - 120	101	80 - 120	<0.0050	mg/L	NC	20		
7556522	WAD Cyanide (Free)	2021/09/02	56 (2)	80 - 120	95	80 - 120	<0.0010	mg/L	18	20		
7557259	Total Suspended Solids	2021/09/03					<1	mg/L	19	25	95	85 - 115
7557712	Free Cyanide (CN)	2021/09/02	94	80 - 120	100	80 - 120	<1.0	ug/L				
7559595	Total Phosphorus (P)	2021/09/03	105	80 - 120	101	80 - 120	<0.0010	mg/L			88	80 - 120
7561318	Reactive Silica (SiO2)	2021/09/05	91	80 - 120	109	80 - 120	<0.050	mg/L				
7561819	Salinity	2021/09/07					<2.0	N/A	NC	25	102	80 - 120
7562861	Free Cyanide (CN)	2021/09/02	95	80 - 120	99	80 - 120	<1.0	ug/L				
7564576	Dissolved Aluminum (Al)	2021/09/03	99	80 - 120	99	80 - 120	<0.50	ug/L	4.0	20		
7564576	Dissolved Antimony (Sb)	2021/09/03	102	80 - 120	100	80 - 120	<0.020	ug/L	8.0	20		
7564576	Dissolved Arsenic (As)	2021/09/03	103	80 - 120	102	80 - 120	<0.020	ug/L	1.1	20		
7564576	Dissolved Barium (Ba)	2021/09/03	99	80 - 120	100	80 - 120	<0.020	ug/L	5.3	20		
7564576	Dissolved Beryllium (Be)	2021/09/03	94	80 - 120	96	80 - 120	<0.010	ug/L	NC	20		
7564576	Dissolved Bismuth (Bi)	2021/09/03	100	80 - 120	99	80 - 120	<0.0050	ug/L	NC	20		
7564576	Dissolved Boron (B)	2021/09/03	97	80 - 120	98	80 - 120	<10	ug/L	3.0	20		
7564576	Dissolved Cadmium (Cd)	2021/09/03	104	80 - 120	100	80 - 120	<0.0050	ug/L	NC	20		
7564576	Dissolved Cesium (Cs)	2021/09/04	97	80 - 120	97	80 - 120	<0.050	ug/L				
7564576	Dissolved Chromium (Cr)	2021/09/03	102	80 - 120	101	80 - 120	<0.10	ug/L	NC	20		
7564576	Dissolved Cobalt (Co)	2021/09/03	101	80 - 120	99	80 - 120	<0.0050	ug/L	15	20		
7564576	Dissolved Copper (Cu)	2021/09/03	101	80 - 120	100	80 - 120	<0.050	ug/L	1.1	20		
7564576	Dissolved Iron (Fe)	2021/09/03	104	80 - 120	104	80 - 120	<1.0	ug/L	6.4	20		
7564576	Dissolved Lead (Pb)	2021/09/03	101	80 - 120	101	80 - 120	<0.0050	ug/L	7.7	20		
7564576	Dissolved Lithium (Li)	2021/09/03	88	80 - 120	90	80 - 120	<0.50	ug/L	NC	20		
7564576	Dissolved Manganese (Mn)	2021/09/03	101	80 - 120	100	80 - 120	<0.050	ug/L	0.070	20		
7564576	Dissolved Molybdenum (Mo)	2021/09/03	103	80 - 120	101	80 - 120	<0.050	ug/L	NC	20		
7564576	Dissolved Nickel (Ni)	2021/09/03	101	80 - 120	99	80 - 120	<0.020	ug/L	9.5	20		
7564576	Dissolved Phosphorus (P)	2021/09/04	104	80 - 120	102	80 - 120	<2.0	ug/L	9.8	20		
7564576	Dissolved Selenium (Se)	2021/09/03	105	80 - 120	104	80 - 120	<0.040	ug/L	NC	20		
7564576	Dissolved Silicon (Si)	2021/09/03	101	80 - 120	103	80 - 120	<50	ug/L	2.8	20		
7564576	Dissolved Silver (Ag)	2021/09/03	102	80 - 120	99	80 - 120	<0.0050	ug/L	NC	20		
7564576	Dissolved Strontium (Sr)	2021/09/03	101	80 - 120	99	80 - 120	<0.050	ug/L	4.2	20		

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
7564576	Dissolved Thallium (Tl)	2021/09/03	97	80 - 120	93	80 - 120	<0.0020	ug/L	0	20		
7564576	Dissolved Tin (Sn)	2021/09/03	104	80 - 120	100	80 - 120	<0.20	ug/L	NC	20		
7564576	Dissolved Titanium (Ti)	2021/09/03	105	80 - 120	102	80 - 120	<0.50	ug/L	NC	20		
7564576	Dissolved Uranium (U)	2021/09/03	103	80 - 120	102	80 - 120	<0.0020	ug/L	15	20		
7564576	Dissolved Vanadium (V)	2021/09/03	103	80 - 120	100	80 - 120	<0.20	ug/L	9.1	20		
7564576	Dissolved Zinc (Zn)	2021/09/03	107	80 - 120	106	80 - 120	<0.10	ug/L	0.30	20		
7564576	Dissolved Zirconium (Zr)	2021/09/03	102	80 - 120	101	80 - 120	<0.10	ug/L	NC	20		
7565054	Dissolved Chloride (Cl-)	2021/09/02	100	80 - 120	107	80 - 120	0.73, RDL=0.50 (3)	mg/L				
7565054	Dissolved Sulphate (SO4)	2021/09/02	104	80 - 120	99	80 - 120	0.52, RDL=0.50 (3)	mg/L				
7565055	Alkalinity (Total as CaCO3)	2021/09/02			96	80 - 120	<1	mg/L				
7565055	Bicarbonate (HCO3)	2021/09/02					<1	mg/L				
7565055	Carbonate (CO3)	2021/09/02					<1	mg/L				
7565055	Hydroxide (OH)	2021/09/02					<1	mg/L				
7565055	p-Alkalinity	2021/09/02					<1	mg/L				
7565056	pH	2021/09/02			100	97 - 103						
7565057	Dissolved Bromide (Br-)	2021/09/02	103	80 - 120	103	80 - 120	<0.010	mg/L				
7565365	Orthophosphate (P)	2021/09/01			102	80 - 120	<0.0010	mg/L				
7565366	Total Aluminum (Al)	2021/09/03	112	80 - 120	95	80 - 120	<0.50	ug/L				
7565366	Total Antimony (Sb)	2021/09/03	101	80 - 120	97	80 - 120	<0.020	ug/L				
7565366	Total Arsenic (As)	2021/09/03	104	80 - 120	98	80 - 120	<0.020	ug/L				
7565366	Total Barium (Ba)	2021/09/03	101	80 - 120	96	80 - 120	<0.020	ug/L				
7565366	Total Beryllium (Be)	2021/09/03	98	80 - 120	98	80 - 120	<0.010	ug/L				
7565366	Total Bismuth (Bi)	2021/09/03	99	80 - 120	98	80 - 120	<0.0050	ug/L				
7565366	Total Boron (B)	2021/09/03	102	80 - 120	100	80 - 120	<10	ug/L				
7565366	Total Cadmium (Cd)	2021/09/03	100	80 - 120	98	80 - 120	<0.0050	ug/L				
7565366	Total Cesium (Cs)	2021/09/03	101	80 - 120	93	80 - 120	<0.050	ug/L				
7565366	Total Chromium (Cr)	2021/09/03	100	80 - 120	96	80 - 120	<0.10	ug/L				
7565366	Total Cobalt (Co)	2021/09/03	98	80 - 120	96	80 - 120	<0.0050	ug/L				
7565366	Total Copper (Cu)	2021/09/03	93	80 - 120	96	80 - 120	<0.050	ug/L				
7565366	Total Iron (Fe)	2021/09/03	NC	80 - 120	101	80 - 120	<1.0	ug/L				

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
7565366	Total Lead (Pb)	2021/09/03	101	80 - 120	100	80 - 120	<0.0050	ug/L				
7565366	Total Lithium (Li)	2021/09/03	98	80 - 120	91	80 - 120	<0.50	ug/L				
7565366	Total Manganese (Mn)	2021/09/03	NC	80 - 120	97	80 - 120	<0.050	ug/L				
7565366	Total Molybdenum (Mo)	2021/09/03	107	80 - 120	99	80 - 120	<0.050	ug/L				
7565366	Total Nickel (Ni)	2021/09/03	96	80 - 120	97	80 - 120	<0.020	ug/L				
7565366	Total Phosphorus (P)	2021/09/03	113	80 - 120	98	80 - 120	<2.0	ug/L				
7565366	Total Selenium (Se)	2021/09/03	106	80 - 120	102	80 - 120	<0.040	ug/L				
7565366	Total Silicon (Si)	2021/09/03	113	80 - 120	101	80 - 120	<50	ug/L				
7565366	Total Silver (Ag)	2021/09/03	99	80 - 120	97	80 - 120	<0.0050	ug/L				
7565366	Total Strontium (Sr)	2021/09/03	NC	80 - 120	95	80 - 120	<0.050	ug/L				
7565366	Total Thallium (Tl)	2021/09/03	100	80 - 120	91	80 - 120	0.0025, RDL=0.0020 (4)	ug/L				
7565366	Total Tin (Sn)	2021/09/03	102	80 - 120	98	80 - 120	<0.20	ug/L				
7565366	Total Titanium (Ti)	2021/09/03	103	80 - 120	98	80 - 120	<0.50	ug/L				
7565366	Total Uranium (U)	2021/09/03	107	80 - 120	102	80 - 120	<0.0020	ug/L				
7565366	Total Vanadium (V)	2021/09/03	103	80 - 120	97	80 - 120	<0.20	ug/L				
7565366	Total Zinc (Zn)	2021/09/03	NC	80 - 120	102	80 - 120	<0.10	ug/L				

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
7565366	Total Zirconium (Zr)	2021/09/03	108	80 - 120	100	80 - 120	<0.10	ug/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.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

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

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

(1) TKN < NH4: Both values fall within acceptable RPD limits for duplicates and are likely equivalent.

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

(3) Method blank is <2x RDL.

(4) Method blank exceeds acceptance limits for Tl- 2X RDL acceptable for low level metals determination.

BV Labs Job #: C1O6519
Report Date: 2021/09/17

Golder Associates Ltd
Client Project #: 21468783
Site Location: Westbay - Meliadine Mine
Sampler Initials: DH

VALIDATION SIGNATURE PAGE

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

David Huang, BBY Scientific Specialist

Danish Samad, Laboratory Supervisor

Ghayasuddin Khan, M.Sc., P.Chem., QP, Scientific Specialist, Inorganics

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

Mike MacGillivray, Scientific Specialist (Inorganics)

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 Laboratories 100 – 36 Antares Dr. Nepean, ON, K2E 7W5 Phone: 613-274-0573 Website: www.bvlabs.com

BV eCOC

T396738

Sample Date Aug. 24, 2021

Time : 15:00

- 19 Bottles Equipment Blank ✓
  m20-3071

- 16 Bottles Trip Blank ✓

27-Aug-21 09:30
Katherine Szozda
C1O6519

URE ENV-814

Golden
Meliadine
Sent from site Aug 25.

* unable to print PDF. It wasn't complete

Re: datee- 2021/08/27
Re: time - 9:30
Re. Tem 18, 18, 19
18 18 17

c/s - yes. -
ON Ice packs.

RECEIVED IN OTTAWA

2021/08/28 08:43

2|2|2 0|1|6

Your Project #: 21468783
Site Location: Westbay - Meliadine Mine
Your C.O.C. #: 395060

Attention: Dale Holtze

Golder Associates Ltd
1931 Robertson Rd
Ottawa, ON
CANADA K2H 5B7

Report Date: 2021/09/17
Report #: R6815941
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: C1O8487
Received: 2021/08/30, 08:00

Sample Matrix: Surface Water
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Biochemical Oxygen Demand (BOD) (1)	1	2021/09/01	2021/09/06	CAM SOP-00427	SM 23 5210B m
Chemical Oxygen Demand (1)	1	N/A	2021/09/03	CAM SOP-00416	SM 23 5220 D m
Conductivity (1)	1	N/A	2021/09/02	CAM SOP-00414	SM 23 2510 m
Free (WAD) Cyanide (1)	1	N/A	2021/09/08	CAM SOP-00457	OMOE E3015 m
Total Cyanide (1)	1	2021/09/03	2021/09/08	CAM SOP-00457	OMOE E3015 5 m
Dissolved Organic Carbon (DOC) (1, 6)	1	N/A	2021/09/02	CAM SOP-00446	SM 23 5310 B m
Field Measured Conductivity (1, 7)	1	N/A	2021/08/31		Field Meter
Fluoride (1)	1	2021/09/01	2021/09/02	CAM SOP-00449	SM 23 4500-F C m
Dissolved Mercury (low level) (1)	1	2021/09/02	2021/09/03	CAM SOP-00453	EPA 7470 m
Mercury (low level) (1)	1	2021/09/02	2021/09/02	CAM SOP-00453	EPA 7470 m
Alkalinity @ 25C (pp,total), CO3,HCO3,OH (2)	1	N/A	2021/09/03		
Bromide in water by IC (2)	1	N/A	2021/09/02		
Low Level Chloride and Sulphate by AC (2)	1	N/A	2021/09/07	AB SOP-00020 / AB SOP-00018	SM23 4500-CL/SO4-E m
Cyanide (Free) (2)	1	2021/09/07	2021/09/07	CAL SOP-00266	EPA 9016d R0 m
Hardness Total (calculated as CaCO3) (3, 8)	1	N/A	2021/09/07	BBY WI-00033	Auto Calc
Hardness (calculated as CaCO3) (3)	1	N/A	2021/09/07	BBY WI-00033	Auto Calc
Na, K, Ca, Mg, S by CRC ICPMS (diss.) (3)	1	N/A	2021/09/17	BBY WI-00033	Auto Calc
Elements by ICPMS Low Level (dissolved) (3)	1	N/A	2021/09/04	BBY7SOP-00002	EPA 6020B R2 m
Na, K, Ca, Mg, S by CRC ICPMS (total) (3)	1	N/A	2021/09/17	BBY WI-00033	Auto Calc
Elements by ICPMS Low Level (total) (3)	1	N/A	2021/09/03	BBY7SOP-00002	EPA 6020B R2 m
Ammonia-N Low Level (2)	1	2021/09/04	2021/09/04	AB SOP-00007	SM23 4500 NH3 A G m
pH @25°C (2, 9)	1	N/A	2021/09/03	AB SOP-00005	SM 23 4500-H+B m
Orthophosphate by Konelab (low level) (3)	1	N/A	2021/09/03		
Silica (Reactive) (2)	1	N/A	2021/09/05	AB SOP-00011	EPA370.1 R1978 m
Total Phosphorus Low Level Total (2)	1	2021/09/04	2021/09/05	AB SOP-00024	SM 23 4500-P A,B,F m
Total Ammonia (as NH3) (1)	1	N/A	2021/09/10	Auto Calc.	
Nitrate (NO3) and Nitrite (NO2) in Water (1, 10)	1	N/A	2021/09/04	CAM SOP-00440	SM 23 4500-NO3I/NO2B
pH (1)	1	2021/09/01	2021/09/02	CAM SOP-00413	SM 4500H+ B m
Radium-226 Low Level (4, 11)	1	N/A	2021/09/08	BQL SOP-00006 BQL SOP-00017 BQL SOP-00032	Alpha Spectrometry

Your Project #: 21468783
Site Location: Westbay - Meliadine Mine
Your C.O.C. #: 395060

Attention: Dale Holtze

Golder Associates Ltd
1931 Robertson Rd
Ottawa, ON
CANADA K2H 5B7

Report Date: 2021/09/17
Report #: R6815941
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: C1O8487
Received: 2021/08/30, 08:00

Sample Matrix: Surface Water
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Salinity (5, 12)	1	N/A	2021/09/07		SM 22 2520B
Total Dissolved Solids (1)	1	2021/09/01	2021/09/02	CAM SOP-00428	SM 23 2540C m
Total Kjeldahl Nitrogen in Water (1)	1	2021/09/02	2021/09/03	CAM SOP-00938	OMOE E3516 m
Total Organic Carbon (TOC) (1, 13)	1	N/A	2021/09/02	CAM SOP-00446	SM 23 5310B m
Low Level Total Suspended Solids (1)	1	2021/09/01	2021/09/02	CAM SOP-00428	SM 23 2540D m
Turbidity (1)	1	N/A	2021/09/02	CAM SOP-00417	SM 23 2130 B m
Volatile Organic Compounds in Water (1)	1	N/A	2021/09/03	CAM SOP-00228	EPA 8260C 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) This test was performed by Bureau Veritas Mississauga
(2) This test was performed by Bureau Veritas Calgary via Mississauga
(3) This test was performed by Bureau Veritas Burnaby via Mississauga
(4) This test was performed by Bureau Veritas Kitimat
(5) This test was performed by Bureau Veritas Bedford
(6) Dissolved Organic Carbon (DOC) present in the sample should be considered as non-purgeable DOC.

Your Project #: 21468783
Site Location: Westbay - Meliadine Mine
Your C.O.C. #: 395060

Attention: Dale Holtze

Golder Associates Ltd
1931 Robertson Rd
Ottawa, ON
CANADA K2H 5B7

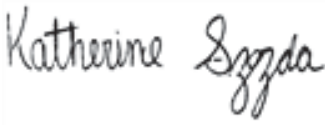
Report Date: 2021/09/17
Report #: R6815941
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: C1O8487
Received: 2021/08/30, 08:00

(7) This is a field test, therefore, the results relate to items that were not analysed at Bureau Veritas Laboratories.
(8) "Total Hardness" was calculated from Total Ca and Mg concentrations and may be biased high (Hardness, or Dissolved Hardness, calculated from Dissolved Ca and Mg, should be used for compliance if available).
(9) The CCME method requires pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the CCME holding time. Bureau Veritas Laboratories endeavours to analyze samples as soon as possible after receipt.
(10) Values for calculated parameters may not appear to add up due to rounding of raw data and significant figures.
(11) Radium-226 results have not been corrected for blanks.
(12) Non-accredited test method
(13) Total Organic Carbon (TOC) present in the sample should be considered as non-purgeable TOC.

Encryption Key



Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Katherine Szozda, Project Manager
Email: Katherine.Szozda@bureauveritas.com
Phone# (613)274-0573 Ext:7063633

==========

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 #: C1O8487
Report Date: 2021/09/17

Golder Associates Ltd
Client Project #: 21468783
Site Location: Westbay - Meliadine Mine
Sampler Initials: DH

RESULTS OF ANALYSES OF SURFACE WATER

BV Labs ID		QNE944			QNE944		
Sampling Date		2021/08/25 10:00			2021/08/25 10:00		
COC Number		395060			395060		
	UNITS	Lake CH6	RDL	QC Batch	Lake CH6 Lab-Dup	RDL	QC Batch
CONVENTIONALS							
Total Nitrogen (Ammonia Nitrogen)	mg/L	0.0075	0.0050	7566102			
Calculated Parameters							
Total Ammonia (as NH3)	mg/L	0.0091	0.0061	7553821			
Dissolved Hardness (CaCO3)	mg/L	29.3	0.50	7559541			
Field Measurements							
Field Measured Conductivity	uS/cm	968	N/A	ONSITE			
Inorganics							
Alkalinity (Total as CaCO3)	mg/L	18	1	7566098			
Bicarbonate (HCO3)	mg/L	21	1	7566098			
Total BOD	mg/L	<2	2	7553275			
Dissolved Bromide (Br-)	mg/L	<0.010	0.010	7566100			
Carbonate (CO3)	mg/L	<1	1	7566098			
Total Chemical Oxygen Demand (COD)	mg/L	11	4.0	7556790	13	4.0	7556790
Conductivity	mS/cm	0.081	0.001	7555146			
Free Cyanide (CN)	ug/L	1.2 (1)	1.0	7563516			
Total Dissolved Solids	mg/L	80	10	7554357			
Fluoride (F-)	mg/L	<0.10	0.10	7555138			
Hydroxide (OH)	mg/L	<1	1	7566098			
Total Kjeldahl Nitrogen (TKN)	mg/L	0.31	0.10	7555988			
Dissolved Organic Carbon	mg/L	4.4	0.40	7554361			
Total Organic Carbon (TOC)	mg/L	4.6	0.40	7556796			
Orthophosphate (P)	mg/L	<0.0010	0.0010	7568808			
p-Alkalinity	mg/L	<1	1	7566098			
pH	pH	7.33		7555143			
Salinity	N/A	<2.0	2.0	7561819			
Reactive Silica (SiO2)	mg/L	0.28	0.050	7566096			
Total Suspended Solids	mg/L	4	1	7554974			
Total Cyanide (CN)	mg/L	<0.0050	0.0050	7559182	<0.0050	0.0050	7559182
Turbidity	NTU	0.2	0.1	7555021			

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
N/A = Not Applicable
(1) Interference checks not performed at the time of sampling. The lab cannot guarantee that interferences were not present at the time of sampling and that there is no low bias in results

BV Labs Job #: C1O8487
Report Date: 2021/09/17

Golder Associates Ltd
Client Project #: 21468783
Site Location: Westbay - Meliadine Mine
Sampler Initials: DH

RESULTS OF ANALYSES OF SURFACE WATER

BV Labs ID		QNE944			QNE944		
Sampling Date		2021/08/25 10:00			2021/08/25 10:00		
COC Number		395060			395060		
	UNITS	Lake CH6	RDL	QC Batch	Lake CH6 Lab-Dup	RDL	QC Batch
WAD Cyanide (Free)	mg/L	<0.0010	0.0010	7559184	<0.0010	0.0010	7559184
Dissolved Chloride (Cl-)	mg/L	9.9	0.50	7566097	9.7	0.50	7566097
Nitrite (N)	mg/L	<0.010	0.010	7554359			
Nitrate (N)	mg/L	<0.10	0.10	7554359			
Dissolved Sulphate (SO4)	mg/L	6.1	0.50	7566097	6.2	0.50	7566097
Nitrate + Nitrite (N)	mg/L	<0.10	0.10	7554359			
Metals							
Dissolved Aluminum (Al)	ug/L	6.41	0.50	7568806			
Total Aluminum (Al)	ug/L	10.1	0.50	7565366			
Dissolved Antimony (Sb)	ug/L	<0.020	0.020	7568806			
Total Antimony (Sb)	ug/L	<0.020	0.020	7565366			
Dissolved Arsenic (As)	ug/L	0.502	0.020	7568806			
Total Arsenic (As)	ug/L	0.546	0.020	7565366			
Dissolved Barium (Ba)	ug/L	9.72	0.020	7568806			
Total Barium (Ba)	ug/L	9.56	0.020	7565366			
Dissolved Beryllium (Be)	ug/L	<0.010	0.010	7568806			
Total Beryllium (Be)	ug/L	<0.010	0.010	7565366			
Dissolved Bismuth (Bi)	ug/L	<0.0050	0.0050	7568806			
Total Bismuth (Bi)	ug/L	<0.0050	0.0050	7565366			
Dissolved Boron (B)	ug/L	<10	10	7568806			
Total Boron (B)	ug/L	<10	10	7565366			
Dissolved Cadmium (Cd)	ug/L	<0.0050	0.0050	7568806			
Total Cadmium (Cd)	ug/L	<0.0050	0.0050	7565366			
Dissolved Chromium (Cr)	ug/L	<0.10	0.10	7568806			
Total Chromium (Cr)	ug/L	<0.10	0.10	7565366			
Dissolved Cobalt (Co)	ug/L	0.0388	0.0050	7568806			
Total Cobalt (Co)	ug/L	0.0535	0.0050	7565366			
Dissolved Copper (Cu)	ug/L	1.44	0.050	7568806			
Total Copper (Cu)	ug/L	1.43	0.050	7565366			
Dissolved Iron (Fe)	ug/L	22.4	1.0	7568806			
Total Iron (Fe)	ug/L	40.7	1.0	7565366			
Dissolved Lead (Pb)	ug/L	<0.0050	0.0050	7568806			
Total Lead (Pb)	ug/L	0.0151	0.0050	7565366			

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

BV Labs Job #: C1O8487
Report Date: 2021/09/17

Golder Associates Ltd
Client Project #: 21468783
Site Location: Westbay - Meliadine Mine
Sampler Initials: DH

RESULTS OF ANALYSES OF SURFACE WATER

BV Labs ID		QNE944			QNE944		
Sampling Date		2021/08/25 10:00			2021/08/25 10:00		
COC Number		395060			395060		
	UNITS	Lake CH6	RDL	QC Batch	Lake CH6 Lab-Dup	RDL	QC Batch
Dissolved Lithium (Li)	ug/L	3.78	0.50	7568806			
Total Lithium (Li)	ug/L	3.54	0.50	7565366			
Dissolved Manganese (Mn)	ug/L	0.911	0.050	7568806			
Total Manganese (Mn)	ug/L	1.80	0.050	7565366			
Dissolved Molybdenum (Mo)	ug/L	0.116	0.050	7568806			
Total Molybdenum (Mo)	ug/L	0.114	0.050	7565366			
Dissolved Nickel (Ni)	ug/L	1.95	0.020	7568806			
Total Nickel (Ni)	ug/L	1.99	0.020	7565366			
Dissolved Phosphorus (P)	ug/L	7.7	2.0	7568806			
Total Phosphorus (P)	ug/L	6.0	2.0	7565366			
Dissolved Selenium (Se)	ug/L	<0.040	0.040	7568806			
Total Silicon (Si)	ug/L	159	50	7565366			
Total Selenium (Se)	ug/L	<0.040	0.040	7565366			
Dissolved Silicon (Si)	ug/L	160	50	7568806			
Dissolved Silver (Ag)	ug/L	<0.0050	0.0050	7568806			
Total Silver (Ag)	ug/L	<0.0050	0.0050	7565366			
Dissolved Strontium (Sr)	ug/L	71.8	0.050	7568806			
Total Strontium (Sr)	ug/L	70.7	0.050	7565366			
Dissolved Thallium (Tl)	ug/L	0.0025	0.0020	7568806			
Total Thallium (Tl)	ug/L	0.0030	0.0020	7565366			
Dissolved Tin (Sn)	ug/L	0.33	0.20	7568806			
Total Tin (Sn)	ug/L	<0.20	0.20	7565366			
Dissolved Titanium (Ti)	ug/L	<0.50	0.50	7568806			
Total Titanium (Ti)	ug/L	<0.50	0.50	7565366			
Dissolved Uranium (U)	ug/L	0.0222	0.0020	7568806			
Total Uranium (U)	ug/L	0.0242	0.0020	7565366			
Dissolved Vanadium (V)	ug/L	<0.20	0.20	7568806			
Total Vanadium (V)	ug/L	<0.20	0.20	7565366			
Dissolved Zinc (Zn)	ug/L	10.8	0.10	7568807			
Total Zinc (Zn)	ug/L	6.28	0.10	7565366			
Dissolved Zirconium (Zr)	ug/L	<0.10	0.10	7568806			
Total Zirconium (Zr)	ug/L	<0.10	0.10	7565366			
Dissolved Calcium (Ca)	mg/L	9.61	0.050	7585176			

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

BV Labs Job #: C1O8487
Report Date: 2021/09/17

Golder Associates Ltd
Client Project #: 21468783
Site Location: Westbay - Meliadine Mine
Sampler Initials: DH

RESULTS OF ANALYSES OF SURFACE WATER

BV Labs ID		QNE944			QNE944		
Sampling Date		2021/08/25 10:00			2021/08/25 10:00		
COC Number		395060			395060		
	UNITS	Lake CH6	RDL	QC Batch	Lake CH6 Lab-Dup	RDL	QC Batch
Total Calcium (Ca)	mg/L	9.51	0.050	7585177			
Dissolved Cesium (Cs)	ug/L	<0.050	0.050	7568806			
Total Cesium (Cs)	ug/L	<0.050	0.050	7565366			
Dissolved Magnesium (Mg)	mg/L	1.29	0.050	7585176			
Total Magnesium (Mg)	mg/L	1.32	0.050	7585177			
Dissolved Potassium (K)	mg/L	0.949	0.050	7585176			
Total Potassium (K)	mg/L	0.919	0.050	7585177			
Dissolved Sodium (Na)	mg/L	3.65	0.050	7585176			
Total Sodium (Na)	mg/L	3.58	0.050	7585177			
Dissolved Sulphur (S)	mg/L	<3.0	3.0	7585176			
Total Sulphur (S)	mg/L	<3.0	3.0	7585177			
Nutritional Parameters							
Total Phosphorus (P)	mg/L	0.0016	0.0010	7566101			
RADIONUCLIDE							
Radium-226	Bq/L	<0.0050	0.0050	7554482			

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

ELEMENTS BY ATOMIC SPECTROSCOPY (SURFACE WATER)

BV Labs ID		QNE944		
Sampling Date		2021/08/25 10:00		
COC Number		395060		
	UNITS	Lake CH6	RDL	QC Batch
Calculated Parameters				
Total Hardness (CaCO3)	mg/L	29.2	0.50	7568809
Metals				
Mercury (Hg)	ug/L	<0.01	0.01	7555734
Dissolved Mercury (Hg)	ug/L	<0.01	0.01	7557019

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

VOLATILE ORGANICS BY GC/MS (SURFACE WATER)

BV Labs ID		QNE944	QNE944		
Sampling Date		2021/08/25 10:00	2021/08/25 10:00		
COC Number		395060	395060		
	UNITS	Lake CH6	Lake CH6 Lab-Dup	RDL	QC Batch
Volatile Organics					
Benzene	ug/L	<0.20	<0.20	0.20	7554345
Ethylbenzene	ug/L	<0.20	<0.20	0.20	7554345
Methyl t-butyl ether (MTBE)	ug/L	<0.50	<0.50	0.50	7554345
Styrene	ug/L	<0.40	<0.40	0.40	7554345
Toluene	ug/L	<0.20	<0.20	0.20	7554345
p+m-Xylene	ug/L	<0.20	<0.20	0.20	7554345
o-Xylene	ug/L	<0.20	<0.20	0.20	7554345
Total Xylenes	ug/L	<0.20	<0.20	0.20	7554345
Surrogate Recovery (%)					
4-Bromofluorobenzene	%	90	91		7554345
D4-1,2-Dichloroethane	%	107	109		7554345
D8-Toluene	%	92	91		7554345

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

BV Labs Job #: C1O8487
Report Date: 2021/09/17

Golder Associates Ltd
Client Project #: 21468783
Site Location: Westbay - Meliadine Mine
Sampler Initials: DH

TEST SUMMARY

BV Labs ID: QNE944
Sample ID: Lake CH6
Matrix: Surface Water

Collected: 2021/08/25
Shipped:
Received: 2021/08/30

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Biochemical Oxygen Demand (BOD)	DO	7553275	2021/09/01	2021/09/06	Frank Zhang
Chemical Oxygen Demand	SPEC	7556790	N/A	2021/09/03	Nimarta Singh
Conductivity	AT	7555146	N/A	2021/09/02	Surinder Rai
Free (WAD) Cyanide	SKAL/CN	7559184	N/A	2021/09/08	Aditiben Patel
Total Cyanide	SKAL/CN	7559182	2021/09/03	2021/09/08	Aditiben Patel
Dissolved Organic Carbon (DOC)	TOCV/NDIR	7554361	N/A	2021/09/02	Julianna Castiglione
Field Measured Conductivity	PH	ONSITE	N/A	2021/08/31	Jimmy Liu
Fluoride	ISE	7555138	2021/09/01	2021/09/02	Surinder Rai
Dissolved Mercury (low level)	CV/AA	7557019	2021/09/02	2021/09/03	Gagandeep Rai
Mercury (low level)	CV/AA	7555734	2021/09/02	2021/09/02	Meghaben Patel
Alkalinity @ 25C (pp,total), CO3,HCO3,OH	AT	7566098	N/A	2021/09/03	Ilonka Kovac
Bromide in water by IC	IC/UV	7566100	N/A	2021/09/02	Karen Graham
Low Level Chloride and Sulphate by AC	KONE	7566097	N/A	2021/09/07	Bradley Freake
Cyanide (Free)	SPEC	7563516	2021/09/07	2021/09/07	Taylor Mullings
Hardness Total (calculated as CaCO3)	CALC	7568809	N/A	2021/09/07	Automated Statchk
Hardness (calculated as CaCO3)	CALC	7559541	N/A	2021/09/07	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP	7585176	N/A	2021/09/17	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/MS	7568806	N/A	2021/09/04	Jeffrey Laporte
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP	7585177	N/A	2021/09/17	Automated Statchk
Elements by ICPMS Low Level (total)	ICP/MS	7565366	N/A	2021/09/03	Jeffrey Laporte
Ammonia-N Low Level	KONE/UVVS	7566102	2021/09/04	2021/09/04	Shanna McKort
pH @25°C	AT/PH	7566099	N/A	2021/09/03	Ilonka Kovac
Orthophosphate by Konelab (low level)	KONE	7568808	N/A	2021/09/03	Tingting Li
Silica (Reactive)	KONE	7566096	N/A	2021/09/05	Serena Tian
Total Phosphorus Low Level Total	KONE	7566101	2021/09/04	2021/09/05	Serena Tian
Total Ammonia (as NH3)	CALC	7553821	N/A	2021/09/10	Automated Statchk
Nitrate (NO3) and Nitrite (NO2) in Water	LACH	7554359	N/A	2021/09/04	Nimarta Singh
pH	AT	7555143	2021/09/01	2021/09/02	Surinder Rai
Radium-226 Low Level	AS	7554482	N/A	2021/09/08	Fariba Kashavarz
Salinity		7561819	N/A	2021/09/07	Brent Boudreau
Total Dissolved Solids	BAL	7554357	2021/09/01	2021/09/02	Shaneil Hall
Total Kjeldahl Nitrogen in Water	SKAL	7555988	2021/09/02	2021/09/03	Rajni Tyagi
Total Organic Carbon (TOC)	TOCV/NDIR	7556796	N/A	2021/09/02	Julianna Castiglione
Low Level Total Suspended Solids	BAL	7554974	2021/09/01	2021/09/02	Shaneil Hall
Turbidity	AT	7555021	N/A	2021/09/02	Neil Dassanayake
Volatile Organic Compounds in Water	GC/MS	7554345	N/A	2021/09/03	Ancheol Jeong

BV Labs ID: QNE944 Dup
Sample ID: Lake CH6
Matrix: Surface Water

Collected: 2021/08/25
Shipped:
Received: 2021/08/30

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Chemical Oxygen Demand	SPEC	7556790	N/A	2021/09/03	Nimarta Singh
Free (WAD) Cyanide	SKAL/CN	7559184	N/A	2021/09/08	Aditiben Patel
Total Cyanide	SKAL/CN	7559182	2021/09/03	2021/09/08	Aditiben Patel

BV Labs Job #: C1O8487
Report Date: 2021/09/17

Golder Associates Ltd
Client Project #: 21468783
Site Location: Westbay - Meliadine Mine
Sampler Initials: DH

TEST SUMMARY

BV Labs ID: QNE944 Dup
Sample ID: Lake CH6
Matrix: Surface Water

Collected: 2021/08/25
Shipped:
Received: 2021/08/30

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Low Level Chloride and Sulphate by AC	KONE	7566097	N/A	2021/09/07	Bradley Freake
Volatile Organic Compounds in Water	GC/MS	7554345	N/A	2021/09/03	Ancheol Jeong

GENERAL COMMENTS

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

Package 1	17.0°C

Sample QNE944 [Lake CH6] : Sample was analyzed past method specified hold time for Orthophosphate by Konelab (low level). Exceedance of hold time increases the uncertainty of test results but does not necessarily imply that results are compromised. Sample received past method specified hold time for Orthophosphate by Konelab (low level).

Sample QNE944, Elements by ICPMS Low Level (dissolved): Test repeated.

Results relate only to the items tested.

QUALITY ASSURANCE REPORT

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
7554345	4-Bromofluorobenzene	2021/09/03	100	70 - 130	101	70 - 130	93	%				
7554345	D4-1,2-Dichloroethane	2021/09/03	103	70 - 130	101	70 - 130	108	%				
7554345	D8-Toluene	2021/09/03	106	70 - 130	107	70 - 130	92	%				
7553275	Total BOD	2021/09/06					<2	mg/L	1.2	30	100	80 - 120
7554345	Benzene	2021/09/03	89	70 - 130	87	70 - 130	<0.20	ug/L	NC	30		
7554345	Ethylbenzene	2021/09/03	87	70 - 130	90	70 - 130	<0.20	ug/L	NC	30		
7554345	Methyl t-butyl ether (MTBE)	2021/09/03	87	70 - 130	86	70 - 130	<0.50	ug/L	NC	30		
7554345	o-Xylene	2021/09/03	83	70 - 130	91	70 - 130	<0.20	ug/L	NC	30		
7554345	p+m-Xylene	2021/09/03	92	70 - 130	96	70 - 130	<0.20	ug/L	NC	30		
7554345	Styrene	2021/09/03	102	70 - 130	110	70 - 130	<0.40	ug/L	NC	30		
7554345	Toluene	2021/09/03	96	70 - 130	97	70 - 130	<0.20	ug/L	NC	30		
7554345	Total Xylenes	2021/09/03					<0.20	ug/L	NC	30		
7554357	Total Dissolved Solids	2021/09/02					<10	mg/L	1.0	25	100	90 - 110
7554359	Nitrate (N)	2021/09/04	103	80 - 120	99	80 - 120	<0.10	mg/L	NC	20		
7554359	Nitrite (N)	2021/09/04	108	80 - 120	101	80 - 120	<0.010	mg/L	0	20		
7554361	Dissolved Organic Carbon	2021/09/02	94	80 - 120	95	80 - 120	<0.40	mg/L	2.9	20		
7554482	Radium-226	2021/09/05			93	85 - 115	<0.0050	Bq/L	0	N/A		
7554974	Total Suspended Solids	2021/09/02					<1	mg/L			100	85 - 115
7555021	Turbidity	2021/09/02			91	85 - 115	<0.1	NTU	NC	20		
7555138	Fluoride (F-)	2021/09/02	111	80 - 120	96	80 - 120	<0.10	mg/L	16	20		
7555143	pH	2021/09/02			102	98 - 103			1.6	N/A		
7555146	Conductivity	2021/09/02			101	85 - 115	<0.001	mS/cm	0	25		
7555734	Mercury (Hg)	2021/09/02	98	75 - 125	102	80 - 120	<0.01	ug/L	NC	20		
7555988	Total Kjeldahl Nitrogen (TKN)	2021/09/03	100	80 - 120	104	80 - 120	<0.10	mg/L	NC	20	102	80 - 120
7556790	Total Chemical Oxygen Demand (COD)	2021/09/03	106	80 - 120	96	80 - 120	<4.0	mg/L	12	20		
7556796	Total Organic Carbon (TOC)	2021/09/02	94	80 - 120	96	80 - 120	<0.40	mg/L	NC	20		
7557019	Dissolved Mercury (Hg)	2021/09/03	88	75 - 125	102	80 - 120	<0.01	ug/L	NC	20		
7559182	Total Cyanide (CN)	2021/09/08	109	80 - 120	102	80 - 120	<0.0050	mg/L	NC	20		
7559184	WAD Cyanide (Free)	2021/09/08	114	80 - 120	102	80 - 120	<0.0010	mg/L	NC	20		
7561819	Salinity	2021/09/07					<2.0	N/A	NC	25	102	80 - 120
7563516	Free Cyanide (CN)		82	80 - 120	93	80 - 120	<1.0	ug/L	NC	20		
7565366	Total Aluminum (Al)	2021/09/03	112	80 - 120	95	80 - 120	<0.50	ug/L				

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
7565366	Total Antimony (Sb)	2021/09/03	101	80 - 120	97	80 - 120	<0.020	ug/L				
7565366	Total Arsenic (As)	2021/09/03	104	80 - 120	98	80 - 120	<0.020	ug/L				
7565366	Total Barium (Ba)	2021/09/03	101	80 - 120	96	80 - 120	<0.020	ug/L				
7565366	Total Beryllium (Be)	2021/09/03	98	80 - 120	98	80 - 120	<0.010	ug/L				
7565366	Total Bismuth (Bi)	2021/09/03	99	80 - 120	98	80 - 120	<0.0050	ug/L				
7565366	Total Boron (B)	2021/09/03	102	80 - 120	100	80 - 120	<10	ug/L				
7565366	Total Cadmium (Cd)	2021/09/03	100	80 - 120	98	80 - 120	<0.0050	ug/L				
7565366	Total Cesium (Cs)	2021/09/03	101	80 - 120	93	80 - 120	<0.050	ug/L				
7565366	Total Chromium (Cr)	2021/09/03	100	80 - 120	96	80 - 120	<0.10	ug/L				
7565366	Total Cobalt (Co)	2021/09/03	98	80 - 120	96	80 - 120	<0.0050	ug/L				
7565366	Total Copper (Cu)	2021/09/03	93	80 - 120	96	80 - 120	<0.050	ug/L				
7565366	Total Iron (Fe)	2021/09/03	NC	80 - 120	101	80 - 120	<1.0	ug/L				
7565366	Total Lead (Pb)	2021/09/03	101	80 - 120	100	80 - 120	<0.0050	ug/L				
7565366	Total Lithium (Li)	2021/09/03	98	80 - 120	91	80 - 120	<0.50	ug/L				
7565366	Total Manganese (Mn)	2021/09/03	NC	80 - 120	97	80 - 120	<0.050	ug/L				
7565366	Total Molybdenum (Mo)	2021/09/03	107	80 - 120	99	80 - 120	<0.050	ug/L				
7565366	Total Nickel (Ni)	2021/09/03	96	80 - 120	97	80 - 120	<0.020	ug/L				
7565366	Total Phosphorus (P)	2021/09/03	113	80 - 120	98	80 - 120	<2.0	ug/L				
7565366	Total Selenium (Se)	2021/09/03	106	80 - 120	102	80 - 120	<0.040	ug/L				
7565366	Total Silicon (Si)	2021/09/03	113	80 - 120	101	80 - 120	<50	ug/L				
7565366	Total Silver (Ag)	2021/09/03	99	80 - 120	97	80 - 120	<0.0050	ug/L				
7565366	Total Strontium (Sr)	2021/09/03	NC	80 - 120	95	80 - 120	<0.050	ug/L				
7565366	Total Thallium (Tl)	2021/09/03	100	80 - 120	91	80 - 120	0.0025, RDL=0.0020 (1)	ug/L				
7565366	Total Tin (Sn)	2021/09/03	102	80 - 120	98	80 - 120	<0.20	ug/L				
7565366	Total Titanium (Ti)	2021/09/03	103	80 - 120	98	80 - 120	<0.50	ug/L				
7565366	Total Uranium (U)	2021/09/03	107	80 - 120	102	80 - 120	<0.0020	ug/L				
7565366	Total Vanadium (V)	2021/09/03	103	80 - 120	97	80 - 120	<0.20	ug/L				
7565366	Total Zinc (Zn)	2021/09/03	NC	80 - 120	102	80 - 120	<0.10	ug/L				
7565366	Total Zirconium (Zr)	2021/09/03	108	80 - 120	100	80 - 120	<0.10	ug/L				
7566096	Reactive Silica (SiO2)	2021/09/05	101	80 - 120	108	80 - 120	<0.050	mg/L	0.11	20		

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
7566097	Dissolved Chloride (Cl-)	2021/09/07	105	80 - 120	103	80 - 120	<0.50	mg/L	1.7	20		
7566097	Dissolved Sulphate (SO4)	2021/09/07	104	80 - 120	99	80 - 120	<0.50	mg/L	0.83	20		
7566098	Alkalinity (Total as CaCO3)	2021/09/03			96	80 - 120	<1	mg/L				
7566098	Bicarbonate (HCO3)	2021/09/03					<1	mg/L				
7566098	Carbonate (CO3)	2021/09/03					<1	mg/L				
7566098	Hydroxide (OH)	2021/09/03					<1	mg/L				
7566098	p-Alkalinity	2021/09/03					<1	mg/L				
7566099	pH	2021/09/03			100	97 - 103						
7566100	Dissolved Bromide (Br-)	2021/09/02	99	80 - 120	105	80 - 120	<0.010	mg/L				
7566101	Total Phosphorus (P)	2021/09/05	95	80 - 120	105	80 - 120	<0.0010	mg/L			88	80 - 120
7566102	Total Nitrogen (Ammonia Nitrogen)	2021/09/04	99	N/A	100	N/A	<0.0050	mg/L				
7568806	Dissolved Aluminum (Al)	2021/09/04	91	80 - 120	96	80 - 120	<0.50	ug/L				
7568806	Dissolved Antimony (Sb)	2021/09/04	94	80 - 120	98	80 - 120	<0.020	ug/L				
7568806	Dissolved Arsenic (As)	2021/09/04	95	80 - 120	98	80 - 120	<0.020	ug/L				
7568806	Dissolved Barium (Ba)	2021/09/04	92	80 - 120	95	80 - 120	<0.020	ug/L				
7568806	Dissolved Beryllium (Be)	2021/09/04	90	80 - 120	97	80 - 120	<0.010	ug/L				
7568806	Dissolved Bismuth (Bi)	2021/09/04	92	80 - 120	98	80 - 120	<0.0050	ug/L				
7568806	Dissolved Boron (B)	2021/09/04	91	80 - 120	98	80 - 120	<10	ug/L				
7568806	Dissolved Cadmium (Cd)	2021/09/04	93	80 - 120	98	80 - 120	<0.0050	ug/L				
7568806	Dissolved Cesium (Cs)	2021/09/04	91	80 - 120	93	80 - 120	<0.050	ug/L				
7568806	Dissolved Chromium (Cr)	2021/09/04	93	80 - 120	98	80 - 120	<0.10	ug/L				
7568806	Dissolved Cobalt (Co)	2021/09/04	90	80 - 120	96	80 - 120	<0.0050	ug/L				
7568806	Dissolved Copper (Cu)	2021/09/04	89	80 - 120	96	80 - 120	<0.050	ug/L				
7568806	Dissolved Iron (Fe)	2021/09/04	96	80 - 120	100	80 - 120	<1.0	ug/L				
7568806	Dissolved Lead (Pb)	2021/09/04	95	80 - 120	100	80 - 120	<0.0050	ug/L				
7568806	Dissolved Lithium (Li)	2021/09/04	86	80 - 120	91	80 - 120	<0.50	ug/L				
7568806	Dissolved Manganese (Mn)	2021/09/04	90	80 - 120	97	80 - 120	<0.050	ug/L				
7568806	Dissolved Molybdenum (Mo)	2021/09/04	101	80 - 120	98	80 - 120	<0.050	ug/L				
7568806	Dissolved Nickel (Ni)	2021/09/04	89	80 - 120	97	80 - 120	<0.020	ug/L				
7568806	Dissolved Phosphorus (P)	2021/09/04	99	80 - 120	99	80 - 120	<2.0	ug/L				
7568806	Dissolved Selenium (Se)	2021/09/04	98	80 - 120	99	80 - 120	<0.040	ug/L				
7568806	Dissolved Silicon (Si)	2021/09/04	97	80 - 120	102	80 - 120	<50	ug/L				

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
7568806	Dissolved Silver (Ag)	2021/09/04	91	80 - 120	96	80 - 120	<0.0050	ug/L				
7568806	Dissolved Strontium (Sr)	2021/09/04	NC	80 - 120	97	80 - 120	<0.050	ug/L				
7568806	Dissolved Thallium (Tl)	2021/09/04	89	80 - 120	91	80 - 120	<0.0020	ug/L				
7568806	Dissolved Tin (Sn)	2021/09/04	94	80 - 120	98	80 - 120	<0.20	ug/L				
7568806	Dissolved Titanium (Ti)	2021/09/04	96	80 - 120	99	80 - 120	<0.50	ug/L				
7568806	Dissolved Uranium (U)	2021/09/04	101	80 - 120	103	80 - 120	<0.0020	ug/L				
7568806	Dissolved Vanadium (V)	2021/09/04	96	80 - 120	97	80 - 120	<0.20	ug/L				
7568806	Dissolved Zirconium (Zr)	2021/09/04	100	80 - 120	99	80 - 120	<0.10	ug/L				
7568807	Dissolved Zinc (Zn)	2021/09/09			102	80 - 120	<0.10	ug/L				
7568808	Orthophosphate (P)	2021/09/03			99	80 - 120	<0.0010	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.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

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) Method blank exceeds acceptance limits for Tl- 2X RDL acceptable for low level metals determination.

BV Labs Job #: C1O8487
Report Date: 2021/09/17

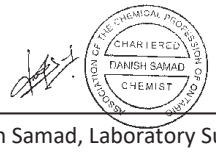
Golder Associates Ltd
Client Project #: 21468783
Site Location: Westbay - Meliadine Mine
Sampler Initials: DH

VALIDATION SIGNATURE PAGE

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

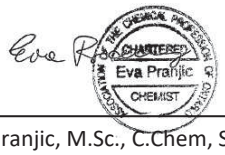
Brad Newman, B.Sc., C.Chem., Scientific Service Specialist

David Huang, BBY Scientific Specialist



Danish Samad, Laboratory Supervisor

Ghayasuddin Khan, M.Sc., P.Chem., QP, Scientific Specialist, Inorganics



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

Mike MacGillivray, Scientific Specialist (Inorganics)

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.

30-Aug-21 08:00
Katherine Szozda
C1O8487

KTN ENV-1274

Custody Tracking Form

eCOC Number: T395060

Please use this form for custody tracking when submitting the work instructions via eCOC (electronic Chain of Custody). Please ensure your form **has a barcode or a Bureau Veritas eCOC confirmation number** in the top right hand side. This number links your electronic submission to your samples. This form should be **placed in the cooler with your samples.**

Relinquished By				Received By			
Osborne Cutt		Date	08/25/21	km Jang	2021/08/30	Date	2021/08/30
		Time (24 HR)	20:45			Time (24 HR)	
		Date		Stushal AAISHA VAHORA	Stushal	Date	2021/08/31
		Time (24 HR)				Time (24 HR)	08:00
		Date				Date	
		Time (24 HR)				Time (24 HR)	

Unless otherwise agreed to, submissions and use of services are governed by Bureau Veritas' standard terms and conditions which can be found at www.bvna.com.

Triage Information

Sampled By (Print)	# of Coolers/Pkgs				
O.Catton	1	Rush ☐	Immediate Test ☐	Food Residue ☐	
		Micro ☐		Food Chemistry ☐	

***** Laboratory Use Only *****

Received At:

Labeled By:

Verified By:

Lab Comments:

RECEIVED IN OTTAWA

Custody Seal		Cooling Media	Temperature °C		
Present (Y/N)	Intact (Y/N)	Present (Y/N)	1	2	3
~~Y~~	~~Y~~	~~Y~~	18	18	17
Y	Y	Y	6°	7°	7°

Drinking Water Metals Preservation Check Done (Circle) YES NO

ON Jan COR FCD-00340/5 PAGE 1 of 1

melted ice.

ISOTOPE TRACER TECHNOLOGIES INC

Isotope Analyses for: Golder Associates Ltd.

IT^2 FILE # 210382

2022-01-27

Approved by:

Orfan Shouakar-Stash, PhD
Director
Isotope Tracer Technologies Inc.
608 Weber St. North Unit 3&4,
Waterloo, ON, N2V 1Z5 Tel: 519-886-5555 |
Fax: 519-886-5575
Email: orfan@it2isotopes.com
Website: www.it2isotopes.com

ISOTOPE TRACER TECHNOLOGIES INC

Client: Golder Associates Ltd.
Address: 1931 Robertson Road
Ottawa, ON
K2H 5B7
Tel: (613) 592-9600
Attn.: Dale Holtze
E-mail: Dale_Holtze@golder.com
vbertrand@golder.com

File Number: **210382**
Project Number: **21468783**
PO#: **21468783**

#	Sample ID	Sample Collection		Sample #	$\delta^{18}O$	Aver	Stdv	$\delta^{2}H$	Aver	Stdv
		Date	Time		H_2O	VSMOW		H_2O	VSMOW	
1	Port-8	August 1, 2021	1:30	77436	X	-15.73	0.04	X	-119.2	0.4
2	Port-8-DUP	August 1, 2021	1:30	77437	X	-15.82	0.02	X	-119.7	0.2
3	Port-9	August 1, 2021	15:00	77438	X	-15.91	0.06	X	-123.6	0.2
4	Port-4	August 5, 2021	0:30	77439	X	-14.78	0.05	X	-115.9	0.5
5	Port-3-X	August 17, 2021	9:30	77440	X	-15.38	0.04	X	-119.1	0.5
6	Lake CH6	August 25, 2021	10:00	77441	X	-14.73	0.06	X	-114.6	0.4
7	Port-9-DUP	August 1, 2021	15:00	77442	HOLD					
8	Port-4-DUP	August 5, 2021	0:30	77443	HOLD					
9	Port-3-DUP-X	August 17, 2021	9:30	77444	HOLD					
10	Equipment Blank	August 25, 2021		77445						
11	Lake CH6-DUP	August 25, 2021		77446						

^{18}O & ^{2}H (CRDS)

Instrument Used: Cavity Ring Down Spectroscopy (CRDS)
CRDS (Model L2130-i) (Picarro, California, USA).

Standard Used:
IT2-11B / IT2-12C / IT2-13B Calibrated with IAEA Standards (V-SMOW, SLAP, and GISP)

Typical Standard deviation:
(^{18}O ±0.1‰) (^{2}H ± 1‰)

Approved by:

Orfan S-Stash

Orfan Shouakar-Stash, PhD
Director
Isotope Tracer Technologies Inc.
695 Rupert St. Unit B, Waterloo, ON, N2V 1Z5
Tel: 519-886-5555 | Fax: 519-886-5575
Email: orfan@it2isotopes.com
Website: www.it2isotopes.com

Client: Golder Associates Ltd.
Address: 1931 Robertson Road
Ottawa, ON
K2H 5B7
Tel: (613) 592-9600
Attn.: Dale Holtze
E-mail: Dale_Holtze@golder.com
vbertrand@golder.com

File Number: **210382**
Project Number: **21468783**
PO#: **21468783**

#	Sample ID	Sample Collection		Sample #	$\delta^{18}O$	Result	Repeat	$\delta^{34}S$	Result	Repeat
		Date	Time		SO_4	VSMOW		SO_4	VCDT	
1	Port-8	August 1, 2021	1:30	77436	X	6.7		X	26.9	26.2
2	Port-8-DUP	August 1, 2021	1:30	77437	X	7.9		X	24.5	
3	Port-9	August 1, 2021	15:00	77438	X	7.7		X	28.6	
4	Port-4	August 5, 2021	0:30	77439	X	11.2	10.8	X	38.9	
5	Port-3-X	August 17, 2021	9:30	77440	X	10.9		X	39.3	38.5
6	Lake CH6	August 25, 2021	10:00	77441	X	5.3		X	NES	
7	Port-9-DUP	August 1, 2021	15:00	77442	HOLD					
8	Port-4-DUP	August 5, 2021	0:30	77443	HOLD					
9	Port-3-DUP-X	August 17, 2021	9:30	77444	HOLD					
10	Equipment Blank	August 25, 2021		77445						
11	Lake CH6-DUP	August 25, 2021		77446					5.04	

^{18}O SO_4 Analyses

Instrument Used:

Isotope Ratio Mass Spectrometry (IRMS) - Delta^{Plus}, Finnigan MAT, Germany
Coupled with TC/EA, Thermo Scientific, Germany.

Standard Used:

USGS-32 / NBS-127 / IAEA-SO-5 / IAEA-SO-6

Typical Standard deviation:

±0.5‰

^{34}S SO_4 Analyses

Instrument Used:

Isotope Ratio Mass Spectrometry (IRMS) - MAT 253, Thermo Scientific, Germany
Coupled with Elemental Analyzer (EA), Fisons Instruments, Italy

Standard Used:

IAEA-SO-6 / IT^2-520 / IAEA-SO-5 / IT^2-518 / NBS-127

Typical Standard deviation:

±0.5‰

Approved by:

Orfan Shouakar-Stash, PhD
Director
Isotope Tracer Technologies Inc.
695 Rupert St. Unit B, Waterloo, ON, N2V 1Z5
Tel: 519-886-5555 | Fax: 519-886-5575
Email: orfan@it2isotopes.com
Website: www.it2isotopes.com

ISOTOPE TRACER TECHNOLOGIES INC

Client: Golder Associates Ltd.
Address: 1931 Robertson Road
Ottawa, ON
K2H 5B7
Tel: (613) 592-9600
Attn.: Dale Holtze
E-mail: Dale_Holtze@golder.com
vbertrand@golder.com

File Number: **210382**
Project Number: **21468783**
PO#: **21468783**

#	Sample ID	Sample Collection		Sample #	$^{87}Sr/^{86}Sr$	Result	StdErr (abs)	StdDev (abs)	Repeat	StdErr (abs)	StdDev (abs)
		Date	Time								
1	Port-8	August 1, 2021	1:30	77436	X	0.71014	5.644E-06	6.889E-05	0.71011	4.497E-06	5.863E-05
2	Port-8-DUP	August 1, 2021	1:30	77437	X	0.71011	5.040E-06	6.275E-05			
3	Port-9	August 1, 2021	15:00	77438	X	0.70941	4.863E-06	6.054E-05			
4	Port-4	August 5, 2021	0:30	77439	X	0.70917	6.237E-06	7.765E-05			
5	Port-3-X	August 17, 2021	9:30	77440	X	0.70928	4.785E-06	6.648E-05			
6	Lake CH6	August 25, 2021	10:00	77441	X	0.70966	9.014E-06	9.582E-05			
7	Port-9-DUP	August 1, 2021	15:00	77442	HOLD						
8	Port-4-DUP	August 5, 2021	0:30	77443	HOLD						
9	Port-3-DUP-X	August 17, 2021	9:30	77444	HOLD						
10	Equipment Blank	August 25, 2021		77445							
11	Lake CH6-DUP	August 25, 2021		77446							

$^{87}Sr/^{86}Sr$ ANALYSES

Instrument Used:
Thermal Ionization Mass Spectrometry (TIMS), TI-Box, spectromat, Germany

Standard Used:
NIST-987

Typical Standard deviation:
±0.0001

Approved by:

Orfan S-Stash

Orfan Shouakar-Stash, PhD
Director
Isotope Tracer Technologies Inc.
695 Rupert St. Unit B, Waterloo, ON, N2V 1Z5
Tel: 519-886-5555 | Fax: 519-886-5575
Email: orfan@it2isotopes.com
Website: www.it2isotopes.com

APPENDIX F

Salinity Corrected Isotope Results Calculations

Appendix F
Salinity Corrected Isotope Result Calculations for Westbay Well M20-3071
Meliadine Extension Agnico Eagle Mines Limited

Depth - 310.8 to 326.9 mbgs	Molecular Weight (g/mol)	Unit	M20-3071 Port 8						
Client Sample ID			Port-8				Port-8-DUP-1		
Date Sampled			2021-08-01				2021-08-01		
Bureau Veritas Sample ID			QHF616				QHF617		
I2P ID			77436				77437		
				Moles (mol)		Molality (mol/kg)		Moles (mol)	Molality (mol/kg)
calcium, dissolved	40.08	mg/L	7560	0.1886		0.1892	7240	0.1806	0.1812
magnesium, dissolved	24.31	mg/L	873	0.0359		0.0360	866	0.0356	0.0357
potassium, dissolved	39.1	mg/L	285	0.0073		0.0073	283	0.0072	0.0073
sodium, dissolved	22.99	mg/L	6290	0.2736		0.2744	6090	0.2649	0.2657
Delta 18O x 1000			-15.73				-15.82		
Delta 2H x 1000			-119.24				-119.71		
Salinity Corrected delta									
Corrected Delta 18O x 1000 (Sofer & Gat, 1972)		‰ VSMOW	**-15.61**				**-15.70**		
Corrected Delta 2H x 1000 (Sofer & Gat, 1975)		‰ VSMOW	**-117.95**				**-118.47**		
Delta 18O Difference		‰ VSMOW	*-0.13*				*-0.12*		
RPD 18O Difference			*0.8%*				*0.8%*		
Delta 2H Difference		‰ VSMOW	*-1.29*				*-1.24*		
RPD 2H Difference			*1.1%*				*1.0%*		

Depth - 438.7 to 457.1 mbgs	Molecular Weight (g/mol)	Unit	M20-3071 Port 9					
Client Sample ID			PORT-9	PORT-9-DUP-1		Average Port-9	Moles (mol)	Molality (mol/kg)
Date Sampled			2021-08-01	2021-08-01				
Bureau Veritas Sample ID			QHF618	QHF619				
I2P ID			77438	-				
calcium, dissolved	40.08	mg/L	14700	15300		***15000***	0.3743	0.3754
magnesium, dissolved	24.31	mg/L	589	586		***588***	0.0147	0.0147
potassium, dissolved	39.1	mg/L	638	652		***645***	0.0161	0.0161
sodium, dissolved	22.99	mg/L	4200	4320		***4260***	0.1063	0.1066
Delta 18O x 1000			-15.91			**-15.91**		
Delta 2H x 1000			-123.64			**-123.64**		
Salinity Corrected delta								
Corrected Delta 18O x 1000 (Sofer & Gat, 1972)		‰ VSMOW				**-15.72**		
Corrected Delta 2H x 1000 (Sofer & Gat, 1975)		‰ VSMOW				**-121.50**		
Delta 18O Difference		‰ VSMOW				*-0.19*		
RPD 18O Difference						*1.2%*		
Delta 2H Difference		‰ VSMOW				*-2.14*		
RPD 2H Difference						*1.7%*		

Depth - 438.7 to 457.1 mbgs	Molecular Weight (g/mol)	Unit	M20-3071 Port 4					
Client Sample ID			PORT-4	PORT-4-DUP		Average Port-4	Moles (mol)	Molality (mol/kg)
Date Sampled			2021-08-05	2021-08-05				
Bureau Veritas Sample ID			QIG690	QIG691				
I2P ID			77439	-				
calcium, dissolved	40.08	mg/L	19200	19600		***19400***	0.4840	0.4855
magnesium, dissolved	24.31	mg/L	319	330		***325***	0.0081	0.0081
potassium, dissolved	39.1	mg/L	852	875		***864***	0.0215	0.0216
sodium, dissolved	22.99	mg/L	2930	3050		***2990***	0.0746	0.0748
Delta 18O x 1000			-14.78			**-14.78**		
Delta 2H x 1000			-115.92			**-115.92**		
Salinity Corrected delta								
Corrected Delta 18O x 1000 (Sofer & Gat, 1972)		‰ VSMOW				**-14.55**		
Corrected Delta 2H x 1000 (Sofer & Gat, 1975)		‰ VSMOW				**-113.19**		
Delta 18O Difference		‰ VSMOW				*-0.23*		
RPD 18O Difference						*1.6%*		
Delta 2H Difference		‰ VSMOW				*-2.73*		
RPD 2H Difference						*2.4%*		

Depth - 457.9 to 530.6 mbgs	Molecular Weight (g/mol)	Unit	M20-3071 Port 3						
Client Sample ID			PORT-3 AUG 18	PORT 3 -DUP AUG 18	Port-3-X-AUG 17	Average Port-3	Moles (mol)	Molality (mol/kg)	
Date Sampled			2021-08-18	2021-08-18	2021-08-17				
Bureau Veritas Sample ID			QLQ451	QMN858	QLQ448				
I2P ID			-	-	*77440*				
calcium, dissolved	40.08	mg/L	16700	17500	-	***17100***	0.4266	0.4279	
magnesium, dissolved	24.31	mg/L	457	473	-	***465***	0.0116	0.0116	
potassium, dissolved	39.1	mg/L	689	715	-	***702***	0.0175	0.0176	
sodium, dissolved	22.99	mg/L	3810	3900	-	***3855***	0.0962	0.0965	
Delta 18O x 1000					-15.38	**-15.38**			
Delta 2H x 1000					-119.11	**-119.11**			
Salinity Corrected delta									
Corrected Delta 18O x 1000 (Sofer & Gat, 1972)		‰ VSMOW				**-15.17**			
Corrected Delta 2H x 1000 (Sofer & Gat, 1975)		‰ VSMOW				**-116.69**			
Delta 18O Difference		‰ VSMOW				*-0.21*			
RPD 18O Difference						*1.4%*			
Delta 2H Difference		‰ VSMOW				*-2.42*			
RPD 2H Difference						*2.1%*			

Notes
Raw Ca, Mg, K and Na water quality data used for Isotope result correction for salinity
Density of water at 25oC 0.9970479 kg/L
Mass = density * volume 0.9970479 kg
- parameter not analyzed

golder.com