AGNICO EAGLE

MELIADINE GOLD PROJECT

WATER MANAGEMENT PLAN

WATER LICENSE No. 2BB-MEL0914

ADVANCED EXPLORATION

February 2013

DOCUMENT CONTROL

Version	Date (YMD)	Revision	Issued by
	2007/10	First version	Comaplex Minerals
	2009/09	Site Water Management Plan Addendum	Comaplex Minerals
	2010/08/25	The 2007 Plan and 2009 addendum were consolidated and updated to include recent license amendments	John Witteman (AEM)
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	2014-02-09	Complete document revision	Alexandre Gauthier (AEM) Philip Roy (AEM) David Frenette (AEM) Josee Noel (AEM)

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Acronyms

AANDC	Aboriginal Affairs and Northern Development Canada (formerly, INAC)
AEM	Agnico Eagle Mines Limited
AWAR	All-weather Access Road
BOD_5	Biochemical Oxygen Demand (milligrams of oxygen consumed per litre of sample during 5 days of incubation at 20 °C)
INAC	Indians and Northern Affairs Canada (now AANDC)
KIA	Kivalliq Inuit Association
NTI	Nunavut Tunngavik Inc.
NWB	Nunavut Water Board
STP	Sewage Treatment Plant
TDS	Total Dissolved Solids
TSS	Total Suspended Solids
UV	Ultra-Violet

1.0 Introduction

This **Water Management Plan** pertains to Nunavut Water Board License No. 2BB-MEL0914 for the Meliadine Gold Project. This Plan addresses water use, waste disposal, geotechnical drilling within 31 meters of water body, exploration activities on the property including ongoing surface diamond drilling, and the advanced underground exploration ramp/bulk sample program.

2.0 Permits for Exploration and the Camp

AEM maintains the right to explore and carry out diamond drilling on all of its existing leases, claims and NTI concessions through a series of land use permits and licenses as outlined in Table 1. Access to these land parcels is now made with the all-weather access road. The scope of the licensed project was changed in 2007 with the initiation of the underground advanced exploration program, which commenced in August of 2007. Water License No. 2BB-MEL0709 was granted in response to this change in scope and was renewed for 5 years in 2009 as Water License No. 2BB-MEL0914.

3.0 Plan Objectives

- Monitor specified water quality parameters at the camp domestic water intake.
- Monitor the performance of the Sewage Treatment Plant (STP; BIODISK Rotating Biological Contactor) for grey and black water.
- Monitor the effect of underground operations on the water quality in the Primary Containment Area.
- Contain site runoff from the underground program within a single drainage basin while minimizing the effect on the surrounding terrestrial environment.
- Document the effect of long term storage of waste rock, ore and overburden on the local downstream water quality with an emphasis on trace metals and nutrients.
- Document water use for routine exploration activities such as geotechnical and surface diamond drilling, for underground exploration, and for the All-Weather Access Road (AWAR).
- Report the quantity of water used and the results of water quality monitoring activities.

Table 1. Permits and Licenses held by the Meliadine Gold Project – October 2013

Licence Number	Details	Issued By
KVL100B195	Meliadine Prospecting - Land Use	KIA
KVL302C268	NTI Parcel Drilling incl Tiriganiaq	KIA
KVCL102J168	Commercial Lease	KIA
KVRW98F149	Meliadine Right-of-way	KIA
KVRW07F02	Overland Right-of-way	KIA
KVCA07Q08	Tiriganiaq Esker Quarry Permit	KIA
KVCA11Q01	Permanent Road Quarries	KIA
KVRW11F02	Permanent Road Right-of-way	KIA
KVL308C07	Mel E Exploration RI01	KIA
N2010C0002	PB1, Drilling Permit	INAC
2BB-MEL0914	Bulk Sampling -Water Licence	NWB
2BE-MEP0813	Exploration - Water Licence	NWB
2BW-MEL1215	Road-Water Licence	NWB
N2013-C002	Exploration, drilling, claims CWM	AANDC

4.0 General Water Management

General code of conduct guidelines for exploration activities with respect to water management have been in place since before AEM took over management of the Meliadine Gold Project. In summary, these include the following:

- there is to be no diamond drilling within 31 m of a natural water body or water course unless authorized to do so;
- there is to be no fuel storage or handling of fuel vessels within 31 m of a natural water body or water course unless authorized to do so;
- a spill contingency plan is implemented for fuel, oil and different type of hazardous materials spill prevention and preparedness;
- drill cuttings are to be controlled and contained in depressions near the drill hole; sludge line, "Aquadam" (water filled berms) and/or silt fences can be deployed to prevent drill cutting from entering receiving waters;
- if necessary, flocculants can be employed to reduce the Total Suspended Solids (TSS) in the waste water coming from the drills;
- drill sites are to be rehabilitated (put back to their natural state);
- when drilling through lake ice is planned, water samples are collected before, during and after the drilling to ensure that the water quality of the lake has not been impacted by the activity.

4.1 Water Consumption Records

Water License No. 2BB-MEL0914 allows for 45 m^3 per day of raw water to be drawn for Meliadine Lake (station MEL-1; see Figure 3).

Water meters monitor the camp water usage and a log book is completed daily.

Water meters are also installed on each drill and on the underground pipeline and the daily usage is noted in a log book.

4.2 Camp Water Management

The camp domestic water system is in use since 1997. Water is drawn from Meliadine Lake at pumping station labeled MEL-1 in Figure 3. Freshwater from Meliadine Lake is directed to a potable water treatment plant that uses a series of treatments described as follows:

- Two (2) regenerable carbon filters which regenerate every 24h;
- Two (2) Pentek dual gradient density polypropylene filter;
- A Trojan UV treatment system; and
- A chlorine injection pipe system.

Potable water is then directed to four (4) holding tanks with a total capacity of 4000 gal. Each Wings (O, P, N and V) have two (2) 100-gal heating tank and 4 more are supplying the dry with hot water ; for a total of 12 heating tank. One 300-gal tank of raw water from Meliadine Lake is left in the former laundry area to feed the STP area with fresh water. And the fire system has its own holding tank for a capacity of 4000 gal.

The outflow from the potable water treatment system is sampled each week to monitor the water quality.

All waste water from Meliadine camp is treated by the STP and the only domestic effluent on site is behind the STP at MEL-7 sampling station.

4.3 Diamond Drilling Water and Sludge Management

AEM will not drill within 31 m of an open body of water unless authorized to do so. Drill cuttings (grinded rock) are not allowed to flow into any body of water. If needed, AEM uses "Aquadams" and/or silt curtains and/or sludge line to manage TSS. Once the sludge has settled and TSS are removed, the water is allowed to flow into a natural water course.

Quite commonly, the process of drilling creates a depression around the borehole and the sludge is concentrated in and adjacent to that depression. Experience has shown that if the drilling sludge is spread as a thin layer around the hole, the area will re-vegetate completely within a couple of years. If a thick layer of drill sludge is deposited into depressions, re-vegetation is hindered. The present approach to drill site re-habilitation has worked well for the last 15 years.

All efforts are made to stabilize and re-contour the ground upon completion of work. Following the completion in drilling a hole, all attempts are made to pull the casing. Where this is not possible, the casing is cut off at or below the surface. Water flowing into the hole or cut off casing will freeze as all drill holes are in areas of permafrost.

4.4 Underground Exploration Site Water Containment Plan

The initial underground exploration site configuration (2007-2008) was engineered such that all runoff from the workings, the stored overburden, the waste rock pads, and ore piles on the waste rock pads was directed to the portal sump and Primary Containment Area as shown in Figure 1. This was done by grading surfaces of the waste rock pad and overburden to drain towards the two containment areas. The capacity of the sump near the portal is 2,500 m^3 and the Primary Containment Area is 21,000 m^3.

Figure 1 also shows the sub-catchment area of the Lake A54 watershed that contributes runoff to the Primary Containment Area. This sub-catchment area is 142,000 m^2. Rounding the expected 97 mm yield to 0.1 m suggests a yield of 14,200 m^3 of water each year, mostly from snow melt in the spring. The Primary Containment Area is capable of holding about 21,000 m^3 of water to the 67.6 m elevation, with a maximum depth of 1.6 m. Consequently, the Primary Containment Area is capable of containing the spring runoff from the sub-catchment area of Lake A54 basin.

The north side of the road along the Primary Containment Area and the south side of the sump were lined in late 2007 with a woven polypropylene/polyvinyl liner to contain site runoff.

If a significant volume of water were to be held for an extended period in the Primary Containment Area, the warmth of the water could thaw the permafrost that moved into the roadbed and allow water to seep downstream. Periodic pumping of the Primary Containment Area can be expected to follow summer storms, providing the analysis of the water supports its release.

If a water accumulation is noted during winter period (or before freshet), a sample will be taken to characterize the water and if the water quality permits the release in the environment, the water will be pump from P1 to A57. If the water doesn't qualify, treatment will be applied as well as pre-releasing water sample to confirm the quality of the treatment.

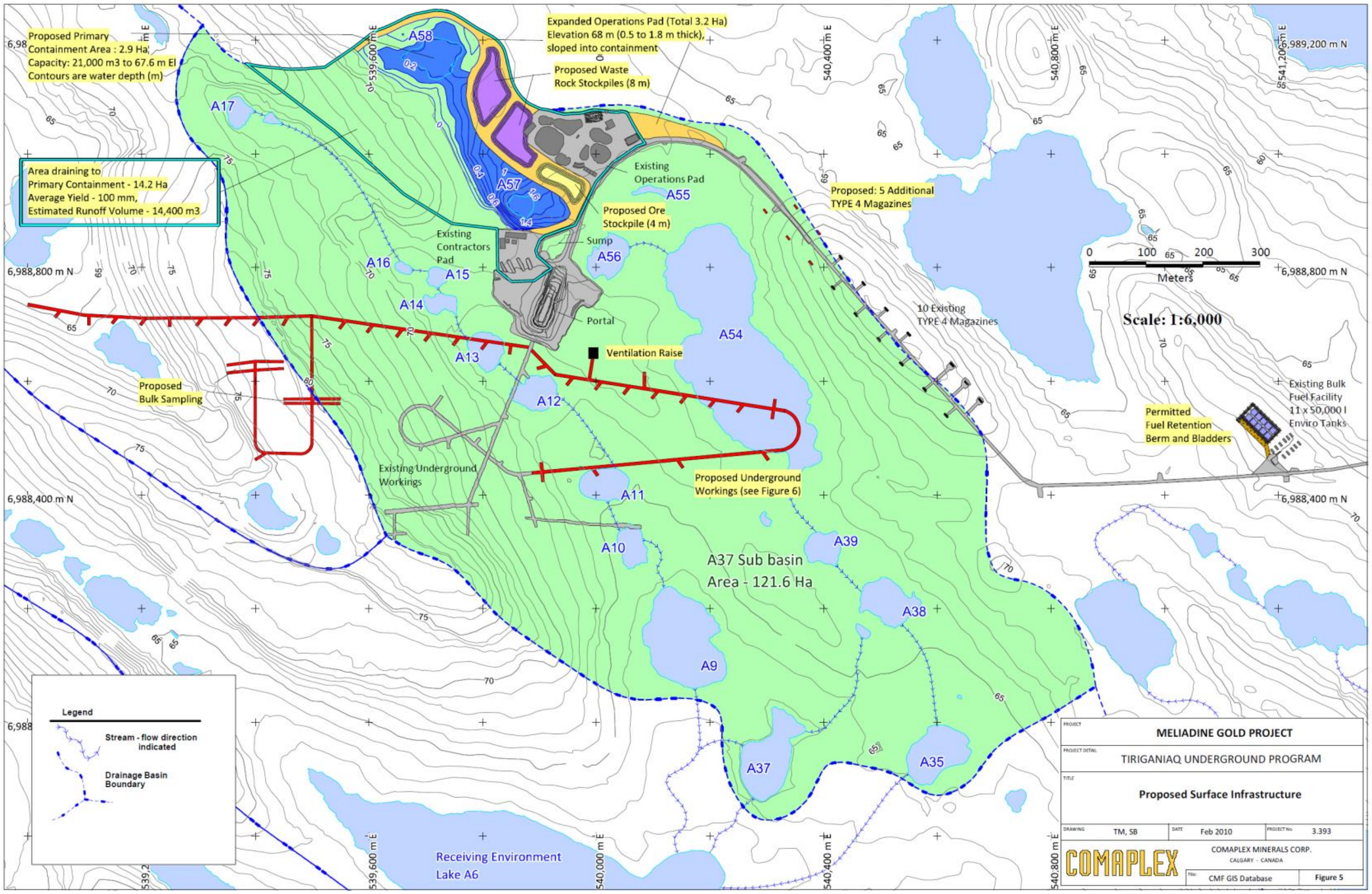
4.5 Underground Water Management

Some water is needed for dust suppression during underground drilling and mucking. To prevent the water from freezing, given the workings are located in a permafrost environment, underground operations use brine at a concentration varying between 10% and 20% $CaCl_2$ by weight, depending on air temperature. The brine is mixed in 2000-liter batches. The mixing takes place in the contractor's shop area and the complete batch is piped from the mixing tank to a sump underground.

From the underground sump, brine is piped to the working area where it is used for dust suppression. As brine flows and accumulates on the floor in the working area, it is pumped back to an underground sump.

In the early stages of the decline advance in 2007, a sump for surface water was constructed at the base of the portal. As the underground workings were extended, two new sumps were built deeper underground, one sump for each branch of the ramp. The original sump just inside the portal is used to intercept surface runoff so that it does not enter the underground workings.

Figure 1. Underground Advanced Exploration Program



5.0 Water Monitoring Requirements

The exploration camp (see Figure 2) has been used since 1997. It currently supports ongoing surface exploration activities as well as advanced exploration activities and project development related activities.

Figure 2. Meliadine Camp Site (August 2013)

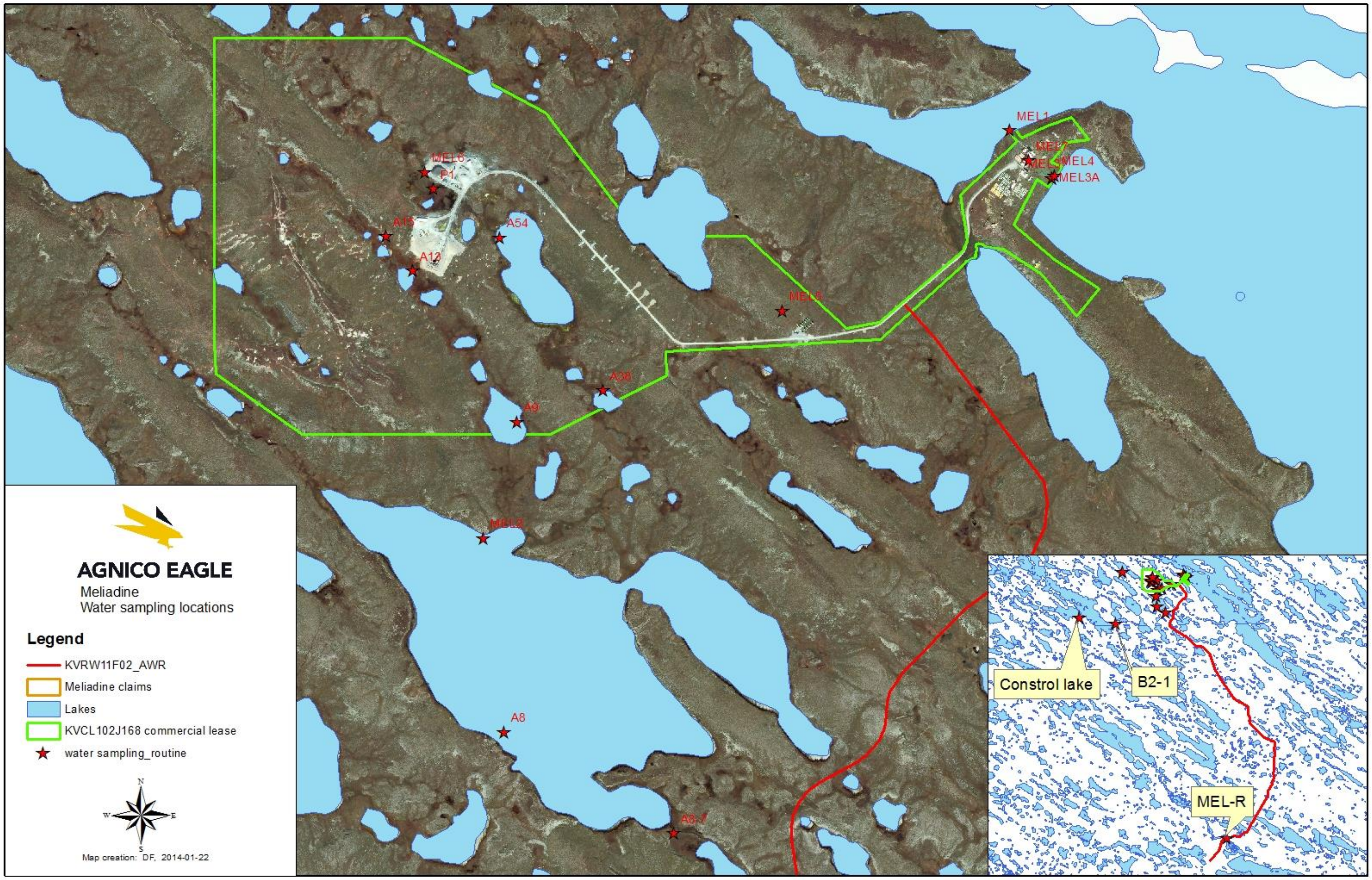
Table 2 below outlines the monitoring requirements for the eight (8) monitoring stations specified in Water License No. 2BB-MEL0914 while Figure 3 shows their location. The camp water is drawn from Meliadine Lake from station MEL-1, which remains unchanged since 1997. Water for the underground exploration program and proximal surface drilling is drawn from Lake A8[1]. Water for drill sites distant from Lake A8 is drawn from lakes and ponds near the drilling targets. Treated domestic waste water is sampled at monitoring station MEL-7.

[1] Also identified as MEL-2 in the Water License, and Pump Lake in earlier documents.

Table 2. Water License No. 2BB-MEL0914 Water Quality Monitoring Stations

MonitoringStation	Location
MEL-1	Raw water supply intake at Meliadine Lake
MEL-2	Raw water supply intake at Pump Lake (active)
MEL-3	Immediately downstream of old grey water sump prior to effluent entering wetland area, when flow is observed. *This station has been replaced by MEL-3a*
MEL-3a	Immediately downstream of upgraded sump prior to the effluent entering the upgraded wetland area, when flow is observed (has replaced MEL-3)
MEL-4	At a point immediately upstream of the discharge from the wetland area / upgraded wetland area to Meliadine Lake
MEL-5	Point of discharge for the Bermed Fuel Containment Facilities
MEL-6	Point of discharge for the contaminated soil treatment area
MEL-7	Final effluent discharge from the STP
MEL-8	Point of discharge of runoff from the Non-Hazardous Waste Landfill

Figure 3. Water Sampling Stations Location



6.0 Potential Risks, Related Mitigation Measures, and Monitoring

6.1 Human Health Risk

Mitigation Measures

As described in section 4.2, water to be used in the camp is subject to a potable water treatment to mitigate risks to human health. In addition, the following monitoring is undertaken.

Monitoring

- Water quality monitoring includes sample collection at the MEL-1 and MEL-2 locations. A complete suite of analyses (as shown in Table 3) is carried out at both stations. MEL-2 is also identified as Lake A8 and is downstream of the Primary Containment Area. Those stations are sampled monthly when water is present, accessible and not frozen.

- When drilling on ice and passing through the water column, water samples are collected before, during (weekly) and after the drilling. The samples are analyzed for physical parameters and trace metals as set out in Section J6 of Water License No. 2BB-MEL0914.

- Efficiency of the STP is monitored with sample collected at the MEL-7 stations. Those stations are also sampled monthly. Parameters for which the samples are tested include: BOD_5, TSS, oil & grease, fecal coliforms and pH. These tests are required by Section J4, Water License No. 2BB-MEL0914.

6.2 Leachate Risk from the Waste Rock Pads and Ore Stockpiles

The waste rock pads and ore piles can be a source of explosive residues (ammonium nitrate), and trace metals. Runoff from natural precipitation or snow melt can dissolve and/or mobilize compounds from the waste rock and ore and carry these into the containment areas. While ammonium nitrate serves as a fertilizer in the natural environment, ammonia can be toxic to aquatic organisms at elevated concentrations, in particular to fish.

For the underground exploration program, care will be taken to minimize the quantity of ammonium nitrate lost underground.

Mitigation Measures

- Diligent use and storage of explosives underground to keep the amount of ammonium nitrate residue to a minimum.

- Keep the potential runoff from the pads to a minimum by pushing as much accumulated snow from the pads as possible before spring snow melt. The snow will be pushed downstream of the pads so as to minimize contact with the broken rock.

- Keep water use in underground mining to a minimum.

Monitoring

- Water quality in the area of the underground exploration and water bodies downstream is monitored with samples collected monthly at all sites indicated in Figure 3. The full suite of parameters as shown in Table 3 below is analyzed at all sites when water is present, accessible and not frozen.

Table 3. Full Suite of Parameters for Water Quality Sampling

Physical Parameters: pH (field and laboratory), temperature (field), alkalinity, bicarbonate, carbonate, electrical conductivity, hardness, hydroxide, ion balance, oil & grease, total dissolved solids, total suspended solids, turbidity **Nutrients:** NH_4, NO_3, NO_2, PO_4 **Major Ions:** Ca, Cl, Mg, K, Na, SO_4 **Trace Metals:** Al, Sb, As, Ba, Be, B, Cd, Cr, Cu, Fe, Pb, Li, Mn, Hg, Mo, Ni, Se, Ag, Sr, Sn, Ti, U, V, Zn

6.3 Waste and Ore Storage Risk

All waste rock from the Tiriganiaq area is non-acid generating (Golder Associates 2012). As a result, acid rock drainage is not a problem. The ore zone, however, is classified as having an uncertain ARD potential and should be treated as potentially acid generating. The ore from the underground exploration program is presently stored on a pad made of waste rock materials and any leachate from the ore passes over or through the pad, thereby providing a measure of safety before reaching receiving waters.

Mitigation Measures

- Placement of the ore on the waste rock storage pad will allow ample exposure of all runoff to the buffering capacity of the waste rock pad as shown in Figure 1.

- A minimum border of 5 m will be maintained all around the stored ore piles to ensure no runoff occurs from the ore piles directly to the toe of the pad. This border will also allow space for equipment to work on the waste pads around the edges of the ore piles, if required.

Monitoring

- Water quality in the Primary Containment Area next to the waste rock pads and ore storage is monitored monthly with samples collected at the sampling station P1 (Figure 3) when water is present, accessible and not frozen.

6.4 Till Storage Risk

There are two (2) areas where the till is stored adjacent to east and west of the portal as shown in Figure 1. The till contains mostly local rock with a gradation down to silt. The till is alkaline and pose no acid drainage risk (Golder Associates 2012). In addition to the concern with the rock alone, there is the possibility of suspended solids coming off the surface during a severe summer weather event and moving downstream into Lake A54.

Mitigation Measures

- The east till storage area has had a waste rock berm placed around its base to prevent any creep of the till past the present confines shown in Figure 1. No berm is presently around the west till storage location as it has not shown indications of any movement of fines to date.

Monitoring

- Visual inspection of the two till piles each summer for any movement or runoff with noticeable suspended solids.

6.5 Water Removal from Bermed Fuel Areas

Bermed fuel area is designed to hold in excess of 110 percent of the fuel in barrels, single-walled tanks and/or bladders therein. This space, however, provides an opportunity for the accumulation of snow over the winter and rain during the summer months. This water has to be removed from the bermed areas to ensure the complete capacity is available in the event of a leak in any fuel container(s).

Mitigation Measures

- An oil and water separator is used to treat the water before releasing it into the environment.

Monitoring

- The water accumulated into the bermed area is sampled and the results are sent to the inspector before the water can be released as required by Water License No. 2BB-MEL0914 Section D-13.

7.0 Local Water Quality

Local surface water quality monitoring was initiated in 1994 by Dillon Consulting followed by WMC International Ltd in 1996. Between 1997 and 2000, water sampling was conducted by RL & L under contract to WMC International Ltd. The KIA has collected water samples since 2004, and Comaplex initiated its water sampling program in 2007. AEM has taken over in 2010.

Water samples will continue to be collected within and downstream of the Primary Containment Area to document the fate of trace metals and nutrients. The sampling stations locations are shown in Figure 3.

Samples are analyzed for physical parameters, major ions, nutrients and trace metals with a monthly report being sent to NWB and KIA. The NWB places the monthly reports on their ftp site.

References

Golder Associates. 2012. Geochemical Characterization of Waste Rock, Ore, Tailings and Overburden, Meliadine Gold Project, Nunavut. Doc 256-1114280011/6000 Ver. 0, submitted to Agnico Eagle Mines Limited, October 10, 2012.