



**AGNICO-EAGLE MINES LIMITED**  
Meadowbank Division

## **MEADOWBANK GOLD PROJECT**

### **WATER LICENSE 8BC-TEH0809 MONITORING PLAN**

**JULY 2008**

## EXECUTIVE SUMMARY

The Nunavut Water Board (NWB) has issued Type B Water License 8BC-TEH0809 to Agnico-Eagle Mines Limited (AEM) for the Meadowbank Project site authorizing the use of water and the disposal of waste required by a number of activities including:

- Completion of road construction, culvert installations and routine activities along the All Weather Private Access Road;
- Camp construction;
- Set-up and operation of a batch concrete plant;
- Set-up and operation of a sewage treatment plant
- Pre-development of two on-land starter pits; and
- Construction of a bulk fuel storage facility.

AEM has prepared the following document which summarizes the monitoring locations, sampling frequency, monitored parameters and visual inspection requirements for these activities. This report documents the stand alone Monitoring Plan specified under Water License 8BC-TEH0809 Part I, Item 2 and includes the following requirements:

- a. Incorporates the monitoring related contents of the Technical Memorandum regarding Water Management and Monitoring Plan for Type “B” Water Licence Number 8BC-TEH0708, Meadowbank Gold Project Access Road, Kivalliq Region, Nunavut, dated March 21, 2007 (Section 2);
- b. Incorporates the monitoring related components contained in the Water Licence Application for this licence renewal and amendment (Sections 3 and 4);
- c. Quarry monitoring plans (Section 2.2 and 2.3); and
- d. Addresses the issues identified by INAC in its July 6<sup>th</sup>, 2007 comments on the document entitled “Water Management and Monitoring Plan” dated March 12, 2007 (Sections 3.2.1, 3.2.2, 7)

This Plan will be immediately implemented (July of 2008) subject to any modifications proposed by the NWB as a result of the review and approval process.

## TABLE OF CONTENTS

<b>SECTION 1 •</b>	<b>INTRODUCTION.....</b>	<b>1</b>
<b>SECTION 2 •</b>	<b>CAMP CONSTRUCTION &amp; BATCH CONCRETE PLANT.....</b>	<b>1</b>
<b>SECTION 3 •</b>	<b>ALL WEATHER PRIVATE ACCESS ROAD.....</b>	<b>1</b>
3.1	Visual Inspections.....	1
3.1.1	Erosion Inspection Program .....	2
3.1.1.1	Regular Erosion Inspections .....	2
3.1.1.2	Event Erosion Inspections.....	3
3.1.2	Crossing Inspection and Maintenance Program.....	3
3.1.2.1	Regular Crossing Inspection and Maintenance .....	4
3.1.2.2	Event Crossing Inspection and Maintenance.....	4
3.1.2.3	Culvert Location Inspection.....	4
3.2	Water Quality Monitoring.....	5
3.2.1	Monitored Parameters .....	6
3.2.2	Sampling Method .....	7
3.3	Quarry Monitoring.....	8
<b>SECTION 4 •</b>	<b>SEWAGE TREATMENT PLANT .....</b>	<b>8</b>
4.1	Water Quality Monitoring .....	8
<b>SECTION 5 •</b>	<b>PRE-DEVELOPMENT STARTER PITS .....</b>	<b>10</b>
5.1	Contact Water Quality Monitoring .....	10
5.2	Contact Water Storage and Treatment System .....	11
5.3	Contact Water Collection System Discharge .....	11
<b>SECTION 6 •</b>	<b>BULK FUEL STORAGE FACILITY.....</b>	<b>13</b>
<b>SECTION 7 •</b>	<b>QA/QC PROGRAM.....</b>	<b>13</b>

**MEADOWBANK GOLD PROJECT**  
**WATER LICENSE 8BC-TEH0809**  
**MONITORING PLAN**

**LIST OF TABLES**

Table 2.1: Water Volume Monitoring .....	1
Table 3.1: Regular and Event Based Erosion Inspection Schedule.....	2
Table 3.2: Regular and Event Based Crossing Inspection Schedule.....	3
Table 3.3: Culvert Crossings Location Inspection Schedule .....	3
Table 3.4: Summary of Analytes for the AWPARG Water Quality Monitoring Program <sup>(a)</sup> .....	7
Table 4.1: Tear Drop Lake Proposed Discharge Criteria .....	9
Table 4.2: STP Discharge Monitoring.....	9
Table 5.1: Monitoring Requirements for Pre-development Zones .....	10
Table 5.2: Monitoring Requirements for Water Pumped from Pre-development Zones.....	10
Table 5.3: Discharge Criteria for Water Transferred Between Starter Pits and Lakes #1 and #2 .....	11
Table 5.4: Effluent Quality Limits for Lake #1 and Lake #2 Overflow .....	12
Table 5.5: Monitoring Requirements for Lake #1 and Lake #2 Discharge .....	12
Table 6.1: Bulk Fuel Storage Facility - Monitoring Requirements for Land Applied Discharge .....	13
Table 6.2: Bulk Fuel Storage Facility - Effluent Quality Limits for Land Application .....	13

## **SECTION 1 • INTRODUCTION**

---

This Plan outlines monitoring protocols for the All Weather Private Access Road (AWPAR) and associated quarries, camp construction and batch concrete plant, sewage treatment plant (STP) the pre-development starter pits and the bulk fuel storage facility at the Meadowbank Project site.

## **SECTION 2 • CAMP CONSTRUCTION & BATCH CONCRETE PLANT**

---

Water license 8BC-TEH0809 authorizes construction and operation of a 340 person camp and the set-up and operation of a batch concrete plant to support pre-development construction activities. Both have an allowable water usage limit of 45 m<sup>3</sup>/day and 15 m<sup>3</sup>/day respectively.

Monitoring procedures include volume monitoring to be reported in the monthly summary report as per 8BC-TEH0809, Part I, Item 3:

**Table 2.1: Water Volume Monitoring**

<b>Monitoring Station</b>	<b>Description</b>	<b>Parameter</b>	<b>Frequency</b>
TEH- 1 and TEH-2	Water intake for camp and concrete batch plant purposes	Volume (m <sup>3</sup> ) for each individual purpose	Monthly

## **SECTION 3 • ALL WEATHER PRIVATE ACCESS ROAD**

---

The All Weather Private Access Road extends 115 km between the Hamlet of Baker Lake and the Meadowbank Project site. License 8BC-TEH0809 authorizes completion of road construction, culvert installations, and routine operation activities. Monitoring procedures include visual inspections and water quality monitoring.

### **3.1 VISUAL INSPECTIONS**

The watercourse crossings along the access road will be visually inspected on a regular basis to confirm their structural integrity, to confirm soil and permafrost stability, to confirm the crossings have been located adequately with respect to the watercourse, as well as to confirm there is minimal impact to fish habitat. This will involve two aspects:

- An erosion inspection program to monitor erosion and sediment transport at the channel crossings; and
- A crossing inspection and maintenance program to confirm the structural integrity and stability and adequate location selection of the crossings structure.

A habitat compensation monitoring program for fish-bearing watercourse crossings will be described in the Aquatics Effects Management Program (AEMP) monitoring plan. This plan will include detailed habitat compensation sampling and contingency measures.

### 3.1.1 Erosion Inspection Program

The watercourse crossings erosion inspection program has two main objectives:

- (a) a regular inspection program to confirm that no significant erosion and sediment transport is occurring; and,
- (b) an event inspection program to track the impacts of large storm events on sediment transport during the ice-free period.

Table 3.1 summarizes the watercourse crossings regular and event inspection schedule during ice free periods.

**Table 3.1: Regular and Event Based Erosion Inspection Schedule**

Regular Inspection Schedule		Event Inspection Schedule
Mid-May through June	July through October	Following large storm events
Twice weekly	Weekly	As required

The regular inspection program during the snowmelt and ice-free period is based on a schedule of visual inspections twice weekly during periods of high flow of the freshet (mid-May through June) and weekly during the remainder of the ice-free period prior to fall freeze up (July through October). Additional visual inspections will occur after large storm events.

#### 3.1.1.1 Regular Erosion Inspections

It is important to inspect the watercourse crossings to confirm no downstream transport of sediments occurs due to erosion of the channel bed or scour around the crossings structure during spring freshet and the ice-free period. Visual observations of the crossings structure integrity will assess the erosion and scour potential or whether erosion or scour has already

occurred. Results will be recorded regularly and reported in the annual report to the NWB. Remediation of any detected problems would be undertaken as soon as possible.

#### **3.1.1.2 Event Erosion Inspections**

Following a large storm event, visual observations will be made to assess whether erosion has occurred. Results will be recorded regularly and reported in the annual report to the NWB. Remediation of any detected problems would be undertaken as soon as possible.

#### **3.1.2 Crossing Inspection and Maintenance Program**

The watercourse crossing inspection and maintenance program has three main objectives:

- (a) a regular inspection program to identify issues relating to watercourse crossings structural integrity and hydraulic function;
- (b) an event inspection program to track the impacts of large storm events on watercourse crossings structural integrity and hydraulic function; and,
- (c) a culvert location inspection program to ensure culvert crossings has been installed in the adequate location with respect to the watercourse.

Table 3.2 summarizes the watercourse crossing inspection schedule during ice-free periods.

**Table 3.2: Regular and Event Based Crossing Inspection Schedule**

Regular Inspection Schedule		Event Inspection Schedule
Mid-May through June	July through October	Following large storm events
Twice weekly	Weekly	As required

The regular inspection program during the snowmelt and ice-free period is based on a schedule of visual inspections twice weekly during periods of high flow of the freshet (mid-May through June) and weekly during the remainder of the ice-free period prior to fall freeze-up (July through October). Additional visual inspections will be planned after large storm events. Table 3.3 summarizes the culvert crossings location inspection schedule.

**Table 3.3: Culvert Crossings Location Inspection Schedule**

Inspection Schedule
Mid-May through June
Twice weekly, for the first year

#### **3.1.2.1    *Regular Crossing Inspection and Maintenance***

Regular inspection activities for each watercourse crossing will consist of:

- Visual inspection of its infrastructure to identify defects, cracks or any other risks to structural integrity. Particular attention will be paid to the inlet and outlet structures of culverts, and to bridge abutments and their foundations, as required.
- Visual inspection to identify sediment or other debris accumulation impeding the free flow of water through the crossings. Maintenance operations will consist of hand removal of accumulated debris and repairing damages as soon as possible.
- Visual inspection of upstream and downstream channel to identify bed erosion or scour around the watercourse crossing structure. Particular attention will be paid to bridge abutments and abutment foundations as they are vulnerable to scour and erosion. Particular attention will also be paid to potential sources of sediment transport at the crossing.

Inspection results will be recorded and reported in the annual report to the NWB. Maintenance operations consist of undertaking remediation of any detected problems and repairing damage as soon as possible.

#### **3.1.2.2    *Event Crossing Inspection and Maintenance***

Following heavy or prolonged rainfall storm events, visual inspection of each watercourse crossing will be completed to identify potential risks to the crossing's structural integrity, debris accumulation and whether erosion and scour have occurred, as described in the regular monitoring program. Results will be recorded and reported in the annual report to the NWB. Remediation of any detected problems and necessary damage repairs would be undertaken as soon as possible.

#### **3.1.2.3    *Culvert Location Inspection***

Following their installation, the culvert crossings will be visually inspected to confirm they have been properly executed and installed at the appropriate location with respect to the watercourse. It will be critical to inspect the installed location of the culverts during the first spring freshet period as the culverts are installed during the winter, when the watercourse crossings are not readily identifiable. Additional culverts will be installed, if necessary, should the inspection indicate that the culverts were installed in a location that does not optimally route watercourse flows.



### 3.2 WATER QUALITY MONITORING

Rock quarry geochemistry reports have been submitted that indicate that there are no water quality issues with the quarried rock<sup>1</sup>. In the spring of 2008 (June 22nd thru the 25<sup>th</sup>), a survey of each road quarry was completed and samples of standing water collected. The location of ponded water in each quarry and predicted drainage directions (if appropriate) were mapped. Each quarry condition was photo documented. The following field parameters were measured at each quarry where ponded water was evident:

- Temperature, pH, Dissolved Oxygen, Conductivity and Turbidity.

The water samples were sent off site to a commercial laboratory for analysis of the following parameters:

- pH, hardness, conductivity, total suspended solids (TSS), oil and grease, sulphate, explosive residues (nitrate and ammonia) and the list of regulated total metals from CCME *Guidelines for Freshwater Aquatic Life* (dated December 2006): aluminum, arsenic, cadmium, chromium, copper, fluoride, iron, mercury, molybdenum, nickel, lead, selenium, silver, thallium and zinc. The results will be tabulated and reported as part of the Water License Annual Report for 2008.

In 2008 the road alignment will be periodically surveyed by the site environmental team for any significant water seeps and/or water ponded in contact with the road. Water samples will be collected at locations where road rock appreciably contacts ponded or flowing surface water, as identified during these visual surveys. The sampling locations will be identified as part of the 2008 annual report along with the sampling results. The sample locations will be chosen to represent areas where standing water is in regular contact with the road rock fill to allow water quality to be measured in surface waters that are in regular contact with the road rock fill. Other criteria for selecting a sampling location include:

- Areas of evident rock staining (rust colour particularly);
- An area where an accidental spill has previously occurred.

In addition, starting in 2008 sampling locations will be set up both up stream and down stream from the 9 major road stream crossings in order to confirm there are no water quality

---

<sup>1</sup> *Geochemical Assessment of Potential Quarry Rock Along the Proposed Mine Access Road, Meadowbank Project*  
Nunavut, Golder, 2007;

*Assessment of the Acid rock Drainage and Metal Leaching Potential of Rock from Potential Quarry Site Pit 6,*  
Meadowbank Project Nunavut, Golder 2007;

*Assessment of the Acid Rock Drainage and Metal Leaching Potential of Rock Samples Collected from an Esker along the*  
Tehek Lake Access Road, Meadowbank Project, Nunavut, Golder 2007

issues resulting from these crossings or the adjacent road rock fill. In 2008 these sample points are being sampled on a monthly basis during the open water season. The samples are being sent off site to an accredited laboratory (Maxim Labs in Montreal) for analysis of the following parameters: pH, hardness, conductivity, total suspended solids (TSS), oil and grease, sulphate, explosive residues (nitrate and ammonia) and the list of regulated total metals from CCME *Guidelines for Freshwater Aquatic Life* (dated December 2006): aluminum, arsenic, cadmium, chromium, copper, fluoride, iron, mercury, molybdenum, nickel, lead, selenium, silver, thallium and zinc. The results will be tabulated and reported as part of the Water License Annual Report for 2008.

Sampling frequency will be re-evaluated after the first year (2008 ice-free period) of monitoring, and if the frequency is revised, the justification for this change will be provided to the NWB and other interveners for comment.

### **3.2.1 Monitored Parameters**

Monitored parameters include: pH, hardness, conductivity, total suspended solids (TSS), oil and grease, sulphate, explosive residues (nitrate and ammonia) and the list of regulated total metals from CCME *Guidelines for Freshwater Aquatic Life* (dated December 2006): aluminum, arsenic, cadmium, chromium, copper, fluoride, iron, mercury, molybdenum, nickel, lead, selenium, silver, thallium and zinc. These parameters are applied to all sample locations along the AWPAP and in the quarries.

Water quality as monitored in the quarries, in ponded or flowing water along side the road and downstream of the road stream crossings will be compared against CCME Criteria for the protection of freshwater aquatic life and against background values as measured upstream at each road stream crossing. Where water quality exceeds CCME criteria or background values the following actions will be initiated:

- The location will be immediately re-sampled to verify the exceedance;
- A field investigation will be launched to investigate the cause and source of the noted exceedance;
- The Nunavut Water Board and Water Resources Inspector will be informed of the exceedance and the actions being taken.

The findings of the field investigation will be used to determine an appropriate mitigative action, such as removing the offending source rock or taking measures to prevent surface waters coming into contact with the offending source rock. The Nunavut Water Board and Water Resources Inspector will be consulted prior to implementing the planned mitigative action.

**MEADOWBANK GOLD PROJECT**  
**WATER LICENSE 8BC-TEH0809**  
**MONITORING PLAN**

### 3.2.2 Sampling Method

Surface grab samples will be collected from the monitoring locations during ice free periods. Table 3.4 summarizes the monitored parameters, minimum sample volumes, container, preservation, and holding times as specified by USEPA Methods for Chemical Analysis of Water and Waste Water (EPA-600/4-79-020, 1979).

**Table 3.4: Summary of Analytes for the AWPAR Water Quality Monitoring Program<sup>(a)</sup>**

Parameter	Min. Vol. (ml)	Bottle <sup>b</sup>	Preservation	Holding Time
pH	25	P,G	None	Immediately (on site measurement)
Conductivity	50	P	Unfiltered, cool 4°C	28 days
Hardness	-	P	HNO <sub>3</sub> - pH below 2	6 months
Mineral Oil and Grease	1000	G (Amber)	Unfiltered, cool 4°C HCl (optional)	7 days w/o HCl; 28 days with HCl
NO <sub>3</sub> _N	100	P,G	Unfiltered, cool 4°C	48 hrs
NH <sub>3</sub> _N	400	P,G	cool 4°C, H <sub>2</sub> SO <sub>4</sub> – pH below 2	28 days
SO <sub>4</sub>	50	P,G	Unfiltered, cool 4°C	28 days
TSS	1000	P	Unfiltered, cool 4°C	7 days
F	300	P,G	None	28 days
Ag	200	P,G	Filtered on site, HNO <sub>3</sub> – ph below 2	6 months
Al	200	P,G	Filtered on site, HNO <sub>3</sub> – ph below 2	6 months
As	200	P,G	Filtered on site, HNO <sub>3</sub> – ph below 2	6 months
Cd	200	P,G	Filtered on site, HNO <sub>3</sub> – ph below 2	6 months
Cr	200	P,G	Filtered on site, HNO <sub>3</sub> – ph below 2	6 months
Cu	200	P,G	Filtered on site, HNO <sub>3</sub> – ph below 2	6 months
Fe	200	P,G	Filtered on site, HNO <sub>3</sub> – ph below 2	6 months
Hg	100	P,G	Filtered on site, HNO <sub>3</sub> – ph below 2	28 days
Mo	200	P,G	Filtered on site, HNO <sub>3</sub> – ph below 2	6 months
Ni	200	P,G	Filtered on site, HNO <sub>3</sub> – ph below 2	6 months

**MEADOWBANK GOLD PROJECT**  
**WATER LICENSE 8BC-TEH0809**  
**MONITORING PLAN**

Pb	200	P,G	Filtered on site, HNO <sub>3</sub> – ph below 2	6 months
Se	200	P,G	Filtered on site, HNO <sub>3</sub> – ph below 2	6 months
Tl	200	P,G	Filtered on site, HNO <sub>3</sub> – ph below 2	6 months
Zn	200	P,G	Filtered on site, HNO <sub>3</sub> – ph below 2	6 months

<sup>(a)</sup> USEPA Methods for Chemical Analysis of Water and Waste Water, EPA-600/4-79-020.

<sup>(b)</sup> P: plastic bottle; G: glass bottle

### 3.3 QUARRY MONITORING

The freshet survey will also include the quarry sites from which construction rock was extracted. Currently, a total of 22 quarry sites were used for the construction of the AWP. An additional two quarries (QM-01 and QM-02) were developed at the location of the site airstrip to provide rock fill for the site roads and building pads (QM-01 and QM-02 are now one continuous quarry sited on either side of the site airstrip). As indicated above water quality samples were collected from ponded water in each quarry site in June of 2008.

Additionally, during the summer of 2008, AEM will conduct a program of geological mapping and chip sampling of all exposed quarry faces. The chip samples will be sent off site for geochemical characterization (conventional acid-base accounting testing, total and leachable metals using the BC MEM shake flask extraction procedure). The objective is to further verify that the rock used in road and site construction is not potentially acid generating or a source of significant metal leaching. These results will be reported in the 2008 annual report.

## SECTION 4 • SEWAGE TREATMENT PLANT

---

To support the pre-development activities at the Meadowbank Project site, Water License 8BC-TEH0809 authorizes the operation of a rotary biological contactor (RBC) sewage treatment plant (STP) and the use of Tear Drop Lake with an allowable discharge standard for overflow. Monitoring procedures for the STP include discharge water quality monitoring with results to be reported in the Monthly summary report.

### 4.1 WATER QUALITY MONITORING

Tear Drop Lake is a small non-fish bearing pond located in the vicinity of the mill and site service facilities. It is the proposed Stormwater Management Pond for the Meadowbank

**MEADOWBANK GOLD PROJECT**  
**WATER LICENSE 8BC-TEH0809**  
**MONITORING PLAN**

Project. During the pre-development phase authorized under 8BC-TEH0809, the treated sewage from the STP will be pumped into this Stormwater Management Pond. Overflow from this pond will be pumped into the northwest arm of Second Portage Lake only after it has met the discharge criteria listed in table 4.1.

**Table 4.1: Tear Drop Lake Proposed Discharge Criteria**

Parameter	Maximum Average Concentration	Maximum Allowable Concentration of a Grab Sample
<b>pH</b>	6.0 to 9.5	6.0 to 9.5
<b>TSS</b>	25 mg/L	50 mg/L
<b>BOD<sub>5</sub></b>	25 mg/L	50 mg/L
<b>F.Coli</b>	1000 CFU/dl	2000 CFU/dl
<b>Oil &amp; Grease</b>	15 mg/L and no visible sheen	15 mg/L and no visible sheen
<b>Benzene*</b>	370 µg/L	370 µg/L
<b>Toluene*</b>	2 µg/L	2 µg/L
<b>Ethylbenzene*</b>	90 µg/L	90 µg/L
<b>Lead*</b>	1 µg/L	1 µg/L
<b>Al</b>	1.5 mg/L	3.0 mg/L

\* if discharge from bulk fuel storage facility is received by Stormwater Management Pond

Water samples will be collected according to the following parameters and frequency (as per 8BC-TEH0809 Part I, Item 3):

**Table 4.2: STP Discharge Monitoring**

Monitoring Station	Description	Parameter	Frequency
TEH-9	Discharge from Lake #1 of Contact Water Collection System (Stormwater Management Pond) to Second Portage Lake	pH, TSS, T-Al, BOD, F.Coli, T-As, T-Cu, T- CN, T-Pb, T-Ni, T-Zn, T-Radium226,	Once before discharge and weekly during periods of discharge
		Flow (m <sup>3</sup> /day)	Daily during discharge
		Acute Lethality	Once, prior to discharge and monthly thereafter
	In addition, if discharge from Bulk Fuel Storage Facility directed to Lake #1	Benzene, Lead, Toluene, Ethylbenzene, oil and grease	Once before discharge and weekly during periods of discharge

## **SECTION 5 • PRE-DEVELOPMENT STARTER PITS**

Two on-land starter pits (north and south pre-development zones) will be pre-developed on the Portage deposit to develop a stockpile of broken rockfill material that will be required to construct the outer shells of the East Dike. Water will be managed with the contact water collection system consisting of trenches, attenuation ponds #1 and #2 and Lakes #1 and #2. Monitoring procedures for the pre-development starter pits include water quality monitoring.

### **5.1 CONTACT WATER QUALITY MONITORING**

Water, if any, accumulated in the pre-development zones (noted as monitoring stations TEH-3 and TEH-4 in 8BC-TEH0809 Part I, Item 3) will be monitored as follows:

**Table 5.1: Monitoring Requirements for Pre-development Zones**

Monitoring Station	Description	Parameter	Frequency
TEH-3 and TEH-4	Water, if any, accumulated in the North and South predevelopment zones	pH, turbidity	Weekly
		Metals using an ICP Metals Scan 36 element scan, Total Ammonia, Nitrate, Sulphate	Monthly

In the event that this accumulated water needs to be pumped to the sumps and Lakes, the following water quality monitoring will be conducted:

**Table 5.2: Monitoring Requirements for Water Pumped from Pre-development Zones**

Monitoring Station	Description	Parameter	Frequency
TEH-5 and TEH-6	Water pumped from north and south development zones to Contact Water Collection System	pH, turbidity	Daily during periods of pumping
TEH-7 and TEH-8	Contact Water Collection System Lake #1 and #2	pH, turbidity, Metals using an ICP Metals Scan 36 element scan, Total Ammonia, Nitrate, Sulphate	Weekly during periods of pumping from the predevelopment pits

**MEADOWBANK GOLD PROJECT**  
**WATER LICENSE 8BC-TEH0809**  
**MONITORING PLAN**

All monitoring results from the contact water quality monitoring in the predevelopment starter pits will be reported to the NWB in the Monthly Summary report and to the Kivalliq Inuit Association (KIA) on a monthly basis.

Only water meeting the following discharge criteria will be transferred to Lake #1 and #2 from the starter pits without further treatment being required:

**Table 5.3: Discharge Criteria for Water Transferred Between Starter Pits and Lakes #1 and #2**

Parameter	Units	Proposed Discharge Criteria
pH		6.0 to 9.0
TSS	mg/L	50
Total Ammonia-N	mg/L	15
<b>Total Metals</b>		
Aluminium Al	mg/L	2.0
Arsenic As	mg/L	0.5
Copper Cu	mg/L	0.3
Lead Pb	mg/L	0.2
Nickel Ni	mg/L	0.5
Zinc Zn	mg/L	0.5

If water quality does not meet these discharge criteria, then it will be treated in the two attenuation ponds prior to being transferred into Lakes #1 and #2. The contingent treatment methods are presented in section 5.2.

## **5.2 CONTACT WATER STORAGE AND TREATMENT SYSTEM**

In the event that water is pumped from the pre-development zones into Lake #1 or Lake #2, water quality monitoring will be able to detect if water treatment is necessary prior to discharge. If the water quality problem is an excess of suspended solids, a coagulant will be added using a temporary addition system with a metering pump. If the water quality problem is a low pH value or metal concentrations in excess of the limits, lime will be added. Both types of treatment would be done in the attenuation pond to allow sufficient time for sedimentation to occur in Lakes #1 and #2.

## **5.3 CONTACT WATER COLLECTION SYSTEM DISCHARGE**

Any overflow directed from Lake #1 or Lake #2 into the northwest arm of Second Portage Lake must not exceed the following effluent quality limits:

**MEADOWBANK GOLD PROJECT**  
**WATER LICENSE 8BC-TEH0809**  
**MONITORING PLAN**

**Table 5.4: Effluent Quality Limits for Lake #1 and Lake #2 Overflow**

Parameter	Maximum Average Concentration	Maximum Allowable Grab Sample Concentration
Arsenic (mg/L)	0.5	1.0
Copper (mg/L)	0.3	0.6
Cyanide (mg/L)	1.0	2.0
Lead (mg/L)	0.2	0.4
Nickel (mg/L)	0.5	1.0
Zinc (mg/L)	0.5	1.0
pH	6.0 to 9.5	6.0 to 9.5
Radium-226 (Bq/L)	0.37	1.11
TSS (mg/L)	15	30

Specific monitoring requirements for the discharge of Lake #1 and Lake #2 are as follows, based on 8BC-TEH0809, Part I, Item 3:

**Table 5.5: Monitoring Requirements for Lake #1 and Lake #2 Discharge**

Monitoring Station	Description	Parameter	Frequency
TEH-9	Discharge from Lake #1 of Contact Water Collection System (Stormwater Management Pond) to Second Portage Lake	pH, TSS, T-Al, BOD, F.Coli, T-As, T-Cu, T- CN, T-Pb, T-Ni, T-Zn, T-Radium226,	Once before discharge and weekly during periods of discharge
		Flow (m <sup>3</sup> /day)	Daily during discharge
		Acute Lethality	Once, prior to discharge and monthly thereafter
	In addition, if discharge from Bulk Fuel Storage Facility directed to Lake #1	Benzene, Lead, Toluene, Ethylbenzene, oil and grease	Once before discharge and weekly during periods of discharge
TEH-10	Discharge from Lake #2 of Contact Water Collection System to Second Portage Lake	pH, TSS, T-As, T-Cu, T-CN, T-Pb, T-Ni, T- Zn, T-Radium226, Acute Lethality	Once before discharge and weekly during periods of discharge
		Flow (m <sup>3</sup> /day)	Daily during discharge
		Acute Lethality	Once, prior to discharge and monthly thereafter



## SECTION 6 • BULK FUEL STORAGE FACILITY

---

Water License 8BC-TEH0809 has been amended to include the construction of the 5.6 MI bulk fuel storage tank at the Meadowbank site. Monitoring procedures include discharge water quality monitoring.

Should discharge be land applied, the following monitoring will be conducted:

**Table 6.1: Bulk Fuel Storage Facility - Monitoring Requirements for Land Applied Discharge**

Monitoring Station	Description	Parameter	Frequency
TEH-11	Land applied discharge from the Bulk Fuel Storage Facility	Benzene, Toluene, Ethylbenzene, Lead, oil and grease	Once before discharge and weekly during periods of discharge
		Flow (m <sup>3</sup> /day)	Daily during discharge

Any discharge shall not exceed the following effluent quality limits:

**Table 6.2: Bulk Fuel Storage Facility - Effluent Quality Limits for Land Application**

Parameter	Maximum Average Concentration (µg/L)
Benzene	370
Toluene	2
Ethylbenzene	90
Lead	1
Oil and Grease	15,000 and no visible sheen

## SECTION 7 • QA/QC PROGRAM

---

The QA/QC program is designed to identify and minimize the impacts of potential sampling and analytical errors on the monitoring program. The QA/QC program is based upon an industry standard frequency of 1 field duplicate<sup>2</sup> and 1 trip blank<sup>3</sup> for each 10 samples and

---

<sup>2</sup> A field duplicate sample set consists of a thoroughly homogenized sample collected from one desired location that has been split between two sets of bottleware and labeled as representing two separate sample locations as a method for evaluating sampling procedures and analytical precision.

<sup>3</sup> A trip blank is a sample of analyte-free media collected in the same type of container that is required for the analytical test, taken from the sampling site to the laboratory. A trip blank is used to document contamination attributable to shipping and field handling procedures.

**MEADOWBANK GOLD PROJECT  
WATER LICENSE 8BC-TEH0809  
MONITORING PLAN**

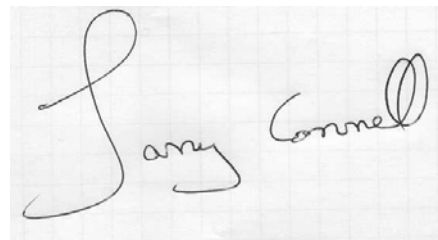
each sampling event. This will apply to the all AEM environmental monitoring and sampling programs. In addition, the following will be adhered to:

- All sampling programs will be overseen and reviewed by a qualified Professional as appropriate,
- All sampling, sample preservation and analyses shall be conducted in accordance with methods prescribed in the current edition of *Standard Methods for the Examination of Water and Wastewater*, or by such other methods approved by the Board, and
- All analyses shall be performed in a laboratory accredited according to ISO/IEC Standard 17025. The accreditation shall be current and in good standing.

**MEADOWBANK GOLD PROJECT  
WATER LICENSE 8BC-TEH0809  
MONITORING PLAN**

This document, "*Water License 8BC-TEH0809 Monitoring Plan, July 2008*" has been prepared by Agnico-Eagle Mines Limited.

**Prepared By**

A handwritten signature in black ink on a light-colored, textured background. The signature is written in a cursive style and appears to read "Larry Connell".

---

**Lawrence J. Connell**  
**NWT/NU Registration Number L1720**  
**Regional Manager: Environment, Social and Government Affairs**