

February 25, 2011

*Via Email and Xpresspost*

Mr. Richard Dwyer  
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Dear Mr. Dwyer,

**Re: Meadowbank Water License 2AM-MEA0815 Part I, Item 13 – 2010 Annual Geotechnical Inspection Report**

As required by Water license 2AM-MEA0815, Part I, Item 13, please find enclosed a copy of the document: *Report on 2010 Annual Geotechnical Inspection, Meadowbank Gold Project, Nunavut.*

**Implementation Plan**

Please consider the following information as the implementation plan to address the recommendations in Section 9.0 of the report.

**DEWATERING DIKES**

**Recommendation:** *It is understood that AEM is planning on updating and revising the draft East Dike Operation, Maintenance and Surveillance (OMS) Manual and Emergency Preparedness Plan (EPP) to cover all dewatering dikes. It is recommended that this documentation be prepared ideally prior to the initiation of dewatering within the Bay-Goose Basin.*

Action: The draft OMS manual and the Emergency preparedness plan will be reviewed to cover all dewatering dikes in the first quarter of 2011.

**Recommendation:** *It is recommended that the Emergency Response Plan (ERP) and risk assessment for the mine be reviewed and updated to include all dewatering dikes facilities, and to incorporate information gained during operation of the East Dike and construction of the Bay-Goose Dike;*

Action: The draft OMS manual and the Emergency preparedness plan will be reviewed to cover all dewatering dikes in the first quarter of 2011.

### **EAST DIKE**

**Recommendation: The dike crest elevation is approximately 0.5 m less than required in the design. The elevation should be increased to the design level of 137.1 m.**

Action: AEM will revise with Golder the real effectiveness of this thermal capping. If it appears that this thermal cap is still useful the wide thermal cap will be brought up to Elev. 137.1 during summer 2011

**Recommendation: Periodic surveying of the survey monuments should be conducted.**

Action: The monuments are not accurate. New surveys monuments will be install in the second quarter of 2011. The survey will take place once a month at the beginning and monitoring frequency will be adjusted thereafter according to the results.

**Recommendation: Survey monuments and other instrumentation that have been destroyed should be replaced**

Action: The surveys monuments and the other instrumentation that have bee destroyed will be replaced in the second quarter of 2011.

**Recommendation: A mitigation program should be planned and implemented to fix the defective cutoff wall zone as practicable in 2011;**

Action: A mitigation program is in development.

**Recommendation: In the interim, prior to completing the repair, an emergency mitigation plan for the East Dike should be prepared in case conditions rapidly deteriorate. The plan should outline procedures to be implemented; equipment, personnel and supply requirements for the plan; and an identification of, and the location of supply availability on site;**

Action: This plan will be integrated in the Emergency preparedness plan (EPP) for the dewatering dikes and the draft will be finalize in the first quarter of 2011.

**Recommendation: A more permanent seepage collection, monitoring and pumping system is required to manage the seepage downstream of the East Dike. It is understood that AEM plans to install such a system in the coming year, including replacing the two temporary weirs with more permanent structures;**

Action: A permanent system is in development and will be installed during the fall 2011.

#### **WEST CHANNEL DIKE AND SOUTH CAMP DIKE**

**Recommendation:** It is recommended that as-built documentation for the South Camp Dike be compiled prior to the initiation of dewatering within the Bay-Goose Basin.

Action: The as-built report will be finalized before the beginning of the dewatering of the Bay Goose Basin.

#### **BAY-GOOSE DIKE**

**Recommendation:** *Installation of the geotechnical instrumentation should be completed with sufficient lead time to achieve stable readings prior to the initiation of dewatering;*

Action: The installation of the geotechnical instrumentation will be completed at a minimum of one week before the beginning of the dewatering.

**Recommendation:** *It is understood that a downstream seepage collection and monitoring system will be constructed following the completion of dewatering;*

Action: The dewatering should be completed in the fall 2011. The seepage collection should be constructed in the summer 2012.

**Recommendation:** *It is understood that an as-built report for the Bay-Goose Dike will be prepared following construction.*

Action: The as-built report is in development and will be finalized following the completion of the grouting program.

#### **TAILING STORAGE FACILITY**

**Recommendation:** *An overall Emergency Response Plan (ERP) for the mine (AEM, 2009a) has been prepared which includes a risk assessment of potential failures for the Central Dike, Saddle Dams, and Stormwater Dike. The risk assessments should be reviewed and updated, acknowledging existing conditions of each structure, and current information related to the operation of the Tailings Storage Facility;*

Action: The Emergency Response plan will be reviewed to cover all dewatering dikes in 2011.

***Recommendation: It is understood that AEM will construct seepage collection and pump back systems on the downstream side of all dikes or dams around the Tailings Storage Facility following completion of construction activities at each facility. Since the Stormwater Dike and Saddle Dam 1 are currently storing tailings and supernatant water, seepage collection and pump back systems are required at these locations as soon as practicable. Tailings will soon begin to be impounded by Saddle Dam 2 and therefore a seepage collection and pump back system will soon be required for this structure as well;***

Action: If AEM notice seepage along those structures, the seepage collection system will be put in place.

***Recommendation: It is understood that as-built reports for the Stormwater Dike (Stages 1 and 2), Saddle Dam 1 (Stages 1 and 2), and Saddle Dam 2 will be completed following completion of construction activities for these facilities;***

Action: The construction of the Stormwater dike and Saddle Dam 2 should be completed during the summer 2011. The as-built report will be finalized following the end of the construction. The as-built report for the Saddle Dam 1 is in development and should be completed during the second quarter of 2011.

***Recommendation: The first bathymetric survey of the Tailings Storage Facility was conducted in September 2010. It is understood that this data will be analyzed by AEM and used in updating the tailings deposition plan and to begin establishing a better understanding of the tailings and site wide water balance. Consideration should also be given to bi-annual surveys (i.e. mid-July and early-October) in the short term until confirmation of the amount of ice entrapment, and other design parameters is achieved;***

Action: The tailing deposition plan is in development and will be finalized before the end of the first quarter. AEM will do bi-annual surveys when is possible.

## **SADDLE DAM 2**

***Recommendation: Dam monitoring instrumentation, including displacement monitoring locations, should be installed and allowed to stabilize before the dam begins impounding tailings and/or supernatant water;***

Action: The construction of the Saddle Dam 2 should be completed during the summer 2011. The installation of the instrumentation will follow at the end of the construction.

***Recommendation: If the geomembrane liner is left exposed for any period of time prior to placement of the protective tailings cover layer, a thorough inspection of the liner should be conducted and any repairs made prior to their placement.***

Action: The installation of the geomembrane liner at the Saddle Dam 2 should be completed during the summer 2011. An inspection of the geomembrane will be performed after the end of the construction prior to material placement on exposed geomembrane.

#### **STORMWATER DIKE**

***Recommendation: AEM should continue to monitor the tension cracks observed near the downstream crest of the dike between Sta. 10+849 and Sta. 10+940; for any change or rate of change and implement corrective measures or controls as necessary. Nevertheless, consideration should be given to placement of a downstream toe berm to flatten the overall slope and reduce the risks of instability.***

Action: The tension cracks will continue to be observed. If a significant change occurs, the placement of a downstream toe berm will be considered.

#### **AWPR**

***Recommendation: The capacity to convey flow at Bridge 1 (km 8+750), culverts PC-17 (km 8+830), and the four new culverts (km 8+850) should be upgraded and/or closely monitored. Repairs to the PC-17 culverts should be performed prior to the 2011 freshet to provide proper bedding protected from erosion, to protect the streambed from further erosion and scouring at the culvert inverts, and to reduce potential for additional erosion around the upstream and downstream sides of the culverts;***

Action: The repair of the bedding of the PC-17 was done in the fall 2010. Two permanent culverts will be installed before the freshet 2011 to replace the 4 temporary culverts (km 8+850). An authorization was received by DFO for the installation of these two permanent culverts.

***Recommendation: Removal of material with the potential to cause obstructions should be done at:***

- ***PRC-1 (km 0+430) at inlet and outlet;***

- **4 new culverts (km 8+850) at inlet and outlet;**
- **R-04 (km 12+050) at inlet and within culvert;**
- **PC-2 (km 13+405) at inlet and outlet;**
- **PC-4 (km 14+910) at outlet;**
- **PC-10 (km 36+865) at inlet;**
- **PC-11 (km 39+552) obstruction downstream of culvert should be breached;**
- **PC-16 (km 55+048) inlet and outlet; and**
- **R-26 (km 104+710) at outlet.**

Action: Before the freshet, the material with the potential to cause obstruction will be removed.

***Recommendation: Since the initial inspection in 2008, culverts are progressively showing more signs of crushing along their haunch, sides and base, primarily associated with the coarse material surrounding the culverts. The condition of the culverts should continue to be monitored, and consideration should be given to replacing: the damaged culvert at PRC-2 (km 0+470); R-00A (km 2+550); the damaged culvert PC-14 (km 4+260) if adequate capacity not provided by the second culvert; PC-13 (km 12+745); the middle of the three culverts at R-14 (km 67+840);***

Action: The condition of the damaged culverts will be monitored and we will evaluate if their replacement is needed.

***Recommendation: The capacity of the single 600 mm diameter culverts PC-3 (km 13+865) and PC-6 (km 19+075) should continue to be monitored to ensure they provide adequate capacity for drainage and that erosion is not occurring, especially during the freshet;***

Action: The culverts PC-3 (km 13+865) and PC-6 (km 19+075) will continue to be monitored to ensure they provide adequate capacity for drainage.

***Recommendation: The capacity of Bridge 4 (R09) and Bridge 5 (R13) to adequately convey flow during the freshet should be monitored with particular attention paid to noting high water marks and their relation to the road; and***

Action: The capacity of Bridge 4 (R09) and Bridge 5 (R13) will be monitored during freshet.

#### **QUARRY**

***Recommendation: It is understood that AEM is developing a plan for progressively closing some of the quarries along the AWPR while maintaining others for storage of materials and to provide a supply of materials for ongoing road maintenance;***

Action: For the ongoing road maintenance some quarries will stay open for the duration of the mine life. A plan will be developed in the next two years for progressive closure.

***Recommendation: Quarry 4 and Quarry 14 are flooded and a plan should be developed to drain the water, if possible;***

Action: The actions necessary to deal with the water and close these quarries will be included in the plan described in the point above.

#### **BULK FUEL STORAGE FACILITIES**

***Recommendation: Ongoing removal of fluids that accumulate within the secondary containment facilities should continue to be managed appropriately. AEM should consider establishing sumps to aid in the removal of the fluids within the first containment area in Baker Lake (Tanks 1/2), the new containment area (Tanks 5/6) also in Baker Lake, and at the Meadowbank fuel storage area;***

Action: AEM will evaluate the need to install sumps within the first containment area in Baker Lake. If deemed necessary, sumps will be installed in 2011. A sump was installed in the new containment area Tank #5 and #6.

***Recommendation: It is recommended that runoff from the slope on the north side of Tank 3 and Tank 4 be diverted away from the containment area;***

Action: AEM will evaluate the need to divert that runoff away from the containment area.

***Recommendation: A portion of the upper soil slope between Tanks 5/6 and Tanks 3/4 was observed to be surficially unstable. This slope should be stabilized and runoff from the slope and benches appropriately managed;***

Action: This slope was stabilized last fall.

Should you have any questions or require more information, please contact me directly at [stephane.robert@agnico-eagle.com](mailto:stephane.robert@agnico-eagle.com) or by telephone at 819-763-0229.

Regards,  
**Agnico-Eagle Mines Limited – Meadowbank Division**



Stéphane Robert  
Environment Superintendent

cc: *Jim Rogers, INAC*  
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