



2013 Site Visit Report

for the NIRB's Monitoring of
Agnico-Eagle Mines Ltd.'s Meadowbank Gold Project



Full Report Title: 2013 Site Visit Report for the Nunavut Impact Review Board's Monitoring of Agnico-Eagle Mines Ltd.'s Meadowbank Gold Project (NIRB File No. 03MN107)

Project: Meadowbank Gold Project
Project Location: Kivalliq Region, Nunavut

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Last site visit: September 12-13, 2012

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Cover photos: 1) View of Meadowbank Mine Site
2) View of Baker Lake Docking Facility

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1 INTRODUCTION

The Nunavut Impact Review Board (NIRB or Board) was established through Articles 10 and 12 of the Nunavut Land Claims Agreement (NLCA) and is responsible for post environmental assessment monitoring of projects in accordance with Part 7 of Article 12 of the NLCA.

This report provides the findings that resulted from the NIRB's site visit of the Meadowbank Gold Project that took place on September 13, 2013 as part of the NIRB's monitoring program.

1.1 Objectives & Purpose of Site Visit

In December 2006, pursuant to Section 12.5.12 of the NLCA, the NIRB issued Project Certificate No. 004 for the Meadowbank Gold Project (the Project), allowing the Project to proceed in accordance with the Terms and Conditions issued therein. In November 2009, the NIRB formally amended the Project Certificate [No. 004] to include an amendment to Condition 32 pursuant to NLCA 12.8.2 and an approval to change the name of the holder of the Project Certificate [No. 004] from Cumberland Resources Ltd. to Agnico-Eagle Mines Ltd. (NIRB, 2009).

The Board is responsible for the monitoring of this Project as per Sections 12.7.1 and 12.7.2 of the NLCA. The objective of the NIRB's site visit was to determine whether, and to what extent, the land or resource use in question is being carried out within the predetermined terms and conditions of the NIRB's Meadowbank Gold Project Certificate [004] (Section 12.7.2(b) of the NLCA).

The observations resulting from this site visit shall, wherever possible, be incorporated into the measurement of the relevant effects of the project (Section 12.7.2(a), provide the information necessary for agencies to enforce terms and conditions of land or resource use approvals (Section 12.7.2(c)), and will further be used to assess the accuracy of the predictions contained in the project impact statements (Section 12.7.2(d)).

1.2 Meadowbank Project Description

The Project involves the construction and operation of an open pit gold mine located in the Kivalliq Region of Nunavut, approximately 70 kilometres (km) north of the hamlet of Baker Lake on Inuit-owned surface lands. The current Project owner, Agnico Eagle Mines Limited (AEM or Proponent), indicated in its December 2011 Reserves and Resources report that Meadowbank had at the time, proven and probable gold reserves of 2.2 million ounces; lower than the initial value predicted (AEM, 2011). In February 2012, AEM announced that its Meadowbank ore reserves had been reduced as a result of it being unable to economically mine the lower grade ore which subsequently, reduced the expected life of the mine by approximately 3 years (AEM, 2012). AEM provided a revised mine plan to the Kivalliq Inuit Association which predicted that its Meadowbank operations are now scheduled to be completed by 2017 instead of 2020 (AEM, 2012).

In addition to the mining infrastructure and activities, ancillary Project infrastructure is located approximately 2 km east of the hamlet of Baker Lake and consists of barge unloading facilities, a

laydown storage and marshalling area, a 60 million litre (ML) fuel tank farm, associated interconnecting roads and a 110 km all-weather private access road (access road) from the hamlet of Baker Lake to the Meadowbank mine site. Supplies are shipped from locations within Canada via sealift to Baker Lake where they are offloaded at AEM's marshalling area and transported to the Meadowbank site via truck haul along the 110 km access road.

1.3 Preparations for the Site Visit

The Monitoring Officer reviewed the following items to prepare for the site visit: Meadowbank Project Certificate [No. 004], 2012 Site Visit Report, AEM's 2012 Annual Report and associated appendices, and follow-up correspondence from the NIRB's 2012 site visit.

2 SITE VISIT

The 2013 site visit was conducted by Sophia Granchinho, NIRB Monitoring Officer. On September 13, 2013 the Monitoring Officer was driven to the Meadowbank mine site from the AEM office in Baker Lake with other AEM staff. Once at the site, the Monitoring Officer was met by Kevin Buck, AEM's Environment Superintendent. Mr. Buck and the Monitoring Officer discussed issues which were related to the 2012 site visit. In the afternoon, Mr. Buck and Martin Theriault led a tour of the site, which included the waste rock facility, landfarm, landfill/pilot remediation site, tailings storage facility, Vault Pit, active mine areas including Portage pits and Bay-Goose basin, the waste and hazardous materials storage area, the incinerator, fuel storage area, air monitoring station and dust monitoring station. At the conclusion of the tour of the mine site, the Monitoring Officer met with Mr. Buck to discuss the site visit and further issues related to environmental compliance. Afterwards, Mr. Tom Thomson drove the Monitoring Officer along with a Golder consultant, Yves Boulianne, to the hamlet of Baker Lake via the access road. Prior to being dropped off at the AEM office, Mr. Tom Thomson and Mr. Yves Boulianne accompanied the Monitoring Officer to the following Baker Lake facilities: diversion channel at Third Portage Lake, quarry 22, quarry 5, bridge at kilometre 22/23, culvert at kilometre 1 and the Baker Lake bulk fuel storage facility/marshalling area.

The site visit provided the Monitoring Officer with a tour of all major project components and further, provided an opportunity for the Monitoring Officer and AEM staff to discuss relevant issues related to the project.

2.1 General Observations

The following are general observations made during the site visit and do not pertain specifically to any particular terms or conditions of the Project Certificate:

- a. While travelling along the access road to and from the Meadowbank site and the hamlet of Baker Lake, the Monitoring Officer observed very little wildlife. The only observable wildlife included two caribou, Snow geese (and blue geese) and a Peregrine falcon along the access road. No wildlife was observed at site; however, it was noted by staff that a muskox had been lingering around the Vault Pit area.
- b. Mr. Buck mentioned that the pilot remediation program undertaken this year at the Meadowbank site using on-site nutrients (sewage sludge) to initiate biodegradation of

contaminated hydrocarbon soil worked very well and that AEM was planning on using the same technique next year for all hydrocarbon contaminated soils (see Photo 1). This method would be used instead of general landfarming techniques (see Landfarm Plan for further information [AEM, 2013]).



Photo 1: Contaminated soil storage/pilot remediation site

- c. AEM indicated that additional grid samples would be taken at both Quarry 5 and Quarry 22 (both sites previously used for storage of contaminated hydrocarbon soil) and confirmed that if samples indicate that no hydrocarbons are present, remediation of both quarries would commence. Photo 2 through Photo 4 show the condition of Quarry 5 from the storage of contaminated soils in 2011 to clean-up in 2013, while Photo 5 and Photo 6 show the condition of Quarry 22 in 2012 and 2013.



Photo 2: Quarry 5 in 2011 containing contaminated soil from fuel spill at kilometre 22 along the access road



Photo 3: Quarry 5 in 2012



Photo 4: Quarry 5 in 2013



Photo 5: Quarry 22 in 2012, serving as a storage area for contaminated soil



Photo 6: Quarry 22 in 2013

- d. The Monitoring Officer noted that the environmental emergency sea-cans containing booms, shovels, absorbent pads, and other miscellaneous spill response equipment were located at most bridge crossing (one was not observed at the km 22/23 bridge). Further, two additional environmental emergency sea-cans, one containing spill response equipment and another containing a boat with motor were located at the Baker Lake laydown facility.
- e. Active blasting and drilling were ongoing at the North, Central and South Portage pits, with daily geotechnical inspections being undertaken to ensure the safety of all employees and contractors working in the active mine area (see Photo 7).



Photo 7: Portage Pit

- f. Development of the Bay-Goose Dike and causeway was completed in 2010 with the instrumentation on the Bay-Goose Dike and the jet grouting program completed in 2011. Mining of the Bay-Goose basin started in May 2012 (Photo 8).



Photo 8: Bay-Goose basin

- g. Construction of the Vault Road was completed by the end of 2012 and AEM commenced stripping, quarrying and related construction activities in 2013 (Photo 9). During the site visit, it was noted that dewatering of Vault Lake would commence in late September, once the fish-out program had been completed (see Photo 10). Mining of Vault Pit is planned for 2014.



Photo 9: Vault Lake Quarry site



Photo 10: Site of future Cell B, Vault Lake Pit

- h. Inspection of the tailings storage facility did not reveal any apparent rips to the liners that were exposed within Saddle Dam #1 and Saddle Dam #2 (Photo 11).



Photo 11: Tailings storage facility

- i. Mr. Buck indicated that the extension of the airstrip was completed in April 2013. This extension was previously screened and approved pursuant to NIRB File No. 10XN039.
- j. The Monitoring Officer noted that the water within the diversion ditch constructed around the tailings facility and flowing into Third Portage Lake appeared to be turbid, likely due to the high volume of rainfall over the previous few days (see Photo 12). Further, the silt curtains installed in Third Portage Lake did not appear to be functioning properly as there was evidence of turbid water/sediment along the shoreline of Third Portage Lake and flowing into the lake. The diversion ditch was built to control freshet water from entering the tailings facility (see Photo 13).



Photo 12: Diversion ditch around tailings facility



Photo 13: Turbid water entering Third Portage Lake

- k. While travelling along the access road from Meadowbank back to Baker Lake, the Monitoring Officer noted that the culvert crossing at kilometre 1 was damaged and that there was evidence of sediment deposit at the outflow of the culvert into Airport Lake. AEM indicated that it would assist the hamlet of Baker Lake in any work(s) required to upgrade/repair the culvert. AEM indicated that this particular section of the access road is owned by the hamlet and is not leased by AEM (see Photo 14).



Photo 14: Culvert crossing at kilometre 1

2.2 Observations based on NIRB's Project Certificate [004]

Sections 2.2.1 through 2.2.6 relate to those sections of the Meadowbank Project Certificate as indicated, with specific terms and conditions providing a basis for the noted observations.

2.2.1 Water Quality and Waste Management

Condition 8

"...At the time samples are taken Cumberland shall also assess the condition of existing groundwater monitoring wells and replace any defective wells. Cumberland shall continue to undertake semi-annual groundwater samples and re-evaluate the groundwater quality after each sample collection..."

At the time of the site visit, only one groundwater monitoring well appeared to be operational. AEM noted that the last operational groundwater monitoring well of those installed in 2003 became damaged from frost action in 2010. Three of the four defective wells were replaced in 2006 but were again damaged by frost action. Two of the wells were again replaced in 2008 with a more robust design. In 2011, two monitoring wells were installed, one on Goose Island to replace one of the 2003 wells and one at the tailings storage facility to replace one of the 2007 wells. Only one of the wells replaced in 2008 was sampled in 2011 as the second well showed blockage and no samples could be taken. Mr. Buck indicated that although groundwater sampling did occur at the operational wells for the 2013 sampling program, well number MW11-02 could not be sampled due to blockage from the previous year. AEM is planning on using

production wells instead of groundwater wells to evaluate the groundwater quality but for the 2013 year, AEM staff indicated that as there was limited water flowing at the selected production wells, no sampling had been conducted for this year.

Condition 25

“Cumberland shall manage and control waste in a manner that reduces or eliminates the attraction to carnivores and/or raptors. Cumberland shall employ legal deterrents to carnivores and/or raptors at all landfill and waste storage areas...incorporated into the final Waste Management Plan.”

As per previous site visits, the Monitoring Officer noted in 2013 that AEM continued to segregate and store all domestic, hazardous, and combustible wastes in marked sea-cans prior to these materials being incinerated or shipped to appropriate and approved off-site disposal facilities (Photo 15). AEM indicated that sea-cans filled with waste are backhauled via truck haul to Baker Lake and are then moved via the annual sea lift to southern Canada (Photo 16). AEM has also initiated other recycling programs to reduce the amount of wastes going to the landfill; e.g., puncturing aerosol cans which could then be recycled as metal (Photo 17 and Photo 18).



Photo 15: Sea-cans used for waste segregation and storage area



Photo 16: Sea-cans waiting to be backhauled



Photo 17: Landfill at Meadowbank mine site



Photo 18: Waste rock facility

The Meadowbank site dual chamber forced air incinerator remains in service for the combustion of all non-hazardous, combustible materials at the site (Photo 19). AEM staff noted that approximately 1.7 tonnes of domestic garbage is incinerated per day; however, Mr. Buck indicated AEM has plans in place to continually improve waste management by reducing the amount of domestic garbage produced at site. Some examples include completely replacing paper coffee cups with plastic coffee cups, using plastic lunch boxes and trays instead of paper bags, recycling wood products by finding second uses for these at site or by backhauling it to Baker Lake where it may be claimed and used by community members.



Photo 19: Dual chamber forced air incinerator at the Meadowbank site

Mr. Buck indicated that there have not been any issues with wildlife around site and that staff are encouraged to leave wildlife alone. Mr. Buck indicated that caribou and muskox have been around the Vault Lake site and that a few fox dens with pups have also been observed around site. In addition, Mr. Buck indicated that active falcon nests had also been observed within

various quarry sites along the access road with most adult pairs having fledged at least one chick successfully.

Condition 26

“Cumberland shall ensure that spills, if any, are cleaned up immediately and that the site is kept clean of debris, including wind-blown debris.”

During the 2012 visit to the Meadowbank site, the Monitoring Officer noted that all areas were kept in an impressively clean state, with no obvious spills. There were a few instances of wind-blown material observed around the Meadowbank site.

Mr. Buck indicated that clean-up of the spill that occurred near kilometre 22 of the access road in October 2010 was complete and the booms previously deployed in the watercourse had been removed in July 2013 (Photo 20). Mr. Buck confirmed that the site would continue to be monitored as part of AEM’s aquatic effects monitoring program.

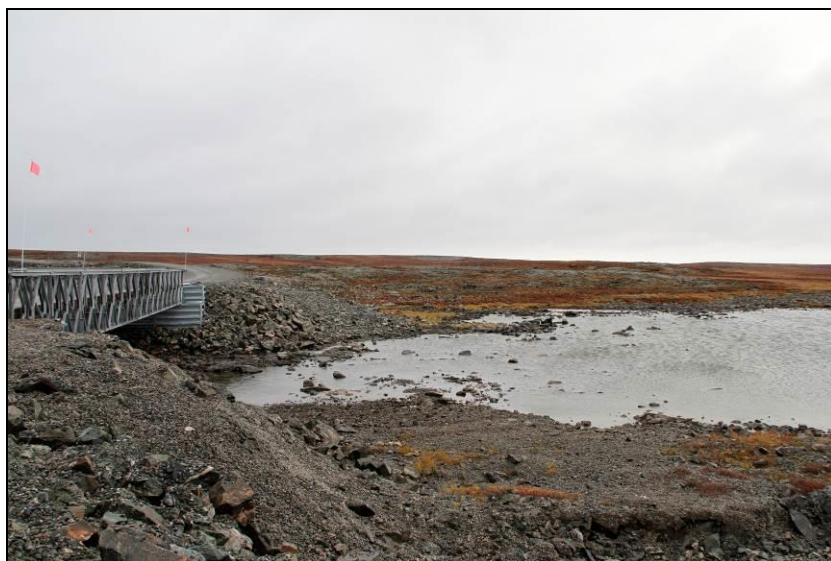


Photo 20: Bridge near kilometre 22

Condition 27

“Cumberland shall ensure that the areas used to store fuel or hazardous materials are contained using safe, environmentally protective methods based on practical, best engineering practices.”

During the 2013 site visit, the Monitoring Officer observed that all of AEM’s fuel and hazardous materials associated with the Meadowbank project appeared to be stored in a safe and environmentally protective manner (i.e. secondary containment at fuel storage areas and secure containment of hazardous materials; see Photo 21 and Photo 22).

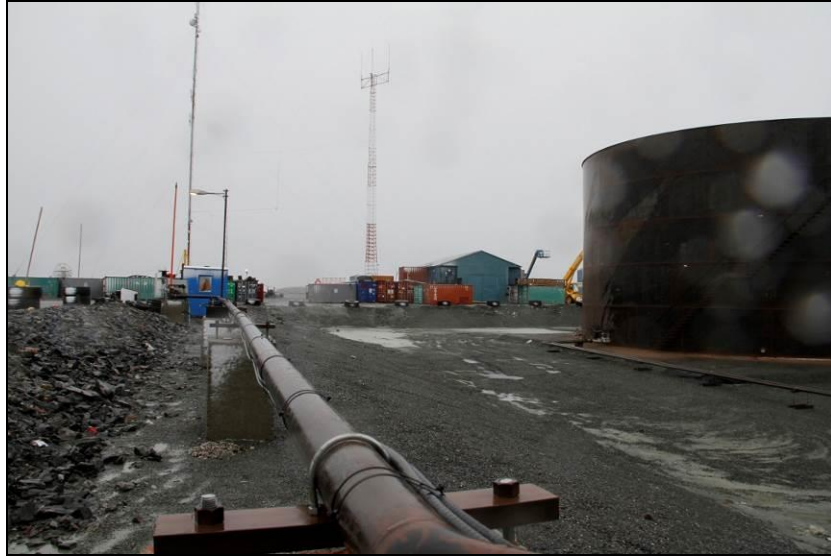


Photo 21: Meadowbank on-site fuel tank farm



Photo 22: Baker Lake bulk fuel storage facility

The fuel transfer stations on site (Photo 23) and at the Baker Lake bulk fuel storage facility (Photo 24) appeared to be well contained and properly set up for the re-fuelling of vehicles. No hydrocarbon odours were noted at either the Meadowbank fuel tank farm or the Baker Lake bulk fuel storage facility. No sheen was observed on the water within the Meadowbank fuel tank farm or the Baker Lake bulk fuel storage facility.

The Monitoring Officer noted that a Jet-A pad had been installed near the Baker Lake bulk fuel storage facility and that it had 20 fuel tanks in place (Photo 25).



Photo 23: Meadowbank on-site fuel transfer station



Photo 24: Baker Lake fuel transfer station (taken in 2012)



Photo 25: Jet-A pad at Baker Lake storage facility

2.2.2 All-Weather Private Access Road (AWPAR)

Amended Condition 32

“AEM shall operate the all-weather road as a private access road, and implement all such measures necessary to limit non-mine use of the road to authorized, safe and controlled use by all-terrain vehicles for the purpose of carrying out traditional Inuit activities. The measures AEM shall undertake include, but are not limited to:

- a. Maintaining a gate and manned gatehouse at kilometre 5 of the Private Access Road;*
- b. In consultation with the Hamlet of Baker Lake, the local HTO, and the KivIA, update the All-Weather Private Access Road Management Plan to set out the criteria and processes to authorize and ensure safe and controlled non-mine use of the road by all-terrain vehicles for the purpose of carrying out traditional Inuit activities, and measure to limit all other non-mine use of the road. The updated Plan is to be submitted to the GN, INAC, and KivIA for approval no later than one (1) month after the approval of revised Condition 32;*
- c. The posting of signs in English and Inuktitut at the gate, each major bridge crossing, and each 10 kilometres of road, stating that unauthorized public use of the road is prohibited;*
- d. The posting of signs in English and Inuktitut along the road route to identify when entering or leaving crown land;*
- e. Prior to opening of the road, and annually thereafter, advertise and hold at least one community meeting in the Hamlet of Baker Lake to explain to the community that the road is a private road with non-mine use of the road limited to approved, safe and controlled use by all-terrain vehicle for the purpose of carrying out traditional Inuit activities;*
- f. Place notices at least quarterly on the radio and television to explain to the community that the road is a private road with non-mine use of the road limited to authorized, safe and controlled use by all-terrain vehicles for the purpose of carrying out traditional Inuit activities;*

- g. *Record all authorized non-mine use of the road, and require all mine personnel using the road to monitor and report unauthorized non-mine use of the road, and collect and report this data to NIRB one (1) year after the road is opened and annually thereafter; and*
- h. *Report all accidents or other safety incidents on the road, to the GN, KivIA, and the Hamlet immediately and to NIRB annually.”*

AEM maintains one gatehouse at kilometre 5 of the access road, and another gatehouse close to the entrance to the mine site and camp at Meadowbank. Both gatehouses are manned by guards who monitor the safety and security of all personnel using the road. All traffic is required to check in (via radio or in person) with the employee at the gatehouse prior to proceeding past either gatehouse along the road (see Photo 26). The AEM employee manning the kilometre 5 gatehouse maintains a daily logbook of all persons travelling the access road for non-mine use. Members of the public travelling along the road are required to sign-off an indication of having read AEM's *All Weather Private Access Road Safety Rules & Procedures for Road Access* policy prior to being granted access to the road.



Photo 26: Gatehouse at kilometre 5, near Baker Lake

As per Condition 32(b), AEM submitted a copy of its updated Transportation Management Plan to the NIRB on May 13, 2010. One of the features of the access road as described within the plan is the placement of refuge stations every 10 kilometres. The Monitoring Officer noted that these refuge stations (emergency sea-cans) were not located on the road and was informed by Mr. Buck in 2012 that the sea-cans were removed because items within the stations were being stolen and that the refuge stations were not serving the original and intended purpose. The signs as required per Condition 32(c) were posted in both English and Inuktitut at the gatehouse (Photo 27), at each major bridge crossing (on the side of the environmental emergency sea-cans) and at every 10 kilometre intervals along the road.



Photo 27: Signs posted at gatehouse at kilometre 5

2.2.3 Wildlife and Terrestrial

Condition 56

“Cumberland shall plan, construct, and operate the mine in such a way that caribou migration paths through the Project, including the narrows west of Helicopter Island are protected. Maps of caribou migration corridors shall be developed in consultation with Elders and local HTOs, including Chesterfield Inlet and placed in site offices and upgraded as new information on corridors becomes available. Information on caribou migration corridors shall be reported to the GN, KivIA and NIRB’s Monitoring Officer annually.”

Condition 59

“Cumberland shall, in consultation with Elders and the HTOs, design and implement means of deterring caribou from the tailing ponds, such as temporary ribbon placement or Inukshuks, with such designs not to include the use of fencing.”

The Monitoring Officer noted that the updated maps 2012 which outline caribou migration corridors were posted in high traffic areas such as the bulletin board outside the check-in office. AEM indicated that all employees must report to the check-in office upon arrival to site at the commencement of their two-week shift and again upon departure from site and would be able to review the updated caribou migration corridor maps.

As indicated earlier in the report, no wildlife were observed around site during the 2013 site visit except along the access road to the mine site.

2.2.4 Noise

Condition 62

“Cumberland shall develop and implement a noise abatement plan...will be developed in consultation with Elders, GN, HC, and EC and include:

- a. *The use of sound meters to monitor sound levels in and around the mine site, including workers' on-site living/sleeping quarters and any summer camps adjacent to the site, and in the local study area, with the locations and design of the sound meters selected in consultation with HC and EC. Sound meters are to be set up immediately upon issuance of the Project Certificate for the purpose of obtaining baseline data, and monitoring during and after operations;*
- b. ...
- c. *Restrictions on blasting and drilling when migrating caribou, or sensitive local carnivores or birds may be affected;*
- d. ...
- e. ...”

AEM staff indicated that five locations were monitored for noise during the 2013 summer period. AEM staff noted that monitoring indicated that the dominant mine noise sources included activities such as helicopter and other air traffic, the use of construction and operation heavy equipment and blasting. Monitoring stations were removed prior to the site visit due to windy conditions.

2.2.5 Air Quality

Condition 71

“Cumberland shall, in consultation with EC, install and fund an atmospheric monitoring station to focus on particulates of concern generated at the mine site. The results of air-quality monitoring are to be reported annually to NIRB.”

The air monitoring stations were installed by the end of October 2011 and monitoring started in November 2011 (see Photo 28). The partisol sampling stations required heated shelter and electricity in order to operate properly, and these were installed in 2012. During the 2013 site visit, Mr. Buck noted that an air monitoring station installed in 2012 near the Vault Lake road had been relocated. The road alignment to Vault Lake was modified from the original design plan which in turn required that the air monitoring station be moved to a location further away from the road.



Photo 28: Air monitoring station

Condition 74

“Cumberland shall employ environmentally protective techniques to suppress any surface dust.”

AEM staff indicated that calcium chloride and water are administered on the roads to suppress dust around the Meadowbank site and from the Baker Lake dock facility to the gatehouse. AEM staff also noted that it would be using calcium chloride flakes for 2014 as it is lighter to transport and easier to use. AEM noted that it is currently waiting for the results of studies conducted along the access road in 2013 to determine whether or not the dust from the access road is impacting the vegetation around the area. During the site visit, AEM confirmed that no dust suppressants are currently in use along the access road.

2.2.6 Other

Condition 81

“Beginning with mobilization, and for the life of the Project, Cumberland shall provide full 24 hour security, including surveillance cameras and a security office at the Baker Lake storage facility/marshalling area, and take all necessary steps to ensure the safe and secure storage of any hazardous or explosive components within the Hamlet of Baker Lake boundaries.”

During the visit to the Baker Lake bulk fuel storage facility/marshalling area, the Monitoring Officer noted that a security office was located at the shore with AEM employees on site. The Monitoring Officer did note that these areas were kept impressively clean with sea-cans well organized during the 2013 site visit (see Photo 29).



Photo 29: Bake Lake dock and laydown facility

3 FINDINGS AND SUMMARY

Based on the observations made during this site visit, all facilities which are in operation and all sites currently under construction appear to be well managed and maintained with adequate environmental protection measures and procedures in place.

As with years past, the Proponent appears to be in compliance with a majority of the terms and conditions contained within the Meadowbank Project Certificate as applicable to the NIRB's 2013 Site Visit. However, there may be certain situations in which the Proponent has not yet fully met the requirements of the Meadowbank Project Certificate and which require further consideration and attention.

The Monitoring Officer notes that the pilot remediation program undertaken this year at the Meadowbank mine site appeared to have worked well. The Monitoring Officer was informed that the rate of biodegradation of the contaminated soil containing nutrients (sewage sludge) was faster compared to contaminated soils with no nutrients added. AEM indicated that it plans to use this method again next year for the treatment of all of its contaminated soils.

The Monitoring Officer also noted that the silt curtains put in place downstream of the diversion ditch flowing into Third Portage Lake did not appear to be functioning properly as sedimentation was evident around the shoreline and flowing into the lake.

Regarding Condition 8, only one groundwater well appeared to have been operational during the 2013 site visit. AEM indicated that further re-evaluation of the groundwater well monitoring program would be conducted, including an evaluation of the potential use of production wells instead of groundwater wells to assess the existing groundwater conditions.


Condition 25 requires that the Proponent employ legal deterrents to deter carnivores and/or raptors from the Meadowbank site. AEM noted that wildlife had been observed at the site including caribou, muskox and foxes, with a few fox dens around the site as well. .

Condition 26 requires that spills be cleaned up immediately and that the site be kept clean of debris. The Monitoring Officer was informed during the 2013 site visit that the clean-up of the spill at kilometre 22 was complete, but that the site would continue to be monitored as part of AEM's ongoing aquatics effects monitoring program. Some instances of wind-blown debris scattered around the site were noted during the 2013 site visit.

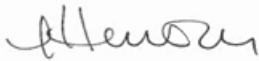
Condition 27 requires that the Proponent use safe, environmentally protective methods at areas used to store fuel or hazardous materials. The Monitoring Officer noted that the fuel storage facilities appeared to be well contained and properly set up for the re-fuelling of vehicles.

The Proponent did not appear to have fully met the requirements of Condition 74, as dust suppression techniques had been applied at the Meadowbank site but were not in use along the access road from Baker Lake to site. AEM did indicate that plans were in place to determine the effects of dust on vegetation along the access road and to determine the best options to deal with the dust created.

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