TECHNICAL MEMORANDUM

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TO:	Mr. Larry Connell, P.Eng.	**DATE:**	December 12, 2007
FROM:	Valérie Bertrand, P. Geol.	**PROJECT NO:**	06-1122-386/3000 Doc. No. 548
EMAIL:	vbertrand@golder.com		
RE:	**MEADOWBANK GOLD PROJECT 2007 BASELINE GROUNDWATER QUALITY**		

1.0 INTRODUCTION

The following technical memorandum provides results from the 2007 groundwater monitoring program and compares the new data to those of previous years. Completion of the groundwater monitoring program is a condition of the Meadowbank Project Certificate No.004 issued by the Nunavut Impact Review Board (NIRB) on December 30, 2006.

1.1 Background

Since 2003, seven groundwater monitoring wells have been installed at the project site, to evaluate the baseline groundwater quality at the Goose Island and Portage pits, and underneath the proposed tailings basin in the North Arm of Second Portage Lake. Groundwater flow and quality data obtained from these areas have been used as input into the water quality model for the site (Golder, 2005; 2007).

The last round of groundwater quality monitoring and well replacement prior to 2007 occurred in August and early September 2006. During that time, three replacement wells were installed. The new wells were developed and all new and existing wells were extensively purged prior to sampling. The successful well development and purging of wells together with acceptable duplication of the 2006 results have provided a high level of confidence in the adequacy of the 2006 data to represent actual baseline groundwater concentrations at the site (Golder, 2006). Mine development has not been initiated since 2006 in the areas where groundwater monitoring wells are installed.

Due to property ownership transfer and associated intense camp activity that occurred at the onset of the field season, the 2007 groundwater monitoring session was initiated on August 6th, 2007 and the 30 to 40 days required to complete the program meant that only one sampling session could be completed in 2007. This has been communicated to NIRB in a correspondence by Agnico-Eagle Mines Ltd. (AE, 2007).

2.0 SITE CONDITIONS

The Goose Island and Portage pits will be developed in areas of thawed permafrost (talik) underneath Third Portage Lake, while the tailings are proposed to be deposited in the basin of the North arm of Second Portage Lake where a talik also exists. Groundwater monitoring data was used to predict the quality of water accumulating in the pits during operation, and to determine baseline groundwater quality underneath the tailings basin before tailing deposition. To this end, groundwater monitoring wells have been installed to sample talik water in these areas, in each of the three main lithologies that will be encountered in the Goose Island and Portage pits, namely Iron Formation (IF), Intermediate Volcanic (IV) and Ultramafic (UM) rock. No groundwater monitoring wells have been installed at the Vault deposit, as the Vault pit will be developed in continuous permafrost or in a talik that does not extend down through the permafrost (referred to as a “closed talik”).

Four of the seven wells were installed in 2003: MW03-01, MW03-02, MW03-03, and MW03-04. During subsequent sampling events, it was discovered that three of these wells (MW03-02, MW03-03, and MW03-04) developed internal damage likely due to freezing, rendering them inoperable (Golder, 2004a; 2004b). In 2006, three additional wells (MW06-05, MW06-06, and MW06-07) were installed to replace the damaged wells. Figure 1 shows the locations of the groundwater monitoring wells.

During the 2007 groundwater sampling, the three wells installed in 2006 were also found to be inoperable due to breakage or internal malfunction (MW06-05, MW06-06, and MW06-07). Only one groundwater well could therefore be sampled in 2007. Well MW03-01 was sampled on two occasions in August 2007.

2.1 Well Development and Sampling Procedures

Prior to sampling, the permafrost around well MW03-01 was thawed over a period of 4 days, by energizing the heater cables attached to the wells. The well was purged to remove standing water inside the well and to induce the flow of fresh groundwater from the rock formation. Purging was conducted using compressed air through flexible 5/8-inch (o.d.) High Density Polyethylene (HDPE) WaTerra® tubing. Groundwater was continually airlifted from the wells until electrical conductivity and pH readings stabilized (values remaining within 10% for three consecutive

readings). Field parameter readings and descriptions of water clarity and colour observed during well purging are included in groundwater sampling data sheets, in Appendix I.

Groundwater was sampled immediately after purging, using a Solinst® stainless steel Double Valve Pump (DVP) and ¼" Low Density Polyethylene (LDPE) tubing. Compressed nitrogen gas was used to evacuate water that entered the sampler unit. Nitrogen gas is stable and avoids alteration of groundwater chemistry during sampling. Water samples were collected using guideline procedures described by the USEPA (2002). Indicator parameters (conductivity, pH) were measured during well development, purging and sampling. Groundwater samples were collected in clean, laboratory-supplied containers. 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.

2.2 Analyses

Field Parameters

Measurements of groundwater temperature, pH, electrical conductivity, total dissolved solids (TDS), and dissolved oxygen were obtained in the field during purging and sampling. Measurements were recorded on groundwater sampling data sheets included in Appendix I. Alkalinity was also measured during sampling.

Laboratory Parameters

All groundwater samples were stored in coolers with ice packs and sealed before being shipped to the CANTEST laboratory in Winnipeg for chemical analyses. These analyses included: pH, conductivity, alkalinity (total, bicarbonate, carbonate, and hydroxide), hardness, total suspended solids (TSS), major anions (including sulphate, chloride and fluoride), total metals, dissolved metals, and nutrients (nitrate, nitrite, ammonia nitrogen, TKN, and total phosphate). Samples were collected under strict Chain-of-Custody (COC) procedures to ensure that samples were not compromised during shipping to CANTEST. A copy of the COC form and certificate of analysis are included in Appendix II.

2.3 Comparative Guidelines

Water accumulating in the pits will be pumped to the stormwater attenuation ponds, and the water from these ponds will be monitored prior to discharge to Third Portage Lake. Groundwater quality data is therefore compared to the Metal Mining Effluent Regulations (MMER; DFO, 2002). For consistency with previous reports, groundwater quality was also compared to the Canadian Council of Ministers of the Environment's (CCME) Canadian Environmental Quality Guidelines for the protection of freshwater aquatic life (CEQG-fw, updated 2006). This

comparison is qualitative only, as groundwater in the pit will not be discharged directly to the environment. Guidelines for metals are defined for total rather than dissolved phases in both the CEQG and MMER.

2.4 Quality Assurance/Quality Control

Guideline procedures provided by the USEPA (2002) were followed 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 evacuate samples;
- conducting in-situ measurements of sensitive chemical parameters (pH, conductivity, dissolved oxygen, alkalinity, where applicable);
- keeping the samples refrigerated on ice 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.

Upon collection of each sample, standard chain of custody procedures were adhered to.

A duplicate (FD) sample was collected for the groundwater sample. The relative percent difference (RPD) was calculated for the pair of FD samples, and each set of results was compared for reproducibility. For results greater than or equal to five times the method detection limit (MDL), a water quality objective of 20% RPD or less was established as per USEPA recommended methods (USEPA, 1994). 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 Monitoring Well Conditions

The following provides a summary of the physical conditions observed at monitoring wells MW06-05, MW06-06 and MW06-07 and MW03-01. The other wells were not monitored.

Well MW03-01

This well was installed in ultramafic (UM) rock. Groundwater purged from this well was clear, relatively free of sediment, and the well pipe was in good condition. Approximately 4 well volumes (defined as the volume of water in the piezometer relative to the regional groundwater table) were purged from this well over 5 days prior to sampling. The sample intake point was positioned above the screened interval (of 185 m to 200 m depth), at a depth of 170 m.

Well MW06-05

This well was installed in Intermediate Volcanic (IV) rock at Goose Island. In 2006, the well became obstructed at approximately 56 m depth and sampling equipment could not be lowered deeper than that point. This well was thawed to observe its condition in 2007 but the obstruction remained and the well could not be developed or sampled during the 2007 program.

Well MW06-06

This well was installed in Iron Formation (IF) rock at Goose Island. A malfunction of the heat trace cable, possibly a short circuit, prevented thawing of the well and consequently, could not be sampled. As the heat trace cables attached to the wells were energized to melt the permafrost, it was observed that a large amount of electrical power was drawn out of the generator resulting in melting of the fusable element in a 40 Ampere rated fuse. The site electrician investigated and advised that the heat trace cables had gone to ground possibly due to a break in the wiring. The cause for the break in wiring is not known but possibly due to freezing or freeze-thaw.

Well MW06-07

This well was installed in layered Intermediate Volcanic (IV) and quartzite (QTZ) rock on the south side of the Northwest arm of Second Portage Lake. Similar to MW06-06, the middle and/or lower section of heat trace tape was concluded to have gone to ground (short-circuited) by the site electrician. Consequently, permafrost could not be melted and groundwater could not be sampled.

3.2 Water Quality Data

The groundwater quality results obtained in 2003, 2004, 2006 and 2007 are presented in Table 1 (at end of text). All results met MMER monthly mean criteria (2002), while some results exceed the CEQG-fw. Since salinity of groundwater was of interest to groundwater modelling (Golder, 2007) to predict the quality of water that would accumulated within the Goose Island and Portage open pits during operation, the concentration of constituents used to predict salinity are presented in Table 2. Results show that calculated total dissolved solids (TDS), sodium and chloride concentrations at MW03-01 in 2007 are within, and in the lower end of, the range of

concentrations previously obtained and utilized in the most recent update to the site water quality model (Golder, 2007).

Table 2: Concentration of Constituents that Relate to Groundwater Salinity.

Location	Monitoring Well	Lithology	sampling year	Average calculated TDS[1] (mg/L)	Average[2] sodium (mg/L)	Average[2] chloride (mg/L)
Goose Island	MW03-01	UM	2003	793	21	624
			2004	1335	327	845
			2006	228	28	65
			2007	296	35	126
	MW03-02	IF	2003	387	6	5
			2004	499	90	255
	MW06-06[3]	IF	2006	633	57	318
North Portage	MW03-03	Portage IV	2003	254	16	50
			2004	239	32	121
Average, Goose Island and Portage pit areas				**518**	**68**	**268**
Second Portage Lake	MW03-04	Portage IV	2003	154	53	13
	MW06-07[4]	QTZ/ IV	2006	194	8	33
Average, tailings disposal area				**174**	**30**	**23**

Notes: 1. average of all results from that year
2. average dissolved concentration, all results from that year.
3. replaces well MW03-02
4. replaces well MW03-04

Figure 2 is a trilinear (Piper) plot showing general trends in the major ion chemistry of groundwater for the different lithologies. Lake water quality is also shown for comparison (Azimuth, 2003). Lake water quality has a fairly consistent chemical signature while the chemistry of groundwater shows distinct signatures for each lithology. Groundwater generally plots away from the signature of lake water, although groundwater from two of the IV wells (MW03-03 and tailing basin well MW06-07) is chemically similar to that of lake water.

Well MW03-01

Two groundwater samples were collected in August 2007 from monitoring well MW03-01. Although salinity components (sodium and chloride) are slightly higher in 2007 than in 2006, they are within the range of values measured since 2003. Dissolved metals and metalloid concentrations at this location in 2007 do not differ appreciably from those reported in 2006. The chemical signature is also similar to that determined from 2006 data. The following provides further details on salinity, major ion and metal concentrations.

In 2007, the field conductivity of the first sample collected from MW03-01 was 776 uS/cm, which is higher than the 2006 values (382 to 538 uS/cm), but significantly lower than those

reported in 2003 to 2004 (1855 and 2500 uS/cm, respectively). Conductivity and TDS follow similar trends in time.

Chloride concentrations in 2007 (126 mg/L, for both samples) are similar to those of 2006 (128 mg/L) while sodium concentrations are slightly lower in 2007 (34.2 and 35 mg/L) than in 2006 (52.5 mg/L).

In the 2007 sample, the concentrations of other major ions that contribute to salinity (calcium and magnesium, sulphate and bicarbonate) are also within the ranges of 2006 data.

Total and dissolved metal concentrations from MW03-1 in 2007 were below the MMER for all regulated parameters. Total and dissolved metal concentrations for the samples collected from MW03-01 were below the CEQG-fw guidelines with the exception of dissolved fluoride and total iron which showed a marginal excedance to their respective guideline.

Quality Assurance/Quality Control

Groundwater monitoring well MW03-01 was sampled twice on August 17, 2007. Both samples were analyzed for the same suite of parameters. Table 3 presents the Relative Percent Difference (RPD) calculated from each duplicated result, per the following:

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

The large majority of analytical results have adequate precision, as the RPD values are generally less than the target level of 20%. Exceptions to this include total suspended solids (40% RPD) and total phosphorous (35 % RPD) which are slightly above the target level.

4.0 CONCLUSION

The 2007 groundwater monitoring program for the Meadowbank site occurred during August of 2007. Property ownership transfer and intense camp activity that occurred in 2007 precluded the completion of two sampling rounds and the replacement of defective wells. Out of the 7 monitoring wells installed at the site since 2003, one well remained operable in 2007. The one operable well MW03-01 was sampled in duplicate in August 2007.

Groundwater quality from MW03-01 in 2007 met MMER monthly mean criteria for all regulated parameters. Minor exceedances to the freshwater CEQG occurred for dissolved fluoride and total iron. Salinity components (TDS, sodium and chloride concentrations) were slightly higher in 2007 than in 2006, but fell within the range of values measured since 2003. Dissolved metals and

metalloid concentrations at this location in 2007 did not differ appreciably from those reported in 2006. The chemical signatures were also similar to those obtained from 2006 data.

The groundwater quality at MW03-01 has remained fairly consistent between 2006 and 2007, supporting the contention that the 2006 data constitute adequate baseline information for the areas investigated.

Monitoring well design and installation methods have been reviewed and are being revised to improve the robustness of the next generation of installations.

Yours truly,

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Attachments: Tables 1 and 3;
Figures 1 and 2;
Appendices I and II.

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Table 1
Groundwater Quality Results
Meadowbank Project
Agnico-Eagle Mines Ltd.

		Canadian Water Quality Guideline (Freshwater Aquatic Life)[6]	Metal Mine Effluent Regulation[7]	Ultramafic Rock								
				Goose Island								
				UM								
				MW03-01								
Laboratory sample number		(CEQG)	(MMER)	9755-2	9755-3	9044-01	9044-02	12393-01	12393-02	12395-01	8581-01	8581-02
Date				07-Sep-03	07-Sep-03	Aug-7-04	Aug-7-04	Aug-8-06	Aug-8-06	Aug-14-06	Aug-17-07	Aug-17-07
QA/QC					FD		FD		FD			FD
FIELD PARAMETERS												
Depth of Screen Midpoint (m)				150	150	150	-	150	150	150	150	150
Temperature (oC)				11.7	11.7	8	-	7.7	-	9.9	6.7	-
pH (s.u.)		**6.5 - 9.0**	6.0-9.5	7.36	7.36	8.03	-	7.93	-	7.58	7.43	-
Conductivity (uS/cm)				1855	1855	2500	-	382	-	538	776	-
Redox (mV)				-	-	119	-	-	-	-	-	-
Dissolved Oxygen (mg/L)		**5.5 - 9.5**		**2.0**	**2.0**	**2.0**	-	8.6	-	**4.8**	**3.8**	-
Alkalinity (mg/L as CaCO3)				19 - 22	19 - 22	27	-	33.9	-	48.8	39	-
TDS (mg/L)				-	-	-	-	193	-	405	389	-
Clarity				minor silt	minor silt	clear	-	clear	clear	clear		
LABORATORY PARAMETERS												
Calculated TDS (mg/L)				793	793	1335	-	125	126	292	249	250
pH (s.u.)		**6.5 - 9.0**	6.0-9.5	7.24	7.3	7.46	-	-	-	7.36	6.78	6.96
Conductivity (uS/cm)				-	-	2900	-	-	-	634	588	583
Total Alkalinity CaCO3 (mg/L)				30	30	27.3	-	-	-	51	36.7	36.7
Bicarbonate Alkalinity HCO3 (mg/L)				36.6	36.6	33.3	-	-	-	62.2	44.8	44.8
Carbonate Alkalinity CO3 (mg/L)				< 0.5	< 0.5	< 0.5	-	-	-	< 0.5	< 0.5	< 0.5
Hydroxide Alkalinity OH (mg/L)				< 0.5	< 0.5	< 0.5	-	-	-	< 0.5	< 0.5	< 0.5
Dissolved Sulphate SO4 (mg/L)				15.6	15.8	15.9	-	42.8	43.1	51.1	46.5	46.3
Hardness CaCO3 (mg/L)*				262	267	380	-	75.9	77.3	150	107	109
Hardness (Total) CaCO3 (mg/L)*				318	388	391	-	82	81.6	148	116	112
Total Suspended Solids				-	-	13	-	-	-	4	2	3
Water Type				Ca-Cl	Ca-Cl	Na + K-Na-Cl	-	Ca-Na-Mg-Cl-SO4-HCO3	Ca-Na-Mg-Cl-SO4	Na-Ca-Mg-Cl	Na-Ca-Mg-Cl-SO4	Na-Ca-Mg-Cl-SO4
Total Metals (mg/L)												
Aluminum[1]	Al	**0.005 - 0.1**		**4.16**	**1.2**	**0.25**	-	**0.4**	**0.48**	**0.13**	0.053	0.059
Antimony	Sb			<0.001	<0.001	0.0004	-	<0.0002	<0.0002	< 0.001	< 0.001	< 0.001
Arsenic	As	**0.005**	0.5	<0.001	**0.017**	0.004	-	0.0005	0.0006	0.002	< 0.001	< 0.001
Barium	Ba			0.18	0.2	0.301	-	0.027	0.028	0.052	0.053	0.052
Beryllium	Be			<0.001	<0.001	<0.0002	-	<0.0002	<0.0002	< 0.001	< 0.001	< 0.001
Bismuth	Bi			<0.001	<0.001	<0.0002	-	<0.0002	<0.0002	< 0.001	< 0.001	< 0.001
Boron	B			0.59	1.07	2.43	-	0.11	0.11	0.27	0.23	0.23
Cadmium[3]	Cd	**0.00000094-0.000107 #**		0.00024	0.00037	<0.00004	-	<0.00004	<0.00004	< 0.0002	< 0.0002	< 0.0002
Calcium	Ca			72	87.1	95.4	-	19.1	19.1	33.4	26.1	25.1
Chromium[2]	Cr	**0.001 / 0.0089**		**0.049**	**0.32**	**0.004**	-	**0.0017**	**0.0021**	< 0.001	< 0.001	< 0.001
Cobalt	Co			0.004	0.016	0.0009	-	0.0005	0.0005	< 0.001	< 0.001	< 0.001
Copper[3]	Cu	**0.002 - 0.004**	0.3	**0.044**	**0.071**	0.0035	-	**0.0022**	**0.002**	< 0.001	0.001	0.001
Iron	Fe	**0.3**		**6.05**	**10.7**	**1.14**	-	**1.02**	**1.11**	**1.1**	**0.94**	**0.93**
Lead[3]	Pb	**0.001 - 0.007**	0.2	**0.013**	**0.03**	0.0025	-	0.0015	0.0013	< 0.001	0.001	0.001
Lithium	Li			0.025	0.031	0.04	-	0.0031	0.0032	0.006	< 0.005	< 0.005
Magnesium	Mg			33.2	41.5	37.1	-	8.29	8.2	15.6	12.4	12.1
Manganese	Mn			0.073	0.72	0.415	-	0.309	0.304	0.93	0.77	0.75
Mercury	Hg	**0.000004**		-	-	<0.00002	-	<0.00002	<0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	Mo	**0.073**		<0.0005	0.011	0.0083	-	0.013	0.013	0.012	0.0084	0.0084
Nickel[3]	Ni	**0.025 - 0.15**	0.5	0.056	0.13	0.0045	-	0.002	0.0022	< 0.001	0.001	0.001
Phosphorus	P			0.069	0.075	0.16	-	<0.03	<0.03	< 0.15	< 0.15	< 0.15
Potassium	K			7.31	9.1	9.13	-	3.63	3.68	6.1	4.7	4.5
Selenium	Se	**0.001**		<0.001	<0.001	<0.0002	-	<0.0002	<0.0002	< 0.001	< 0.001	< 0.001
Silicon	SiO2			0.4	4.12	5.07	-	2.31	2.71	2.7	1.4	1.3
Silver	Ag	**0.00010**		**0.0064**	**0.011**	**0.00028**	-	<0.00005	<0.00005	< 0.00025	< 0.00025	< 0.00025
Sodium	Na			22	25	357	-	16	15.9	50.5	39.1	37.5
Strontium	Sr			0.68	0.79	1.56	-	0.119	0.12	0.28	0.24	0.24
Tellurium	Te			<0.001	<0.001	<0.0002	-	<0.0002	<0.0002	< 0.001	< 0.001	< 0.001
Thallium	Tl	**0.0008**		<0.0001	<0.0001	<0.00002	-	<0.00002	<0.00002	< 0.0001	< 0.0001	< 0.0001
Thorium	Th			<0.0005	0.0038	<0.0001	-	0.0005	0.0006	< 0.0005	< 0.0005	< 0.0005
Tin	Sn			<0.001	0.002	0.0009	-	<0.0002	<0.0002	< 0.001	< 0.001	< 0.001
Titanium	Ti			0.01	0.22	0.01	-	0.024	0.029	0.006	0.003	0.003
Uranium	U			0.0012	0.0017	0.0003	-	0.0006	0.0006	< 0.0005	< 0.0005	< 0.0005
Vanadium	V			<0.001	0.029	0.0004	-	0.0007	0.0008	< 0.001	< 0.001	< 0.001
Zinc	Zn	**0.03**	0.5	**0.063**	**0.087**	0.007	-	0.005	0.005	< 0.005	0.009	0.009
Zirconium	Zr			<0.0010	<0.0010	<0.002	-	<0.002	<0.002	< 0.01	< 0.01	< 0.01
Dissolved Metals (mg/L)												
Aluminum[1]	Al	**0.005 - 0.1**		0.051	0.011	0.005	-	**0.3**	**0.3**	< 0.005	< 0.005	0.011
Antimony	Sb			<0.001	<0.001	0.0002	-	<0.0002	<0.0002	< 0.001	< 0.001	< 0.001
Arsenic	As	**0.005**	0.5	<0.001	0.003	0.0038	-	0.0005	0.0005	0.003	< 0.001	< 0.001
Barium	Ba			0.12	0.13	0.3	-	0.025	0.025	0.051	0.048	0.051
Beryllium	Be			<0.001	<0.001	<0.0002	-	<0.0002	<0.0002	< 0.001	< 0.001	< 0.001
Bismuth	Bi			<0.001	<0.001	<0.0002	-	<0.0002	<0.0002	< 0.001	< 0.001	< 0.001
Boron	B			0.53	1.03	2.39	-	0.1	0.1	0.27	0.2	0.21
Cadmium[3]	Cd	**0.00000094-0.000107 #**		0.00007	0.00012	<0.00004	-	<0.00004	<0.00004	< 0.0002	< 0.0002	< 0.0002
Calcium	Ca			65.6	67	94.2	-	17.6	17.9	33.7	24	24.5
Chromium[2]	Cr	**0.001 / 0.0089**		<0.001	<0.001	0.0002	-	**0.0012**	**0.0012**	< 0.001	< 0.001	< 0.001
Cobalt	Co			0.001	0.001	0.0008	-	0.0004	0.0004	< 0.001	< 0.001	< 0.001
Copper[3]	Cu	**0.002 - 0.004**	0.3	0.002	0.002	0.0004	-	0.0016	0.0016	< 0.001	< 0.001	0.001
Iron	Fe	**0.3**		<0.05	0.07	0.08	-	**0.84**	**0.85**	0.2	< 0.05	< 0.05
Lead[3]	Pb	**0.001 - 0.007**	0.2	<0.001	<0.001	<0.0002	-	0.0014	0.0012	< 0.001	< 0.001	< 0.001
Lithium	Li			0.017	0.017	0.033	-	0.0028	0.0027	0.005	< 0.005	< 0.005
Magnesium	Mg			23.4	24.3	35.1	-	7.76	7.92	16.1	11.4	11.6
Manganese	Mn			0.06	0.28	0.381	-	0.286	0.293	0.980	0.700	0.720
Mercury	Hg	**0.000004**		-	-	<0.00002	-	<0.00002	<0.00002	< 0.00002	< 0.00002	< 0.00002
Molybdenum	Mo	**0.073**		<0.0005	0.0057	0.0076	-	0.012	0.012	0.013	0.0079	0.0079
Nickel[3]	Ni	**0.025 - 0.15**	0.5	0.006	0.005	0.0026	-	0.0019	0.0019	< 0.001	0.001	0.001
Phosphorus	P			0.1	0.15	0.04	-	<0.03	<0.03	< 0.15	< 0.15	< 0.15
Potassium	K			5.71	5.95	8.56	-	3.27	3.28	6.1	4.3	4.4
Selenium	Se	**0.001**		<0.001	<0.001	<0.0002	-	<0.0002	<0.0002	< 0.001	< 0.001	< 0.001
Silicon	SiO2			0.32	3.27	3.89	-	1.96	1.98	2.50	1.20	1.20
Silver	Ag	**0.0001**		<0.0001	<0.0001	<0.00005	-	<0.00005	<0.00005	< 0.00025	< 0.00025	< 0.00025
Sodium	Na			20	22	327.0	-	15.0	15.6	52.5	34.2	35.0
Strontium	Sr			0.58	0.59	1.46	-	0.111	0.114	0.29	0.22	0.22
Tellurium	Te			<0.001	<0.001	<0.0002	-	<0.0002	<0.0002	< 0.001	< 0.001	< 0.001
Thallium	Tl	**0.0008**		<0.0001	<0.0001	<0.00002	-	<0.00002	<0.00002	< 0.0001	< 0.0001	< 0.0001
Thorium	Th			<0.0005	<0.0005	<0.0001	-	0.0004	0.0004	< 0.0005	< 0.0005	< 0.0005
Tin	Sn			<0.001	<0.001	<0.0002	-	<0.0002	<0.0002	< 0.001	< 0.001	< 0.001
Titanium	Ti			<0.001	<0.001	0.0003	-	0.019	0.018	< 0.001	< 0.001	< 0.001
Uranium	U			0.0006	0.0006	0.0003	-	0.0006	0.0006	< 0.0005	< 0.0005	< 0.0005
Vanadium	V			<0.001	<0.001	<0.0002	-	0.0006	0.0006	< 0.001	< 0.001	< 0.001
Zinc	Zn	**0.03**	0.5	0.006	<0.005	0.002	-	0.005	0.005	< 0.005	< 0.005	0.005
Zirconium	Zr			<0.0010	<0.0010	<0.002	-	<0.002	<0.002	< 0.01	< 0.01	< 0.01
Dissolved Anions (mg/L)												
Dissolved Fluoride[4]	F	**0.12**		< 0.05	< 0.05	**0.12**	-	**0.16**	**0.17**	**0.16**	**0.18**	**0.18**
Dissolved Chloride	Cl			626	621	845	-	34.7	33.7	128	126	126
Nutrients (mg/L)												
Total Nitrogen	N										< 0.2	0.3
Nitrate and Nitrite	NO3 + NO2			< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-		
Dissolved Nitrate[5]	NO3	**13**		-	-	< 0.05	-	< 0.05	< 0.05	< 0.1	< 0.01	0.09
Nitrite	NO2	**0.060**		-	-	-	-	0.003	0.004	0.002	0.002	< 0.002
Ammonia Nitrogen	N			0.38	0.37	-	-	0.21	0.19	-	0.14	0.15
Total Kjeldahl Nitrogen	N			0.7	0.6	0.3	0.5	0.3	0.3	-	< 0.2	0.2
Total Phosphorus	P			0.07	0.08	0.05	0.05	0.04	0.04	-	0.01	0.02
Cyanide (mg/L)												
Total	CN		1.0	-	-	<0.01	-	-	-	-		
Free	CN			-	-	<0.1	-	-	-	-		

NOTES:
1. Freshwater Aquatic Life Guideline is pH, calcium and DOC dependent. Exceedances identified apply pH criterion.
2. Freshwater Aquatic Life Guideline for chromium depends on valence of chromium ion (Cr(III) = 0.0089 mg/L, Cr(VI) = 0.001 mg/L).
3. Freshwater Aquatic Life Guideline is hardness dependent.
4. Freshwater Aquatic Life Guideline listed for inorganic fluorides.
5. CEQG stipulates that concentrations that stimulate weed growth should be avoided.
6. CEQG (2003 update) Freshwater Guidelines and Criteria are based on **total** metal concentrations.
7. Maximum authorized monthly mean concentration (based on **total** concentration) (June 6, 2002).
8. Sample decanted off of 9043-01 due to high TSS and reanalysed for total metals
9. Values in italics indicate detection limit is above standard

Range is site specific
< = Less than the analytical detection limit
- = Not analyzed
* Hardness calculated from calcium and magnesium concentrations
** Laboratory measured values
FD = Field Duplicate

Table 1
Groundwater Quality Results
Meadowbank Project
Agnico-Eagle Mines Ltd.

		Canadian Water Quality Guideline (Freshwater Aquatic Life)[6]	Metal Mine Effluent Regulation[7]	Iron Formation Rock					
				Goose Island					
				IF					
				MW03-02				MW06-06	
Laboratory sample number		(CEQG)	(MMER)	9756-03	9043-01	9043-01	9043-02	12567-01	12567-02
Date				28-Sep-03	Jul 31-04	Jul 31-04 Decant [8]	Jul 31-04 FD	24-Aug-06	24-Aug-06 FD
QA/QC									
FIELD PARAMETERS									
Depth of Screen Midpoint (m)				143	143	143	143	173	173
Temperature (oC)				3.5	12	-	-	12.4	-
pH (s.u.)		**6.5 - 9.0**	6.0-9.5	7.68	7.19	-	-	7.59	-
Conductivity (uS/cm)				660	1104	-	-	1306	-
Redox (mV)				8.2	32	-	-	-	-
Dissolved Oxygen (mg/L)		**5.5 - 9.5**		**0.8**	7.0	-	-	**1.2**	-
Alkalinity (mg/L as CaCO3)				96 - 100	51	-	-	46.3	-
TDS (mg/L)				-	-	-	-	650	-
Clarity				clear	silty	clear	silty	clear	clear
LABORATORY PARAMETERS									
Calculated TDS (mg/L)				387	499	-		588	678
pH (s.u.)		**6.5 - 9.0**	6.0-9.5	7.04	7.25	-	7.34	7.33	7.29
Conductivity (uS/cm)				-	1270	-	1280	1210	1200
Total Alkalinity CaCO3 (mg/L)				103	41.6	-	42.9	49.9	49.9
Bicarbonate Alkalinity HCO3 (mg/L)				125	50.8	-	52.4	60.9	60.9
Carbonate Alkalinity CO3 (mg/L)				< 0.5	< 0.5	-	< 0.5	< 0.5	< 0.5
Hydroxide Alkalinity OH (mg/L)				< 0.5	< 0.5	-	< 0.5	< 0.5	< 0.5
Dissolved Sulphate SO4 (mg/L)				263	38.4	-	38.2	65.1	56
Hardness CaCO3 (mg/L)*				290	308	-	-	345	347
Hardness (Total) CaCO3 (mg/L)*				316	313	292	-	326	316
Total Suspended Solids				-	96	-	90	16	28
Water Type				Ca-Mg-SO4-HCO3	Na + K-Na-Ca-Mg-Cl	Na + K-Na-Ca-Mg-Cl	-	Ca-Na-Cl	Ca-Na-Cl
Total Metals (mg/L)									
Aluminum[1]	Al	**0.005 - 0.1**		**1.07**	**2.31**	**0.37**	-	**0.16**	**0.13**
Antimony	Sb			<0.001	0.0003	0.0002	-	<0.001	<0.001
Arsenic	As	**0.005**	0.5	0.002	0.0038	0.002	-	0.003	0.003
Barium	Ba			0.028	0.096	0.076	-	0.024	0.024
Beryllium	Be			<0.001	< 0.0002	< 0.0002	-	<0.001	<0.001
Bismuth	Bi			<0.001	< 0.0002	< 0.0002	-	<0.001	<0.001
Boron	B			0.06	0.97	0.87	-	0.36	0.31
Cadmium[3]	Cd	**0.00000094-0.000107 #**		<0.0002	0.00018	0.0001	-	<0.0002	<0.0002
Calcium	Ca			68.3	74.7	72.5	-	89.3	86.1
Chromium[2]	Cr	**0.001 / 0.0089**		**0.003**	**0.008**	**0.0012**	-	<0.001	<0.001
Cobalt	Co			0.004	0.0072	0.0045	-	0.002	0.002
Copper[3]	Cu	**0.002 - 0.004**	0.3	**0.004**	**0.007**	0.002	-	0.001	**0.005**
Iron	Fe	**0.3**		**2.96**	**4.72**	**0.68**	-	**0.57**	**0.57**
Lead[3]	Pb	**0.001 - 0.007**	0.2	0.002	0.0035	0.0005	-	<0.001	<0.001
Lithium	Li			0.021	0.021	0.017	-	0.029	0.028
Magnesium	Mg			35.2	30.7	27	-	25	24.5
Manganese	Mn			1.04	0.517	0.417	-	0.41	0.43
Mercury	Hg	**0.000004**		<0.00002	< 0.00002	< 0.00002	-	<0.00002	<0.00002
Molybdenum	Mo	**0.073**		0.022	0.015	0.013	-	0.0087	0.009
Nickel[3]	Ni	**0.025 - 0.15**	0.5	0.008	0.017	0.011	-	0.007	0.01
Phosphorus	P			0.19	0.34	0.09	-	1.2	1.2
Potassium	K			5.94	7.8	6.9	-	6.7	6.5
Selenium	Se	**0.001**		<0.001	< 0.0002	< 0.0002	-	<0.001	<0.001
Silicon	SiO2			10.7	13.8	7.57	-	4.7	4.6
Silver	Ag	**0.00010**		<0.0001	**0.00067**	**0.00016**	-	<0.00025	<0.00025
Sodium	Na			6.81	91.9	84.9	-	59	55.9
Strontium	Sr			0.26	0.759	0.691	-	0.75	0.72
Tellurium	Te			<0.001	< 0.0002	< 0.0002	-	<0.001	<0.001
Thallium	Tl	**0.0008**		<0.0001	0.00006	< 0.00002	-	<0.0001	<0.0001
Thorium	Th			0.0007	< 0.0001	< 0.0001	-	<0.0005	<0.0005
Tin	Sn			<0.001	0.0003	< 0.0002	-	<0.001	<0.001
Titanium	Ti			0.063	0.158	0.02	-	0.005	0.005
Uranium	U			0.0084	0.002	0.0013	-	0.0018	0.0018
Vanadium	V			0.002	0.0039	0.0006	-	0.002	0.002
Zinc	Zn	**0.03**	0.5	0.014	**0.042**	0.015	-	<0.005	<0.005
Zirconium	Zr			<0.0010	< 0.002	< 0.002	-	<0.01	<0.01
Dissolved Metals (mg/L)									
Aluminum[1]	Al	**0.005 - 0.1**		**0.47**	0.019	-	-	<0.005	<0.005
Antimony	Sb			<0.001	0.0003	-	-	<0.001	<0.001
Arsenic	As	**0.005**	0.5	0.002	0.002	-	-	0.002	0.002
Barium	Ba			0.023	0.086	-	-	0.018	0.019
Beryllium	Be			<0.001	< 0.0002	-	-	<0.001	<0.001
Bismuth	Bi			<0.001	< 0.0002	-	-	<0.001	<0.001
Boron	B			0.06	0.94	-	-	0.37	0.44
Cadmium[3]	Cd	**0.00000094-0.000107 #**		<0.0002	0.00016	-	-	<0.0002	<0.0002
Calcium	Ca			63.1	73.5	-	-	87.1	85.3
Chromium[2]	Cr	**0.001 / 0.0089**		**0.001**	0.0004	-	-	<0.001	<0.001
Cobalt	Co			0.004	0.0060	-	-	<0.001	<0.001
Copper[3]	Cu	**0.002 - 0.004**	0.3	**0.004**	0.0014	-	-	0.001	<0.001
Iron	Fe	**0.3**		**1.91**	0.05	-	-	<0.05	<0.05
Lead[3]	Pb	**0.001 - 0.007**	0.2	0.001	< 0.0002	-	-	<0.001	<0.001
Lithium	Li			0.019	0.016	-	-	0.028	0.025
Magnesium	Mg			32.1	30.2	-	-	24.0	23.6
Manganese	Mn			0.96	0.492	-	-	0.006	0.003
Mercury	Hg	**0.000004**		<0.00002	< 0.02	-	-	<0.00002	<0.00002
Molybdenum	Mo	**0.073**		0.018	0.014	-	-	0.0081	0.0069
Nickel[3]	Ni	**0.025 - 0.15**	0.5	0.007	0.012	-	-	0.005	0.004
Phosphorus	P			0.16	< 0.03	-	-	0.9	0.8
Potassium	K			5.36	7.43	-	-	6.6	5.8
Selenium	Se	**0.001**		<0.001	< 0.0002	-	-	<0.001	<0.001
Silicon	SiO2			7.98	5.88	-	-	4.1	3.8
Silver	Ag	**0.0001**		<0.0001	< 0.00005	-	-	<0.00025	<0.00025
Sodium	Na			6.29	89.5	-	-	58.2	55.9
Strontium	Sr			0.24	0.736	-	-	0.72	0.76
Tellurium	Te			<0.001	< 0.0002	-	-	<0.001	<0.001
Thallium	Tl	**0.0008**		<0.0001	< 0.00002	-	-	<0.0001	<0.0001
Thorium	Th			<0.0005	< 0.0001	-	-	<0.0005	<0.0005
Tin	Sn			<0.001	< 0.0002	-	-	<0.001	<0.001
Titanium	Ti			0.024	0.0008	-	-	<0.001	<0.001
Uranium	U			0.0077	0.0013	-	-	0.0016	0.0014
Vanadium	V			<0.001	< 0.0002	-	-	0.001	0.001
Zinc	Zn	**0.03**	0.5	0.012	0.029	-	-	<0.005	<0.005
Zirconium	Zr			<0.0010	< 0.002	-	-	<0.01	<0.01
Dissolved Anions (mg/L)									
Dissolved Fluoride[4]	F	**0.12**		**0.35**	**0.6**	-	**0.57**	**0.55**	**0.63**
Dissolved Chloride	Cl			5.4	251	-	259	304	331
Nutrients (mg/L)									
Total Nitrogen	N								
Nitrate and Nitrite	NO3 + NO2			< 0.05	< 0.05	-	< 0.05	-	-
Dissolved Nitrate[5]	NO3	**13**		< 0.05	< 0.05	-	< 0.05	< 0.25	< 0.25
Nitrite	NO2	**0.060**		0.005	0.006	-	0.007	0.005	0.004
Ammonia Nitrogen	N			0.19	0.07	-	0.05	-	-
Total Kjeldahl Nitrogen	N			-	0.4	-	-	0.6	0.6
Total Phosphorus	P			0.10	0.23	-	0.25	-	-
Cyanide (mg/L)									
Total	CN		1.0	-	<0.01	-	-	-	-
Free	CN			-	<0.1	-	-	-	-

NOTES:
1. Freshwater Aquatic Life Guideline is pH, calcium and DOC dependent. Exceedances identified apply pH criterion.
2. Freshwater Aquatic Life Guideline for chromium depends on valence of chromium ion (Cr(III) = 0.0089 mg/L, Cr(VI) = 0.001 mg/L).
3. Freshwater Aquatic Life Guideline is hardness dependent.
4. Freshwater Aquatic Life Guideline listed for inorganic fluorides.
5. CEQG stipulates that concentrations that stimulate weed growth should be avoided.
6. CEQG (2003 update) Freshwater Guidelines and Criteria are based on **total** metal concentrations.
7. Maximum authorized monthly mean concentration (based on **total** concentration) (June 6, 2002).
8. Sample decanted off of 9043-01 due to high TSS and reanalysed for total metals
9. Values in italics indicate detection limit is above standard

Range is site specific
< = less than the analytical detection limit.
- = not analyzed.
* Hardness calculated from calcium and magnesium concentrations
** Laboratory measured values.
FD= Field Duplicate

Table 1
Groundwater Quality Results
Meadowbank Project
Agnico-Eagle Mines Ltd.

		Canadian Water Quality Guideline (Freshwater Aquatic Life)[6]	Metal Mine Effluent Regulation[7]	Intermediate Volcanic Rock			Intermediate Volcanic		
				North Portage			Second Portage Arm (tailings disposal area)		
				IV			IV	QTZ / IV	
				MW03-03			MW03-04	MW06-07	
Laboratory sample number		(CEQG)	(MMER)	9756-02	9045-01	9045-02	9756-01	12568-01	12568-02
Date				25-Sep-03	Aug-9-04	Aug-9-04	18-Sep-03	30-Aug-06	30-Aug-06
QA/QC						FD			FD
FIELD PARAMETERS									
Depth of Screen Midpoint (m)				111	111	111	169	205	205
Temperature (oC)				2.2	10.3	-	3.3	5	5
pH (s.u.)		**6.5 - 9.0**	6.0-9.5	8.63	7.77	-	7.67	8	8
Conductivity (uS/cm)				350	627	-	370 - 450	440	440
Redox (mV)				79.9	3	-	-	-	-
Dissolved Oxygen (mg/L)		**5.5 - 9.5**		**1.0**	**1.5**	-	-	8.0	8.0
Alkalinity (mg/L as CaCO3)				87	102	-	-	84	84
TDS (mg/L)				-	-	-	-	220	220
Clarity				clear	clear	-	cloudy	clear	clear
LABORATORY PARAMETERS									
Calculated TDS (mg/L)				254	239		154	172**	162**
pH (s.u.)		**6.5 - 9.0**	6.0-9.5	7.83	7.96	-	-	7.54	7.57
Conductivity (uS/cm)				-	640	-		281	285
Total Alkalinity CaCO3 (mg/L)				93.8	133	-	-	89	89
Bicarbonate Alkalinity HCO3 (mg/L)				114	162	-	-	108	108
Carbonate Alkalinity CO3 (mg/L)				< 0.5	< 0.5	-	-	< 0.5	< 0.5
Hydroxide Alkalinity OH (mg/L)				< 0.5	< 0.5	-	-	< 0.5	< 0.5
Dissolved Sulphate SO4 (mg/L)				26.6	6.2	-	63.8	4	3.76
Hardness CaCO3 (mg/L)*				136	210	-	53	106	107
Hardness (Total) CaCO3 (mg/L)*				144	216	-	-	124	128
Total Suspended Solids				-	1	-	-	11	11
Water Type				Mg-Ca-Na + K-HCO3-Cl	Ca-Mg-Na + K-Na-Cl-HCO3	-	Na + K-Na-SO4-HCO3	Ca-Mg-HCO3-Cl	Ca-Mg-HCO3-Cl
Total Metals (mg/L)									
Aluminum[1]	Al	**0.005 - 0.1**		0.018	**0.12**	-	-	**1.08**	**1.06**
Antimony	Sb			0.002	0.0002	-	-	< 0.001	< 0.001
Arsenic	As	**0.005**	0.5	0.004	**0.015**	-	-	0.001	0.002
Barium	Ba			0.02	0.05	-	-	0.11	0.11
Beryllium	Be			<0.001	< 0.0002	-	-	< 0.001	< 0.001
Bismuth	Bi			<0.001	< 0.0002	-	-	< 0.001	< 0.001
Boron	B			0.09	0.19	-	-	< 0.05	< 0.05
Cadmium[3]	Cd	**0.00000094-0.000107 #**		<0.0002	0.00006	-	-	< 0.0002	< 0.0002
Calcium	Ca			28	47.7	-	-	34.9	36.4
Chromium[2]	Cr	**0.001 / 0.0089**		<0.001	**0.001**	-	-	**0.006**	**0.005**
Cobalt	Co			<0.001	0.0004	-	-	0.001	0.001
Copper[3]	Cu	**0.002 - 0.004**	0.3	<0.001	0.0014	-	-	**0.011**	**0.011**
Iron	Fe	**0.3**		<0.05	**0.46**	-	-	**1.5**	**1.58**
Lead[3]	Pb	**0.001 - 0.007**	0.2	0.001	0.0006	-	-	0.001	0.001
Lithium	Li			0.007	0.0092	-	-	0.004	0.004
Magnesium	Mg			18	23.5	-	-	8.81	9.04
Manganese	Mn			0.11	0.131	-	-	0.073	0.074
Mercury	Hg	**0.000004**		<0.00002	< 0.00002	-	-	< 0.00002	< 0.00002
Molybdenum	Mo	**0.073**		0.056	**0.093**	-	-	0.005	0.0048
Nickel[3]	Ni	**0.025 - 0.15**	0.5	0.003	0.0024	-	-	0.005	0.005
Phosphorus	P			0.07	0.08	-	-	0.4	0.4
Potassium	K			3.51	2.65	-	-	2.7	2.8
Selenium	Se	**0.001**		<0.001	< 0.0002	-	-	< 0.001	< 0.001
Silicon	SiO2			3.78	5.96	-	-	5	5
Silver	Ag	**0.00010**		<0.0001	**0.0001**	-	-	**0.0009**	**0.0009**
Sodium	Na			17.6	33.6	-	-	8.85	9.12
Strontium	Sr			0.26	0.581	-	-	0.23	0.24
Tellurium	Te			<0.001	< 0.0002	-	-	< 0.001	< 0.001
Thallium	Tl	**0.0008**		<0.0001	< 0.00002	-	-	< 0.0001	< 0.0001
Thorium	Th			<0.0005	< 0.0001	-	-	< 0.0005	< 0.0005
Tin	Sn			<0.001	< 0.0002	-	-	< 0.001	< 0.001
Titanium	Ti			<0.001	0.0045	-	-	0.032	0.031
Uranium	U			0.012	0.0088	-	-	0.0095	0.0097
Vanadium	V			<0.001	0.0002	-	-	0.002	0.002
Zinc	Zn	**0.03**	0.5	<0.005	0.006	-	-	0.006	0.006
Zirconium	Zr			<0.0010	< 0.002	-	-	< 0.01	< 0.01
Dissolved Metals (mg/L)									
Aluminum[1]	Al	**0.005 - 0.1**		0.018	0.006	-	**0.72**	0.04	0.042
Antimony	Sb			0.002	< 0.0002	-	0.001	< 0.001	< 0.001
Arsenic	As	**0.005**	0.5	0.004	**0.013**	-	**0.007**	< 0.001	0.0010
Barium	Ba			0.018	0.048	-	0.03	0.086	0.086
Beryllium	Be			<0.001	< 0.0002	-	<0.001	< 0.001	< 0.001
Bismuth	Bi			<0.001	< 0.0002	-	<0.001	< 0.001	< 0.001
Boron	B			0.08	0.17	-	<0.05	< 0.05	< 0.05
Cadmium[3]	Cd	**0.00000094-0.000107 #**		<0.0002	0.00004	-	<0.0002	< 0.0002	< 0.0002
Calcium	Ca			26.3	47.1	-	15	31	31.5
Chromium[2]	Cr	**0.001 / 0.0089**		<0.001	0.0003	-	<0.001	< 0.001	< 0.001
Cobalt	Co			<0.001	0.0003	-	0.003	< 0.001	< 0.001
Copper[3]	Cu	**0.002 - 0.004**	0.3	<0.001	0.0002	-	**0.006**	**0.005**	**0.008**
Iron	Fe	**0.3**		<0.05	< 0.01	-	**0.55**	< 0.05	0.05
Lead[3]	Pb	**0.001 - 0.007**	0.2	<0.001	< 0.0002	-	0.006	< 0.001	< 0.001
Lithium	Li			0.007	0.0081	-	0.015	0.002	0.002
Magnesium	Mg			17.1	22.4	-	3.81	6.83	6.92
Manganese	Mn			0.1	0.130	-	0.049	0.032	0.032
Mercury	Hg	**0.000004**		<0.00002	< 0.02	-	<0.00002	< 0.00002	< 0.00002
Molybdenum	Mo	**0.073**		0.052	**0.09**	-	0.024	0.004	0.0042
Nickel[3]	Ni	**0.025 - 0.15**	0.5	0.003	0.0018	-	0.003	0.002	0.002
Phosphorus	P			0.07	< 0.03	-	5.58	0.3	0.3
Potassium	K			3.33	2.64	-	5.44	2.3	2.3
Selenium	Se	**0.001**		<0.001	< 0.0002	-	<0.001	< 0.001	< 0.001
Silicon	SiO2			3.62	5.70	-	10.2	2.70	2.70
Silver	Ag	**0.0001**		<0.0001	< 0.00005	-	<0.0001	< 0.00025	< 0.00025
Sodium	Na			16.5	32.0	-	52.9	7.7	7.8
Strontium	Sr			0.24	0.556	-	0.14	0.2	0.2
Tellurium	Te			<0.001	< 0.0002	-	<0.001	< 0.001	< 0.001
Thallium	Tl	**0.0008**		<0.0001	< 0.00002	-	<0.0001	< 0.0001	< 0.0001
Thorium	Th			<0.0005	< 0.0001	-	<0.0005	< 0.0005	< 0.0005
Tin	Sn			<0.001	< 0.0002	-	<0.001	< 0.001	< 0.001
Titanium	Ti			<0.001	0.0003	-	0.003	< 0.001	< 0.001
Uranium	U			0.012	0.0087	-	0.013	0.008	0.008
Vanadium	V			<0.001	< 0.0002	-	<0.001	< 0.001	< 0.001
Zinc	Zn	**0.03**	0.5	<0.005	0.004	-	0.022	< 0.005	< 0.005
Zirconium	Zr			<0.0010	< 0.002	-	<0.0010	< 0.01	< 0.01
Dissolved Anions (mg/L)									
Dissolved Fluoride[4]	F	**0.12**		**0.46**	**0.38**	-	**0.34**	**0.2**	0.11
Dissolved Chloride	Cl			50.4	121	-	13.4	33.3	33.5
Nutrients (mg/L)									
Total Nitrogen	N								
Nitrate and Nitrite	NO3 + NO2			0.15	< 0.05	< 0.01	< 0.05	-	-
Dissolved Nitrate[5]	NO3	**13**		0.15	< 0.05	-	< 0.05	0.12	0.12
Nitrite	NO2	**0.060**		0.003	< 0.002	-	0.004	0.003	0.003
Ammonia Nitrogen	N			0.08	-	-	-	-	-
Total Kjeldahl Nitrogen	N			-	0.2	0.2	-	-	-
Total Phosphorus	P			0.07	0.05	0.10	-	-	-
Cyanide (mg/L)									
Total	CN		1.0	-	<0.01	<0.01	-	-	-
Free	CN			-	<0.1	<0.1	-	-	-

NOTES:
1. Freshwater Aquatic Life Guideline is pH, calcium and DOC dependent. Exceedances identified apply pH criterion.
2. Freshwater Aquatic Life Guideline for chromium depends on valence of chromium ion (Cr(III) = 0.0089 mg/L, Cr(VI) = 0.001 mg/L).
3. Freshwater Aquatic Life Guideline is hardness dependent.
4. Freshwater Aquatic Life Guideline listed for inorganic fluorides.
5. CEQG stipulates that concentrations that stimulate weed growth should be avoided.
6. CEQG (2003 update) Freshwater Guidelines and Criteria are based on **total** metal concentrations.
7. Maximum authorized monthly mean concentration (based on **total** concentration) (June 6, 2002).
8. Sample decanted off of 9043-01 due to high TSS and reanalysed for total metals
9. Values in italics indicate detection limit is above standard

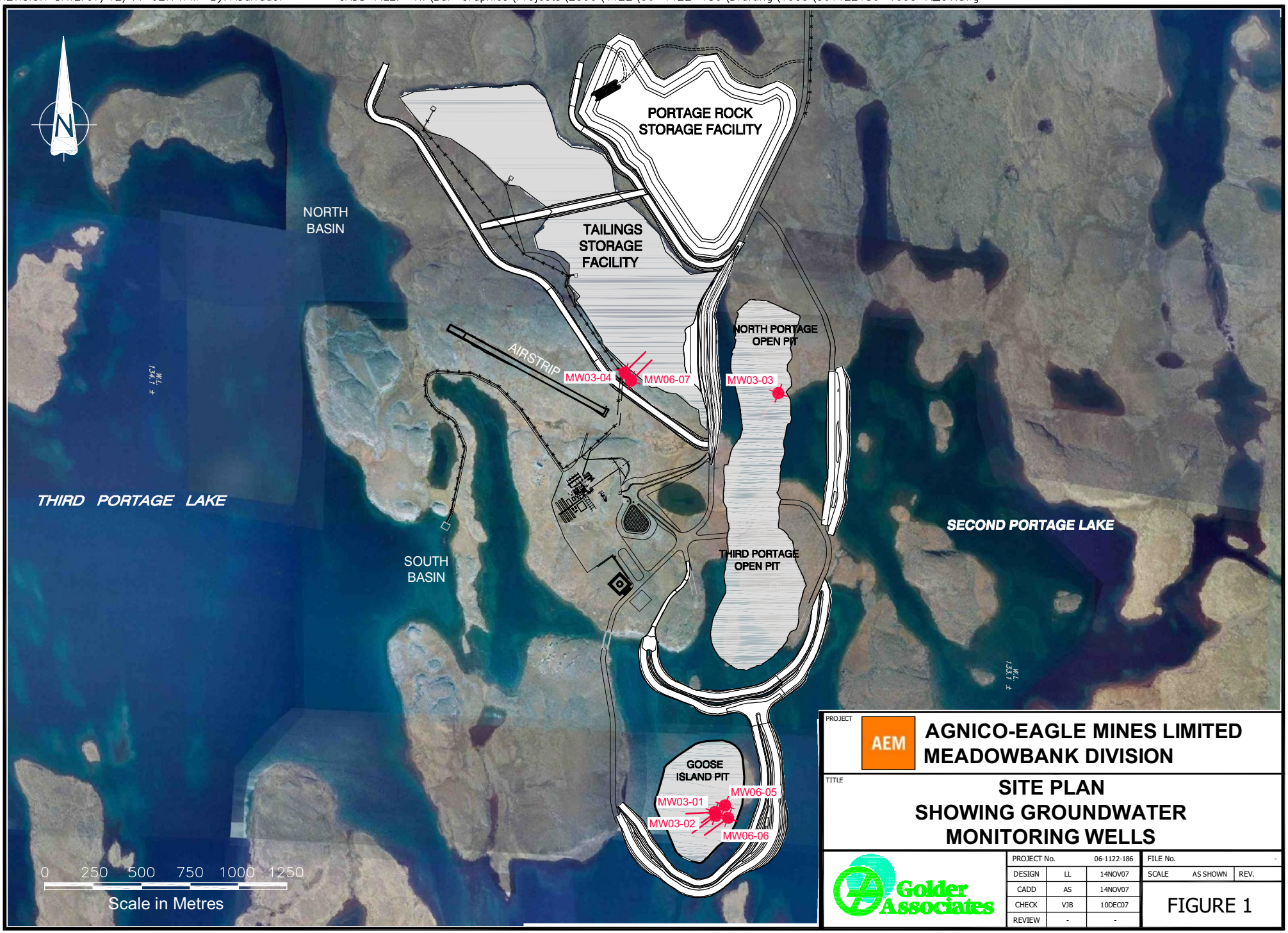
Range is site specific
< = less than the analytical detection limit.
- = not analyzed.
* Hardness calculated from calcium and magnesium concentrations
** Laboratory measured values.
FD= Field Duplicate

Table 3
QA/QC of Groundwater Quality Results
Meadowbank Project
Agnico-Eagle Mines Ltd.

		Goose Island UM MW03-01		RPD (%)	Method Detection Limit
Laboratory sample number		8581-01	8581-02		
Date		Aug-17-07	Aug-17-07		
QA/QC			FD		
LABORATORY PARAMETERS					
Calculated TDS (mg/L)		299	338	12.2	-
pH (s.u.)		6.78	6.96	2.6	-
Conductivity (uS/cm)		588	583	0.9	-
Total Alkalinity CaCO3 (mg/L)		36.7	36.7	0	1
Bicarbonate Alkalinity HCO3 (mg/L)		44.8	44.8	0	0.5
Carbonate Alkalinity CO3 (mg/L)		< 0.5	< 0.5	-	0.5
Hydroxide Alkalinity OH (mg/L)		< 0.5	< 0.5	-	0.5
Dissolved Sulphate SO4 (mg/L)		46.5	46.3	0.4	0.5
Hardness CaCO3 (mg/L)		107	109	1.9	1
Hardness (Total) CaCO3 (mg/L)		116	112	3.5	1
Total Suspended Solids		2	3	40.0	1
Total Metals (mg/L)					
Aluminum[1]	Al	0.053	0.059	10.7	0.005
Antimony	Sb	< 0.001	< 0.001	-	0.001
Arsenic	As	< 0.001	< 0.001	-	0.001
Barium	Ba	0.053	0.052	1.9	0.001
Beryllium	Be	< 0.001	< 0.001	-	0.001
Bismuth	Bi	< 0.001	< 0.001	-	0.001
Boron	B	0.23	0.23	0	0.05
Cadmium[3]	Cd	< 0.0002	< 0.0002	-	0.0002
Calcium	Ca	26.1	25.1	3.9	0.05
Chromium[2]	Cr	< 0.001	< 0.001	-	0.001
Cobalt	Co	< 0.001	< 0.001	-	0.001
Copper[3]	Cu	0.001	0.001	0	0.001
Iron	Fe	0.94	0.93	1.1	0.05
Lead[3]	Pb	0.001	0.001	0	0.001
Lithium	Li	< 0.005	< 0.005	-	0.001
Magnesium	Mg	12.4	12.1	2.4	0.05
Manganese	Mn	0.77	0.75	2.6	0.001
Mercury	Hg	< 0.02	< 0.02	-	0.00002
Molybdenum	Mo	0.0084	0.0084	0	0.0005
Nickel[3]	Ni	0.001	0.001	0	0.001
Phosphorus	P	< 0.15	< 0.15	-	0.01
Potassium	K	4.7	4.5	4.3	0.01
Selenium	Se	< 0.001	< 0.001	-	0.001
Silicon	SiO2	1.4	1.3	7.4	0.05
Silver	Ag	< 0.00025	< 0.00025	-	0.00010
Sodium	Na	39.1	37.5	4.2	0.05
Strontium	Sr	0.24	0.24	0	0.001
Tellurium	Te	< 0.001	< 0.001	-	0.001
Thallium	Tl	< 0.0001	< 0.0001	-	0.0001
Thorium	Th	< 0.0005	< 0.0005	-	0.0005
Tin	Sn	< 0.001	< 0.001	-	0.001
Titanium	Ti	0.003	0.003	0	0.001
Uranium	U	< 0.0005	< 0.0005	-	0.0005
Vanadium	V	< 0.001	< 0.001	-	0.001
Zinc	Zn	0.009	0.009	0	0.005
Zirconium	Zr	< 0.01	< 0.01	-	0.001
Dissolved Metals (mg/L)					
Aluminum[1]	Al	< 0.005	0.011	-	0.005
Antimony	Sb	< 0.001	< 0.001	-	0.001
Arsenic	As	< 0.001	< 0.001	-	0.0010
Barium	Ba	0.048	0.051	6.1	0.001
Beryllium	Be	< 0.001	< 0.001	-	0.001
Bismuth	Bi	< 0.001	< 0.001	-	0.001
Boron	B	0.2	0.21	4.9	0.05
Cadmium[3]	Cd	< 0.0002	< 0.0002	-	0.0002
Calcium	Ca	24	24.5	2.1	0.05
Chromium[2]	Cr	< 0.001	< 0.001	-	0.001
Cobalt	Co	< 0.001	< 0.001	-	0.0010
Copper[3]	Cu	< 0.001	0.001	-	0.001
Iron	Fe	< 0.05	< 0.05	-	0.05
Lead[3]	Pb	< 0.001	< 0.001	-	0.001
Lithium	Li	< 0.005	< 0.005	-	0.001
Magnesium	Mg	11.4	11.6	1.7	0.05
Manganese	Mn	0.700	0.720	2.8	0.001
Mercury	Hg	< 0.02	< 0.02	-	0.00002
Molybdenum	Mo	0.008	0.008	0	0.001
Nickel[3]	Ni	0.001	0.001	0	0.001
Phosphorus	P	< 0.15	< 0.15	-	0.01
Potassium	K	4.3	4.4	2.3	0.01
Selenium	Se	< 0.001	< 0.001	-	0.001
Silicon	SiO2	1.20	1.20	0	0.05
Silver	Ag	< 0.00025	< 0.00025	-	0.0001
Sodium	Na	34.2	35.0	2.3	0.1
Strontium	Sr	0.22	0.22	0	0.001
Tellurium	Te	< 0.001	< 0.001	-	0.001
Thallium	Tl	< 0.0001	< 0.0001	-	0.0001
Thorium	Th	< 0.0005	< 0.0005	-	0.0005
Tin	Sn	< 0.001	< 0.001	-	0.001
Titanium	Ti	< 0.001	< 0.001	-	0.001
Uranium	U	< 0.0005	< 0.0005	-	0.0005
Vanadium	V	< 0.001	< 0.001	-	0.001
Zinc	Zn	< 0.005	0.005	-	0.005
Zirconium	Zr	< 0.01	< 0.01	-	0.001
Dissolved Anions (mg/L)					
Dissolved Fluoride	F	0.18	0.18	0	0.05
Dissolved Chloride	Cl	126	126	0	0.2
Nutrients (mg/L)					
Total Nitrogen	N	< 0.2	0.3	-	0.20
Nitrate and Nitrite	NO3 + NO2	-	-	-	0.01 / 0.05
Dissolved Nitrate[5]	NO3	< 0.01	0.09	-	0.05
Nitrite	NO2	0.002	< 0.002	-	0.00
Ammonia Nitrogen	N	0.14	0.15	6.9	0.01
Total Kjeldahl Nitrogen	N	< 0.2	0.2	-	0.20
Total Phosphorus	P	0.01	0.02	35.3	0.02

NOTES:
< = Less than the analytical detection limit
- = Not analyzed.
* RPD considered acceptable since one or more results are less than five times the method detection limit
** Laboratory measured values
FD = Field Duplicate

REVISION DATE: 07/12/11 02:14PM By: ASalvador CADD FILE: N:\Bur-Graphics\Projects\2006\1122\06-1122-186\Drafting\1000\061122186-1000-A_01.dwg



PROJECT

AEM

AGNICO-EAGLE MINES LIMITED
MEADOWBANK DIVISION

TITLE

SITE PLAN
SHOWING GROUNDWATER
MONITORING WELLS

Golder Associates

PROJECT No.		06-1122-186	FILE No.	-
DESIGN	LL	14NOV07	SCALE AS SHOWN	REV.
CADD	AS	14NOV07		
CHECK	VJB	10DEC07		
REVIEW	-	-		

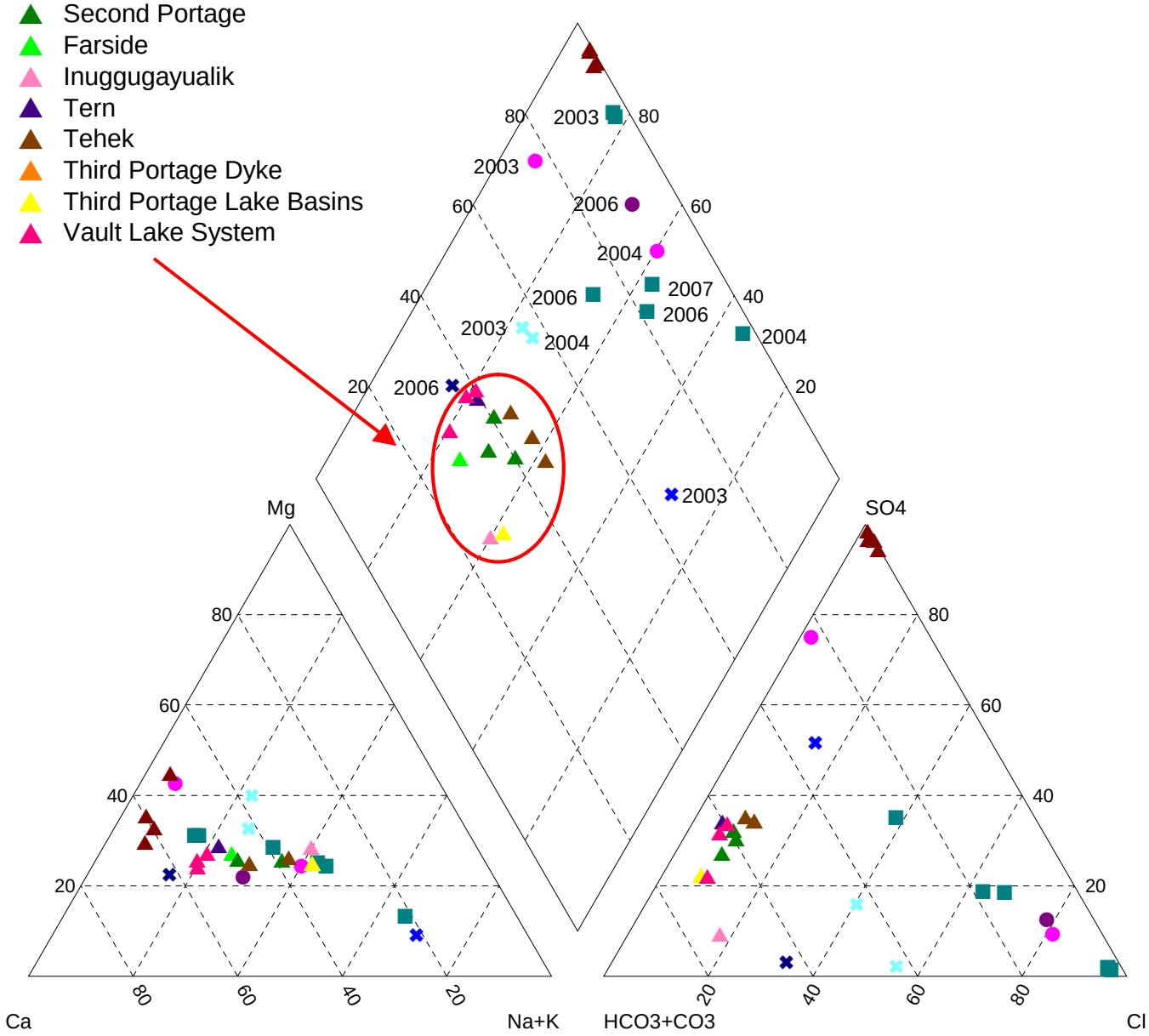
FIGURE 1

Surface Water (Sep 2002):

- Third Portage Trenches

Lake Water (Sep 2003):

- Second Portage
- Farside
- Inuggugayualik
- Tern
- Tehek
- Third Portage Dyke
- Third Portage Lake Basins
- Vault Lake System



Groundwater Samples:

- MW03-01 (UM)
- MW03-02 (IF)
- MW06-06 (IF)
- MW03-03 (IV)
- MW03-04 (IV Tailings)
- MW06-07 (QTZ-IV Tailings)

PROJECT

AEM

AGNICO-EAGLE MINES LIMITED
MEADOWBANK DIVISION

TITLE

TRILINEAR PLOT OF LAKE AND GROUNDWATER SAMPLES

Golder Associates

PROJECT No.	06-1122-186		FILE No. ----	
DESIGN	LL	10DEC07	SCALE N/A	REV.
CADD	LL	10DEC07	**FIGURE 2**	
CHECK	VJB	10DEC07		
REVIEW				

O:\Active_2006\1122\06-1122-186 Meadowbank Geochemistry\Groundwater Monitoring Wells\2007 Groundwater Quality Report Update\Aquachem analysis 2007

APPENDIX I

GROUNDWATER DEVELOPMENT/ PURGING/ SAMPLING DATA SHEETS

(1 of 2)

Groundwater Development and Purging/Sampling Data Sheet

☑ Development
☐ Purging/Sampling

Well No. MW03-01
Location: GOOSE ISLAND, MEADOWBANK
Weather: SUNNY COOL
Temperature: ≈ 14-16 °C

Project No. 06-1122-386
Completed By: R. COELHO + M. ROY (A-E)
Date: 12 - 17 AUG 2007
Time:

MONITORING WELL INFORMATION

Depth to water Below Top of Casing: A 2.730 metres
Depth to Bottom of Well Below Top of Casing: B 200 metres
Diameter Standpipe: C 1.25" ~~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
(A-B)*0.83 = 164 litres - for sch. 80 1.25" diam

EQUIPMENT LIST

pH and Temp. Meter: Model HANNA 991300 Serial No.
Conductivity Meter: Model " Serial No. "
Dissolved Oxygen Meter: Model YSI Serial No.

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

Pump: ☐ None ☑ Waterra ☐ Peristaltic ☐ Submersible
Sample IntakeDepth: WITH AIR-LIFTING SET-UP

Bailer: ☑ None ☐ Stainless Steel ☐ Teflon ☐ PVC

WELL DEVELOPMENT/PURGING

Purge Volume: Well. Vol. X 4 = 636 litres
Flow Rate: L/min.

Start: AUG-12-2007 10:50 am Finish: AUG-17-2007 10:20 am

	Time	Volume Removed (L)	Temp. (°C)	pH (Units)	Cond. (uS/cm)	~~Redox (mV)~~ TDS (ppm)	Dis. O_2 (mg/L) ~~or %~~	Remarks
AUG 12	11:05	60	8.1	7.66	399	200	13.05	Air nozzle @ = 110 m
	12:05	85	8.2	7.34	480	235	14.72	Air nozzle @ = 148 m
	14:00	105	8.4	7.46	322	157	13.46	Very slow recovery ←
	16:16	115	9.2	7.47	256	127	12.48	
	17:15	125						No param. measured - final purge of day
AUG 13	09:33	145	6.0	6.84	223	111	15.52	Air nozzle @ = 115 m
	10:00	180	6.0	7.38	549	258	17.63	Air nozzle @ = 148 m
	12:20	195	9.6	7.29	230	115	13.43	
	14:40	210	8.6	7.50	447	216	13.56	
	16:45	225	8.6	7.54	360	178	13.69	
AUG 14	11:14	290	6.8	7.22	764	381	13.16	Air nozzle @ 115 m
	11:30	305	7.6	7.46	965	478	13.80	Air nozzle @ 150 m

Comments:
Odour: ☐ Yes ☑ No If yes
Sheen: ☐ Yes ☑ No If yes
Turbidity: Clear (N) ||||| (S) ||||||||||||||||||||||||| Very Silty
Other: END (17-AUG) START (12-AUG 11:05)

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	

SEE PAGE 3

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

(2 of 5)

Groundwater Development and Purging/Sampling Data Sheet

☑ Development
☐ Purging/Sampling

Well No. MW03-01
Location: GOOSE ISLAND MEADOWBANK
Weather: WINDY, COOL
Temperature: ≈ 8-10°C

Project No. 06-1122-386
Completed By: R. COELHO + S.P (A-E)
Date: 12-17 AUG 2007
Time:

MONITORING WELL INFORMATION

Depth to water Below Top of Casing: A 2.730 metres
Depth to Bottom of Well Below Top of Casing: B 200 metres
Diameter Standpipe: C 1.25" ~~mm~~ → 164 L (Sch 80; 1.25" diam OD

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 HANNA991300 Serial No. ___ Calibration Buffers: ☑ 4 ☑ 7 ☐ 10
Conductivity Meter: Model " Serial No. " Calibration Solution: 1413 us/cm
Dissolved Oxygen Meter: Model 451 Serial No. ___ ☐ D.O. Chemet Ampoule

Pump: ☐ None ☑ Waterra ☐ Peristaltic ☐ Submersible
Bailer: ☑ None ☐ Stainless Steel ☐ Teflon ☐ PVC
Sample IntakeDepth: AIR-LIFTING SET-UP

WELL DEVELOPMENT/PURGING

Purge Volume: Well. Vol. X ≈4 = 636 litres
Flow Rate: ___ L/min.
Start: AUG-12-2007 10:50 am Finish: AUG-17-2007 10:20 am

	Time	Volume Removed (L)	Temp. (°C)	pH (Units)	Cond. (uS/cm)	TDS Redox (mV) ppm	Dis. O_2 (mg/L) or %	Remarks
(cont'd) UG 14	14:05	325	8.6	7.44	974	474	13.92	
	16:15	340	9.2	7.46	964	476	13.05	
	17:15	345	9.7	7.23	468	230	13.86	
AUG 15	09:00	365	5.7	7.20	259	127	14.02	Airnozzle @ 115m
	09:45	425	6.2	7.29	962	482	13.47	Airnozzle @ 150m
	11:45	440	6.5	7.08	274	132	13.14	
	14:10	455	7.0	7.22	879	439	13.22	
	16:15	470	6.6	7.24	579	291	15.13	
	17:15	478	8.1	7.20	586	292	13.45	
AUG 16	09:00	498	6.2	6.94	253	127	–	
	09:05	518	5.8	7.10	233	117	–	

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	

SEE PAGE 3

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

(3 of 3)

Groundwater Development and Purging/Sampling Data Sheet

☐ Development
☑ Purging/Sampling

Well No. MW03-01
Location: GOOSE ISLAND, MEADOWBANK
Weather: WINDY, COOL
Temperature:

Project No. 06-1122-386
Completed By: R COECHO + SP (A-E)
Date: 12-17 AUG 2007
Time:

MONITORING WELL INFORMATION

Depth to water Below Top of Casing: A 2.730 metres
Depth to Bottom of Well Below Top of Casing: B 200 metres
Diameter Standpipe: C 1.25" mm → 164 L (sch 80, 1.25" diam)

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 HANNA991300 Serial No. ____ Calibration Buffers: ☑ 4 ☑ 7 ☐ 10
Conductivity Meter: Model " Serial No. " Calibration Solution: 1413 us/cm
Dissolved Oxygen Meter: Model 451 Serial No. ____ ☐ D.O. Chemet Ampoule

Pump: ☐ None ☐ Waterra ☐ Peristaltic ☑ Submersible DOUBLE VALVE PUMP (NITROGEN)
Bailer: ☑ None ☐ Stainless Steel ☐ Teflon ☐ PVC
Sample IntakeDepth: 170 m

WELL DEVELOPMENT/PURGING

Purge Volume: Well. Vol. X 4 = 636 litres
Flow Rate: L/min.
Start: AUG-12-2007 10:50am Finish: AUG-17-2007 10:20am

	Time	Volume Removed (L)	Temp. (°C)	pH (Units)	Cond. (uS/cm)	~~Redox (mV)~~ TDS (ppm)	Dis. O_2 (mg/L) or %	Remarks
UG-16 (cont'd)	11:30	526	9.6	8.00	2462	1229	4.30	DVP @ 170 m btoc
	13:58	546	10.4	7.85	2486	1242	3.04	
	14:25	566	9.5	7.75	1932	967	3.12	
	15:27	586	10.5	7.34	1455	724	3.25	
	17:00	606	11.4	7.47	1184	592	4.96	
	18:20	618	12.4	7.43	950	487	4.21	
UG-17	9:00	622	—	—	2555	—	—	
	10:20	636	6.7	7.43	776	389	3.78	SAMPLES COLLECTED [8581-01 + 8581-02 (FD)]
								→ FIELD ALKALINITY = 38 mg/L of $CaCO_3$.

Comments:
Odour: ☐ Yes ☑ No If yes —
Sheen: ☐ Yes ☑ No If yes —
Turbidity: Clear (X) Very Silty
Other: — SAMPLES

Analysis	Type		Container Size: 40 mL	100 mL	250 mL	500 mL	1 L	2 L	4 L	Filtered		Preservatives
RAW	☑ Plastic	☐ Glass	—	—	—	1+1(FD)	—	1+1(FD)	—	☐ Yes	☑ No	NONE
TOT. METALS	☑ Plastic	☐ Glass	—	—	—	1+1(FD)	—	—	—	☐ Yes	☑ No	HNO_3
DISS. METALS	☑ Plastic	☐ Glass	—	—	—	1+1(FD)	—	—	—	☑ Yes	☐ No	HNO_3
TKN + TOT PHOSP	☑ Plastic	☐ Glass	—	—	—	1+1(FD)	—	—	—	☐ Yes	☑ No	H_2SO_4
	☐ Plastic	☐ Glass								☐ Yes	☐ No	
	☐ Plastic	☐ Glass								☐ Yes	☐ No	
	☐ Plastic	☐ Glass								☐ Yes	☐ No	
	☐ Plastic	☐ Glass								☐ Yes	☐ No	

SCN No. 8581-01
Consumables: ☐ Waterra Tubing — ☑ HDPE Tubing 1m ☑ Groundwater Filter: 0 or (1)
☑ Silicon Tubing 6" ☐ D.O. Ampoules —

C:\Documents and Settings\BrMacdonald\Desktop\GW Devel & Purging_Samp Data Sheet.doc

FD: 8581-02

APPENDIX II

CHAIN OF CUSTODY FORMS AND LABORATORY ANALYTICAL REPORTS

CHAIN OF CUSTODY RECORD/ANALYSIS REQUEST

№ 8581 page 1 of 1

Golder Associates
500 – 4260 Still Creek Drive
Burnaby, British Columbia, Canada V5C 6C6
Telephone (604) 298-6623 Fax (604) 298-5253

Project Number: 06-1122-386 / 3000

Short Title: MEADOWBANK GROUNDWATER SAMPLING 2007

Golder Contact: VALERIE BERTRAND

Golder E-mail Address: vbertrand@golder.com

Laboratory Name: CANTEST LTD

Address: 675 BERRY ST, WINNIPEG, MB R3H 1A7

Telephone/Fax: 1-204-772-7276

Contact: MARNIE KOLACH (VANCOUVER - LEANNE MAKKA)

Office the final reports should be sent to:

- ☐ ~~500-4260 Still Creek Dr. Burnaby, B.C. V5C 6C6 Tel: (604) 298-6623; Fax: (604) 298-5253~~
- ☐ ~~202 – 2790 Gladwin Road Abbotsford, B.C. V2T 4S8 Tel: (604) 850-8786 Fax: (604) 850-8756~~
- ~~220 – 174 Wilson Street Victoria, B.C. V9A 7N6 Tel: (250) 881-7372 Fax: (250) 881-7470~~
- ☑ 32 STACIE DRNE KANATA, ONT. K2K 2A9 (TEL)(613)592-9600 EXT 3268

Analyses Required

Sample Control Number (SCN)	Sample Location	Sa. #	Sample Depth (m)	Sample Matrix (over)	Date Sampled (D / M / Y)	Time Sampled (HH:MM)	Sample Type (over)	QAQC Code (over	Related SCN (over)	Number of Containers	Tot Metals (incl. As, Sb, Hg)	* Diss Metals	TSS, Major Ions	Nitrogen Species	Speciated Alkalinity	Physical Param (pH + Cond)	Free + Total Cyanide	Nutrients (P, N, TKN etc)	TDS	RUSH	Remarks (over)
8581 - 01	MW03-01	1	170m	WATER	17/8/07	10:30	Disc	FDA	8581-02	5											* DISS METALS
8581 - 02	MW03-01	2	170m	WATER	17/8/07	10:30	Disc	FD	8581-01	5											FIELD FILTERED
- 03																					& PRESERVED w/
- 04																					HNO_3
- 05																					
- 06																					
- 07																					
- 08																					
- 09																					
- 10																					
- 11																					
- 12																					

Sampler's Signature:	Relinquished by: Signature	Company: GAL	Date: 17-AUG-2007	Time	Received by: Signature	Company
Sample Storage (°C): ICE	Relinquished by: Signature	Company	Date	Time	Received by: Signature	Company
Comments:	Method of Shipment:	Waybill No.:	Received for Lab by:		Date	Time
	Shipped by:	Shipment Condition: Seal Intact:	Temp (°C)	Cooler opened by:	Date	Time

WHITE: Golder Copy YELLOW: Lab Copy PINK: Lab Returns with Final Report

Instructions

Sample Control Number – Include chain-of-custody form number as prefix.

Sample Matrix – Soil, Water, Air, Refuse, Sludge.

Sample Type – Discrete, Composite, Grab.

QA/QC Code - FD = Field duplicate (homogenized)
FR = Field replicate (unhomogenized)
FB = Field blank
TB = Travel blank

Related SCN – Note associated sample control number for field duplicates or related composite sample control number for discrete samples.

Remarks – Note any special instructions for analytical lab.

Comments: Note any general comments for this set of samples. If samples are time sensitive, please provide the lab with the earliest time of sampling. I.e.: Earliest sample time: time, date

Analysis Report

CANTEST

REPORT ON: Analysis of Water Samples

REPORTED TO: Golder Associates Ltd.
32 Steacie Dr
Kanata, ON
K2K 2A9

Att'n: Ms. Valerie Bertrand

PROJECT NAME: 06-1122-386/3000

NUMBER OF SAMPLES: 2

REPORT DATE: September 4, 2007

DATE SUBMITTED: August 24, 2007

GROUP NUMBER: 80824033

SAMPLE TYPE: Water

NOTE: Results contained in this report refer only to the testing of samples as submitted. Other information is available on request.

TEST METHODS:

Anions in Water by Ion Chromatography - was determined based on Method 4110 in Standard Methods (21st Edition) and EPA Method 300.0 (Revision 2.1).

Nitrate and Nitrite in Water - was performed using Flow Injection Analysis where Nitrate is reduced to nitrite by passing the sample through a cadmium reduction column. The nitrite produced is then determined by diazotizing sulphanilamide and N-(1-naphthyl)-ethylenediamine dihydrochloride to form a reddish azo dye which is then measured colorimetrically at 540 nm.

Ammonia in Water - was performed using Flow Injection Analysis where the aqueous sample is injected into a carrier stream, which merges a sodium hydroxide stream. Gaseous ammonia is formed, which diffuses through a gas permeable membrane into an indicator stream. This indicator stream is comprised of a mixture of acid-base indicators, which will react with the ammonia gas; resulting in a colour shift which is measured photometrically @ 590 nm.

Total Dissolved Solids in Water - was determined based on Method 2540 C in Standard Methods for the Examination of Water and Wastewater (21st Edition).

Total Kjeldahl Nitrogen in Water - was determined based on Method 4500-N in Standard Methods (21st Edition) and Method X325 in the BC Laboratory Manual (2005).

Total Suspended Solids in Water - was determined based on Method 2540 D in Standard Methods (21st Edition) and Method X332 in the BC Laboratory Manual (2005).

(Continued)

CANTEST LTD.

Richard S. Jornitz
Supervisor, Inorganic Testing

4606 Canada Way, Burnaby, BC V5G 1K5
Tel: 604 734 7276 Fax: 604 731 2386

REPORTED TO: Golder Associates Ltd.

REPORT DATE: September 4, 2007

GROUP NUMBER: 80824033

CANTEST

Conventional Parameters - analyses were performed using procedures based on those described in the most current editions of "British Columbia Environmental Laboratory Manual for the Analysis of Water, Wastewater, Sediment and Biological Materials", (2005 edition) Province of British Columbia and "Standard Methods for the Examination of Water and Wastewater" (21st Edition), published by the American Public Health Association.

Conventional Parameters - Winnipeg Laboratory (Unit D-675 Berry Street, Winnipeg, Manitoba R3H 1A7): - Analyses performed at Cantest's Winnipeg facilities follow procedures based on those described in the "British Columbia Environmental Laboratory Manual for the Analysis of Water, Wastewater, Sediment and Biological Materials" (2005 Edition) and "Standard Methods for the Examination of Water and Wastewater" (21st Edition).

Mercury in Water - analysis was performed using procedures based on U. S. EPA Method 245.7, oxidative digestion using bromination, and analysis using Cold Vapour Atomic Fluorescence Spectroscopy.

Metals in Water - analysis was performed using Inductively Coupled Plasma Optical Emission Spectroscopy (ICP), Inductively Coupled Plasma-Mass Spectroscopy (ICP/MS).

Dissolved Metals in Water - Samples were filtered in the laboratory and quantitatively determined using Inductively Coupled Plasma Optical Emission Spectroscopy (ICP) and/or Inductively Coupled Plasma-Mass Spectroscopy (ICP/MS).

COMMENTS:

pH, TDS, nitrate and nitrite exceeded hold time upon receipt at Winnipeg. Proceeded with analysis as per client previous requests for this project/ Client requested total and free cyanide. Informed client th at we do not do Free cyanide analysis. Cyanide analysis could not be performed as a NaOH preserved bottle was not submitted as there was insufficient sample volume to split for Cyanide analysis.

TEST RESULTS:

(See following pages)

REPORTED TO: Golder Associates Ltd.

REPORT DATE: September 4, 2007

GROUP NUMBER: 80824033

CANTEST

Conventional Parameters in Water

CLIENT SAMPLE IDENTIFICATION:		8581-01	8581-02		
DATE SAMPLED:		Aug 17/07	Aug 17/07	DETECTION LIMIT	UNITS
CANTEST ID:		708240131	708240142		
Hardness	CaCO3	107	109	1	mg/L
Hardness (Total)	CaCO3	116	112	1	mg/L
Total Dissolved Solids		299	338	10	mg/L
Total Suspended Solids		2	3	1	mg/L
Dissolved Fluoride	F	0.18	0.18	0.1	mg/L
Dissolved Chloride	Cl	126	126	0.4	mg/L
Nitrate and Nitrite	N	<	0.09	0.01	mg/L
Nitrate	N	<	0.09	0.01	mg/L
Dissolved Sulphate	SO4	46.5	46.3	1	mg/L
Ammonia Nitrogen	N	0.14	0.15	0.01	mg/L
Total Kjeldahl Nitrogen	N	<	0.2	0.2	mg/L
Total Nitrogen	N	<	0.3	0.2	mg/L
Total Phosphorus	P	0.014	0.020	0.001	mg/L as P

mg/L = milligrams per liter
< = Less than detection limit

mg/L as P = milligrams per liter as P

REPORTED TO: Golder Associates Ltd.

REPORT DATE: September 4, 2007

GROUP NUMBER: 80824033

CANTEST

Metals Analysis in Water

CLIENT SAMPLE IDENTIFICATION:		8581-01	8581-01	8581-02	8581-02		
SAMPLE PREPARATION:		TOTAL	DISSOLVED	TOTAL	DISSOLVED		
DATE SAMPLED:		Aug 17/07	Aug 17/07	Aug 17/07	Aug 17/07		
CANTEST ID:		708240131	708240131	708240142	708240142	DETECTION LIMIT	UNITS
Aluminum	Al	0.053	<	0.059	0.011	0.005	mg/L
Antimony	Sb	<	<	<	<	0.001	mg/L
Arsenic	As	<	<	<	<	0.001	mg/L
Barium	Ba	0.053	0.048	0.052	0.051	0.001	mg/L
Beryllium	Be	<	<	<	<	0.001	mg/L
Bismuth	Bi	<	<	<	<	0.001	mg/L
Boron	B	0.23	0.20	0.23	0.21	0.05	mg/L
Cadmium	Cd	<	<	<	<	0.0002	mg/L
Calcium	Ca	26.1	24.0	25.1	24.5	0.05	mg/L
Chromium	Cr	<	<	<	<	0.001	mg/L
Cobalt	Co	<	<	<	<	0.001	mg/L
Copper	Cu	0.001	<	0.001	0.001	0.001	mg/L
Iron	Fe	0.94	<	0.93	<	0.05	mg/L
Lead	Pb	0.001	<	0.001	<	0.001	mg/L
Lithium	Li	<	<	<	<	0.005	mg/L
Magnesium	Mg	12.4	11.4	12.1	11.6	0.05	mg/L
Manganese	Mn	0.77	0.70	0.75	0.72	0.001	mg/L
Mercury	Hg	<	<	<	<	0.02	µg/L
Molybdenum	Mo	0.0084	0.0079	0.0084	0.0079	0.0005	mg/L
Nickel	Ni	0.001	0.001	0.001	0.001	0.001	mg/L
Phosphorus	P	<	<	<	<	0.15	mg/L
Potassium	K	4.7	4.3	4.5	4.4	0.1	mg/L
Selenium	Se	<	<	<	<	0.001	mg/L
Silicon	Si	1.4	1.2	1.3	1.2	0.25	mg/L
Silver	Ag	<	<	<	<	0.00025	mg/L
Sodium	Na	39.1	34.2	37.5	35.0	0.05	mg/L
Strontium	Sr	0.24	0.22	0.24	0.22	0.001	mg/L
Tellurium	Te	<	<	<	<	0.001	mg/L
Thallium	Tl	<	<	<	<	0.0001	mg/L
Thorium	Th	<	<	<	<	0.0005	mg/L
Tin	Sn	<	<	<	<	0.001	mg/L

(Continued on next page)

REPORTED TO: Golder Associates Ltd.

REPORT DATE: September 4, 2007

GROUP NUMBER: 80824033

CANTEST

Metals Analysis in Water

CLIENT SAMPLE IDENTIFICATION:		8581-01	8581-01	8581-02	8581-02		
SAMPLE PREPARATION:		TOTAL	DISSOLVED	TOTAL	DISSOLVED		
DATE SAMPLED:		Aug 17/07	Aug 17/07	Aug 17/07	Aug 17/07	DETECTION LIMIT	UNITS
CANTEST ID:		708240131	708240131	708240142	708240142		
Titanium	Ti	0.003	<	0.003	<	0.001	mg/L
Uranium	U	<	<	<	<	0.0005	mg/L
Vanadium	V	<	<	<	<	0.001	mg/L
Zinc	Zn	0.009	<	0.009	0.005	0.005	mg/L
Zirconium	Zr	<	<	<	<	0.01	mg/L

mg/L = milligrams per liter
< = Less than detection limit

μg/L = micrograms per liter

REPORTED TO: Golder Associates Ltd.

REPORT DATE: September 4, 2007

GROUP NUMBER: 80824033

CANTEST

Conventional Parameters-Winnipeg Laboratory- in Water

CLIENT SAMPLE IDENTIFICATION:		8581-01	8581-02	DETECTION LIMIT	UNITS
DATE SAMPLED:		Aug 17/07	Aug 17/07		
CANTEST ID:		708240131	708240142		
pH, Laboratory		6.78	6.96	-	pH units
Conductivity		588	583	1	µS/cm
Total Alkalinity	CaCO3	36.7	36.7	1	mg/L
Bicarbonate Alkalinity	HCO3	44.8	44.8	0.5	mg/L
Carbonate Alkalinity	CO3	<	<	0.5	mg/L
Hydroxide Alkalinity	OH	<	<	0.5	mg/L
Nitrite	N	0.002	<	0.002	mg/L

µS/cm = microsiemens per centimeter
< = Less than detection limit

mg/L = milligrams per liter