



AGNICO EAGLE

April 1st, 2014

Ms. Phyllis Beaulieu
Licensing Administrator
Nunavut Water Board
P.O. Box 119
Gjoa Haven, NU X0B 1J0
(867) 360-6338

Re: Meadowbank Water License 2AM-MEA0815 Part I, Item 13 – 2013 Annual Geotechnical Inspection Report

Dear Ms. Beaulieu,

A copy of the report "*2013 Annual Geotechnical Inspection Meadowbank Gold Mine, Nunavut*" will be send to your office with the 2013 Annual report as required by Water license 2AM-MEA0815 Part I, Item 13.

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

Regards,
Agnico Eagle Mines Limited – Meadowbank Division

Marie-Pier Marcil
Senior Compliance Technician



AGNICO EAGLE

1. DEWATERING DIKES

Recommendation: *The condition of the Dewatering Dikes is regularly visually inspected and this should continue.*

Action: As stated in the OMS manual, AEM will continue to inspect and monitor all the dewatering dikes on a monthly basis.

Recommendation: *The compilation of the instrumentation data was not part of the scope of this study and the figures showing the data were provided by AEM. All of the data were sent as a series of screenshots taken from the instrument database (VDV) and presented within a PowerPoint document. It is noted that this method of sharing the instrumentation data results in a loss of resolution in the figures and makes it harder, for external inspector or reviewer, to visualise trends by looking at each instrument separately. It is recommended to present the data under another format to facilitate the external inspector's work. For example, the method used up until March 2012 allowed complete and rapid understanding of the instruments configuration in a certain area, while also presenting the results for related instruments, all on the same page. AEM staff considers that the VDV software is a useful tool and stated it will continue to be used in the future. Continued monitoring of all instruments is required.*

Action: AEM will still continue to use the VDV software on a daily working basis to look at the instrumentation data. Although, AEM is currently working on upgrading the presentation of the instrumentation data using the Grapher software to obtain clearer graphs as well as cross-sections, as recommended by the MDRB.

1.1. East Dike

Recommendation: *It is recommended to improve the flow meters system that records the flow of water pumped by the two seepage collection sumps and to periodically visually assess the clarity of the water removed.*

Action: Clarity of the water is observed every day since April 2012. The 2 flow meters have been installed in the first months of 2013. TSS tests are also performed by the Environment department since January 2014 at the outlet of the diffuser in Second Portage Lake. Since the discharge flows through the diffuser, the flowmeter data is more precise and consistent, and the recorded flow less erratic.



AGNICO EAGLE

Recommendation: *Regular monitoring and assessment of the monitoring data: piezometric, thermal, inclinometer, and seismograph (associated with blasting) data should continue.*

Action: The monitoring of the instrumentation at East Dike is done on a regular basis and will continue.

1.2. South Camp Dike

Recommendation: *It is recommended to keep the waste dump away from the downstream toe of the dike to allow visual observation in this area.*

Action: The toe of the dike was partly covered with NPAG material while pushing the waste rock pile. The material will be removed to a minimum of 20 m wide from the entire toe of the dike before the spring thaw begins (remediation work has begun).

Recommendation: *Instrumentation monitoring at the South Camp Dike should continue on a regular basis.*

Action: The monitoring of the instrumentation at South Camp dike is done on a regular basis and will continue.

1.3. Bay-Goose Dike

Recommendation: *There are no safety berms on several areas of Bay-Goose Dike.*

Action: The safety berms that are missing on the Bay Goose dike are on the lake side (upstream) which is not acting as an access road anymore. The access to the dike is restricted for inspection purposes only, so the berms won't be rebuilt.

Recommendation: *Altered ultramafic rock (soapstone) was placed over the entire crest of the dike for the thermal cap and dike resurfacing. During the inspection, sloughing, settlement and tension cracks were observed in the newly added material. It is considered that the signs of movement occurred from the absence of compaction coupled by the fact that the work was completed during winter where entrapment of snow and ice is likely. Condition of the surface limits the effectiveness of visual observation of dike performance monitoring on crest and beneath cut-off wall. Based on performance over the last 2 years and limited operational life left for the structure (flooding of Goose Pit should start in 2017),*



AGNICO EAGLE

extra monitoring of the downstream slope, and toe is recommended to supplement monitoring of the dike crest.

Action: No compaction or other modifications will be made to the crest of Bay Goose dike for 2014. The monitoring of the entire dike will continue on a regular basis.

Recommendation: Regular monitoring and assessment of the monitoring data (piezometric, flow, thermal, inclinometer, seismograph associated with blasting and seepage) occurs and should continue.

Action: The monitoring of the instrumentation at Bay Goose Dike is done on a regular basis and will continue.

Recommendation: Water ponds were observed at the downstream toe during the inspection. It is recommended to continue monitoring the elevation of these ponds and pumping out the water to allow a good visual inspection of the dike downstream toe.

Action: The monitoring and pumping of the water ponds at the toe of the dike will continue on a regular basis.

Recommendation: The seepage downstream of Bay-Goose Dike and to Bay-Goose Pit should continue to be monitored. The seepage at the downstream toe is currently too small to require a year-round collection system, but if the condition changes such a system might be required.

Action: The monitoring and flow measurement of the seepages along the downstream toe will continue as a part of our regular inspection and daily routine.

Recommendation: During winter 2013, a remediation measure was undertaken with the Goose Pit dewatering system. This consisted of directed water to the south-west end of the pit. It is understood that a remediation measure on an issue with the Bay Goose pit dewatering system during last winter consisted of directing pit inflow at the southwest area of the pit. This resulted in a water body ponding directly against the Bay Goose Dike downstream slope along Channels 1 and 2. This is considered a bad practice as the ponding water at the surface near the pit is susceptible to increased water pressure along the pit wall; thus potentially developing adverse conditions for the slope stability. In addition, the water did not allow a visual inspection of the Bay Goose dike downstream toe.



AGNICO EAGLE

Action: No water will be discharged in the area for the years to come. The heat trace on the water line coming out of the main sump has been fixed so there won't be any need to store water in the Goose pond.

1.4. Vault Dike

Recommendation: It is recommended to keep monitoring the tension cracks and the hole present on the crest of Vault Dike.

Action: The inspection and monitoring of the structure of the dike is done on a regular basis and will continue.

Recommendation: Regular monitoring and assessment of the thermistance data should continue.

Action: The monitoring of the instrumentation at Vault Dike is done on a weekly basis and will continue.

2. TAILINGS STORAGE FACILITY

Recommendation: At the time of the inspection, the reclaim water in the North Cell was ponding directly against portions of SD2, SWD, RF1 and RF2. The tailings beach elevation varied and the pond elevation in the cell was at 145.5 m. AEM modified the deposition plan to improve the management of the facility. Per AEM, tailings beach deposition against dikes started in June 2013. Golder recommends continuing deposition of tailings along all peripheral dikes of the facility to distance the water prior winter as per the design requirement.

Action: The deposition sequence has been adapted to promote beaches on the rockfill structures around the TSF. Ponding against the dike liners is avoided during winter months to prevent ice formation directly on the liners. The deposition plan is followed closely and some minor changes are done according to the field observation. The plan is updated as required, with the new and up-to-date values and a new plan is rerun and compared to the previous one.

Recommendation: Following some issues with the deposition of tailings in the winter of 2013, the mine extended the rockfill causeway of the reclaim barge and constructed an internal structure made of waste rocks inside the North Cell in front of Stormwater Dike. No geotechnical issues were observed with those structures.



AGNICO EAGLE

Action: Shortly after the completion of the construction of this structure, the access to its crest has been blocked. No inspection can be performed the structure that is now sitting under the tailings water.

Recommendation: It is understood that AEM will construct a permanent seepage collection and pump back system on the downstream side of all permanent dikes and dams if necessary due to drainage from dikes rockfill around the TSF following completion of construction activities. Saddle Dam 1 has a permanent sump with a pump back system. For Saddle Dam 2, such a system is not considered necessary as no seepage is reported but AEM should be prepared in case of any change.

Action: All the material to build the collection sump is currently on site and we will evaluate the need for it in 2014.

Recommendation: Regular visual inspection as well as collection and regular review of instrument data should continue for all structures within the TSF.

Action: Inspection of the TFS structures are conducted on a monthly basis and will continue.

Recommendation: Regular monitoring and assessment of the monitoring data should continue.

Action: The instrumentation data collected from the TSF is examined on a monthly basis and will continue.

2.1. Saddle Dam 1

Recommendation: Wrinkles were observed in the liner. Wrinkles on LLDPE geomembrane are considered normal due to the high degree of expansion during the mild season. The geomembrane conditions should continue to be monitored to ensure no geomembrane pinching will occur while buried by the tailings.

Action: Regular visual inspection of the liner is done and will continue. No wrinkles have been observed during winter time.

Recommendation: The condition of the backfill foundation of the downstream pump that recirculates water needs to be verified in the winter as it could freeze and restrict pumping efficiency and/or potentially damage the pump.



AGNICO EAGLE

Action: The pumping station is not accessible during winter time due to the large accumulation of snow over the seacan. The sump is entirely frozen since October and the pump has been removed. As soon as freshet begins, the sump will be thawed and the pump reinstalled.

2.2. Saddle Dam 2

Recommendation: *Inadequate tailings beach was observed from about 20+200 to 20+500 where water is ponding directly against Saddle Dam 2. It is recommended to deposit tailings at these locations.*

Action: The deposition sequence has been followed to promote beaches on all dike liners before winter months around the TSF. The deposition plan is followed closely and some minor changes are done according to the field observation.

2.3. Stormwater Dike

Recommendation: *Inadequate tailings beach was observed from about 10+350 to 10+560 where water is ponding directly against Stormwater Dike. It is recommended to deposit tailings at these locations.*

Action: The deposition sequence has been followed to promote beaches on all dike liners before winter months around the TSF. The deposition plan is followed closely and some minor changes are done according to the field observation.

Recommendation: *Differential settlement was still partly visible between Sta. 10+700 and Sta. 11+040 on the upstream edge and slope. There was no sign of degradation from last year's inspection.*

Action: The depressions are visually monitored in the monthly dike inspection.

Recommendation: *Water ponds, water outflow and piping were observed in different areas at the downstream toe of the dike. All the seepage was clear. It is suggested to monitor the flows to observe signs of volume increase or appearance of sediment in the water.*

Action: The toe of the dike is visually inspected on a monthly basis and a visual water quality assessment is done during the inspection.



AGNICO EAGLE

2.4. Central Dike

Recommendation: *Regular monitoring and assessment of the monitoring data should continue. Special attention will have to be taken to protect the instrumentation when the construction of Central Dike resumes. It is recommended to keep monitoring the piezometers recording negative pressure and to verify their calibration and interpretation.*

Action: The instrumentation data collected from the Central dike is examined on a weekly basis and will continue. An inspection of the dike is performed on a monthly basis and will continue. The negative pressure recorded by the instruments is still under assessment by AEM and Golder.

3. AWPR

Recommendation: *Regular inspections and maintenance of the road by AEM should continue. Consideration should be given to expanding AEM's monitoring program to include all culverts and bridges along the road to assess whether they are providing adequate capacity during the freshet and following large precipitation events.*

Action: AWPR road crew cleans all culverts and bridges before the freshet. Some culverts were added to prevent road washout.

Recommendation: *AEM has been conducting regular and event-based inspections of the fish-bearing water crossing locations along the road and these should continue in order to confirm the hydraulic function of the crossings, adequacy of crossing locations with respect to the watercourses, and minimal impact to fish habitat.*

Action: The Environment Department monitors and inspects the bridges during weekly AWPR inspections.

Recommendation: *For some culvert locations, it is recommended that AEM monitor to see if flow is actually occurring through the culvert, i.e., during the freshet. If insufficient capacity to handle the flows is observed, or water is circulating under the road, then it is recommended to clear the obstructions or repair the culverts. Particular attention should be paid to R-00A (km 2+550), culvert at (5+700), PC-17A (8+830), PC-17 (8+850), PC-3 (km 13+865), PC-14 (km 4+260), PC-16 (km 54+950) and R17 (77+740).*



AGNICO EAGLE

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

Recommendation: *Clear water was observed seeping under the northwest abutment of Bridge 9, R19 at about km 83+150. The water quality of this seepage should be monitored for signs of turbidity.*

Action: The Environment Department conducts regular monitoring for turbidity.

4. QUARRIES

Recommendation: *Presence of unstable blocks and loose rocks along steep walls were observed in Quarry 1, 3, 7, 9 and 19. Those unstable blocks and loose rocks should be cleaned if operation of those quarries resumed.*

Action: AWPR road crew cleans up unstable blocks and loose rocks should operations resume.

Recommendation: *Slope remediation is in progress in some of the quarries. 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 for provision of materials supply for ongoing road maintenance.*

Action: Interim updated closure plan completed by Golder in January, 2014 and includes the quarries on the AWPR.

Recommendation: *Quarry 4 and Quarry 14 are flooded. It is understood that AEM is evaluating how best to eliminate the ponding of water within these quarries.*

Action: The actions necessary to deal with the water and close these quarries will be considered as part of the final closure plan.

5. BULK FUEL STORAGE FACILITIES

Recommendation: *At the Baker Lake fuel tank farm, there were signs that water had accumulated to a very high level in the past, submerging the tank foundation fill. Ongoing removal of fluids that accumulate within the secondary containment facilities should be managed appropriately.*

Action: Each summer in July, the accumulated water is pumped out in accordance with the Type A Water License. Effluent must meet criteria stated in



AGNICO EAGLE

the License. After pump out each tank foundation is inspected and refilled if needed.

Recommendation: *At the Baker Lake fuel tank farm, the geomembrane was folded and exposed in two areas over a 5 m length on the internal slope, north of Tanks 1 and 2. To minimize potential damage to the liner, it is recommended to cut and repair the fold and to re-cover the area with fill material.*

Action: A site work order has been created to complete this work in July after the snowmelt.

Recommendation: *At the Baker Lake fuel tank farm, tension cracks were observed on the upper bench, north of Tanks 3 and 4 and south of the Tanks 5 and 6. These may be a result of the steep side slopes. No mitigation work is required, but regular inspection should be performed to monitor the cracks. Any changes to the cracks (e.g., lengthening, deepening, widening) should be noted and provided to the design engineer. At the time of the inspection, the slope instability observed appeared superficial due to the presence of shallow bedrock and was not considered a threat to the lower tanks.*

Action: Regular inspections (weekly) are completed at the fuel tank farm by the Site Services supervisor.

Recommendation: *For the containment cell of the twenty Jet A fuel tanks, the geomembrane remains uncovered around the tanks which lies on approximately 0.5 m thick granular base fill material. It is recommended to remain vigilant during the freshet and throughout the year to manage water accumulated within the berms.*

Action: Please refer to final as built drawings of this facility – containment is 110% of the largest tank, which is 100,000L (actually exceeds). Water accumulation is monitored on a regular basis during freshet and pumped out in accordance with the Type A Water License

Recommendation: *No geotechnical issues were observed at the Meadowbank fuel tank. Signs of high water levels being present in the east corner, which were noted in past annual inspections. Pumping of ponded water is considered a good practice and should continue.*



AGNICO EAGLE

Action: This water is pumped out in July in accordance with the Type A Water License and must meet discharge criteria prior to pumping.

6. OTHER MEADOWBANK FACILITIES

6.1. Meadowbank Site Roads

Recommendation: Three culverts were installed on Vault Road. As previously observed in the 2012 annual inspection. These three culverts were partially collapsed in the middle and showed signs of erosion at the inlet. This is presently not a significant issue but it is recommended to monitor these culverts during the next freshet season to ensure that they provide sufficient capacity and that erosion is not occurring.

Action: The area was monitored in 2013 and no issues were identified at the location as for the water flow or sedimentation. The same inspection will be performed in 2014.

6.2. Stormwater Management Ponds

Recommendation: The crusher ramp is in close proximity to Stormwater Pond 1 and, therefore, the geotechnical stability of the crusher ramp should be inspected regularly by AEM

Action: Inspection and monitoring of the roads is performed on regular basis and will continue. No geotechnical issues were ever identified on the crusher ramp since its commissioning.



AGNICO EAGLE

6.3. Airstrip

Recommendation: The runway was extended in winter 2013 at both ends to allow a Boeing 737-200 landing on Meadowbank site. Small tension cracks were observed in the corner at the northwest boundary of the airstrip extension within the lake. This is not considered a major issue as settlement was expected for the embankment within the lake. It is recommended to regularly inspect the airstrip to assess the situation and repair the runway if needed.

Action: Inspection and monitoring of the airstrip is performed on daily basis and will continue. Repairs to the runway are immediately done whenever needed.