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NUNAVUT WATER BOARD NUNAVUT IMALIRIYIN KATIMAYINGI

Water Licence 2BB-MEL0914
Amendment Application for a Landfill
Supplementary Questionnaire
for Advanced Exploration
(Underground drilling, bulk sampling, etc.)

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SECTION 1:

GENERAL

1. Applicant Agnico-Eagle Mines Limited

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Project Name Meliadine Gold Project

Location Meliadine Lake, Kivalliq, Nunavut, 25 km north of Rankin Inlet

Closest Community Rankin Inlet

Latitude/Longitude Lat 63° 01' 30" N Long 92° 10' 20" W

Show the location of the project on a general location map. See attached figure 6

2. Environmental Manager Stéphane Robert 819 793 4610

(Name) (Telephone No.)

or Project Manager Eric M. Lamontagne Project Manager

3. Indicate the status of the exploration activity on the date of application. (Check the appropriate space.)

Surface drilling will take test all gold deposits in 2012. The larger part of the drilling is to convert resources to minable reserves.

Design	
Under construction	
In operation	<u>X</u>
Suspended	
Care and Maintenance	
Abandoned	

4. If a change in the status of the exploration activity is expected, indicate the nature and anticipated date of such change.

AEM has applied to the Nunavut Impact Review Board for a Part 5 environmental assessment under the Nunavut Land Claim Agreement.

AEM is presently preparing an Environmental Impact Assessment for the Meliadine Gold Mine. During this time, diamond drilling will continue to define mineral reserves and explore for new resources.

5. Indicate the present (or purposed) schedule for the exploration activity.

Hours per week
Days per week
7 days per week

Weeks per year 40 to 52 weeks per year depending on activities at the time

Number of employees 120 - 250 persons on site depending on the time of year

Number of Inuit employees 20 to 40

6. Estimate the term (life) of the exploration activity.

Diamond drilling to continue for term of license.

7. How will the project effect the traditional uses on Inuit Owned Lands?

The development of a landfill fill is a progressive step in protecting Inuit lands. The landfill will be used during exploration and construction, and will be replaced by a permanent landfill established once the Meliadine Gold Mine goes into operation. At that point the temporary landfill will be decommissioned.

Meliadine Lake is a popular destination for local hunters and fishers. A number of cabins and camps are present around the camp area. AEM is not aware of any issues with the traditional enjoyment of the Meliadine Lake area.

8. Have the Elders been consulted on effects to the traditional use on Inuit Owned Land? If so, list them. If not, why not?

See the attached list of consultations carried out in 2011. Elders were present at all public, HTO, and CLARC meetings where they outlined their expectations for the Meliadine Gold Mine and their concerns as well. Veteran Rankin Inlet miners/elders visited the site in 2008, both on surface and underground.

9. Has the proponent consulted Inuit Organizations in the area? If so, list them.

Please refer to the chronology of community consultations for 2011. The Inuit associations consulted included the Kivalliq Inuit Association, Hunters and Trappers Organization, and the Community Land and Resource Committee.

10. Has the proponent consulted surrounding communities on traditional water use areas? If so, list them. If not, why not?

This is a subject of ongoing discussion and consultation during community meetings. Also, this subject was addressed in a Traditional Knowledge Study.

11. Attach a detailed map drawn to scale showing the relative locations (or proposed locations) of the exploration activity, sewage and solid waste facilities, and containment areas. The plan should include the water intake and pumphouse, fuel and chemical storage facilities. Ore and waste rock storage piles, piping distribution systems, and transportation access routes around the site. The map also should include elevation contours, water bodies and an indication of drainage patterns for the area.

Refer to attached figures 2 and 4

12. If applicable, provide a brief history of property development which took place before the present company gained control of the site. Include shafts, adits, mills (give rated capacity, etc.) waste dumps, chemical storage areas, tailings disposal areas and effluent discharge locations. Make references to the detailed map.

Rankin Inlet was established as a mining community in the early-to-mid-1950s with the discovery and subsequent development of a nickel mine. North Rankin Nickel Mines identified gold mineralization in the area of Meliadine Lake during an exploration program for nickel and copper in the early 1960s. The first mineral claims in the project area were staked by Comaplex and Asamera Minerals Inc. in 1987, with the Discovery deposit being found on the eastern half of the property in late 1989.

Successive exploration programs by Asamera, Rio Algom Ltd., and Comaplex from 1990 to 1994 identified gold mineralization along the 80-kilometre-long east-west-trending Pyke Fault, with the first holes drilled into the Tiriganiaq, F Zone, and Pump deposits by Comaplex in 1993 and 1994. From 1995 to 2000, substantial exploration by WMC International Ltd., through an option on the western half of the Meliadine property, significantly expanded the Tiriganiaq deposit, led to the discovery of the Wolf deposit, and expanded the F Zone and Pump deposits. Work by Comaplex in 1996 and 1997 concentrated on the Discovery deposit on the eastern half of the property, known as Meliadine East.

In the ensuing years, and until late 2003, Comaplex and its partners continued exploration on Meliadine East, while little field work was completed by WMC on Meliadine West. In late 2003, Comaplex acquired WMC International's interest in the Meliadine West property. From 2004 onward, Comaplex devoted the majority of its efforts to outlining new, higher-grade gold resources in the deeper parts of the Tiriganiaq deposit, and to reconnaissance work on outlying targets. Sporadic exploration was conducted on Meliadine East.

In 2007 and 2008, Comaplex conducted an underground exploration and bulk sample program on the Tiriganiaq deposit. In early 2009, Comaplex completed a preliminary assessment for the Meliadine property, using independent mining consultant Micon International Ltd. This assessment indicated that the property had the potential to support a mining operation. On the basis of this information, Comaplex

elected to advance the project to the feasibility level, and initiated the regulatory process to permit a mining operation on the property.

On July 6, 2010, AEM completed its purchase of Comaplex, making it a wholly owned subsidiary. The first drilling by AEM was done on the property's Wesmeg deposit. AEM also undertook more underground exploration with another 10,000 tonnes of ore extracted. AEM is continuing with Comaplex's earlier decision to pursue the development of a gold mine.

The Phase 1 All Weather Access Road that will join Rankin Inlet to the Meliadine site is presently under construction.

13. Give a short description of the proposed or current freshwater intake facility, the type and operating capacity of the pumps used, and the intake screen size.

AEM operated two water supply pumps, one on Meliadine Lake servicing the camp site (site MEL 1 on figure 3) and one on Pump Lake that provides water for activities in the vicinity of the portal for the underground exploration program (site MEL 2).

The pump at MEL-1 (figure 3) is electric and operates off the main camp power supply. An insulated pipe carries water to four storage tanks with a combined capacity of about 5 cubic metres. Water is distributed through the kitchen and dry facility via a pressurized system of plastic piping. The waste water streams from the kitchen, dry and wash cars will be directed to the Biodisk treatment system before exiting to a wetland.

The pump at MEL-2 is gasoline powered and connected to the Tiriganiaq – Wesmeg area with a flexible hose system. The pump at MEL-2 serves diamond drills during the spring when the smaller ponds are frozen. During summer months, it is more convenient to use nearby small ponds as a water source for the diamond drills.

The intake screen sizes are less than 2 mm.

13. At the rate of intended water usage for the exploration activity, explain water balance inputs and outputs in terms of estimated maximum draw down and recharge capability of the water source from fresh water will be drawn.

The Meliadine Lake watershed covers 586 sq. km. Total water use for camp and diamond drilling is limited to 290 cubic metres per day as per 2BB-MEL0914, of which up to 25 cubic metres per day use is drawn from Meliadine Lake at MEL 1 for camp use (figure 3). RL&L Limited (now Golder Associates Ltd.) estimated the Meliadine Lake watershed to contain 63.66 million cubic meters of water below a 2 metre ice cover.

Lake A8 (MEL-2) discharges on average \leq 86 m³/day during the open water period. Conservatively, greater than 95 percent of the water used for drilling is returned to the drainage basin; very little water is lost. Flow from Pump Lake will not significantly change due to diamond drilling within the drainage basin.

14. Will any work be done that penetrates regions of permafrost?

The entire underground exploration program took place within the permafrost layer, which is thought to extend at least 400 meters below surface. Most (>90%) of the surface diamond drilling is within permafrost. Diamond drill holes penetrating deeper than 400 vertical metres sometimes encounter unfrozen rock. These drill holes immediately freeze following completion of the drill hole and extraction of the drill equipment. Artesian conditions have not been encountered after more than 1000 drill holes completed on the property.

16. If "YES" above, is the permafrost continuous or discontinuous?

The permafrost is continuous above approximately 400 meters vertical depth.

17. Were (or will) any old workings or water bodies (be) dewatered in order to conduct the exploration activity?

No encroachment on any water body is required for explorations activities. Some of the shallow ponds adjacent to the development area may be drilled through during early spring drilling when the ponds are frozen solid. License 2BB-MEL00914 lists terms and conditions for such activities.

Also, the development of a landfill will not encroach on any water body.

Water body (if unnamed give Latitude/Longitude)

18. If "YES" above, indicate the name of the water body, the total volume of water to be discharged and the chemical characteristics of the water.

Not applicable

,	\mathcal{C}	2 /	
Total volume	cubic metres		
Receiving Watero	course		
Dewatering flow	rate into above	cubic metres / sec	
Chemical characte	eristics of discharge	:	
T/Pb _	mg/L	Total Ammonia	mg/L
T/Cu _	mg/L	Suspended solids	mg/L
T/Al _	mg/L	Specific conductivity	uhmo/cm
T/HCN _	mg/L	pН	
T/Hg _	mg/L		
T/Zn _	mg/L		
T/Cd _	mg/L		
T/As _	mg/L		
T/Ni	mg/L		
T/Mn	mg/L		

- 19. Was (or will) the above discharge (be) treated chemically? *Not applicable*
- 20. If "YES" above, describe the applied treatment.
- 21. Briefly describe what will be done with the camp sewage.

A rotating biological disk sewage treatment plant (BIOdisk) is employed at the Meliadine camp. The BIOdisk is rated for 150 people and seeing the advanced exploration camp will exceed 250 persons in 2012, a second BIOdisk unit is being installed to meet the higher sewage treatment needs. Treated sewage is discharged to a wetland area that is approximately 100 metres from Meliadine Lake. A wetland polishes the treated waste water before it reaches Meliadine Lake.

SECTION 2:

GEOLOGY AND MINERALOGY

22. Briefly describe the physical nature of the mineralization, including known dimensions and approximate shape.

The underground exploration program and bulk sample at the Tiriganiaq Gold Deposit confirmed important aspects of the concentration and continuity of gold within two parallel zones in the Tiriganiaq gold deposit. The gold deposit occupies part of a tabular zone interpreted from diamond drilling to be approximately 1.5 km long and dipping north at about 60°. Gold bearing rocks have been intersected at more than 400 metres vertical depth. In 2010, the Wesmeg deposit was found 300 metres to the south of the Tiriganiaq deposit. This deposit parallels Tiriganiaq.

The F Zone (figure 6) deposit dips north with a strike length of approximately 1.5 kilometers. It is located approximately 3 kilometres southeast of the Tiriganiaq. Several potential open pits, 50 to 100 metres apart, have been defined. In order to excavate the westernmost pit at F Zone, a small bay of Lake A6 would be closed by a 250-metre long dike and subsequently dewatered.

The Pump gold deposit is about three kilometres south of the Tiriganiaq open pit. To date there has been insufficient drilling to fully define the extent of the resource envelope. However, drilling to date indicates that open pits are feasible for this deposit, and more drilling in the future will allow the sizes of the open pits to be better defined.

The Discovery deposit is located approximately 22.4 kilometres east-southeast of the proposed main site.

While the Tiriganiaq deposit is the best defined, the other deposits require further drilling to determine their extent. All deposits remain open along strike and at depth. Underground mining is planned for Tiriganiaq but cannot be discounted at any of the other deposits.

23. Briefly describe the host rock in the general vicinity of the mineralization (from the surface to the mineralized zone.)

The host rock for the mineralization is predominantly sediments (iron formation and greywacke) with some mineralization hosted by carbonate rich mafic volcanic rocks.

24. Provide a geological description of the mineralized zone. (If possible, include the percentage of metals.)

The mineralized gold-bearing areas consist predominately of multiple, parallel, north-dipping zones that average about 1 to 3 meters in width. They consist of quartz veins with mostly free gold accompanied by 1-5% pyrrhotite and arsenopyrite.

Describe the geochemical tests which have been (or will be) performed on the ore, host rock, and waste rock to determine their relative acid generation and contaminant leaching potential. Outline methods used (or to be used) and provide test results in an attached report (ie. static tests, kinetic tests.)

The ARD and metal leachate testing of all rock types at all deposits has been carried out. Information to date suggests the rocks are not acid generating but leach some metals at low concentrations. Full details are provided

in the report, "Static Test Results For Waste Rock And Tailings, Meliadine Gold Project, Nunavut, Canada", which can be found on the NWB ftp site.

26. Estimate the percentage of sulphide in the mineralization:

pyrite
pyrrhotite
pyrrhotite mixture
arsenopyrite

5 - 15

SECTION 3:

THE CONTAINMENT AREAS

42. What is the (Proposed) method of disposal of the mine water, mill or process plant tailings (ie. sump, subaqueous, surface tailings pond, settling pond)?

No tailings have been produced.

AEM monitors water draining off the surface ore stockpiles and waste rock pads at downstream locations shown on figure 3. Data collected at these points is detailed in the 2008 to 2011 Annual Reports and in the monthly reports submitted to the NWB. As expected, some nitrogen compound (ammonia) and metal concentration issues are present at times in waters in the primary containment pond. The containment pond is tested in the spring before the water is pumped downstream. AEM will continue to regularly monitor and report results to the NWB as per the present schedule. No impact to the receiving environment, Lake A8, has been observed.

43. Attach detailed scale plan drawings of the proposed (or present) containment area. The drawings must include the following:

Detailed plans are included in the Meliadine Gold Project's "Waste Rock and Ore Storage Plan – August 2010". Figure 4 provides an overview of drainage basin.

The proposed landfill is in a level area in the H drainage basin, figure 5. It is more than 100 metres from the small ponds to the northeast.

- a) details of pond size and elevation;
- b) details of all retaining structures (length, width, height, materials of construction, etc.);
- c) details of the drainage basin;
- d) details of all decant, siphon mechanisms etc., including water treatment plant facilities;
- e) details with regard to the direction and route followed by the flow of wastes and / or waste water from the area; and
- f) indicate of the distance to nearby major watercourses.

44.	Justify your choice of location for the containment area design by rationalizing rejection of
	other options. Consider the following criteria in your comparisons: subsurface strata
	permeability, abandonment, recycling/reclaiming waters, and assessment of runoff into basins.
	Attach a brief summation

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45. The <u>average</u> depth of the <u>existing or proposed</u> containment area is <u>dependent on the volume of</u> water encountered metres.

As shown on figure 4, the volume of the Primary Containment area is 14,400 m³.

46. Indicate the total capacity for the <u>existing or proposed</u> containment area by using water balance and stage volume calculations and curves. (Attach a description of inputs and outputs along with volume calculations.)

The Primary Containment Area covers 14.2 hectares and the annual yield is approximately 100 mm resulting in a capacity of $14,400 \text{ m}^3$. See figure 5 for drainage area

47. Has any evaporation and/or precipitation data been collected at the site? ______ if so, please include the data.

Data on evaporation and precipitation is included in the Aquatic Synthesis Report, which can be found on the NWB ftp site.

48. Will the <u>present or proposed</u> containment area contain the entire production from the mill or processing plant complex for the life of the project?

There is no mill or processing plant associated with the Primary Containment Area. It holds the water running off the waste rock pads as well as water that collects due to precipitation. The water is tested in the spring before being pumped downstream.

49. Will the proposed tailings deposition area engulf or otherwise disturb any existing watercourse?

Not applicable

- 50. If "Yes", attach all pertinent details (Name of watercourse, present average flow, direction of flow, proposed diversions, etc.)
- 51. Describe the proposed or present operation, maintenance and monitoring of the containment area.

The Primary Containment Area holds the water running off the waste rock pads as well as water that collects due to precipitation. The water is tested before being pumped downstream in the spring.

SECTION 4:

WATER TREATMENT

52. If applicable, will the mine water, mill or process plant water be chemically treated before being discharged to the containment area? If so, explain the treatment process (Attach flow sheet if available.

No treatment; ponds downstream of containment act as polishing ponds. Also refer to figure 4, which shows the downstream ponds, all of which freeze to bottom during the winter. Lake A8 is the first major water body downstream that does not freeze to bottom. This lake is used for water for drilling.

53. Will (treated) effluent be discharged directly to a natural water body or will polishing or settling ponds be employed? Describe location, control structures, and process of water retention and transfer. Attach any relevant design drawings.

See #52 above.

54. Name the first major watercourse the discharge flow enters after it leaves the area of company operations.

The first major water body downstream is Lake A8. Refer to figure 4 for its location.

SECTION 5:

ENVIRONMENTAL MONITORING PROGRAM

55. Has Traditional Knowledge in the area been considered? If so, how? If not, why not?

Traditional and local knowledge studies were completed in 1999 and 2011. It determined that the project area was largely an area of passage in historic times rather than an area of active traditional land use.

56. Has any baseline data been collected for the main water bodies in the area prior to development?

Baseline water conditions are described in the report:

Golder Associates November 2009: Aquatic Synthesis Report: Meliadine Gold Project, 2009 (This report holds all baseline data collected since 1998.)

57. If "Yes", include all data gathered on the physical, biotic and chemical characteristics at each sampling location. Identify sampling locations on a map.

Refer to the Aquatic Synthesis Report – 2009 for all data. This report is on the NWB ftp site.

- 58. Provide an inventory of hazardous materials on the property and storage locations.
 - Diesel Fuel (Double walled Envirotanks 3 in camp, 11 at bulk fuel facility figure 4 in the middle of the figure on the right hand side) 700,000 litres of diesel fuel.
 - Diesel Fuel (Bladders stored within a lined, bermed area − 10 x 100,000 each) 1,000,000 litres of diesel fuel.
 - *Jet A Helicopter Fuel (Double- walled Envirotanks 3 near the camp)150,000 litres*
- 59. Provide a conceptual abandonment and restoration plan for the site, detailing the costs to carry out the plan, and a proposal for a financial assurance which covers the costs to carry out the plan.

An updated Meliadine Gold Project Reclamation and Closure Plan – November 2010 was forwarded to the NWB in late 2010. It can be found on the NWB's ftp site.

SECTION 6:

ENVIRONMENTAL ASSESSMENT AND MONITORING

60. Has this project ever undergone an initial environmental review? If yes, by whom and when.

See NWB File 2BB-MEL0709, NIRB file 07EN044

61. Has any baseline data collection and evaluation been undertaken with respect to the various biophysical components of the environment potentially affected by the project (eg. Wildlife, soils, air quality), ie. In addition to water treated information requested in this questionnaire?

Yes	X	No	Unknown
_			

62. If "Yes" please attach copies of reports or cite titles, authors and dates.

Refer to:

Golder Associates, November 2009: Aquatic Synthesis Report: Meliadine Gold Project, 2009 (This report holds all aquatic baseline data collected since 1998.)

Golder Assocaites, November 2009: Terrestrial Vegetation and Wildlife Baseline Synthesis Report, 2009 (This report holds all terrestrial baseline information since 1998.)

These reports can be found on the NWB ftp site.

63. If no, are such studies being planned? Studies Are Ongoing

AEM undertook a baseline data gap analysis in early 2011 in advance of preparing an Environmental Impact Statement for the Meliadine Gold Mine. This led to additional base line data being collected in 2011.

Has authorization been obtained or sought from the Department of Fisheries and Oceans for

64.

	dewatering or using any waterbodies for containment of waste?
	No such action is contemplated within the context of the proposed exploration program.
65.	Has a socio-economic impact assessment or evaluation of this project been undertaken? (This would include a review of any public concerns, land, water and cultural uses of the area, implications of land claims, compensation, local employment opportunities, etc.)
	Yes X No Unknown
66.	If "Yes" please describe the proposal briefly.
	A socio-economic assessment is presently in preparation for the upcoming Environmental Impact Statement. Data has been collected for the Kivalliq region and is being analyzed.
67.	If "No" is such a study being planned? Yes No
	Not applicable.
68.	Describe any cumulative impacts the project may create?
	No sustained industrial or commercial activity has been conducted on the Meliadine River drainage in the past; therefore, no environmental effects of past activities are evident. Some of the effects of diamond drilling conducted during the course of the historic exploration program can be observed on the aerial photographs. These drill sites will re-vegetate and fade as observable effects of surface mineral exploration over the next 5 - 10 years.
	An Environmental Impact Statement is presently in preparation for the Meliadine Gold Mine and it will address cumulative effects in a comprehensive and systematic manner.
69.	Does the project alter the quantity or quality or flow of waters through Inuit Owned Lands?
	No.
70.	If yes, has the applicant entered into an agreement with the Designated Inuit Organization to pay compensation for any loss or damage that may be caused by the alteration.
	Not applicable.
71	If no compensation arrangement has been made, how will compensation be determined?

Should the Meliadine Gold Mine proceed, a comprehensive Inuit Impact and Benefit Agreement as contemplated by Article 26 of the NLCA will be negotiated in the context of an application for mine development and operations on Inuit Owned Land.











