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Appendix F4

Report: *2010 Groundwater Quality Monitoring Program*

TECHNICAL MEMORANDUM

DATE December 17, 2010 **PROJECT No.** 10-1428-0006
DCN 1207

TO Stéphane Robert
Agnico-Eagle Mines Limited Meadowbank Division

CC Dan Walker

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2010 GROUNDWATER QUALITY MONITORING PROGRAM, MEADOWBANK MINE

1.0 INTRODUCTION

This document provides a summary of the 2010 groundwater monitoring program carried out at the Meadowbank mine site and a summary of water quality results obtained in 2010.

Completion of the groundwater monitoring program is a condition of the Meadowbank Project Certificate No.004 issued by the Nunavut Impact Review Board (NIRB) in December 2006 and of the Water License No. 2AM-MEA0815 issued by the Nunavut Water Board (NWB) June 09, 2008. Table 2 of Schedule 1 of the Meadowbank Water Licence states that groundwater must be monitored annually for Group 3 chemical parameters which include, per Table 1 of this Schedule: pH, turbidity, alkalinity, hardness, ammonia nitrogen, nitrate, nitrite, chloride, fluoride, sulphides, total dissolved solids (TDS), total and free cyanide for wells in the groundwater flow path of the tailing storage facility, and the following dissolved metals: aluminum, arsenic, barium, cadmium, copper, iron, lead, manganese, mercury, molybdenum, nickel, selenium, silver, thallium and zinc.

1.1 Background

The proposed Goose Island and Portage open pits will be developed within a through talik (unfrozen ground that extends to the base of the permafrost) underneath Third Portage Lake. The tailings storage facility located in the basin of the north arm of Second Portage Lake is also believed to be situated over a through talik. Groundwater monitoring wells have been installed to provide information on baseline groundwater quality in the taliks. The objective of the groundwater sampling program, initiated in 2003, is two-fold:

- To measure the salinity of the deep groundwater to calibrate the pit groundwater inflow component of the site water quality model; and,
- To benchmark pre-mining groundwater quality against which to measure effects of mining on groundwater quality, if any.

To this end, groundwater flow and quality data has been collected from the Portage area since 2003 and have been used as input into the water quality model for the site. Groundwater in the Vault area is not monitored because the talik present under Vault Lake is not anticipated to extend through the permafrost.

Maintenance and replacement of defective monitoring wells is also a condition of the Meadowbank NIRB project certificate and Water Licence. Four monitoring wells were installed at the site in 2003. One of these original wells continues to be operable while the others have become damaged from frost action. The defective wells were replaced in 2006, and two of them were again replaced in 2008 with a more robust design. The installation of the third monitoring well, at the tailings storage facility, was deferred until verification of the effectiveness of the new well designs in 2009-2010. A borehole was drilled at this location in August 2010 (BH10-1) and instrumentation was installed in the borehole to measure ground water pressure and temperature for input into monitoring well design. A groundwater sample was taken from this borehole prior to instrumentation. Figure 1 shows the locations of the groundwater monitoring wells and the instrumented borehole BH10-1.

2.0 2010 GROUNDWATER MONITORING RESULT

Field activities related to the 2010 groundwater monitoring program were carried out between August 19 and September 2, 2010. Borehole logs and monitoring well designs for previously-existing installations are presented in previous reports (Golder, 2004 and 2008).

2.1 New Boreholes

A pilot hole BH10-01 using the HQ size coring method was drilled to evaluate the temperature and the pressure at the base of the storm water dike to design a new installation. Table 1 presents detailed information on the boreholes.

Table 1: Borehole Information

Borehole ID#	Easting [m]	Northing [m]	Collar Elevation [masl]	Azimuth	Dip [degree]	Bedrock Encountered [mbgs]	End Depth [mbgs][1]
BH10-01	637979.32	7215212.25	123.25	-	90	12.40	60

Notes:[1]Measured along borehole; masl (meters above sea level); mbgs (meters below ground surface).

Agnico-Eagle geologists logged the core from the borehole; the geological information is presented in Appendix 1. The borehole intersects chert conglomerate and intermediate volcanic rock to 28.5 metres (m), then quartzite with trace to 1% pyrite to 60 m depth.

Prior to the installation of the instrumentation, a groundwater sample was collected from the open borehole. Methodology on the development and sample collection are presented in Section 3.1.

2.2 Monitoring Well Development and Sample Collection

Prior to sampling, each well was purged with a Waterra tubing with a foot valve or by airlifting water out of the well using compressed air injected through a 5/8-inch diameter HDPE polyethylene tubing. Each well was purged of a minimum of 3 well volumes or until field-indicator chemical parameters stabilized (electrical conductivity, temperature and pH). Stabilization was considered to have been achieved when field-indicator readings varied by less than approximately 10% for three consecutive readings. Measurements obtained during well development are included in Appendix 2.

Well MW03-01

The PVC well riser pipe had collapsed (crushed) likely from ice pressure at 3.3 metres depth below ground. The crushed pipe was replaced and the three sections of heating cables were re-attached to the PVC well riser pipe. Ice was measured at 54.2 metres below ground. The heating cables were energized with a diesel generator over a period of 9 days to thaw the ice within the well.

To accelerate the melting process, the standing water above the ice bridge was purged. Four hundred litres of water were purged over a period of 4 hours with the ice surface still at 54.2 m. After 2 days of heating cable activation, 540 litres of water were purged from this well which is equivalent to 3 well volumes. The ice bridge remained in place during this period, so it is suspected that the riser pipe is damage between 12 m to 54.2 m and all the recovered water was likely derived from the well annulus above the screened interval.

Groundwater sampling was carried out using a 5/8-inch diameter HDPE polyethylene tubing with a foot valve. The sampling pump intake point was positioned at 51 m depth below ground surface, just above the ice level. Water samples were collected in duplicate, in clean, laboratory-supplied bottles. Where required, preservatives were added to the sample bottles prior to sample collection, to minimize chemical alteration during transport to the laboratory. Samples analyzed for dissolved metals were filtered through a 45 μm inline filter.

Energizing of the heating cables continued for 6 days after sampling in an attempt to melt the ice bridge. The ice finally melted after 8 days of heating.

Well MW08-02

When first measured, an ice bridge was present in the well at 41.2 meters below the top of casing (approximately 40.2 m below ground level). Heating cables fixed to the stainless steel riser pipe were energized with a diesel generator over a period of 3 days to completely melt the ice. The condition and performance of the individual well components (riser pipe and screen, and heating cables) were found to be in good working condition. The heating cables remained energized during well development and sampling. An obstruction was present at approximately 154 metres depth. This depth coincides with the lower extent of the heating cable and edge of the talik zone. The cause of the blockage is suspected to be a partially ice bridge.

Approximately 3 well volumes of water (650 litres) were purged from this monitoring well over 2 days. Water quality indicator parameters stabilized over this period. Groundwater sampling could not be carried out using a nitrogen-operated Solinst® stainless steel Double Valve Pump (DVP) attached to a ¼-inch low density polyethylene (LDPE) tubing as the electronic board inside the Solinst® Model 466 Electronic Pump Control Unit owned by Agnico Eagle was damaged. Groundwater samples were collected using the bailer method. WaTerra 5/8 inch tubing with a footvalve at the end was used as a bailer because the depth to the water table was too low to allow for continuous pumping. Water was sampled by lowering and pulling the tubing back to the surface. Each time the lower end of the tubing with the valve was recovered, the ball inside the foot valve was pushed back allowing the water from the tubing to drain into the sample bottles. The bailer intake point was lowered above the screened interval at about 153 metres depth. Samples were collected in triplicate. The inside packer were left deflated

Well MW08-03

An inspection with a borehole camera was completed in the monitoring well MW08-03 to assess the blockage encountered in 2009. The blockage at 151 m is an ice bridge. The cause of the ice bridge is uncertain but may be explained by the presence of deeper than expected permafrost boundary (compared to other similar locations) and/or may result from a local extension (deepening) of ground frost that could have been induced from circulation of cold air in the open well riser pipe when the pipe was drained.

A 5/8-inch diameter HDPE polyethylene tubing was lowered to 151 m inside the riser pipe to circulate warm water and to verify the assumption of an ice bridge. One metre of the ice bridge was thaw in 45 minutes confirming assumption of the ice bridge.

During the inspection with the borehole camera each joint of the well tubing was examined. All joints that were dry are in good conditions but it is impossible to speculate the if the wet joints below 100 m are leaking as the water at that depth could not be removed.

Heating cables fixed to the stainless steel riser pipe were energized with a diesel generator over a period of 9 days. No sample was collected from this monitoring well.

Borehole BH10-01

This hole was cased from surface to bedrock at 12.4 metres from surface, and open through bedrock to the final depth. Approximately 1 well volume of water (300 litres) was purged from this open hole. Groundwater sampling was carried out using a 5/8-inch diameter HDPE polyethylene tubing with a foot valve. The sampling pump intake point was positioned at 55 m depth below ground surface. Water samples were collected in triplicate. Temperature and pressure instruments were inserted into the open borehole grouted in place after the groundwater sample was obtained.

2.3 Sample Shipping

Samples were collected at location MW08-02 and BH10-01 in triplicate. The original samples collected at locations MW03-01, MW08-02 and BH10-01, along with a duplicate pair of each of above, were shipped to Maxxam Analytics of Montreal shortly after sampling in coolers with ice packs along with chain-of-custody forms. The sample of each well was retained in refrigeration on site for possible future analysis.

2.4 Comparative Guidelines

Groundwater quality data is compared to Third Portage Effluent Discharge Limits stated in the Meadowbank Water Licence for illustrative purposes only. Constituent concentrations in the Licence are defined for total rather than dissolved phases and groundwater quality data is provided for both total and dissolved components.

2.5 Quality Assurance/Quality Control

Guideline procedures provided by the USEPA (2002) were followed during the sampling program to ensure that the samples collected from the wells were representative of water flowing through the targeted rock formations. These procedures included the following:

- Measurement of field parameters at selected intervals until stable readings (within 10% of each other) were acquired;
- Minimizing the exposure of the sampled water to the atmosphere;
- Using compressed, inert gas (nitrogen) to lift water from the well for sampling;
- Conducting in-situ measurements of sensitive chemical parameters (temp. pH, conductivity);
- Keeping the samples refrigerated from the time of collection until shipment to the laboratory; and,
- Shipping the samples to the laboratory in temperature-regulated coolers within the specified sample holding times.

Groundwater samples were collected in duplicate for MW03-01 and in triplicate for MW08-02 and BH10-01. A duplicate pair of samples at locations MW08-02 and BH10-01 was shipped to the laboratory after collection. 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 relative percent difference (RPD) was calculated as follows:

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

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.

3.0 RESULTS

3.1 Groundwater Chemistry

The results of the groundwater analyses collected during the 2003, 2004, 2006, 2007, 2008, 2009 and 2010 sampling events are presented in Tables 2, 3 and 4 at the end of the text. Laboratory analytical certificates from the 2010 sampling event are included in Appendix 3.

Since salinity of groundwater is of interest in predictive modelling of the quality of open pit inflows during operation, the concentration of salinity constituents measured are summarized in Table 5.

Table 5: Concentration of Constituents that relate to Groundwater Salinity

Monitoring Well	Lithology	Sample Year	TDS** (mg/L)	Conductivity (uS/cm)	Chloride (mg/L)
MW03-01	UM	2003	793	1855	626
		2004	1335	2900	845
		2006	315*	460*	81*
		2007	389	588	126
		2008	1100	3200	950
		2009	1900*	3350*	970*
		2010	340	335*	5.7
MW08-02	IV	2008	510*	808**	160
		2009	520*	705*	160*
		2010	450	690*	160
BH10-01	IV	2010	670*	935*	17

Note: 1. * average value; **field measurement except for data obtained in 2010 which were laboratory measured

Well MW03-01

One groundwater sample and one duplicate were collected in 2010. Table 4 shows that the concentration of salinity components in 2010 is the lowest since the first reading in 2003. Total dissolved solids (TDS) and conductivity are of similar magnitude to 2006 and 2007 results and chloride at least one order of magnitude lower than results in previous years. Concentrations of major ions are approximately an order of magnitude lower than previous results. Major ion concentrations suggest this sample is more dilute than previously. This is likely related to the source of the water coming from the well annulus rather than directly from the deep rock formation. Notwithstanding this, a number of trace elements present (currently and historically) at concentrations above detection limit (zinc, manganese and aluminum) are present at similar concentrations than previous years. All constituent concentrations are below Portage effluent quality criteria in the water licence.

Well MW08-02

One groundwater sample and two duplicates were collected in 2010. Salinity components TDS and conductivity are similar to those measured in 2008 and 2009. Chloride concentration in 2010 was similar to previous results. In 2010, metals concentrations were measured in their total components whereas in 2008 and 2009 dissolved metals were analyzed, but nonetheless, metals concentrations in 2010 are of similar magnitude to 2008 and 2009 results. All parameter concentrations met Portage effluent quality criteria.

Well MW08-03

This well could not be sampled in 2010 because of a deep blockage preventing access to formation groundwater.

Borehole BH10-01

One groundwater sample and two duplicates were collected in 2010. Salinity values and concentrations of major ions are of the same order of magnitude than groundwater at MW08-03, while total and dissolved metal concentrations are generally low to below analytical detection limits. All parameter concentrations met Portage effluent quality criteria.

3.2 Quality Assurance/Quality Control

Table 6 at the end of the text presents the Relative Percent Difference (RPD) or +/- MDL value calculated from each duplicated pair of results.

Half of duplicate pairs of analyses had one or both results below the method detection limit and consequently could not be assessed for repeatability. Of the remaining 34 duplicate pairs of results, there was no pair of results that exceeded 20% RPD. Trace components and major elements for the all samples are considered adequately repeatable.

4.0 CONCLUSION

The groundwater monitoring program was conducted in August and September 2010. Monitoring wells MW03-01, MW08-02 and the borehole BH10-01 were sampled. Monitoring well MW08-03 could not be sampled because of the formation of an ice bridge inside the well pipe which prevented formation groundwater from entering the well.

Groundwater chemistry at MW03-01 and MW08-02 was similar to results obtained previously except for notably lower salinity at MW03-01 in 2010. Groundwater quality results were compared to the Portage effluent discharge limits stipulated in the Meadowbank water licence. All groundwater sample collected in 2010 met these screening criteria.

The temperature and hydraulic pressure data collected in BH10-01 will be reviewed, based upon which Golder will provide recommendations on monitoring well design.

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TG/DV/MD/VJB/am
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Attachments: Tables 2, 3, 4 and 6
Figure 1
Appendix 1 - MW10-01 Borehole Log
Appendix 2 - Field Sampling Sheet
Appendix 3 - Laboratory Reports

REFERENCES

Golder Associates Ltd., 2009. 2008 Groundwater Quality Monitoring Program, Meadowbank Mine, January 14, 2009.

Golder Associates Ltd., 2004. Meadowbank Baseline Groundwater Quality. April 26, 2004.

USEPA, 1994. USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review. Office of Emergency and Remedial Response, U.S. Environmental Protection Agency, Washington, DC, February 1994.

Table 2
MW03-01 Groundwater Quality Results
Agnico-Eagle Mines Ltd
Meadowbank Division

				Ultramafic Rock														Method Detection Limit
				Goose Island														
				MW03-01														
Laboratory sample number Sampling date QA/QC		units	Portage Attenuation Pond Effluent Limits Maximum Average Conc.	9755-2 7-Sep-03	9755-3 7-Sep-03 FD	9044-01 Aug-7-04	12393-01 Aug-8-06	12393-02 Aug-8-06 FD	12395-01 Aug-14-06	8581-01 Aug-17-07	8581-02 Aug-17-07 FD	F66745 15-Sep-08	F68109 15-Sep-08 FD	154321 7-Sep-09	154321 7-Sep-09 Lab-dup	154359 7-Sep-09 FD	L51870 L51884 26-Aug-10	26-Aug-10
FIELD-MEASURED PARAMETERS																		
Temperature		°C		11.7	11.7	8	7.7	-	9.9	6.7	-	1.0	-	5.4	-	-	3.1	-
pH		s.u.	**6.0-9.0**	7.36	7.36	8.03	7.93	-	7.58	7.43	-	6.70	-	6.97	-	-	7.13	-
Conductivity		uS/cm		1855	1855	2500	382	-	538	776	-	2100	-	2436	-	-	340	-
Dissolved Oxygen	DO	mg/L		2.0	2.0	2.0	8.6	-	4.8	3.8	-	-	-	-	-	-	-	-
Total Dissolved Solids	TDS	mg/L		793	-	1335	193	-	405	389	-	1100	-	1900	-	1900	-	-
LABORATORY PARAMETERS																		
pH		s.u.	**6.0-9.0**	7.24	7.3	7.46	-	-	7.36	6.78	6.96	7.9	7.8	6.71	-	7.2	6.9	-
Conductivity		uS/cm		-	-	2900	-	-	634	588	583	3200	3100	3300	3400	3400	350	0.001
Total Alkalinity	as CaCO3	mg/L		30	30	27.3	-	-	51	36.7	36.7	24	33	15	17	18	49	1
Dissolved Sulphate	SO4	mg/L		15.6	15.8	15.9	42.8	43.1	51.1	46.5	46.3	6.0	5.7	3.9	-	3.6	87	0.1
Hardness (Total)		mg/L		318	388	391	82	81.6	148	116	112	310	320	450	-	440	77	1
Total Suspended Solids	TSS	mg/L	**15**	-	-	13	-	-	4	2	3	5	7	-	-	-	-	1
Total Dissolved Solids	TDS	mg/L		-	-	-	-	-	-	-	-	-	-	-	-	-	240	10
Turbidity		NTU	**15**	-	-	-	-	-	-	-	-	3.3	4.1	2.1	-	8.2	210	0.2
Total Metals																		
Aluminum[1]	Al	mg/L		4.16	1.2	0.25	0.4	0.48	0.13	0.053	0.059	-	-	-	-	-	<0.03	0.03
Antimony	Sb	mg/L		<0.001	<0.001	0.0004	<0.0002	<0.0002	< 0.001	< 0.001	< 0.001	-	-	-	-	-	-	0.001
Arsenic	As	mg/L	**0.5**	<0.001	0.017	0.004	0.0005	0.0006	0.002	< 0.001	< 0.001	-	-	-	-	-	<0.002	0.002
Barium	Ba	mg/L		0.18	0.2	0.301	0.027	0.028	0.052	0.053	0.052	-	-	-	-	-	<0.03	0.03
Beryllium	Be	mg/L		<0.001	<0.001	<0.0002	<0.0002	<0.0002	< 0.001	< 0.001	< 0.001	-	-	-	-	-	-	0.001
Bismuth	Bi	mg/L		<0.001	<0.001	<0.0002	<0.0002	<0.0002	< 0.001	< 0.001	< 0.001	-	-	-	-	-	-	0.001
Boron	B	mg/L		0.59	1.07	2.43	0.11	0.11	0.27	0.23	0.23	-	-	-	-	-	-	0.05
Cadmium[3]	Cd	mg/L		0.00024	0.00037	<0.00004	<0.00004	<0.00004	< 0.0002	< 0.0002	< 0.0002	-	-	-	-	-	<0.001	0.001
Calcium	Ca	mg/L		72	87.1	95.4	19.1	19.1	33.4	26.1	25.1	73	-	-	-	-	21	0.1
Chromium[2]	Cr	mg/L		0.049	0.32	0.004	0.0017	0.0021	< 0.001	< 0.001	< 0.001	-	-	-	-	-	-	0.001
Cobalt	Co	mg/L		0.004	0.016	0.0009	0.0005	0.0005	< 0.001	< 0.001	< 0.001	-	-	-	-	-	-	0.001
Copper[3]	Cu	mg/L	**0.3**	0.044	0.071	0.0035	0.0022	0.002	< 0.001	0.001	0.001	-	-	-	-	-	<0.003	0.003
Iron	Fe	mg/L		6.05	10.7	1.14	1.02	1.11	1.1	0.94	0.93	-	-	-	-	-	0.6	0.1
Lead[3]	Pb	mg/L	**0.2**	0.013	0.03	0.0025	0.0015	0.0013	< 0.001	0.001	0.001	-	-	-	-	-	-	0.001
Lithium	Li	mg/L		0.025	0.031	0.04	0.0031	0.0032	0.006	< 0.005	< 0.005	-	-	-	-	-	-	0.001
Magnesium	Mg	mg/L		33.2	41.5	37.1	8.29	8.2	15.6	12.4	12.1		-	-	-	-	6.1	0.1
Manganese	Mn	mg/L		0.073	0.72	0.415	0.309	0.304	0.93	0.77	0.75	-	-	-	-	-	0.55	0.003
Mercury	Hg	mg/L		-	-	<0.00002	<0.00002	<0.00002	< 0.00002	< 0.00002	< 0.00002	-	-	-	-	-	<0.0001	0.0001
Molybdenum	Mo	mg/L		<0.0005	0.011	0.0083	0.013	0.013	0.012	0.0084	0.0084	-	-	-	-	-	<0.03	0.03
Nickel[3]	Ni	mg/L	**0.5**	0.056	0.13	0.0045	0.002	0.0022	< 0.001	0.001	0.001	-	-	-	-	-	<0.01	0.01
Phosphorus	P	mg/L		0.069	0.075	0.16	<0.03	<0.03	< 0.15	< 0.15	< 0.15	-	-	-	-	-	-	0.01
Potassium	K	mg/L		7.31	9.1	9.13	3.63	3.68	6.1	4.7	4.5	-	-	-	-	-	2.1	0.1
Selenium	Se	mg/L		<0.001	<0.001	<0.0002	<0.0002	<0.0002	< 0.001	< 0.001	< 0.001	-	-	-	-	-	<0.001	0.001
Silicon	SiO2	mg/L		0.4	4.12	5.07	2.31	2.71	2.7	1.4	1.3	-	-	-	-	-	-	0.05
Silver	Ag	mg/L		0.0064	0.011	0.00028	<0.00005	<0.00005	< 0.00025	< 0.00025	< 0.00025	-	-	-	-	-	0.0014	0.00030
Sodium	Na	mg/L		22	25	357	16	15.9	50.5	39.1	37.5	-	-	-	-	-	2.5	0.03
Strontium	Sr	mg/L		0.68	0.79	1.56	0.119	0.12	0.28	0.24	0.24	-	-	-	-	-	-	0.001
Tellurium	Te	mg/L		<0.001	<0.001	<0.0002	<0.0002	<0.0002	< 0.001	< 0.001	< 0.001	-	-	-	-	-	-	0.001
Thallium	Tl	mg/L		<0.0001	<0.0001	<0.00002	<0.00002	<0.00002	< 0.0001	< 0.0001	< 0.0001	-	-	-	-	-	<0.01	0.01
Thorium	Th	mg/L		<0.0005	0.0038	<0.0001	0.0005	0.0006	< 0.0005	< 0.0005	< 0.0005	-	-	-	-	-	-	0.0005
Tin	Sn	mg/L		<0.001	0.002	0.0009	<0.0002	<0.0002	< 0.001	< 0.001	< 0.001	-	-	-	-	-	-	0.001
Titanium	Ti	mg/L		0.01	0.22	0.01	0.024	0.029	0.006	0.003	0.003	-	-	-	-	-	-	0.001
Uranium	U	mg/L		0.0012	0.0017	0.0003	0.0006	0.0006	< 0.0005	< 0.0005	< 0.0005	-	-	-	-	-	-	0.0005
Vanadium	V	mg/L		<0.001	0.029	0.0004	0.0007	0.0008	< 0.001	< 0.001	< 0.001	-	-	-	-	-	-	0.001
Zinc	Zn	mg/L	**0.5**	0.063	0.087	0.007	0.005	0.005	< 0.005	0.009	0.009	-	-	-	-	-	0.009	0.005

Table 2
MW03-01 Groundwater Quality Results
Agnico-Eagle Mines Ltd
Meadowbank Division

				Ultramafic Rock														Method Detection Limit
				Goose Island														
				MW03-01														
Laboratory sample number Sampling date QA/QC		units	Portage Attenuation Pond Effluent Limits Maximum Average Conc.	9755-2 7-Sep-03	9755-3 7-Sep-03 FD	9044-01 Aug-7-04	12393-01 Aug-8-06	12393-02 Aug-8-06 FD	12395-01 Aug-14-06	8581-01 Aug-17-07	8581-02 Aug-17-07 FD	F66745 15-Sep-08	F68109 15-Sep-08 FD	154321 7-Sep-09	154321 7-Sep-09 Lab-dup	154359 7-Sep-09 FD	L51870 L51884 26-Aug-10	26-Aug-10
Dissolved Metals																		
Aluminum	Al	mg/L		0.051	0.011	0.005	0.3	0.3	< 0.005	< 0.005	0.011	0.0013	0.0068	<0.0001	-	<0.0001	0.03	0.03
Antimony	Sb			<0.001	<0.001	0.0002	<0.0002	<0.0002	< 0.001	< 0.001	< 0.001	-	-	-	-	-	-	0.001
Arsenic	As	mg/L	**0.3**	<0.001	0.003	0.0038	0.0005	0.0005	0.003	< 0.001	< 0.001	<0.0001	<0.0001	<0.002	-	<0.002	<0.002	0.0020
Barium	Ba	mg/L		0.12	0.13	0.3	0.025	0.025	0.051	0.048	0.051	0.25	0.25	0.42	-	0.39	<0.03	0.03
Beryllium	Be	mg/L		<0.001	<0.001	<0.0002	<0.0002	<0.0002	< 0.001	< 0.001	< 0.001	-	-	-	-	-	-	0.001
Bismuth	Bi	mg/L		<0.001	<0.001	<0.0002	<0.0002	<0.0002	< 0.001	< 0.001	< 0.001	-	-	-	-	-	-	0.001
Boron	B	mg/L		0.53	1.03	2.39	0.1	0.1	0.27	0.2	0.21	-	-	-	-	-	-	0.05
Cadmium	Cd	mg/L	**0.002**	0.00007	0.00012	<0.00004	<0.00004	<0.00004	< 0.0002	< 0.0002	< 0.0002	<0.0002	<0.0002	<0.001	-	<0.001	<0.001	0.001
Calcium	Ca	mg/L		65.6	67	94.2	17.6	17.9	33.7	24	24.5	73	75	100	-	99	18	0.1
Chromium[2]	Cr	mg/L		<0.001	<0.001	0.0002	0.0012	0.0012	< 0.001	< 0.001	< 0.001	-	-	-	-	-	-	0.001
Cobalt	Co	mg/L		0.001	0.001	0.0008	0.0004	0.0004	< 0.001	< 0.001	< 0.001	-	-	-	-	-	-	0.0010
Copper	Cu	mg/L	**0.1**	0.002	0.002	0.0004	0.0016	0.0016	< 0.001	< 0.001	0.001	0.0015	0.0023	<0.003	-	<0.003	<0.003	0.003
Iron	Fe	mg/L		<0.05	0.07	0.08	0.84	0.85	0.2	< 0.05	< 0.05	<0.03	<0.03	<0.1	-	<0.1	<0.1	0.1
Lead	Pb	mg/L	**0.1**	<0.001	<0.001	<0.0002	0.0014	0.0012	< 0.001	< 0.001	< 0.001	0.00021	0.00020	<0.001	-	0.001	<0.001	0.001
Lithium	Li	mg/L		0.017	0.017	0.033	0.0028	0.0027	0.005	< 0.005	< 0.005	-	-	-	-	-	-	0.001
Magnesium	Mg	mg/L		23.4	24.3	35.1	7.76	7.92	16.1	11.4	11.6	31	32	46	-	47	4.1	0.1
Manganese	Mn	mg/L		0.06	0.28	0.381	0.286	0.293	0.980	0.700	0.720	0.43	0.44	0.22	-	0.22	0.36	0.003
Mercury	Hg	mg/L		-	-	<0.00002	<0.00002	<0.00002	< 0.00002	< 0.00002	< 0.00002	<0.00001	<0.00001	<0.0001	-	<0.0001	<0.0001	0.0001
Molybdenum	Mo	mg/L		<0.0005	0.0057	0.0076	0.012	0.012	0.013	0.0079	0.0079	0.0082	0.0078	<0.03	-	<0.003	<0.03	0.030
Nickel	Ni	mg/L	**0.2**	0.006	0.005	0.0026	0.0019	0.0019	< 0.001	0.001	0.001	0.0015	0.0015	<0.01	-	<0.01	<0.01	0.01
Phosphorus	P	mg/L		0.1	0.15	0.04	<0.03	<0.03	< 0.15	< 0.15	< 0.15	-	-		-	-	-	0.01
Potassium	K	mg/L		5.71	5.95	8.56	3.27	3.28	6.1	4.3	4.4	8.4	8.5	11	-	11	1.5	0.1
Selenium	Se	mg/L		<0.001	<0.001	<0.0002	<0.0002	<0.0002	< 0.001	< 0.001	< 0.001	<0.001	<0.001	<0.001	-	<0.001	<0.001	0.001
Silicon	SiO2	mg/L		0.32	3.27	3.89	1.96	1.98	2.50	1.20	1.20	-	-	-	-	-	-	0.05
Silver	Ag	mg/L		<0.0001	<0.0001	<0.00005	<0.00005	<0.00005	< 0.00025	< 0.00025	< 0.00025	<0.0001	<0.0001	<0.0003	-	<0.0003	<0.0003	0.0003
Sodium	Na	mg/L		20	22	327.0	15.0	15.6	52.5	34.2	35.0	-	-	420	-	430	1.8	0.1
Strontium	Sr	mg/L		0.58	0.59	1.46	0.111	0.114	0.29	0.22	0.22	-	-	-	-	-	-	0.001
Tellurium	Te	mg/L		<0.001	<0.001	<0.0002	<0.0002	<0.0002	< 0.001	< 0.001	< 0.001	-	-	-	-	-	-	0.001
Thallium	Tl	mg/L		<0.0001	<0.0001	<0.00002	<0.00002	<0.00002	< 0.0001	< 0.0001	< 0.0001	<0.002	<0.002	<0.01	-	<0.01	<0.01	0.01
Thorium	Th	mg/L		<0.0005	<0.0005	<0.0001	0.0004	0.0004	< 0.0005	< 0.0005	< 0.0005	-	-	-	-	-	-	0.0005
Tin	Sn	mg/L		<0.001	<0.001	<0.0002	<0.0002	<0.0002	< 0.001	< 0.001	< 0.001	-	-	-	-	-	-	0.001
Titanium	Ti	mg/L		<0.001	<0.001	0.0003	0.019	0.018	< 0.001	< 0.001	< 0.001	-	-	-	-	-	-	0.001
Uranium	U	mg/L		0.0006	0.0006	0.0003	0.0006	0.0006	< 0.0005	< 0.0005	< 0.0005	-	-	-	-	-	-	0.0005
Vanadium	V	mg/L		<0.001	<0.001	<0.0002	0.0006	0.0006	< 0.001	< 0.001	< 0.001	-	-	-	-	-	-	0.001
Zinc	Zn	mg/L	**0.4**	0.006	<0.005	0.002	0.005	0.005	< 0.005	< 0.005	0.005	0.017	0.014	<0.003	-	<0.003	0.011	0.005
Dissolved Anions																		
Dissolved Fluoride	F	mg/L		< 0.05	< 0.05	0.12	0.16	0.17	0.16	0.18	0.18	<0.1	<0.1	0.1	-	<0.1	0.2	0.1
Dissolved Chloride	Cl	mg/L	**1000**	626	621	845	34.7	33.7	128	126	126	950	980	990	-	950	5.7	0.05
Nutrients																		
Total Nitrogen	N	mg/L								< 0.2	0.3	0.53	0.49	-	-	-	-	<0.02
Nitrate and Nitrite	NO3 + NO2	mg/L	**20***	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	-	-	<0.2	<0.4	<0.42	-	<0.42	0.09	0.02
Nitrate	NO3	mg/L		-	-	< 0.05	< 0.05	< 0.05	< 0.1	< 0.01	0.09	<0.02	<0.02	<0.02	-	<0.02	-	0.05
Ammonia Nitrogen	N	mg/L	**16**	0.38	0.37	-	0.21	0.19	-	0.14	0.15	-	-	0.54	-	0.51	0.08	0.01

FD = Field Duplicate

Table 3
MW08-02, MW08-03 Groundwater Quality Results
Agnico-Eagle Mines Ltd
Meadowbank Division

				Intermediate Volcanic									Method Detection Limit
				Second Portage Lake									
				MW08-02							MW08-03		
Laboratory sample number		units	Portage Attenuation Pond Effluent Limits[1] Maximum Average Conc.	F59984	F59995	147144	147172	147172	L56096	L56473	F66637	F68088	
Sampling date				9/8/2008	9/8/2008	8/29/2009	8/29/2009	8/29/2009	9/1/2010	9/1/2010	9/14/2008	9/14/2008	9/1/2010
QA/QC					FD		FD	Lab Dup		FD		FD	
FIELD-MEASURED PARAMETERS													
Temperature		°C		7.3	-	4.6	-	-	9.2	-	5.0	-	
pH		s.u.	**6.0 - 9.0**	7.1	-	7.8	-	-	7.9	-	7.1	-	
Conductivity		uS/cm		808	-	616	-	-	690	-	366	-	
Dissolved Oxygen		mg/L		9.9	-	-	-	-	-	-	10.3	-	
Total dissolved solids	TDS	mg/L		399	-	-	-	-	-	-	215	-	
LABORATORY PARAMETERS													
Total dissolved solids	TDS	mg/L		500	520	530	510	-	450	490	-	-	10
pH		s.u.	**6.0 - 9.0**	8.0	8.1	8.0	8.0	-	7.7	7.75	8.1	8.2	-
Conductivity		uS/cm		-	-	700	710	-	-	-	490	480	0.001
Total Alkalinity	as $CaCO_3$	mg/L		76	76	76	76	-	80	80	60	59	2
Dissolved Sulphate	SO_4	mg/L		2.5	2.0	3.0	2.9	3.0	-	-	56	51	0.2
Hardness (Total)	as $CaCO_3$	mg/L		240	230	240	850	-	220	220	180	180	1
Total Suspended Solids	TSS	mg/L	**15**	-	-	-	-	-	-	-	56	54	2
Turbidity		NTU	**15**	2.4	2.4	2.2	2.2	-	4	3.9	70	69	0.1
Total Metals (mg/L)													
Aluminum	Al	mg/L	**1.5**	-	-	-	-	-	<0.03	<0.03	-	-	0.03
Antimony	Sb	mg/L		-	-	-	-	-	<0.006	<0.006	-	-	0.006
Arsenic	As	mg/L	**0.3**	-	-	-	-	-	0.003	0.003	-	-	0.002
Barium	Ba	mg/L		-	-	-	-	-	0.03	0.04	-	-	0.03
Cadmium	Cd	mg/L	**0.002**	-	-	-	-	-	<0.001	<0.001	-	-	0.001
Calcium	Ca	mg/L		-	-	-	-	-	45	45	-	-	1
Chromium	Cr	mg/L		-	-	-	-	-	0.03	<0.03	-	-	0.03
Cobalt	Co	mg/L		-	-	-	-	-	<0.03	<0.03	-	-	0.03
Copper	Cu	mg/L	**0.1**	-	-	-	-	-	<0.003	<0.003	-	-	0.003
Lead	Pb	mg/L	**0.1**	-	-	-	-	-	<0.001	<0.001	-	-	0.001
Magnesium	Mg	mg/L		-	-	-	-	-	26	26	-	-	1
Manganese	Mn	mg/L		-	-	-	-	-	0.042	0.044	-	-	0.003
Mercury	Hg	mg/L	**0.0004**	-	-	-	-	-	<0.0001	<0.0001	-	-	0.001
Molybdenum	Mo	mg/L		-	-	-	-	-	0.05	0.05	-	-	0.03
Nickel	Ni	mg/L	**0.2**	-	-	-	-	-	0.01	<0.01	-	-	0.01
Selenium	Se	mg/L		-	-	-	-	-	<0.001	<0.001	-	-	0.001
Silver	Ag	mg/L		-	-	-	-	-	<0.0003	<0.0003	-	-	0.0003
Sodium	Na	mg/L		-	-	-	-	-	32	32	-	-	0.03
Zinc	Zn	mg/L	**0.4**	-	-	-	-	-	0.01	0.007	-	-	0.005
Dissolved Metals (mg/L)													
Aluminum	Al	mg/L	**1.5**	0.0046	0.00487	<0.03	<0.03	-	-	-	0.0046	0.0041	0.03
Arsenic	As	mg/L	**0.3**	0.0035	0.0035	0.003	<0.002	-	-	-	<0.001	<0.001	0.002/0.001
Barium	Ba	mg/L		0.045	0.043	0.04	<0.03	-	-	-	0.033	0.034	0.030
Cadmium	Cd	mg/L	**0.002**	<0.0002	<0.0002	<0.001	<0.001	-	-	-	<0.0002	<0.0002	0.001/0.0002
Calcium	Ca	mg/L		50	48	51	340	-	-	-	46	46	1
Copper	Cu	mg/L	**0.1**	0.00056	0.0011	<0.003	<0.003	-	-	-	0.003	0.0039	0.003
Iron	Fe	mg/L		<0.03	<0.03	<0.1	<0.1	-	-	-	<0.03	<0.03	0.03
Lead	Pb	mg/L	**0.1**	<0.0001	0.00027	<0.001	<0.001	-	-	-	0.00056	0.00027	0.0001/0.001
Magnesium	Mg	mg/L		27	27	27	<1	-	-	-	17	16	1
Manganese	Mn	mg/L		0.030	0.031	<0.003	<0.003	-	-	-	0.32	0.32	0.003
Mercury	Hg	mg/L	**0.0004**	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-	<0.00001	<0.00001	0.00001/0.0001
Molybdenum	Mo	mg/L		0.026	0.025	0.07	0.04	-	-	-	0.14	0.14	0.0005/0.03
Nickel	Ni	mg/L	**0.2**	0.019	0.019	<0.01	<0.01	-	-	-	<0.001	0.0017	0.01/0.001
Potassium	K	mg/L		1.8	1.5	2.0	1.3	-	-	-	4.4	4.5	0.1
Selenium	Se	mg/L		<0.001	<0.001	<0.001	<0.001	-	-	-	<0.001	<0.001	0.001
Silver	Ag	mg/L		<0.0001	<0.0001	<0.0003	<0.0003	-	-	-	<0.0001	<0.0001	0.0001/0.0003
Sodium	Na	mg/L		-	-	36	24	-	-	-	-	-	0.03
Thallium	Tl	mg/L		<0.002	<0.002	<0.01	<0.01	-	-	-	<0.002	<0.002	0.002
Zinc	Zn	mg/L	**0.4**	0.014	0.014	0.005	<0.003	-	-	-	0.004	0.0035	0.005
Dissolved Anions (mg/L)													
Dissolved Fluoride	F	mg/L		0.2	0.2	0.3	0.3	-	0.3	0.3	0.3	0.3	0.1
Dissolved Chloride	Cl	mg/L	**1000**	160	180	160	160	180	160	160	3.3	3.6	0.05
Nutrients (mg/L)													
Nitrate and Nitrite	NO3 + NO2	mg/L		<0.1	<0.1	<0.04	<0.04	<0.04	-	-	27	27	0.4
Nitrate	NO3	mg/L	**20**	-	-	<0.02	<0.02	<0.02	-	-	26	26	0.4
Nitrite	NO2	mg/L		<0.1	<0.1	<0.02	<0.02	<0.02	-	-	1.1	1.2	0.02
Ammonia Nitrogen	N	mg/L	**16**	<0.05	0.05	0.05	0.05	-	0.06	0.06	2.0	2.0	0.02

FD = Field duplicate

Table 4
MW10-01 Groundwater Quality Results
Agnico-Eagle Mines Ltd
Meadowbank Division

		units	Portage Attenuation Pond Effluent Limits Maximum Average Conc.	Intermediate Volcanic and Quartzite / Second Portage Lake Arm / BH 10-01		Method Detection Limit
Laboratory sample number				L51892 L51894	L51893 L51895	
Sampling date				27-Aug-10	27-Aug-10	27-Aug-10
QA/QC					FD	
FIELD-MEASURED PARAMETERS						
Temperature		°C		3.9	-	-
pH		s.u.	**6.0-9.0**	7.6	-	-
Conductivity		uS/cm		910	-	-
LABORATORY PARAMETERS						
pH		s.u.	**6.0-9.0**	7.55	7.56	-
Weak Acid Dissociable Cyanide (CN-)		mg/L		0.1	-	
Total Cyanide (CN)		mg/L		0.11	-	
Conductivity		uS/cm		930	940	0.001
Total Alkalinity	CaCO3	mg/L		110	110	1
Dissolved Sulphate	SO4	mg/L		210	210	1
Hardness (Total)		mg/L		300	300	1
Total Dissolved Solids	TDS	mg/L		650	690	10
Turbidity		NTU	**15**	56	55	0.1
Total Metals						
Aluminum[1]	Al	mg/L		<0.03	<0.03	0.03
Arsenic	As	mg/L	**0.5**	0.018	0.018	0.002
Barium	Ba	mg/L		0.44	0.44	0.03
Cadmium[3]	Cd	mg/L		<0.001	<0.001	0.001
Calcium	Ca	mg/L		71	69	0.1
Copper[3]	Cu	mg/L	**0.3**	<0.003	<0.003	0.003
Iron	Fe	mg/L		3.1	3.1	0.1
Lead[3]	Pb	mg/L	**0.2**	<0.001	<0.001	0.001
Magnesium	Mg	mg/L		30	30	0.1
Manganese	Mn	mg/L		0.17	0.17	0.003
Mercury	Hg	mg/L		<0.0001	<0.0001	0.0001
Molybdenum	Mo	mg/L		<0.03	<0.03	0.0005
Nickel[3]	Ni	mg/L	**0.5**	0.05	0.04	0.001
Potassium	K	mg/L		7.7	7.7	0.1
Selenium	Se	mg/L		<0.001	<0.001	0.001
Silver	Ag	mg/L		<0.0003	<0.0003	0.00010
Sodium	Na	mg/L		58	58	0.05
Thallium	Tl	mg/L		<0.01	0.01	0.01
Zinc	Zn	mg/L	**0.5**	<0.003	0.005	0.005

Table 4
MW10-01 Groundwater Quality Results
Agnico-Eagle Mines Ltd
Meadowbank Division

			Portage Attenuation Pond Effluent Limits	Intermediate Volcanic and Quartzite		Method Detection Limit
				Second Portage Lake Arm		
				BH 10-01		
Laboratory sample number		units	Maximum Average Conc.	L51892 L51894	L51893 L51895	
Sampling date				27-Aug-10	27-Aug-10	27-Aug-10
QA/QC					FD	
Dissolved Metals						
Aluminum	Al	mg/L		<0.03	<0.03	0.03
Arsenic	As	mg/L	**0.3**	0.007	0.007	0.0020
Barium	Ba	mg/L		0.42	0.44	0.03
Cadmium	Cd	mg/L	**0.002**	<0.001	<0.001	0.0002
Calcium	Ca	mg/L		68	73	0.05
Copper	Cu	mg/L	**0.1**	<0.003	<0.003	0.001
Iron	Fe	mg/L		0.2	0.2	0.1
Lead	Pb	mg/L	**0.1**	<0.001	<0.001	0.001
Magnesium	Mg	mg/L		30	31	0.05
Manganese	Mn	mg/L		0.18	0.18	0.001
Mercury	Hg	mg/L		<0.0001	<0.0001	0.0001
Molybdenum	Mo	mg/L		<0.03	<0.03	0.030
Nickel	Ni	mg/L	**0.2**	0.05	0.05	0.01
Potassium	K	mg/L		7.8	8	0.1
Selenium	Se	mg/L		<0.001	<0.001	0.001
Silver	Ag	mg/L		<0.0003	<0.0003	0.0003
Sodium	Na	mg/L		59	61	0.0
Thallium	Tl	mg/L		<0.01	<0.01	0.01
Zinc	Zn	mg/L	**0.4**	<0.005	0.012	0.005
Dissolved Anions						
Dissolved Fluoride	F	mg/L		0.4	0.5	0.1
Dissolved Chloride	Cl	mg/L	**1000**	17	17	0.05
Nutrients						
Nitrate and Nitrite	NO3 + NO2	mg/L	**20***	0.57	0.57	0.02
Ammonia Nitrogen	N	mg/L	**16**	3.8	3.8	0.1

FD = Field Duplicate

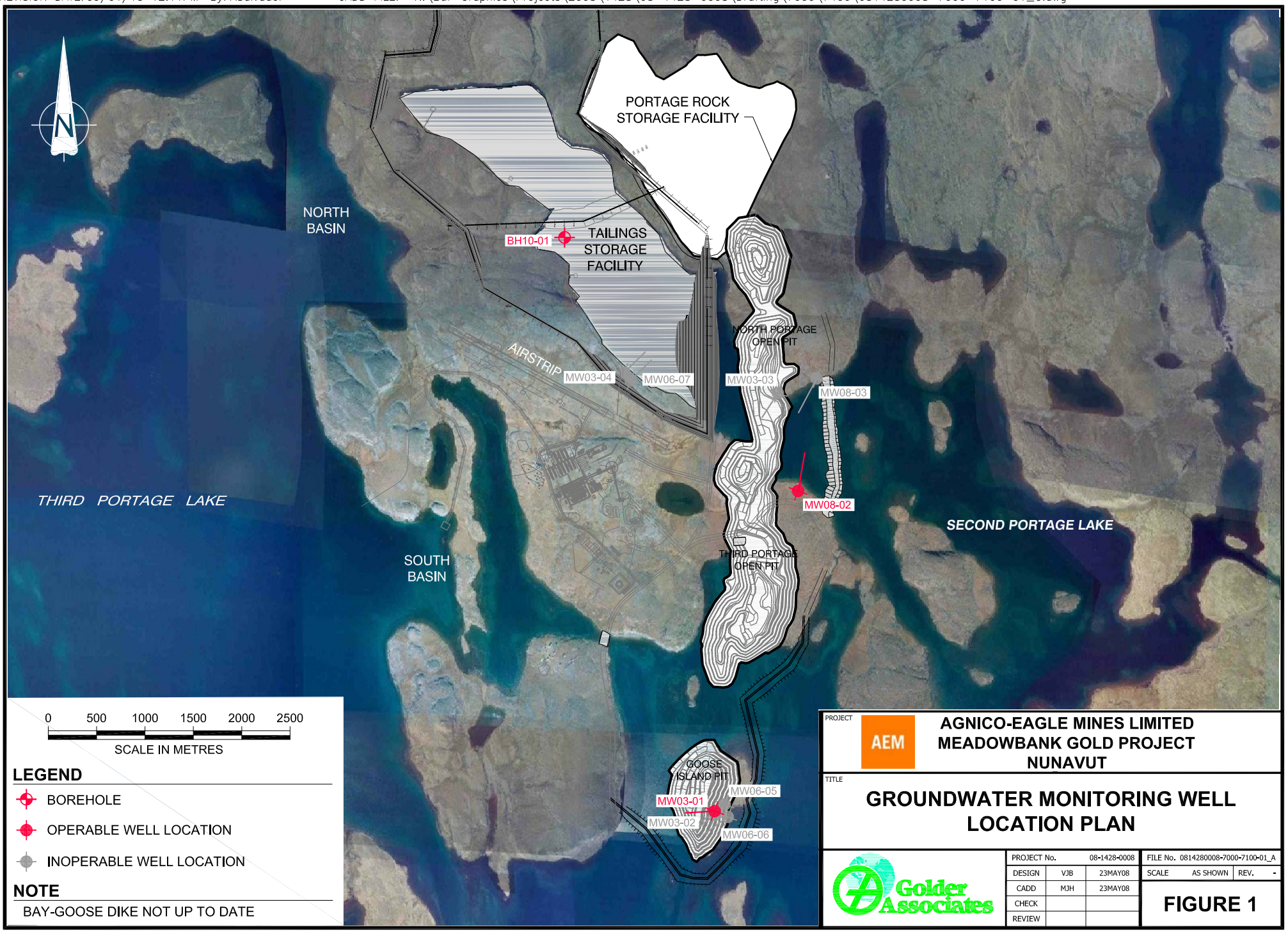
Table 6
QA/QC of Groundwater Quality Results
Agnico-Eagle Mines Ltd.
Meadowbank Division

		Intermediate Volcanic				Intermediate Volcanic and Quartzite			
		Second Portage Lake				Second Portage Lake Arm			
		MW08-02				BH 10-01			
Laboratory sample number		L56096	L56473	Method Detection Limit	RPD	L51892 L51894	L51893 L51895	Method Detection Limit	RPD
Sampling date		9/1/2010	9/1/2010			8/27/2010	8/27/2010		
QA/QC			FD				FD		
LABORATORY PARAMETERS									
TDS (mg/L)		450	490	10	8.5	650	690	10	6.0
pH (s.u.)		7.7	7.8	-	0.1	7.55	7.56	-	0.13
Conductivity (uS/cm)		-	-	1	nc	930	940	1	1.1
Total Alkalinity CaCO3 (mg/L)		80	80	2	0.0	110	110	1	0.0
Dissolved Sulphate SO4 (mg/L)		-	-	0.1	nc	210	210	1	0.0
Hardness (Total) CaCO3 (mg/L)		220	220	1	0.0	300	300	1	0.0
Turbidity (NTU)		4	3.9	0.1	2.5	56	55	0.1	1.8
Total Metals (mg/L)									
Calcium	Ca	45	45	1	0	100	99	0.1	1.0
Magnesium	Mg	26	26	1	0	46	47	0.1	2.2
Metals (mg/L) *									
Aluminum	Al	<0.03	<0.03	0.03	nc	<0.03	<0.03	0.03	nc
Antimony	Sb	<0.006	<0.006	0.006	nc	-	-	-	-
Arsenic	As	0.003	0.003	0.002	0.0	0.007	0.007	0.002	0.0
Barium	Ba	0.03	0.040	0.03	+/- MDL	0.42	0.44	0.03	4.7
Cadmium	Cd	<0.001	<0.001	0.001	nc	<0.001	<0.001	0.001	nc
Copper	Cu	<0.003	<0.003	0.003	nc	<0.003	<0.003	0.003	nc
Iron	Fe	-	-	-	-	0.2	0.2	0.1	0.0
Lead	Pb	<0.001	<0.001	0.001	nc	<0.001	<0.001	0.001	nc
Manganese	Mn	0.042	0.044	0.003	4.7	0.18	0.18	0.003	0.0
Mercury	Hg	<0.0001	<0.0001	0.0001	nc	<0.0001	<0.0001	0.0001	nc
Molybdenum	Mo	0.05	0.05	0.03	0.0	<0.03	<0.03	0.03	nc
Nickel	Ni	0.01	<0.01	0.01	nc	0.05	0.05	0.01	0.0
Potassium	K	-	-	-	-	7.8	8	0.1	2.5
Selenium	Se	<0.001	<0.001	0.001	nc	<0.001	<0.001	0.001	nc
Silver	Ag	<0.0003	<0.0003	0.0003	nc	<0.0003	<0.0003	0.0003	nc
Sodium	Na	32	32	0.03	0.0	59	61	0.03	3.3
Thallium	Tl	-	-	-	-	<0.01	<0.01	0.001	nc
Zinc	Zn	0.01	<0.007	0.003	nc	<0.005	0.012	0.003	nc
Dissolved Anions (mg/L)									
Dissolved Fluoride[4]	F	0.3	0.3	0.1	0.0	0.4	<0.5	0.1	nc
Dissolved Chloride	Cl	160	160	0.5	0	17	17	0.05	0.0
Nutrients (mg/L)									
Nitrate and Nitrite	NO3 + NO2	-	-	0.04	nc	0.57	0.57	0.02	0.0
Dissolved Nitrate[5]	NO3	-	-	0.02	nc	-	-	0.02	nc
Nitrite	NO2	-	-	0.02	nc	-	-	0.4	nc
Ammonia Nitrogen	N-NH3	0.06	0.06	0.02	0.0	3.8	3.8	0.1	0.0

Notes:

	RPD value exceeds 20%
FD	Field duplicate
RPD	relative percent difference
nc	not calculated (one or both result below MDL)
*	metals for samples MW08-02 and its duplicate are total metals
	metals for samples MW010-01 and its duplicate are dissovled metals

REVISION DATE: 09/01/15 12:11PM By: ASalvador CADD FILE: N:\Bur-Graphics\Projects\2008\1428\08-1428-0008\Drafting\7000\7400\0814280008-7000-7100-01_C.dwg



PROJECT

AEM

AGNICO-EAGLE MINES LIMITED
MEADOWBANK GOLD PROJECT
NUNAVUT

TITLE

GROUNDWATER MONITORING WELL LOCATION PLAN

Golder Associates

PROJECT No.		08-1428-0008
DESIGN	VJB	23MAY08
CADD	MJH	23MAY08
CHECK		
REVIEW		

FILE No. 0814280008-7000-7100-01_A
SCALE AS SHOWN REV. -

FIGURE 1

APPENDIX 1

MW10-01 Borehole Log

DRILL HOLE REPORT
AGNICO-EAGLE MINES LIMITED

MEADOWBANK DIVISION

Sep 14, 2010

Hole Name: **BH-10-01** Units: METRIC

Project Name: PORTAGE
Project Number: PORTAGE
No. Claim:
Localisation: Surface
Date Started: Aug 29, 2010
Date Completed: Aug 31, 2010
Date Logged: Sep 14, 2010

Collar Survey: Y
Multishot Survey: N
Pulse EM Survey: N
Core Size: HQ
Casing: Pulled
Cimented: Y

Depth: 60.00
Start Depth: 0
Final Depth: 60.00
Core Storage: Mine Site
Contractor: Forage Orbit Garant
Logged by: Benoit de Chavigny
Signature:

Primary Coordinates:	RTAGE:	**Calculated Coordinates:**	UTM:
North:	7318.0	**North:**	
East:	123.3	**East:**	
Elevation:	5124.0	**Elevation:**	
Collar Dip:	-90.0		

Comments: Geotechnical hole. In Stormwater Dyke to put piezometer and others instruments.

Assays Averages

Survey Data

Depth	Azimuth Decimal	Dip Decimal	Suryve Type	Flag	Comments
0.0	0	-90.00	NS	OK	Surveyed with GPS. Vertical hole

Detailed Lithology

From	To	Lithology
0.0	**12.4**	**MT, Mort terrain**
12.4	**22.1**	**S4CH, Chert Conglomeratique** Sediments. Chert conglomeratic quartzite. White to pale grey in color. Aphanitic to very fine grained. Numerous medium to large bands of silicified cherty rounded fragments (quartz) up to 10-20 cm. Conglomeratic texture. Silicified and locally sericitized. Brechiated and strongly fractured (blocky core). RQD is very bad bethween 30-40 % Trace-1 % in fine disseminated Pyrite. **Mineralization** 12.4 - 22.1 : PY, Dissiminée, 1.00% Trace-1 % Py diss. **Alteration** 12.4 - 22.1 : SR+, Pénétrative, Faible 12.4 - 22.1 : SI+, Massive, Fort

Assay

Sample	From	To	Au (g/t)	Ag (g/t)	Sg (Kgm3)

Hole Name: **BH-10-01** Units: METRIC

Detailed Lithology

From	To	Lithology
22.1	**24.0**	**S5, Brèche** Brecchia zone. Quart-tourmaline and chlorite brechiated zone at the contact bethween sediment and intermediate volcaniclastic rock. White to pale grey to black in color.Very fine to fine grained. Brechiated with fragmental heavy quartz veining. Trace-3 % Py dissiminated or in litttle veinlets. **Mineralization** 22.1 - 24.0 : PY, Stringer, 2.00% Trace-3 % Py diss or in stringers. **Alteration** 22.1 - 24.0 : CL+, Pénétrative, Moyen
24.0	**28.5**	**V9i, TUF INTERMÉDIAIRE** Intermediate volcaniclastic rock. Grey to grey green in color. Fine to medium grained. Foliated with variable direction. Sericitic and chloritic alteration. Locally hematized near of the lower contact with quartzite. Trace-2 % Py dissiminated or in strigers. RQD is good at 80 %. **Mineralization** 24.0 - 28.5 : PY, Dissiminée, 1.00% Trace-1 % Py diss. **Alteration** 24.0 - 28.5 : BO+, Pénétrative, Faible 24.0 - 28.5 : SR+, Pénétrative, Faible 24.0 - 28.5 : CL+, Pénétrative, Moyen 28.0 - 28.5 : HM+, Pénétrative, Faible
28.5	**60.0**	**S1A, Grès quartzitique** Sediment. Quartzite. Grey to pale grey very pale yellow-green to tan in color. Medium to coarse grained. Quartz cristals (rounded) 70-80 % up to 10mm diameter. Sericitic matrix with locally less in chlorite. Massive bench. Trace-1 % Py disseminated. RQD is very good at 85-95 %. **Mineralization** 28.5 - 60.0 : PY, Dissiminée, 1.00% Trace-1 % Py diss. **Alteration** 28.5 - 60.0 : CL+, Pénétrative, Faible 28.5 - 60.0 : SR+, Pénétrative, Moyen

Assay

Sample	From	To	Au (g/t)	Ag (g/t)	Sg (Kgm3)

APPENDIX 2

Field Sampling Sheet

Groundwater Development and Purging/Sampling Data Sheet

Page 1

☒ Development
☐ Purging/Sampling

Well No.	BH-10-01	Project No.	10-1428-0006
Location:	Meadowbank	Completed By:	DV RC
Weather:	Sunny	Date:	27/08/2010
Temperature:	10°C	Time:	14:30

MONITORING WELL INFORMATION

Depth to water Below Top of Casing: A 9.08 metres
Depth to Bottom of Well Below Top of Casing: B 60.00 metres
Diameter Standpipe: C 96 mm

One well volume:
(A-B)*2.0 = ______ litres - for a 51 mm (2.0 inch) diameter well
(A-B)*1.1 = ______ litres - for a 38 mm (1.5 inch) diameter well

EQUIPMENT LIST

pH and Temp. Meter: Model HANNA Serial No. ______
Conductivity Meter: Model HANNA Serial No. ______
Dissolved Oxygen Meter: Model ______ Serial No. ______

Calibration Buffers: ☒ 4 ☒ 7 ☐ 10
Calibration Solution: 1413
☐ D.O. Chemet Ampoule

Pump: ☐ None ☒ Waterra ☐ Peristaltic ☐ Submersible
Bailer: ☐ None ☐ Stainless Steel ☐ Teflon ☐ PVC
Sample IntakeDepth: 55m

WELL DEVELOPMENT/PURGING

Purge Volume: Well. Vol. X ______ = ______ litres
Flow Rate: ______ L/min. Start: ______ Finish: ______

Time	Volume Removed (L)	Temp. (°C)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Dis. O_2 (mg/L) or %	Remarks
	20	3.9	7.55	920			
	40L	6.2	7.25	940			
	60L	5.1	7.42	925			WL: 9.06
	80	4.6	7.51	920			
15:26	100L	3.9	7.62	893			
	120L	4.2	7.64	896			WL: 9.07
15:47	140L	4.2	7.67	900			
16h	160	4.1	7.65	903			
16:10	180L	4.0	7.68	905			
16:20	200L	3.9	7.60	911			
16:30	220L	3.5	7.67	908			
16:37	240L	3.8	7.64	907			

Comments:

Odour: ☐ Yes ☐ No If yes ______
Sheen: ☐ Yes ☐ No If yes ______
Turbidity: Clear | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | Very Silty
Other: ______

Analysis	Type		Container Size							Filtered		Preservatives
			40 mL	100 mL	250 mL	500 mL	1 L	2 L	4 L			
	☐ Plastic	☐ Glass								☐ Yes	☐ No	
	☐ Plastic	☐ Glass								☐ Yes	☐ No	
	☐ Plastic	☐ Glass								☐ Yes	☐ No	
	☐ Plastic	☐ Glass								☐ Yes	☐ No	
	☐ Plastic	☐ Glass								☐ Yes	☐ No	
	☐ Plastic	☐ Glass								☐ Yes	☐ No	
	☐ Plastic	☐ Glass								☐ Yes	☐ No	
	☐ Plastic	☐ Glass								☐ Yes	☐ No	

SCN No. ______

Consumables: ☐ Waterra Tubing ______ ☐ HDPE Tubing ______ ☐ Groundwater Filter: 0 or 1
☐ Silicon Tubing ______ ☐ D.O. Ampoules ______

Groundwater Development and Purging/Sampling Data Sheet

Page 2

☐ Development
☒ Purging/Sampling

Well No.	BH-10-01	Project No.	10-1420-0006
Location:	Meridian bank	Completed By:	D.V RC
Weather:	Sunny	Date:	27/08/10
Temperature:	+10°	Time:	

MONITORING WELL INFORMATION

Depth to water Below Top of Casing: A ______ metres
Depth to Bottom of Well Below Top of Casing: B ______ metres
Diameter Standpipe: C ______ mm

One well volume:
(A-B)*2.0 = ______ litres - for a 51 mm (2.0 inch) diameter well
(A-B)*1.1 = ______ litres - for a 38 mm (1.5 inch) diameter well

EQUIPMENT LIST

pH and Temp. Meter: Model ______ Serial No. ______ Calibration Buffers: ☐ 4 ☐ 7 ☐ 10
Conductivity Meter: Model ______ Serial No. ______ Calibration Solution: ______
Dissolved Oxygen Meter: Model ______ Serial No. ______ ☐ D.O. Chemet Ampoule

Pump: ☐ None ☐ Waterra ☐ Peristaltic ☐ Submersible
Bailer: ☐ None ☐ Stainless Steel ☐ Teflon ☐ PVC
Sample Intake Depth: ______

WELL DEVELOPMENT/PURGING

Purge Volume: Well. Vol. X ______ = ______ litres
Flow Rate: ______ L/min. Start ______ Finish: ______

Time	Volume Removed (L)	Temp. (°C)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Dis. O_2 (mg/L) or %	Remarks
16:47	280 L	3.5	7.70	907			WL: 9.09 m
17:00	300 L	4.2	7.59	910			Sampling

Comments:

Odour: ☐ Yes ☒ No If yes ______
Sheen: ☐ Yes ☐ No If yes ______
Turbidity: Clear (scale, 2nd mark circled) Very Silty
Other: ______

Analysis	Type		Container Size: 40 mL	100 mL	250 mL	500 mL	1 L	2 L	4 L	Filtered		Preservatives
	☐ Plastic	☐ Glass								☐ Yes	☐ No	
	☐ Plastic	☐ Glass								☐ Yes	☐ No	
	☐ Plastic	☐ Glass								☐ Yes	☐ No	
	☐ Plastic	☐ Glass								☐ Yes	☐ No	
	☐ Plastic	☐ Glass								☐ Yes	☐ No	
	☐ Plastic	☐ Glass								☐ Yes	☐ No	
	☐ Plastic	☐ Glass								☐ Yes	☐ No	
	☐ Plastic	☐ Glass								☐ Yes	☐ No	

SCN No. ______

Consumables: ☐ Waterra Tubing ______ ☐ HDPE Tubing ______ ☐ Groundwater Filter: 0 or 1
☐ Silicon Tubing ______ ☐ D.O. Ampoules ______

Groundwater Development and Purging/Sampling Data Sheet

Page 1

: Development
☐ Purging/Sampling

Well No. MGW-03-01
Location:
Weather:
Temperature: [illegible]

Project No. 10-1428-0006
Completed By: RC DU
Date: 2010 08 25
Time: Day

MONITORING WELL INFORMATION

Depth to water Below Top of Casing: A ______ metres
Depth to Bottom of Well Below Top of Casing: B ______ metres
Diameter Standpipe: C ______ mm

One well volume:
(A-B)*2.0 = ______ litres - for a 51 mm (2.0 inch) diameter well
(A-B)*1.1 = ______ litres - for a 38 mm (1.5 inch) diameter well

EQUIPMENT LIST

pH and Temp. Meter: Model ______ Serial No. ______
Conductivity Meter: Model ______ Serial No. ______
Dissolved Oxygen Meter: Model ______ Serial No. ______

Calibration Buffers: ☐ 4 ☐ 7 ☐ 10
Calibration Solution: ______
☐ D.O. Chemet Ampoule

Pump: ☐ None ☐ Waterra ☐ Peristaltic ☐ Submersible
Bailer: ☐ None ☐ Stainless Steel ☐ Teflon ☐ PVC
Sample IntakeDepth: ______

WELL DEVELOPMENT/PURGING

Purge Volume: Well. Vol. X ______ = ______ litres
Flow Rate: ______ L/min. Start ______ Finish: ______

Time	Volume Removed (L)	Temp. (°C)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Dis. O_2 (mg/L) or %	Remarks
	20	7.1	6.90	293			
	60	7.4	7.10	280			
	100	7.4	7.04	300			
	140	7.3	7.05	335			
	180	7.4	7.16	333			
	220	7.1	6.55	328			
	260	7.2	6.60	315			
	300	7.3	6.76	322			
	340	7.0	6.75	326			
	360	7.4	6.92	324			
	380	7.4	7.01	324			
	400	7.0	6.99	325			

Comments:

Odour: ☐ Yes ☐ No If yes ______
Sheen: ☐ Yes ☐ No If yes ______
Turbidity: Clear | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | Very Silty
Other: ______

Analysis	Type		Container Size							Filtered		Preservatives
			40 mL	100 mL	250 mL	500 mL	1 L	2 L	4 L			
	☐ Plastic	☐ Glass								☐ Yes	☐ No	
	☐ Plastic	☐ Glass								☐ Yes	☐ No	
	☐ Plastic	☐ Glass								☐ Yes	☐ No	
	☐ Plastic	☐ Glass								☐ Yes	☐ No	
	☐ Plastic	☐ Glass								☐ Yes	☐ No	
	☐ Plastic	☐ Glass								☐ Yes	☐ No	
	☐ Plastic	☐ Glass								☐ Yes	☐ No	
	☐ Plastic	☐ Glass								☐ Yes	☐ No	

SCN No. ______

Consumables: ☐ Waterra Tubing ______ ☐ HDPE Tubing ______ ☐ Groundwater Filter: 0 or 1
☐ Silicon Tubing ______ ☐ D.O. Ampoules ______

Groundwater Development and Purging/Sampling Data Sheet

Page 2

☐ Development
☐ Purging/Sampling

Well No.: MW-03-01
Location:
Weather: windy
Temperature: 7.4°C
Project No.: 10-1428-006
Completed By: DV RC
Date: 2010 08 26
Time: 11h

MONITORING WELL INFORMATION

Depth to water Below Top of Casing: A ______ metres
Depth to Bottom of Well Below Top of Casing: B ______ metres
Diameter Standpipe: C ______ mm.

One well volume:
(A-B)*2.0 = ______ litres - for a 51 mm (2.0 inch) diameter well
(A-B)*1.1 = ______ litres - for a 38 mm (1.5 inch) diameter well

EQUIPMENT LIST

pH and Temp. Meter: Model HANNA Serial No. HI 98129
Conductivity Meter: Model HANNA Serial No. HI-98129
Dissolved Oxygen Meter: Model ______ Serial No. ______

Calibration Buffers: ☑ 4 ☑ 7 ☐ 10
Calibration Solution: 1413
☐ D.O. Chemet Ampoule

Pump: ☐ None ☐ Waterra ☐ Peristaltic ☐ Submersible
Bailer: ☐ None ☐ Stainless Steel ☐ Teflon ☐ PVC
Sample IntakeDepth: 5.1 m

WELL DEVELOPMENT/PURGING

Purge Volume: Well. Vol. X ______ = ______ litres
Flow Rate: ______ L/min. Start: ______ Finish: ______

Time	Volume Removed (L)	Temp. (°C)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Dis. O_2 (mg/L) or %	Remarks
11h	20	7.1	7.2	333			
	40	6.40	6.3	313			
	60	6.60	7.2	279			
	80	6.66	7.2	287			
	100	6.91	7.3	294			
	120	6.98	7.2	310			
	140	7.0	7.07	315			

Comments:

Odour: ☐ Yes ☐ No If yes ______
Sheen: ☐ Yes ☐ No If yes ______
Turbidity: Clear | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | Very Silty
Other: ______

Analysis	Type		Container Size							Filtered		Preservatives
			40 mL	100 mL	250 mL	500 mL	1 L	2 L	4 L			
	☐ Plastic	☐ Glass								☐ Yes	☐ No	
	☐ Plastic	☐ Glass								☐ Yes	☐ No	
	☐ Plastic	☐ Glass								☐ Yes	☐ No	
	☐ Plastic	☐ Glass								☐ Yes	☐ No	
	☐ Plastic	☐ Glass								☐ Yes	☐ No	
	☐ Plastic	☐ Glass								☐ Yes	☐ No	
	☐ Plastic	☐ Glass								☐ Yes	☐ No	
	☐ Plastic	☐ Glass								☐ Yes	☐ No	

SCN No. ______
Consumables: ☐ Waterra Tubing ______ ☐ HDPE Tubing ______ ☐ Groundwater Filter: 0 or 1
☐ Silicon Tubing ______ ☐ D.O. Ampoules ______

Groundwater Development and Purging/Sampling Data Sheet

☒ Development
☐ Purging/Sampling

Well No. MW08-02
Location: Meadowbank
Weather: Sunny
Temperature: +10°C

Project No. 10-1428-0006
Completed By: DV
Date: 31/9 – 1/09/10
Time:

MONITORING WELL INFORMATION

Depth to water Below Top of Casing: A ______ metres
Depth to Bottom of Well Below Top of Casing: B ______ metres
Diameter Standpipe: C ______ mm.

One well volume:
(A-B)*2.0 = ______ litres - for a 51 mm (2.0 inch) diameter well
(A-B)*1.1 = ______ litres - for a 38 mm (1.5 inch) diameter well

EQUIPMENT LIST

pH and Temp. Meter: Model HANNA Serial No. 98129
Conductivity Meter: Model ______ Serial No. ______
Dissolved Oxygen Meter: Model ______ Serial No. ______

Calibration Buffers: ☒ 4 ☒ 7 ☐ 10
Calibration Solution: 1413
☐ D.O. Chemet Ampoule

Pump: ☐ None ☐ Waterra ☐ Peristaltic ☐ Submersible
Bailer: ☐ None ☐ Stainless Steel ☐ Teflon ☐ PVC
Sample IntakeDepth: ______

WELL DEVELOPMENT/PURGING

Purge Volume: Well. Vol. X ______ = ______ litres
Flow Rate: ______ L/min. Start ______ Finish: ______

1/09

Time	Volume Removed (L)	Temp. (°C)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Dis. O_2 (mg/L) or %	Remarks
17:20	350 L	22.4	7.27	560			
7:21	370L	19.5	7.13	500			
7:30	400L	10.5	7.37	650			
7:40	430 L	9.3	7.37	680			
8:02	450	9.2	7.37	770			
9:40	480L	23.2	7.52	580			
10:00	500L	25.2	7.60	730			
10:50	530L	16.1	7.61	707			
11:40	540L	18.2	7.68	690			
12:10	560L	15.2	7.87	680			
13:30	580L	23.2	7.55	590			
14:30	600L	17.1	7.61	680			

Comments:

Odour: ☐ Yes ☐ No If yes ______
Sheen: ☐ Yes ☐ No If yes ______
Turbidity: Clear I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I Very Silty
Other: ______

Analysis	Type		Container Size 40 mL	100 mL	250 mL	500 mL	1 L	2 L	4 L	Filtered		Preservatives
	☐ Plastic	☐ Glass								☐ Yes	☐ No	
	☐ Plastic	☐ Glass								☐ Yes	☐ No	
	☐ Plastic	☐ Glass								☐ Yes	☐ No	
	☐ Plastic	☐ Glass								☐ Yes	☐ No	
	☐ Plastic	☐ Glass								☐ Yes	☐ No	
	☐ Plastic	☐ Glass								☐ Yes	☐ No	
	☐ Plastic	☐ Glass								☐ Yes	☐ No	
	☐ Plastic	☐ Glass								☐ Yes	☐ No	

SCN No. ______

Consumables: ☐ Waterra Tubing ______ ☐ HDPE Tubing ______ ☐ Groundwater Filter: 0 or 1
☐ Silicon Tubing ______ ☐ D.O. Ampoules ______

Groundwater Development and Purging/Sampling Data Sheet

☐ Development
☐ Purging/Sampling

Well No.: MW 08-02
Location: Meadow bank
Weather: Sunny
Temperature: + 10°C
Project No.: 10-1428-0006
Completed By: D. Vachon
Date: 31/08/10
Time: 7:30

MONITORING WELL INFORMATION

Depth to water Below Top of Casing: A ______ metres
Depth to Bottom of Well Below Top of Casing: B ______ metres
Diameter Standpipe: C ______ mm.

One well volume:
(A-B)*2.0 = ______ litres - for a 51 mm (2.0 inch) diameter well
(A-B)*1.1 = ______ litres - for a 38 mm (1.5 inch) diameter well

EQUIPMENT LIST

pH and Temp. Meter: Model HANNA Serial No. H1 98129
Conductivity Meter: Model ______ Serial No. H1 98129
Dissolved Oxygen Meter: Model ______ Serial No. ______
Calibration Buffers: ☐ 4 ☐ 7 ☐ 10
Calibration Solution: 1413
☐ D.O. Chemet Ampoule

Pump: ☐ None ☐ Waterra ☐ Peristaltic ☐ Submersible
Bailer: ☐ None ☐ Stainless Steel ☐ Teflon ☐ PVC
Sample IntakeDepth: ______

WELL DEVELOPMENT/PURGING

Purge Volume: Well. Vol. X ______ = ______ litres
Flow Rate: ______ L/min. Start: ______ Finish: ______

Time	Volume Removed (L)	Temp. (°C)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Dis. O_2 (mg/L) or %	Remarks
7:30	20L	–	–	–	–	–	
7:50	40L	8.2	6.75	295			
8:00	70L	8.7	6.90	390			
11:00	90L	9.5	6.70	330			
11:10	110	9.5	6.97	560			
11:15	140	9.1	6.97	734			
11:20	170	9.5	7.15	785			
11:40	200L	9.5	7.18	774			
14:00	230L	22	7.15	350			WL ≈ 90m
14:22	260L	11.5	7.27	690			Black at 152 m
14:52	280L	11.9	6.90	690			recalibrate with all solution pH/EC
15:20	300L	12.5	7.27	707			

Comments:

Odour: ☐ Yes ☐ No If yes ______
Sheen: ☐ Yes ☐ No If yes ______
Turbidity: Clear I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I Very Silty
Other: ______

Analysis	Type		Container Size							Filtered		Preservatives
			40 mL	100 mL	250 mL	500 mL	1 L	2 L	4 L			
	☐ Plastic	☐ Glass								☐ Yes	☐ No	
	☐ Plastic	☐ Glass								☐ Yes	☐ No	
	☐ Plastic	☐ Glass								☐ Yes	☐ No	
	☐ Plastic	☐ Glass								☐ Yes	☐ No	
	☐ Plastic	☐ Glass								☐ Yes	☐ No	
	☐ Plastic	☐ Glass								☐ Yes	☐ No	
	☐ Plastic	☐ Glass								☐ Yes	☐ No	
	☐ Plastic	☐ Glass								☐ Yes	☐ No	

SCN No. ______
Consumables: ☐ Waterra Tubing ______ ☐ HDPE Tubing ______ ☐ Groundwater Filter: 0 or 1
☐ Silicon Tubing ______ ☐ D.O. Ampoules ______

Groundwater Development and Purging/Sampling Data Sheet

Page 3

☐ Development
☒ Purging/Sampling

Well No.	MW-08-02	Project No.	10-1428-0006
Location:	Meadowbank	Completed By:	D. Vachon
Weather:	Sunny	Date:	1/09/10
Temperature:	+10°C	Time:	

MONITORING WELL INFORMATION

Depth to water Below Top of Casing: A ______ metres

Depth to Bottom of Well Below Top of Casing: B ______ metres

Diameter Standpipe: C ______ mm.

One well volume:

(A-B)*2.0 = ______ litres - for a 51 mm (2.0 inch) diameter well

(A-B)*1.1 = ______ litres - for a 38 mm (1.5 inch) diameter well

EQUIPMENT LIST

pH and Temp. Meter: Model Hanna Serial No. 98129 Calibration Buffers: ☒ 4 ☒ 7 ☐ 10

Conductivity Meter: Model ______ Serial No. ______ Calibration Solution: 1413

Dissolved Oxygen Meter: Model ______ Serial No. ______ ☐ D.O. Chemet Ampoule

Pump: ☐ None ☐ Waterra ☐ Peristaltic ☐ Submersible Bailer: ☐ None ☐ Stainless Steel ☐ Teflon ☐ PVC

Sample IntakeDepth: 153 m

WELL DEVELOPMENT/PURGING

Purge Volume: Well. Vol. X ______ = ______ litres

Flow Rate: ______ L/min. Start ______ Finish: ______

Time	Volume Removed (L)	Temp. (°C)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Dis. O_2 (mg/L) or %	Remarks
15:00	620 L	14.2	7.81	690			
15:30	640 L	15.3	7.84	680			
16:00	650 L	15.1	7.87	690			Sampling After -

Comments:

Odour: ☐ Yes ☐ No If yes ______

Sheen: ☐ Yes ☐ No If yes ______

Turbidity: Clear | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | Very Silty

Other: ______

Analysis	Type		Container Size 40 mL	100 mL	250 mL	500 mL	1 L	2 L	4 L	Filtered		Preservatives
	☐ Plastic	☐ Glass								☐ Yes	☐ No	
	☐ Plastic	☐ Glass								☐ Yes	☐ No	
	☐ Plastic	☐ Glass								☐ Yes	☐ No	
	☐ Plastic	☐ Glass								☐ Yes	☐ No	
	☐ Plastic	☐ Glass								☐ Yes	☐ No	
	☐ Plastic	☐ Glass								☐ Yes	☐ No	
	☐ Plastic	☐ Glass								☐ Yes	☐ No	
	☐ Plastic	☐ Glass								☐ Yes	☐ No	

SCN No. ______

Consumables: ☐ Waterra Tubing ______ ☐ HDPE Tubing ______ ☐ Groundwater Filter: 0 or 1

☐ Silicon Tubing ______ ☐ D.O. Ampoules ______

APPENDIX 3

Laboratory Reports

CONFIRMATION-RECEIPT OF SAMPLES FOR ANALYSIS

Maxxam Job # B045377

Client Project #: 10-1248-0006
Quote #: B00099

6 Samples

Samples Received 2010/08/30
Client Confirmation 2010/08/30
Expected Report Delivery 2010/09/01 12:00

Report will be sent to:

Valérie Bertrand
GOLDER ASSOCIATES LTD
32 Steacie Dr.
Kanata
K2K 2A9
Ph 6135929600-3268
Fax 613-592-9601
vbertrand@golder.com

Invoice will be sent to:

GOLDER ASSOCIATES LTD
32 Steacie Dr.
Kanata
K2K 2A9
Ph 6135929600-3268
Fax 613-592-9601

We have received the following samples:

MW-03-01-201008 Sampled 2010/08/26 COC# E808174 Matrix: GROUND WATER
Maxxam #: L51870

Ammonia Nitrogen	
*Anions	
Conductivity	
Fluoride	
Hardness	
Mercury by ICPMS	
*Metals by ICPMS	
pH	Holding time already past.
Total Alkalinity (pH end point 4.5)	
Total Dissolved Solids	
Turbidity	Holding time already past.

MW-03-01-201008-DISSOUS Sampled 2010/08/26
Maxxam #: L51884

Mercury by ICPMS	
*Metals by ICPMS	

BH-10-01-201008 Sampled 2010/08/27
Maxxam #: L51892

Ammonia Nitrogen	
*Anions	
Conductivity	
Fluoride	
Hardness	
Mercury by ICPMS	
*Metals by ICPMS	
pH	Holding time already past.
Total Alkalinity (pH end point 4.5)	

Total Cyanide	
Total Dissolved Solids	
Turbidity	Holding time already past.
Weak Acid Dissociable Cyanides	

DUP-1 Sampled 2010/08/27

Maxxam #: L51893

Ammonia Nitrogen	
*Anions	
Conductivity	
Fluoride	
Hardness	
Mercury by ICPMS	
*Metals by ICPMS	
pH	Holding time already past.
Total Alkalinity (pH end point 4.5)	
Total Dissolved Solids	
Turbidity	Holding time already past.

BH-10-01-201008-DISSOUS Sampled 2010/08/27

Maxxam #: L51894

Mercury by ICPMS	
*Metals by ICPMS	

DUP-1-DISSOUS Sampled 2010/08/27

Maxxam #: L51895

Mercury by ICPMS	
*Metals by ICPMS	

Comments:

- An additionnal fee of 20$ per sample could be charged for disposal of Hazardous samples. Client will be contacted before such hazardous charges are applied, and will be given option to pick up samples.
- Unless special storage arrangements are made, all samples will be discarded 30 days after their reception.
- Non-regular samples are flagged as (C) Composite by lab and (L) for Leachate.
- For revisions please contact your Project Management team at ph (514) 448-9001 or via email at ServiceTechniqueMontreal@maxxamanalytics.com .
- For revisions please contact your Maxxam Project Management team at Ph (514) 448-9001 or Fax (514) 448-9199. Your Project Manager is: LEILA SABOURI Alternate Project Manager MELANIE LECLERC

Maxxam Job # B045377 PARAMETERS FOR ANALYSIS REQUESTED

The values listed below are RDL's and not results. Report Detection Limit (RDL) may be elevated if there are matrix interferences or limited sample amounts.

Maxxam # L51870, Sample IDN: **MW-03-01-201008**
Maxxam # L51892, Sample IDN: **BH-10-01-201008**
Maxxam # L51893, Sample IDN: **DUP-1**

TOTAL ALKALINITY (PH END POINT 4.5)			
Alkalinity Total (as CaCO3) pH 4.5	1 mg/L		
ANIONS			
Chloride (Cl)	0.05 mg/L	Sulfates (SO4)	0.1 mg/L
Nitrate (N) and Nitrite(N)	0.02 mg/L		
CONDUCTIVITY			
Conductivity	0.001 mS/cm		
FLUORIDE			
Fluoride (F)	0.1 mg/L		
HARDNESS			
Magnesium (Mg)	1 mg/L	Total Hardness (CaCO3)	1 mg/L
Calcium (Ca)	1 mg/L		

Maxxam # L51870, Sample IDN: **MW-03-01-201008**
Maxxam # L51884, Sample IDN: **MW-03-01-201008-DISSOUS**
Maxxam # L51892, Sample IDN: **BH-10-01-201008**
Maxxam # L51893, Sample IDN: **DUP-1**
Maxxam # L51894, Sample IDN: **BH-10-01-201008-DISSOUS**
Maxxam # L51895, Sample IDN: **DUP-1-DISSOUS**

MERCURY BY ICPMS			
Mercury (Hg)	0.0001 mg/L		
METALS BY ICPMS			
Aluminum (Al)	0.03 mg/L	Copper (Cu)	0.003 mg/L
+Iron (Fe)	0.1 mg/L	+Magnesium (Mg)	0.1 mg/L
Manganese (Mn)	0.003 mg/L	Molybdenum (Mo)	0.03 mg/L
Nickel (Ni)	0.01 mg/L	+Potassium (K)	0.1 mg/L
Selenium (Se)	0.001 mg/L	Silver (Ag)	0.0003 mg/L
Sodium (Na)	0.03 mg/L	Arsenic (As)	0.002 mg/L
+Thallium (Tl)	0.01 mg/L	Zinc (Zn)	0.003 mg/L
Barium (Ba)	0.03 mg/L	Cadmium (Cd)	0.001 mg/L
+Calcium (Ca)	0.1 mg/L		

Maxxam # L51870, Sample IDN: **MW-03-01-201008**
Maxxam # L51892, Sample IDN: **BH-10-01-201008**
Maxxam # L51893, Sample IDN: **DUP-1**

AMMONIA NITROGEN	
Nitrogen ammonia (N-NH3)	0.02 mg/L
PH	
pH	
TOTAL DISSOLVED SOLIDS	
Total Dissolved Solids	10 mg/L
TURBIDITY	
Turbidity	0.1 NTU

Maxxam # L51892, Sample IDN: **BH-10-01-201008**

WEAK ACID DISSOCIABLE CYANIDES	
Weak Acid Dissociable Cyanide (CN-)	0.01 mg/L
TOTAL CYANIDE	
Total Cyanide (CN)	0.01 mg/L

Sample Integrity Form

Invoice To:
GOLDER ASSOCIATES LTD
OTTAWA
32 Steacie Dr.
Kanata, ON
Canada K2K 2A9
Client Contact:
Valérie Bertrand

Maxxam Job #:	B045377
Date Received:	2010/08/30
Your C.O.C. #:	E808174
Your Project #:	10-1248-0006
Maxxam Project Manager:	LEILA SABOURI
Quote #:	B00099

[x] Samples received after hold time exceeded

Report Comments

Received Date: 2010/08/30 **(Time):** 11:45 **By:** _____

Inspected Date: _____ **(Time):** _____ **By:** _____

SIF Created Date: 2010/08/30 **(Time):** 15:20 **By:** GR

maxxam

737 boul. Barette, Chicoutimi (Québec) G7J 4C4 Téléphone : (418) 543-3788 Télécopieur : (418) 543-8994
www.maxxamanalytics.com

E-808174

Info. Facturation	Info. Rapport (si différent de Facturation)
Compagnie : Golder	Compagnie :
Adresse : OTTAWA	Adresse :
Attention de : Valérie Bertrand	Attention de :
Téléphone :	Téléphone :
Telecopieur :	Telecopieur :
Échantillonneur : DV / RC	Échantillonneur :

No. de commande :
No. de cotation :
Projet / Site :
No. de projet : 10-1248-0006

Je déclare par la présente comprendre et accepter les conditions et modalités de Maxxam telles que décrites au verso du présent formulaire.

Analyses : HP (C_{10}-C_{50}) · H & G Min. ☐ H & G Tot. ☐ · COV (EPA 624) ☐ BTEX ☐ HAM ☐ · Phénols (GC/MS) ☐ Phénols (Color.) ☐ · HAP · BPC (Congénères) (GC-MS) · Métaux Lourds (Cd, Cr, Cu, Ni, Pb, Zn) · Métaux ICP politique - 13 élé.-sol** ☐ 16 élé. eau*** ☐ · Mercure ☐ Sélénium-sol ☐ Autres · F ☐ Cl ☐ SO_4 ☐ NO_2 ☐ NO_3 ☐ NO_2+NO_3 ☐ · NTK ☐ NH_3 ☐ P-Tot. ☐ · pH ☒ Conductivité ☐ MES ☐ · Sulfure (SH_2) ☐ Soufre (S-Tot.) ☐ · CN-Tot. ☐ CN-Ox. ☐ CN Libre ☐ · DBO_5 ☐ DCO ☐ Turbidité ☐ COT ☐ · RDS ☐ RMD ☐ · CUM ART. 10 ☐ ART. 11 ☐ · Eau Potable : ORG. ☐ INOR. ☐ THM ☐ · COLIF (Fec.) ☐ COLIF (Tot.) ☐ BHAA ☐ · Explosif EPA 8095 ☐ EPA 8330 ☐ · Autre (spécifier) : Métaux totaux et dissous

Identification de l'échantillon (point de prélèvement)	Sol	Type d'eau	Autre	Prélèvement (date / heure)	à filtrer	nombre de contenants
MW-03-01-201008		S		2010-08 26	✓	4
BH-10-01-201008		S		2010-08 27		5
Dup-1		S		2010-08 27		4

LÉGENDE : ** Métaux 13 éléments (Ag, As, Ba, Cd, Co, Cr, Cu, Sn, Mn, Mo, Ni, Pb, Zn),
*** Métaux 16 éléments (Al, Sb, Ag, As, Ba, Cd, Cr, Co, Cu, Mn, Mo, Ni, Pb, Se, Na, Zn).

Types d'eau : S = Souterraine P = Potable DL = Déchet liquide
Sur = Surface E = Eau usée C = Captage

Normes/Réglement Applicables : ________ (À remplir)

Délais : ☐ 24h ☒ 48h ☐ 72h ☐ Régulier ☐ Date :

A moins d'être clairement identifié, tout échantillon d'eau reçu chez Maxxam sera considéré comme non-potable et ne sera pas soumis aux exigences du règlement sur la qualité de l'eau potable.

Condition générale à la réception : voir courriel Valérie Bertrand

Chaîne de responsabilité

Déssaisi par :	Date : 10/8/30	Heure : 1100	Reçu par : MW
Déssaisi par :	Date : 30/8/2010	Heure : 11h45	Reçu par : Beatrice Sirois
Nombre de glacières :	Température de réception : 4° 5° 5°		

Remarques : Sup changé le MW-10-01 pour BH1001

Transport des échantillons : ☐ Par client ☐ Personnel MAXXAM ☐ Courrier (spécifier) :

Your Project #: 10-1248-0006
Your C.O.C. #: E808174

Attention: Valérie Bertrand
GOLDER ASSOCIATES LTD
OTTAWA
32 Steacie Dr.
Kanata, ON
Canada K2K 2A9

Report Date: 2010/09/09
Report #: NM-332188
This report supersedes all previous reports with the same Maxxam job number

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B045377
Received: 2010/08/30, 11:45

Sample Matrix: GROUND WATER
Samples Received: 6

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Primary reference
Total Alkalinity (pH end point 4.5)	3	2010/08/31	2010/09/01	STL SOP-00038/7	SM 2320 B-Titration
Anions	3	2010/08/30	2010/08/31	STL SOP-00014/7	MA. 300 - Ions 1.2
Weak Acid Dissociable Cyanides	1	2010/08/31	2010/08/31	STL SOP-00035/3	MA. 300 - CN 1.1
Total Cyanide	1	2010/08/31	2010/08/31	STL SOP-00035/3	MA. 300 - CN 1.1
Conductivity	3	2010/08/31	2010/08/31	STL SOP-00038/7	SM 2510
Disposal Charges	3	2010/08/30	2010/08/30		
Fluoride	3	2010/08/31	2010/08/31	STL SOP-00004/4	SM 4500-F- C.
Hardness	3	2010/08/31	2010/09/01	STL SOP-00006/8	MA.200- Mét 1.1
Mercury by ICPMS	6	2010/08/31	2010/09/01	STL SOP-00006/8	MA.200 - Mét 1.1
Metals by ICPMS	6	2010/08/31	2010/09/01	STL SOP-00006/8	MA.200- Mét 1.1
Ammonia Nitrogen	3	2010/08/31	2010/08/31	STL SOP-00040/5	MA. 300 - N 1.1
pH	3	2010/08/30	2010/08/30	STL SOP-00038/7	MA.100- pH1.1
Total Dissolved Solids	3	2010/08/31	2010/08/31	STL SOP-00050/2	MA. 115 - S.D. 1.0
Turbidity	3	N/A	2010/08/30	STL SOP-00022/6	MA. 103 - Tur. 1.0

Encryption Key

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

LEILA SABOURI, Project manager
Email: leila.sabouri@maxxamanalytics.com
Phone# (514) 448-9001 Ext:4227

==========

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

889 Montée de Liesse, Ville St-Laurent, Québec, Canada H4T 1P5 Tél. : (514) 448-9001 Télécopieur : (514) 448-9199 Ligne sans frais : 1-877-4MAXXAM (462-9926)

Maxxam Job #: B045377
Report Date: 2010/09/09

GOLDER ASSOCIATES LTD
Client Project #: 10-1248-0006

Sampler Initials: DV

METALS (GROUND WATER)

Maxxam ID		L51870		L51884	L51892		
Sampling Date		2010/08/26		2010/08/26	2010/08/27		
COC Number		E808174		E808174	E808174		
	Units	**MW-03-01-201008**	**RDL**	**MW-03-01-201008-DISSOUS**	**BH-10-01-201008**	**RDL**	**QC Batch**
METALS							
Mercury (Hg)	mg/L	ND	0.0001	ND	ND	0.0001	792908
Aluminum (Al)	mg/L	ND	0.03	0.03	ND	0.03	792898
Silver (Ag)	mg/L	0.0014	0.0003	ND	ND	0.0003	792898
Total Hardness (CaCO3)	mg/L	77	1	N/A	300	1	792909
Arsenic (As)	mg/L	ND	0.002	ND	0.018	0.002	792898
Barium (Ba)	mg/L	ND	0.03	ND	0.44	0.03	792898
Cadmium (Cd)	mg/L	ND	0.001	ND	ND	0.001	792898
Copper (Cu)	mg/L	ND	0.003	ND	ND	0.003	792898
Lead (Pb)	mg/L	ND	0.001	ND	ND	0.001	792898
Manganese (Mn)	mg/L	0.55	0.003	0.36	0.17	0.003	792898
Molybdenum (Mo)	mg/L	ND	0.03	ND	ND	0.03	792898
Nickel (Ni)	mg/L	ND	0.01	ND	0.05	0.01	792898
Selenium (Se)	mg/L	ND	0.001	ND	ND	0.001	792898
Sodium (Na)	mg/L	2.5	0.03	1.8	58	0.03	792898
Zinc (Zn)	mg/L	0.009	0.005	0.011	ND	0.003	792898
Iron (Fe)	mg/L	0.6	0.1	ND	3.1	0.1	792898
Magnesium (Mg)	mg/L	6.1	0.1	4.1	30	0.1	792898
Potassium (K)	mg/L	2.1	0.1	1.5	7.7	0.1	792898
Calcium (Ca)	mg/L	21	0.1	18	71	0.1	792898
Thallium (Tl)	mg/L	ND	0.01	ND	ND	0.01	792898

ND = less than the reported detection limit
N/A = Not Applicable
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B045377
Report Date: 2010/09/09

GOLDER ASSOCIATES LTD
Client Project #: 10-1248-0006

Sampler Initials: DV

METALS (GROUND WATER)

Maxxam ID		L51893	L51894	L51895		
Sampling Date		2010/08/27	2010/08/27	2010/08/27		
COC Number		E808174	E808174	E808174		
	Units	**DUP-1**	**BH-10-01-201008-DISSOUS**	**DUP-1-DISSOUS**	**RDL**	**QC Batch**
METALS						
Mercury (Hg)	mg/L	ND	ND	ND	0.0001	792908
Aluminum (Al)	mg/L	ND	ND	ND	0.03	792898
Silver (Ag)	mg/L	ND	ND	ND	0.0003	792898
Total Hardness (CaCO3)	mg/L	300	N/A	N/A	1	792909
Arsenic (As)	mg/L	0.018	0.007	0.007	0.002	792898
Barium (Ba)	mg/L	0.44	0.42	0.44	0.03	792898
Cadmium (Cd)	mg/L	ND	ND	ND	0.001	792898
Copper (Cu)	mg/L	ND	ND	ND	0.003	792898
Lead (Pb)	mg/L	ND	ND	ND	0.001	792898
Manganese (Mn)	mg/L	0.17	0.18	0.18	0.003	792898
Molybdenum (Mo)	mg/L	ND	ND	ND	0.03	792898
Nickel (Ni)	mg/L	0.04	0.05	0.05	0.01	792898
Selenium (Se)	mg/L	ND	ND	ND	0.001	792898
Sodium (Na)	mg/L	58	59	61	0.03	792898
Zinc (Zn)	mg/L	ND	ND	0.012	0.005	792898
Iron (Fe)	mg/L	3.1	0.2	0.2	0.1	792898
Magnesium (Mg)	mg/L	30	30	31	0.1	792898
Potassium (K)	mg/L	7.7	7.8	8.0	0.1	792898
Calcium (Ca)	mg/L	69	68	73	0.1	792898
Thallium (Tl)	mg/L	ND	ND	ND	0.01	792898

ND = less than the reported detection limit
N/A = Not Applicable
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

889 Montée de Liesse, Ville St-Laurent, Québec, Canada H4T 1P5 Tél. : (514) 448-9001 Télécopieur : (514) 448-9199 Ligne sans frais : 1-877-4MAXXAM (462-9926)

Maxxam Job #: B045377
Report Date: 2010/09/09

GOLDER ASSOCIATES LTD
Client Project #: 10-1248-0006

Sampler Initials: DV

CONVENTIONAL PARAMETERS (GROUND WATER)

Maxxam ID		L51870	L51870		L51892		
Sampling Date		2010/08/26	2010/08/26		2010/08/27		
COC Number		E808174	E808174		E808174		
	Units	**MW-03-01-201008**	**MW-03-01-201008 Lab-Dup**	**RDL**	**BH-10-01-201008**	**RDL**	**QC Batch**
CONVENTIONALS							
Conductivity	mS/cm	0.35	N/A	0.001	0.93	0.001	792938
Fluoride (F)	mg/L	0.2	N/A	0.1	0.4	0.1	792696
Nitrogen ammonia (N-NH3)	mg/L	0.08	0.08	0.02	3.8	0.1	792716
pH	pH	6.90	N/A	N/A	7.55	N/A	792645
Total Cyanide (CN)	mg/L	N/A	N/A	N/A	0.11	0.01	792704
Turbidity	NTU	210	N/A	0.2	56	0.1	792647
Weak Acid Dissociable Cyanide (CN-)	mg/L	N/A	N/A	N/A	0.10	0.01	792906
Alkalinity Total (as CaCO3) pH 4.5	mg/L	49	N/A	1	110	1	792851
Chloride (Cl)	mg/L	5.7	N/A	0.05	17	0.05	792623
Nitrate (N) and Nitrite(N)	mg/L	0.09	N/A	0.02	0.57	0.02	792623
Sulfates (SO4)	mg/L	87	N/A	0.1	210	1	792623
Total Dissolved Solids	mg/L	240	N/A	10	650	10	792717

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

Maxxam ID		L51893		
Sampling Date		2010/08/27		
COC Number		E808174		
	Units	**DUP-1**	**RDL**	**QC Batch**
CONVENTIONALS				
Conductivity	mS/cm	0.94	0.001	792938
Fluoride (F)	mg/L	0.5	0.1	792696
Nitrogen ammonia (N-NH3)	mg/L	3.8	0.2	792716
pH	pH	7.56	N/A	792645
Turbidity	NTU	55	0.1	792647
Alkalinity Total (as CaCO3) pH 4.5	mg/L	110	1	792851
Chloride (Cl)	mg/L	17	0.05	792623
Nitrate (N) and Nitrite(N)	mg/L	0.57	0.02	792623
Sulfates (SO4)	mg/L	210	1	792623
Total Dissolved Solids	mg/L	690	10	792717

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

889 Montée de Liesse, Ville St-Laurent, Québec, Canada H4T 1P5 Tél. : (514) 448-9001 Télécopieur : (514) 448-9199 Ligne sans frais : 1-877-4MAXXAM (462-9926)

Maxxam Job #: B045377
Report Date: 2010/09/09

GOLDER ASSOCIATES LTD
Client Project #: 10-1248-0006

Sampler Initials: DV

GENERAL COMMENTS

Condition of sample(s) upon receipt: GOOD except for the following:
pH: Holding time already past.: L51870, L51892, L51893
Turbidity: Holding time already past.: L51870, L51892, L51893

METALS (GROUND WATER)

Please note that the results have not been corrected for QC recoveries nor for the method blank results.

Samples L51884, L51894 and L51895 were filtered in the laboratory prior to analyzing for metals. The corresponding metal results are then dissolved metals.

CONVENTIONAL PARAMETERS (GROUND WATER)

Please note that the results have not been corrected for QC recoveries nor for the method blank results.
Reported detection limits are multiplied by dilution factors used for sample analysis.

This report supersedes all previous reports with the same Maxxam job number

Results relate only to the items tested.

889 Montée de Liesse, Ville St-Laurent, Québec, Canada H4T 1P5 Tél. : (514) 448-9001 Télécopieur : (514) 448-9199 Ligne sans frais : 1-877-4MAXXAM (462-9926)

GOLDER ASSOCIATES LTD
Attention: Valérie Bertrand
Client Project #: 10-1248-0006
P.O. #:
Project name:

Quality Assurance Report

Maxxam Job Number: B045377

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units
792623	FS	Spiked Blank	Chloride (Cl)	2010/08/31		91	%
			Nitrate (N) and Nitrite(N)	2010/08/31		92	%
			Sulfates (SO4)	2010/08/31		94	%
		Method Blank	Chloride (Cl)	2010/08/31	ND, RDL=0.05		mg/L
			Nitrate (N) and Nitrite(N)	2010/08/31	ND, RDL=0.02		mg/L
			Sulfates (SO4)	2010/08/31	0.2, RDL=0.1		mg/L
792645	MR4	QC STANDARD	pH	2010/08/30		102	%
		Spiked Blank	pH	2010/08/30		101	%
792647	NR2	QC STANDARD	Turbidity	2010/08/30		100	%
		Method Blank	Turbidity	2010/08/30	0.1, RDL=0.1		NTU
792696	MR4	QC STANDARD	Fluoride (F)	2010/08/31		96	%
		Spiked Blank	Fluoride (F)	2010/08/31		100	%
		Method Blank	Fluoride (F)	2010/08/31	ND, RDL=0.1		mg/L
792704	JS2	QC STANDARD	Total Cyanide (CN)	2010/08/31		95	%
		Spiked Blank	Total Cyanide (CN)	2010/08/31		99	%
		Method Blank	Total Cyanide (CN)	2010/08/31	ND, RDL=0.01		mg/L
792716	DKH	QC STANDARD	Nitrogen ammonia (N-NH3)	2010/08/31		103	%
		Spiked Blank	Nitrogen ammonia (N-NH3)	2010/08/31		104	%
		Method Blank	Nitrogen ammonia (N-NH3)	2010/08/31	ND, RDL=0.02		mg/L
792717	FSI	Spiked Blank	Total Dissolved Solids	2010/08/31		103	%
		Spiked Blank DUP	Total Dissolved Solids	2010/08/31		102	%
		Method Blank	Total Dissolved Solids	2010/08/31	ND, RDL=10		mg/L
792851	MR4	QC STANDARD	Alkalinity Total (as CaCO3) pH 4.5	2010/09/01		95	%
		Spiked Blank	Alkalinity Total (as CaCO3) pH 4.5	2010/09/01		96	%
		Spiked Blank DUP	Alkalinity Total (as CaCO3) pH 4.5	2010/09/01		94	%
		Method Blank	Alkalinity Total (as CaCO3) pH 4.5	2010/09/01	ND, RDL=1		mg/L
		Method Blank DUP	Alkalinity Total (as CaCO3) pH 4.5	2010/09/01	ND, RDL=1		mg/L
792898	KQ	Spiked Blank	Aluminum (Al)	2010/09/01		103	%
			Silver (Ag)	2010/09/01		87	%
			Arsenic (As)	2010/09/01		108	%
			Barium (Ba)	2010/09/01		103	%
			Cadmium (Cd)	2010/09/01		103	%
			Copper (Cu)	2010/09/01		100	%
			Lead (Pb)	2010/09/01		102	%
			Manganese (Mn)	2010/09/01		105	%
			Molybdenum (Mo)	2010/09/01		103	%
			Nickel (Ni)	2010/09/01		101	%
			Selenium (Se)	2010/09/01		101	%
			Sodium (Na)	2010/09/01		101	%
			Zinc (Zn)	2010/09/01		103	%
			Iron (Fe)	2010/09/01		108	%
			Magnesium (Mg)	2010/09/01		109	%
			Potassium (K)	2010/09/01		107	%
			Calcium (Ca)	2010/09/01		104	%
			Thallium (Tl)	2010/09/01		103	%
		Method Blank	Aluminum (Al)	2010/09/01	ND, RDL=0.03		mg/L
			Silver (Ag)	2010/09/01	ND, RDL=0.0003		mg/L
			Arsenic (As)	2010/09/01	ND, RDL=0.002		mg/L
			Barium (Ba)	2010/09/01	ND, RDL=0.03		mg/L
			Cadmium (Cd)	2010/09/01	ND, RDL=0.001		mg/L
			Copper (Cu)	2010/09/01	ND, RDL=0.003		mg/L
			Lead (Pb)	2010/09/01	ND, RDL=0.001		mg/L
			Manganese (Mn)	2010/09/01	ND, RDL=0.003		mg/L
			Molybdenum (Mo)	2010/09/01	ND, RDL=0.03		mg/L
			Nickel (Ni)	2010/09/01	ND, RDL=0.01		mg/L

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GOLDER ASSOCIATES LTD
Attention: Valérie Bertrand
Client Project #: 10-1248-0006
P.O. #:
Project name:

Quality Assurance Report (Continued)

Maxxam Job Number: B045377

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units
792898	KQ	Method Blank	Selenium (Se)	2010/09/01	ND, RDL=0.001		mg/L
			Sodium (Na)	2010/09/01	ND, RDL=0.03		mg/L
			Zinc (Zn)	2010/09/01	0.007, RDL=0.003		mg/L
			Iron (Fe)	2010/09/01	ND, RDL=0.1		mg/L
			Magnesium (Mg)	2010/09/01	ND, RDL=0.1		mg/L
			Potassium (K)	2010/09/01	ND, RDL=0.1		mg/L
			Calcium (Ca)	2010/09/01	ND, RDL=0.1		mg/L
792906	JS2	QC STANDARD	Weak Acid Dissociable Cyanide (CN-)	2010/08/31		83	%
		Spiked Blank	Weak Acid Dissociable Cyanide (CN-)	2010/08/31		106	%
		Method Blank	Weak Acid Dissociable Cyanide (CN-)	2010/08/31	ND, RDL=0.01		mg/L
792908	KQ	Spiked Blank	Mercury (Hg)	2010/09/01		104	%
		Method Blank	Mercury (Hg)	2010/09/01	ND, RDL=0.0001		mg/L
792909	KQ	Method Blank	Total Hardness (CaCO3)	2010/09/01	ND, RDL=1		mg/L
792938	MR4	QC STANDARD	Conductivity	2010/08/31		102	%
		Spiked Blank	Conductivity	2010/08/31		104	%
		Method Blank	Conductivity	2010/08/31	ND, RDL=0.001		mS/cm

RDL = Reportable Detection Limit
QC Standard: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
Spiked Blank: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

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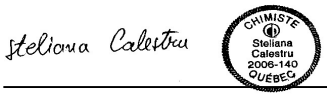
Validation Signature Page

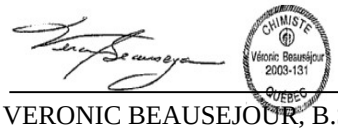
Maxxam Job #: B045377

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

KATHIE QUEVILLON, B.Sc., Chemist, Analyst 2



STELIANA CALESTRU, B.Sc. Chemist, Analyst 2



VERONIC BEAUSEJOUR, B.Sc., Chemist, Supervisor

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www.maxxamanalytics.com

E-808174

Info. Facturation	Info. Rapport (si différent de Facturation)
Compagnie : Golder	Compagnie :
Adresse : OTTAWA	Adresse :
Attention de : Valerie Bertrand	Attention de :
Téléphone :	Téléphone :
Telecopieur :	Telecopieur :
Échantillonneur : DV / RC	Échantillonneur :

No. de commande :

No. de cotation :

Projet / Site :

No. de projet : 10-1248-0006

Je déclare par la présente comprendre et accepter les conditions et modalités de Maxxam telles que décrites au verso du présent formulaire.

Analyses : HP (C10-C50) ; H & G Min. ☐ H & G Tot. ☐ ; COV (EPA 624) ☐ BTEX ☐ HAM ☐ ; Phénols (GC/MS) ☐ Phénols (Color.) ☐ ; HAP ; BPC (Congénères) (GC-MS) ; Métaux Lourds (Cd, Cr, Cu, Ni, Pb, Zn) ; Métaux ICP politique - 13 élé.-sol** ☐ 16 élé. eau*** ☐ ; Mercure ☐ Sélénium-sol ☐ Autres ; F ☐ Cl ☐ SO4 ☐ NO2 ☐ NO3 ☐ NO2+NO3 ☐ ; NTK ☐ NH3 ☐ P-Tot. ☐ ; pH ☒ Conductivité ☐ MES ☐ ; Sulfure (SH2) ☐ Soufre (S-Tot.) ☐ ; CN-Tot. ☐ CN-Ox. ☐ CN Libre ☐ ; DBO5 ☐ DCO ☐ Turbidité ☐ COT ☐ ; RDS ☐ RMD ☐ ; CUM ART. 10 ☐ ART. 11 ☐ ; Eau Potable : ORG. ☐ INOR. ☐ THM ☐ ; COLIF (Fec.) ☐ COLIF (Tot.) ☐ BHAA ☐ ; Explosif EPA 8095 ☐ EPA 8330 ☐ ; Autre (spécifier) : Métaux totaux et dissous

Identification de l'échantillon (point de prélèvement)	Échantillon Sol	Type d'eau	Autre	Prélèvement (date / heure)	à filtrer	nombre de contenants
MW-03-01-201008		S		2010-08 26	4	4
BH-10-01-201008		S		2010-08 27		5
Dup-1		S		2010-08 27		4

LÉGENDE : ** Métaux 13 éléments (Ag, As, Ba, Cd, Co, Cr, Cu, Sn, Mn, Mo, Ni, Pb, Zn),
*** Métaux 16 éléments (Al, Sb, Ag, As, Ba, Cd, Cr, Co, Cu, Mn, Mo, Ni, Pb, Se, Na, Zn).

Types d'eau : S = Souterraine P = Potable DL = Déchet liquide
Sur = Surface E = Eau usée C = Captage

Normes/Réglement Applicables : ____________ **(À remplir)**

Délais : ☐ 24h ☒ 48h ☐ 72h ☐ Régulier ☐ Date :

A moins d'être clairement identifié, tout échantillon d'eau reçu chez Maxxam sera considéré comme non-potable et ne sera pas soumis aux exigences du règlement sur la qualité de l'eau potable.

Condition générale à la réception : voir courriel Valerie Bertrand

Chaîne de responsabilité

Déssaisi par :	Date : 10/8/30	Heure : 1100	Reçu par : [signature]
Déssaisi par :	Date : 30/8/2010	Heure : 11h45	Reçu par : Beatrice Sootsit
Nombre de glacières :	Température de réception : 4° 5° 5°		

Remarques : Sup changé le MW-10-01 pour BH1001

Transport des échantillons : ☐ Par client ☐ Personnel MAXXAM ☐ Courrier (spécifier) :

COC-1023 (03/10) BLANC : MAXXAM BLEU : FACTURATION JAUNE : RETOURNER AU CLIENT AVEC RAPPORT FINAL ROSE : CLIENT

Your Project #: 10-1428-0006-3000
Your C.O.C. #: E414235

Attention: Valérie Bertrand
GOLDER ASSOCIATES LTD
OTTAWA
32 Steacie Dr.
Kanata, ON
Canada K2K 2A9

Report Date: 2010/09/10

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B046328
Received: 2010/09/03, 8:00

Sample Matrix: GROUND WATER
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Primary reference
Total Alkalinity (pH end point 4.5)	2	2010/09/07	2010/09/07	STL SOP-00038/7	SM 2320 B-Titration
Fluoride	2	2010/09/03	2010/09/07	STL SOP-00004/4	SM 4500-F- C.
Hardness	2	2010/09/09	2010/09/10	STL SOP-00006/8	MA.200- Mét 1.1
Mercury by ICPMS	2	2010/09/09	2010/09/10	STL SOP-00006/8	MA.200 - Mét 1.1
Metals by ICPMS	2	2010/09/09	2010/09/09	STL SOP-00006/8	MA.200- Mét 1.1
Ammonia Nitrogen	2	2010/09/08	2010/09/08	STL SOP-00040/5	MA. 300 - N 1.1
pH	2	2010/09/03	2010/09/03	STL SOP-00038/7	MA.100- pH1.1
Total Dissolved Solids	2	2010/09/03	2010/09/03	STL SOP-00050/2	MA. 115 - S.D. 1.0
Turbidity	2	N/A	2010/09/03	STL SOP-00022/6	MA. 103 - Tur. 1.0

Encryption Key

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

LEILA SABOURI, Project manager
Email: leila.sabouri@maxxamanalytics.com
Phone# (514) 448-9001 Ext:4227

==========

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Maxxam Job #: B046328
Report Date: 2010/09/10

GOLDER ASSOCIATES LTD
Client Project #: 10-1428-0006-3000

Sampler Initials: DV

METALS (GROUND WATER)

Maxxam ID		L56096	L56473		
Sampling Date		2010/09/01	2010/09/01		
COC Number		E414235	E414235		
	Units	**MW-08-2**	**DUP-11**	**RDL**	**QC Batch**
METALS					
Mercury (Hg)	mg/L	ND	ND	0.0001	795664
Aluminum (Al)	mg/L	ND	ND	0.03	795660
Calcium (Ca)	mg/L	45	45	1	795666
Antimony (Sb)	mg/L	ND	ND	0.006	795660
Magnesium (Mg)	mg/L	26	26	1	795666
Silver (Ag)	mg/L	ND	ND	0.0003	795660
Total Hardness (CaCO3)	mg/L	220	220	1	795666
Arsenic (As)	mg/L	0.003	0.003	0.002	795660
Barium (Ba)	mg/L	0.03	0.04	0.03	795660
Cadmium (Cd)	mg/L	ND	ND	0.001	795660
Chromium (Cr)	mg/L	ND	ND	0.03	795660
Cobalt (Co)	mg/L	ND	ND	0.03	795660
Copper (Cu)	mg/L	ND	ND	0.003	795660
Lead (Pb)	mg/L	ND	ND	0.001	795660
Manganese (Mn)	mg/L	0.042	0.044	0.003	795660
Molybdenum (Mo)	mg/L	0.05	0.05	0.03	795660
Nickel (Ni)	mg/L	ND	ND	0.01	795660
Selenium (Se)	mg/L	ND	ND	0.001	795660
Sodium (Na)	mg/L	32	32	0.03	795660
Zinc (Zn)	mg/L	0.010	0.007	0.005	795660

ND = less than the reported detection limit
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

889 Montée de Liesse, Ville St-Laurent, Québec, Canada H4T 1P5 Tél. : (514) 448-9001 Télécopieur : (514) 448-9199 Ligne sans frais : 1-877-4MAXXAM (462-9926)

Maxxam Job #: B046328
Report Date: 2010/09/10

GOLDER ASSOCIATES LTD
Client Project #: 10-1428-0006-3000

Sampler Initials: DV

CONVENTIONAL PARAMETERS (GROUND WATER)

Maxxam ID		L56096	L56473		
Sampling Date		2010/09/01	2010/09/01		
COC Number		E414235	E414235		
	Units	**MW-08-2**	**DUP-11**	**RDL**	**QC Batch**
CONVENTIONALS					
Fluoride (F)	mg/L	0.3	0.3	0.1	794608
Nitrogen ammonia (N-NH3)	mg/L	0.06	0.06	0.02	795432
pH	pH	7.74	7.75	N/A	794537
Turbidity	NTU	4.0	3.9	0.1	794611
Alkalinity Total (as CaCO3) pH 4.5	mg/L	80	80	2	794785
Total Dissolved Solids	mg/L	450	490	10	794207

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

889 Montée de Liesse, Ville St-Laurent, Québec, Canada H4T 1P5 Tél. : (514) 448-9001 Télécopieur : (514) 448-9199 Ligne sans frais : 1-877-4MAXXAM (462-9926)

Maxxam Job #: B046328
Report Date: 2010/09/10

GOLDER ASSOCIATES LTD
Client Project #: 10-1428-0006-3000

Sampler Initials: DV

GENERAL COMMENTS

Condition of sample(s) upon receipt: GOOD except for the following:
pH: Holding time already past.: L56096, L56473

METALS (GROUND WATER)

Please note that the results have not been corrected for QC recoveries nor for the method blank results.

CONVENTIONAL PARAMETERS (GROUND WATER)

Please note that the results have not been corrected for QC recoveries nor for the method blank results.

Results relate only to the items tested.

889 Montée de Liesse, Ville St-Laurent, Québec, Canada H4T 1P5 Tél. : (514) 448-9001 Télécopieur : (514) 448-9199 Ligne sans frais : 1-877-4MAXXAM (462-9926)

GOLDER ASSOCIATES LTD
Attention: Valérie Bertrand
Client Project #: 10-1428-0006-3000
P.O. #:
Project name:

Quality Assurance Report

Maxxam Job Number: B046328

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units
794207	FSI	Spiked Blank	Total Dissolved Solids	2010/09/03		100	%
		Spiked Blank DUP	Total Dissolved Solids	2010/09/03		100	%
		Method Blank	Total Dissolved Solids	2010/09/03	ND, RDL=10		mg/L
794537	MR4	QC STANDARD	pH	2010/09/03		101	%
		Spiked Blank	pH	2010/09/03		100	%
794608	MR4	QC STANDARD	Fluoride (F)	2010/09/07		98	%
		Spiked Blank	Fluoride (F)	2010/09/07		100	%
		Method Blank	Fluoride (F)	2010/09/07	ND, RDL=0.1		mg/L
794611	LI	QC STANDARD	Turbidity	2010/09/03		90	%
		Method Blank	Turbidity	2010/09/03	0.1, RDL=0.1		NTU
794785	MR4	QC STANDARD	Alkalinity Total (as CaCO3) pH 4.5	2010/09/07		106	%
		Spiked Blank	Alkalinity Total (as CaCO3) pH 4.5	2010/09/07		96	%
		Method Blank	Alkalinity Total (as CaCO3) pH 4.5	2010/09/07	ND, RDL=10		mg/L
795432	DKH	QC STANDARD	Nitrogen ammonia (N-NH3)	2010/09/08		105	%
		Spiked Blank	Nitrogen ammonia (N-NH3)	2010/09/08		104	%
		Method Blank	Nitrogen ammonia (N-NH3)	2010/09/08	ND, RDL=0.02		mg/L
795660	SC5	QC STANDARD	Aluminum (Al)	2010/09/09		103	%
			Antimony (Sb)	2010/09/09		96	%
			Arsenic (As)	2010/09/09		94	%
			Barium (Ba)	2010/09/09		96	%
			Cadmium (Cd)	2010/09/09		97	%
			Chromium (Cr)	2010/09/09		94	%
			Cobalt (Co)	2010/09/09		96	%
			Copper (Cu)	2010/09/09		96	%
			Lead (Pb)	2010/09/09		92	%
			Manganese (Mn)	2010/09/09		93	%
			Molybdenum (Mo)	2010/09/09		97	%
			Nickel (Ni)	2010/09/09		96	%
			Selenium (Se)	2010/09/09		99	%
			Sodium (Na)	2010/09/09		87	%
			Zinc (Zn)	2010/09/09		94	%
		Spiked Blank	Aluminum (Al)	2010/09/09		93	%
			Antimony (Sb)	2010/09/09		96	%
			Silver (Ag)	2010/09/09		85	%
			Arsenic (As)	2010/09/09		95	%
			Barium (Ba)	2010/09/09		87	%
			Cadmium (Cd)	2010/09/09		95	%
			Chromium (Cr)	2010/09/09		92	%
			Cobalt (Co)	2010/09/09		92	%
			Copper (Cu)	2010/09/09		91	%
			Lead (Pb)	2010/09/09		89	%
			Manganese (Mn)	2010/09/09		91	%
			Molybdenum (Mo)	2010/09/09		90	%
			Nickel (Ni)	2010/09/09		92	%
			Selenium (Se)	2010/09/09		92	%
			Sodium (Na)	2010/09/09		92	%
			Zinc (Zn)	2010/09/09		94	%
		Method Blank	Aluminum (Al)	2010/09/09	ND, RDL=0.03		mg/L
			Antimony (Sb)	2010/09/09	ND, RDL=0.006		mg/L
			Silver (Ag)	2010/09/09	ND, RDL=0.0003		mg/L
			Arsenic (As)	2010/09/09	ND, RDL=0.002		mg/L
			Barium (Ba)	2010/09/09	ND, RDL=0.03		mg/L
			Cadmium (Cd)	2010/09/09	ND, RDL=0.001		mg/L
			Chromium (Cr)	2010/09/09	ND, RDL=0.03		mg/L
			Cobalt (Co)	2010/09/09	ND, RDL=0.03		mg/L

889 Montée de Liesse, Ville St-Laurent, Québec, Canada H4T 1P5 Tél. : (514) 448-9001 Télécopieur : (514) 448-9199 Ligne sans frais : 1-877-4MAXXAM (462-9926)

GOLDER ASSOCIATES LTD
Attention: Valérie Bertrand
Client Project #: 10-1428-0006-3000
P.O. #:
Project name:

Quality Assurance Report (Continued)

Maxxam Job Number: B046328

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units
795660	SC5	Method Blank	Copper (Cu)	2010/09/09	ND, RDL=0.003		mg/L
			Lead (Pb)	2010/09/09	ND, RDL=0.001		mg/L
			Manganese (Mn)	2010/09/09	ND, RDL=0.003		mg/L
			Molybdenum (Mo)	2010/09/09	ND, RDL=0.03		mg/L
			Nickel (Ni)	2010/09/09	ND, RDL=0.01		mg/L
			Selenium (Se)	2010/09/09	ND, RDL=0.001		mg/L
			Sodium (Na)	2010/09/09	0.06, RDL=0.03		mg/L
			Zinc (Zn)	2010/09/09	0.007, RDL=0.005		mg/L
795664	SC5	Spiked Blank	Mercury (Hg)	2010/09/10		88	%
		Method Blank	Mercury (Hg)	2010/09/10	ND, RDL=0.0001		mg/L
795666	SC5	Spiked Blank	Calcium (Ca)	2010/09/10		105	%
			Magnesium (Mg)	2010/09/10		101	%
		Method Blank	Calcium (Ca)	2010/09/10	ND, RDL=1		mg/L
			Magnesium (Mg)	2010/09/10	ND, RDL=1		mg/L
			Total Hardness (CaCO3)	2010/09/10	ND, RDL=1		mg/L

RDL = Reportable Detection Limit
QC Standard: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
Spiked Blank: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

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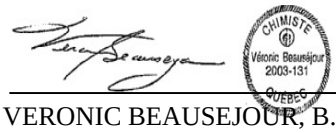
Validation Signature Page

Maxxam Job #: B046328

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

KATHIE QUEVILLON, B.Sc., Chemist, Analyst 2



VERONIC BEAUSEJOUR, B.Sc., Chemist, Supervisor

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Maxxam Analytique

☐ 2690 Avenue Dalton, Sainte-Foy, Québec G1P 3S4 Telephone: (418) 658-5784 Fax: (418) 658-6594
☐ 737 boul. Barette, Chicoutimi, Québec G7J 4C4 Telephone: (418) 543-3788 Fax: (418) 543-8994
www.maxxamanalytics.com

B046328

E- 414235

Invoice Information	Report Information (if differs from invoice)	
Company Name: Golder Ass	Company Name:	Order No.:
Address: Ottawa	Address:	Quotation No.:
Contact Name: Valérie Bertrand (Ottawa) cc: Michèle Copti (Mtl)	Contact Name:	Project / Site:
Telephone:	Telephone:	Project No.: 10-1428-0006-3000
Fax:	Fax:	
Sampler: Denis Vachon	Sampler:	

I hereby acknowledge the understanding and acceptance of Maxxam's terms and conditions as listed on the back of this form.

Sample Identification (sampling point)	Soil	Water Type	Other	Sampling (date / time)	To be filtered	Number of samples	PH (C10-C50)	O & G Min. / O & G Tot.	VOC (EPA 624) / BTEX / MAH	Phenols (GC/MS) / Phenols (Color)	PAH	PCB (Congeners) (GC-MS)	Heavy Metals (Cd, Cr, Cu, Ni, Pb, Zn)	Metals ICP regulation - 13 ele.-soil** / 16 ele. water*** ☒	Mercury ☒ / Selenium-soil / Others:	F ☒ / Cl / SO4 / NO2 / NO3 / NO2 + NO3	TKN / NH3 / P-Tot. / NH4	pH ☒ / Conductivity / TSS	Sulfide (SH2) / Total Sulphur (S)	Tot.-CN / Ox.-CN / Free CN	BOD5 / COD / Turbidity ☒ / TOC	RDS / RMD	CUM ART. 10 / ART. 11	Potable Water: ORG. / INOR. / THM	COLIF (Fec.) / COLIF (Tot.) / TOTAL-PC	Explosive EPA 8095 / EPA 8330	Other (specify): Alk	TDS	Dureté	
MW-08-2		G		01/09/2010		4								X	X	X	X	X									X	X	X	
Dup-11		G		" "		4								X	X	X	X	X									X	X	X	

LEGEND: ** Metals 13 elements (Ag, As, Ba, Cd, Co, Cr, Cu, Sn, Mn, Mo, Ni, Pb, Zn),
*** Metals 16 elements (Al, Sb, Ag, As, Ba, Cd, Cr, Co, Cu, Mn, Mo, Ni, Pb, Se, Na, Zn).

Types of Water: G = Groundwater P = Potable LW = Liquid Waste
Sur = Surface E = Effluent C = Catchment

Applicable Regulations: ______ (To complete)

Turnaround Time: ☐ 24h ☐ 48h ☐ 72h ☒ Regular ☐ Date:

Unless clearly identified all water samples received at Maxxam analytics will be treated as non-potable and will not be subject to the requirements under the Quebec Drinking Water Regulation.

General Condition at Reception: 4·4·3°

Chain of Custody

Relinquished by: Denis Vachon	Date: 02/09/2010	Time: 21h00	Received by: Bernard Lefrançois
Relinquished by: Bernard Lefrançois	Date: 03/09/2010	Time: 8h00	Received by:

Number of coolers: ✓

Temperature upon reception: 8:00 10-09-03 R.G.

Sample Transport: ☒ By Client ☐ MAXXAM Personnel ☐ Courier (Specify):

Remarks: + Dureté + Alk + TDS

 2010/09/10 15:04

KEENVCOCFORMQE - Saint-Laurent - 07/09 WHITE: MAXXAM ANALYTICS INC BLUE: INVOICING YELLOW: RETURN TO CLIENT WITH FINAL REPORT PINK: CLIENT

Your Project #: 10-1428-0006-3000
Your C.O.C. #: E414235

Attention: Valérie Bertrand
GOLDER ASSOCIATES LTD
OTTAWA
32 Steacie Dr.
Kanata, ON
Canada K2K 2A9

Report Date: 2010/09/30

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B051240
Received: 2010/09/03, 8:00

Sample Matrix: GROUND WATER
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Primary reference
Anions	2	2010/09/29	2010/09/30	STL SOP-00014/7	MA. 300 - Ions 1.2

Encryption Key

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

LEILA SABOURI, Project manager
Email: leila.sabouri@maxxamanalytics.com
Phone# (514) 448-9001 Ext:4227

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Maxxam Job #: B051240
Report Date: 2010/09/30

GOLDER ASSOCIATES LTD
Client Project #: 10-1428-0006-3000

Sampler Initials: DV

CONVENTIONAL PARAMETERS (GROUND WATER)

Maxxam ID		L77697	L77698		
Sampling Date		2010/09/01	2010/09/01		
COC Number		E414235	E414235		
	Units	**MW-08-2**	**DUP-11**	**RDL**	**QC Batch**
CONVENTIONALS					
Chloride (Cl)	mg/L	160	160	0.3	802656

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B051240
Report Date: 2010/09/30

GOLDER ASSOCIATES LTD
Client Project #: 10-1428-0006-3000

Sampler Initials: DV

GENERAL COMMENTS

Condition of sample(s) upon receipt: GOOD

CONVENTIONAL PARAMETERS (GROUND WATER)

Please note that the results have not been corrected for QC recoveries nor for the method blank results.
Reported detection limits are multiplied by dilution factors used for sample analysis.

Results relate only to the items tested.

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GOLDER ASSOCIATES LTD
Attention: Valérie Bertrand
Client Project #: 10-1428-0006-3000
P.O. #:
Project name:

Quality Assurance Report

Maxxam Job Number: B051240

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units
802656	DKH	Spiked Blank	Chloride (Cl)	2010/09/30		90	%
		Method Blank	Chloride (Cl)	2010/09/30	ND, RDL=0.05		mg/L

RDL = Reportable Detection Limit
Spiked Blank: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

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Validation Signature Page

Maxxam Job #: B051240

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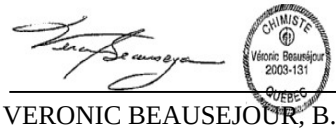

VERONIC BEAUSEJOUR, B.Sc., Chemist, Supervisor

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