



Water Resources Division  
Nunavut Regional Office  
Iqaluit, NU X0A 0H0

August 13, 2010

Phyllis Beaulieu  
Manager of Licensing  
Nunavut Water Board  
PO Box 119  
Gjoa Haven, NU X0A 1J0

**Re: 2BB-MEL0914 – Meliadine West Exploration and Bulk Sampling Project – Water Security Recalculation Estimate**

Please be advised that Indian and Northern Affairs Canada (INAC) has completed a cost estimate for security related to the water liabilities associated with the Meliadine West Exploration and Bulk Sampling Project operated by Agnico Eagle Mines Ltd (AEM). The original request for recalculation was submitted by Comaplex Minerals Corp.

The enclosed estimate reflects an evaluation of costs associated with the decommissioning of the Meliadine Bulk Sample project. The site, located about 25 km NW of Rankin Inlet includes a camp, site roads, 3 bulk fuel storage areas, mining support infrastructure at the portal, a storage pad for ore and waste rock, and underground development of about 3470 m of decline, drifts and raises.

This estimate for security has been conducted as a result of a request by the Licensee for a recalculation of site liability based on the submission of information related to full remediation of fuel-contaminated soil, and the completion of static testing of the waste rock and ore at the Meliadine Gold Project.

Please feel free to contact me should you have any questions or comments. I can be reached at (867) 975-4566 or by email at [tanya.trenholm@inac.gc.ca](mailto:tanya.trenholm@inac.gc.ca).

Sincerely,

*Original signed by*

Tanya Trenholm  
Pollution Policy Specialist



## **Technical Review Memorandum**

**To:** Phyllis Beaulieu, Manager of Licensing - Nunavut Water Board

**From:** Tanya Trenholm, Pollution Policy Specialist - Indian and Northern Affairs  
Canada – Water Resources Division

**Re: 2BB-MEL0914 - Meliadine West Exploration and Bulk Sampling  
Project – Water Security Recalculation Estimate**

**Existing Water Licence #: 2BB-MEL0914**

### **Comments:**

On July 7, 2010, the Nunavut Water Board (NWB) distributed a site-liability recalculation request, as submitted by the proponent, which takes into consideration supporting documentation concerning full remediation of fuel-contaminated soil, and the completion of static testing of the waste rock and ore.

It should be noted that a site visit has not been conducted to support the cost estimate. The estimate presented is based entirely on a scope of work developed from a review of available documentation and site photographs.

It is understood that Agnico Eagle Mines Ltd. (AEM) has posted a bond of \$950,000 with the Kivalliq Inuit Association (KivIA) for disturbances related to the undertaking. It is also understood, that as per the existing water licence (Part B, Item 2), AEM has posted a bond of \$639,000 with the Minister of Indian and Northern Affairs Canada.

It is INAC's policy to provide estimates for the total reclamation costs, and to provide an estimate of water related reclamation liabilities to the NWB. The NWB will set the water related security amount that the INAC Minister will hold for water-related liabilities. This approach, which has been taken on numerous northern mining-related projects, is to determine the cost for the reclamation of the entire site, and then to segregate that amount into land and water related components. This methodology has been applied to this assessment.

The RECLAIM model has been used to develop this estimate. This model has been applied on numerous northern sites and incorporates unit costs derived from actual projects involving comparable work.



### Project Description:

- A camp site which includes approximately 40 insulated tent structures of various sizes, up to about 6 x 20 m, most of which are connected by covered wooden walk-ways, diesel or stove oil heaters are common,
- About 2.5 km of roads,
- 3 bulk fuel storage areas, all using AST double walled tanks or fuel bladders lying within a lined containment area
- An explosives storage huts,
- Assorted laydown areas with waste debris and/or equipment inventory
- A portal ramp leading to approximately 3470 m of decline, drifts and raises.
- A 245 metre long, vertical, 3.0-metre diameter ventilation raise between the decline and surface, with fan house and exhaust fan at surface
- A surface waste rock storage pad for ore and waste rock. Ore processing (crushing) machinery is situated on the pad. A lined area for fuel-contaminated soil is located on the west side of the pad.

### Description of Proposed Reclaim Measures:

Reclamation measures for the project are assumed to include the following:

- All hazardous materials (fuel, explosives, oil, batteries, etc) will be removed for off-site disposal,
- Fuel tanks will be shipped off-site
- Demolition and consolidation of buildings and inert industrial waste for disposal in the underground workings
- Relocation of PAG rock into the underground workings (assumed to be  $8525 + 11500 \times 25\% = 22900 \text{ m}^3$  or 25% more than in the Comaplex plans to allow for mixing with non-PAG and removal of upper layer of the non-PAG pad below the stockpiles).
- Backfilling of the portal area to prevent access. The overburden slopes around the portal box cut are flattened to be stable when a pond ultimately forms at this location
- Loosening of compacted surfaces and flattening of side slopes on all elevated pads and roads
- Removal of all culverts
- Restore drainage patterns by creating cross-drainage as necessary.
- Seeding of disturbed areas
- Removal of multiplate portal cover
- Concrete cap over vent raise (5 m x 5 m x 1 m as per Ontario Closure Regulations) - \$42200
  - 4 days (10 hrs per day) labour of 4 people - \$8000
  - 8000 kg cement - \$11200



- Concrete flown to site (8000 kg cement) – 14 trips by helicopter total time 8 hours at \$2000.00/hr - \$16000
- Aggregate sourced from waste rock (approximately 75 m3) and put through grizzly two times to remove coarse and fine fractions - \$2000
- Small concrete mixer - \$5000

In addition to the above descriptions of the reclamation measures, the following assumptions have been incorporated into the estimate for decommissioning of the Meliadine project:

- Minor hydrocarbon contaminated soil will be present around the fuel dispensing station, the portal operations areas and within the camp area. This will be cleaned up and disposed in the underground workings with the PAG rock.
- All of the work will be conducted by a local (Rankin Inlet) contractor
- Testing of contaminated soil and ARD residue on the waste rock pad will be conducted by an environmental consultant.
- Although the majority of site activities have not changed, there has been a doubling of PAG rock from the previous estimate.

INAC policy is not to consider the potential salvage value of material or equipment. This is assumed here.

#### Estimated Reclamation Costs:

Table 1 presents a breakdown of the cost estimate for decommissioning of the Meliadine West Gold Project. The entire site is situated on Inuit Owned Land (IOL) that is managed by the KivIA. The estimated cost for reclaiming the site is approximately \$1,333,595. This estimate includes a segregation of potential reclamation liability into land and water-related components. The water related liability is estimated to be \$999,772. The purpose of water related security is to provide compensation to third parties (if necessary) as well as to cover cost incurred by an inspector or costs incurred by the Minister on closure and abandonment. Land leases and permits typically have no provisions for compensation to affected third parties.

#### **Recommendations:**

Comaplex Minerals, in their request for recalculation (letter dated June 8, 2010) stated that a new bonding of \$337,360 is appropriate, given the proposed savings of \$301,640, via the remediation of contaminated soil, and consideration of static testing results of waste rock and ore.

However, the recalculation of site liability indicates that, in fact, water related liability for the Meliadine West Gold Project has increased to a total of \$999,772.



The increase in the security costs may be attributed to additional and more detailed project information obtained by way of the application process, as submitted by the proponent in February 2009. These applications reflect a more intensive bulk sample program, and as-built drawings concerning site water management, waste rock stock pile and portal.

As a result, INAC recommends that the NWB consider the provided estimate (Table 1) and impose additional security for this project. Should the NWB impose additional security, the proponent should be advised that the security must be furnished in a form satisfactory to the Minister (Section 76 (1) *Nunavut Waters, Nunavut Surface Rights Tribunal Act*).

Please feel free to contact me at your convenience should you wish to further discuss any part of this submission to the Board. I can be reached at 867-975-4566 or via email, [tanya.trenholm@inac.gc.ca](mailto:tanya.trenholm@inac.gc.ca).

Cc. Lou-Ann Cornacchio, Manager, Water Resources Division – Indian and Northern Affairs Canada;



Table 1 – Meliadine Gold Project Security Recalculation – August 7, 2010.

1

**MELIADINE GOLD PROJECT**

Jul-10

ACTIVITY/MATERIAL	Units	Quantity	Cost Code	Unit Cost	Cost	% Land	Land Cost	Water Cost
<b>A</b>								
. consolidate & ship waste oil	l	2000	ORH	\$4.00	\$8,000	50%	\$4,000	\$4,000
. waste oil disposal fee	l	2000	ORH	\$1.12	\$2,240	50%	\$1,120	\$1,120
. consolidate & remove other haz mat'ls	each	1	#N/A	\$2,500	\$2,500	100%	\$2,500	\$0
. remove barrel inventory	each	1	#N/A	\$2,500	\$2,500	100%	\$2,500	\$0
<b>B</b>								
Camp buildings & infrastructure								
. decommission piping & power dist'n	m-HRs	80	avelabl	\$50.00	\$4,000	100%	\$4,000	\$0
. demolish camp buildings & load	hrs	30	C325h	\$190.00	\$5,700	100%	\$5,700	\$0
. haul to portal	hrs	20	dumpl	\$80	\$1,600	100%	\$1,600	\$0
. dispose underground	hrs	40	scoop	\$138	\$5,520	100%	\$5,520	\$0
. contour/scarify camp area	hrs	10	dozerl	\$205.00	\$2,050	100%	\$2,050	\$0
. labour support	hrs	120	avelabl	\$50.00	\$6,000	100%	\$6,000	\$0
. vegetate	ha	7	vhfl	\$1,627	\$11,388	100%	\$11,388	\$0
<b>C</b>								
Portal buildings & infrastructure							\$0	\$0
. decommission piping & power dist'n	m-HRs	60	avelabl	\$50.00	\$3,000	100%	\$3,000	\$0
. demolish camp buildings & load	hrs	60	C325h	\$190.00	\$11,400	100%	\$11,400	\$0
. haul to portal	hrs	32	dumpl	\$80.00	\$2,560	100%	\$2,560	\$0
. dispose underground	hrs	32	scoop	\$138	\$4,416	100%	\$4,416	\$0
. contour/scarify camp area	hrs	8	dozerl	\$205.00	\$1,640	100%	\$1,640	\$0
. labour support	hrs	140	avelabl	\$50.00	\$7,000	100%	\$7,000	\$0
. vegetate	ha	4	vhfl	\$1,627	\$6,508	100%	\$6,508	\$0
<b>D</b>								
Waste Rock & Portal								
. inspect/upgrade portal/UG ground								
. support & ventilation, operate ventilation	allow	1		\$25,000	\$25,000	50%	\$12,500	\$12,500
. haul PAG rock underground	m3	22900	scoops	\$27.56	\$631,124	0%	\$0	\$631,124
. concrete cap vent raise	each	1		\$42,200.00	\$42,200	100%	\$42,200	\$0
. ARD/hydrocarbon sampling & reporting	allow	1		\$15,000	\$15,000	0%	\$0	\$15,000
. doze till & rock into box cut, contour area	hrs	24	dozerl	\$205.00	\$4,920	100%	\$4,920	\$0
. doze portal pond & waste rock pad	hrs	16	dozerl	\$205.00	\$3,280	50%	\$1,640	\$1,640
. scarify road - camp to portal	hrs	8	dozerl	\$205.00	\$1,640	100%	\$1,640	\$0
. vegetate road	ha	2.5	vhfl	\$1,627	\$4,067	100%	\$4,067	\$0
. removal of multiplate portal cover	each	1		\$5,000	\$5,000	100%	\$5,000	\$0
<b>E</b>								
Fuel Facilities								
. decommission piping for 29 tanks	h-hrs	29	avelabl	\$50.00	\$1,450	50%	\$725	\$725
. consolidate fuel and load 29 tanks	each	29	#N/A	\$1,000	\$29,000	100%	\$29,000	\$0
. haul 29 tanks on winter road	each	1		\$28,000	\$28,000	100%	\$28,000	\$0
. excavate contam soil, haul U/G	m3	300	scss	\$16.07	\$4,820	100%	\$4,820	\$0
. soil testing	allow	1	#N/A	\$5,000	\$5,000	100%	\$5,000	\$0
<b>SUB-TOTAL</b>					<b>\$888,523</b>		<b>\$222,414</b>	<b>\$666,109</b>
<b>PERCENTAGES</b>							<b>25%</b>	<b>75%</b>
<b>F</b>								
Winter Road								
. const. twice, equipment in, equipment out	km	50	WRL	\$1,346	\$67,320		\$16,851	\$50,469
. camp support and supplies	m-days	300		\$150.00	\$45,000		\$11,264	\$33,736
. Mobilization (dozer, hiab, dump, 2 scoops)	allow	1	#N/A	\$25,000	\$25,000		\$6,258	\$18,742
. Demobilization (dozer, hiab, dump, 2 scoops)	allow	1		\$25,000	\$25,000		\$6,258	\$18,742
					\$137,320		\$34,374	\$102,946
<b>H</b>								
INDIRECT COSTS								
. Eng.	5%				\$51,292		\$12,839	\$38,453
. Proj. Mgmt	5%				\$51,292		\$12,839	\$38,453
. Contingency	20%				\$205,169		\$51,357	\$153,811
Subtotal Indirects & Winter Road					\$445,073		\$111,410	\$333,663
<b>GRAND TOTALS</b>					<b>\$1,333,595</b>	<b>25%</b>	<b>\$333,824</b>	<b>\$999,772</b>