Technical Review Memorandum

TO Phyllis Beaulieu
Manager of Licensing
Nunavut Water Board
Nunavut Regional Office

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FROM David Abernethy
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SUBJECT **Water License #8BC-TEH0809, Agnico-Eagle Mines Ltd., Meadowbank Gold Project, Waste Rock and Water Management Plan (July 2008)**

DESCRIPTION

Agnico-Eagle Mines Ltd. (AEM) submitted the above-mentioned plan to the Nunavut Water Board (NWB) for approval as required by Part D, Item 1 of the Meadowbank Gold Project's Type B water license #8BC-TEH0809. This plan was distributed for review by interested parties on July 21, 2008. It is a management plan related to proposed measures to minimize impacts from water crossings, the use of water, and waste disposal associated with the activities listed below.

- Completion of road construction, culvert installations, and routine operation activities along the All Weather Private Access Road between the Hamlet of Baker Lake and the Meadowbank Project Site;
- Construction and operation of a camp designed for 340 persons at the Meadowbank Project Site;
- Installation of a Bulk Fuel Storage Facility;
- Set-up and operation of a sewage treatment plant at the Meadowbank Project Site;
- Set-up and operation of a batch concrete plant at the Meadowbank Project Site; and,
- Pre-development of two (2) on-land starter pits including access roads.

It is noted that the Type A license for this facility was issued on July 10, 2008 and conditions with respect to water license #8BC-TEH0809 were incorporated into the new water license, #2AM-MEA0815.

On June 24, 2008 AEM notified the NWB that rock excavated as part of the North and South Portage starter pit development works would not be removed until the

issuance of a Type A license. This correspondence mentioned that this material would not be used for the preparation of a rock-fill pad for the permanent accommodation camp or any other site infrastructure construction. This notification was provided in accordance with the requirements of Part D, Item 2 of license #8BC-TEH0809 and is also communicated in the submitted plan.

COMMENTS / RECOMMENDATIONS

The following comments / recommendations are provided to the NWB for consideration in the approval of this plan.

1. Preliminary Observations

- The 2008 Waste Rock and Water Management Plan appears to be a sufficient method of addressing water quality concerns during contruction activities associated with the project.

- It is recommended that Standard Operating Procedures (SOP) complete with descriptive flowcharts be prepared as part of these types of plans. These SOP's should reference monitoring activities, frequencies, trigger criteria, and mitigation measures during all construction activities. SOP's and flowcharts similar to those presented in the Final Water Quality Monitoring and Management Plan for Dike Construction and Dewatering would be satisfactory.

2. Mine Pre-development Construction and Operations

- AEM categorizes surface water into two (2) groups, contact and non-contact water. Contact water is defined as any water that may be physically or chemically affected by mining related activities. Non-contact water is defined as any water that is not physically or chemically affected by mining related activities. Both contact and non-contact water will be intercepted by a network of ditches and culverts, and directed to sediment and control ponds prior to discharge into the receiving environment.

- INAC recommends that a detailed diagram(s) identifying the sources and flows of contact and non-contact water sources within the project area be provided. This diagram(s) should include the network of ditches, culverts, and sediment control ponds used for surface water management.

- This information could be provided as part of the requirements of Part D, Item #'s 1 and 26 of water license #2AM-MEA08145.

3. Contact Water Collection System

A. Construction and Operation of Sewage Treatment Plant

- AEM will construct and operate a rotary biological contactor (RBC) sewage treatment plant. Treated effluent from this sewage treatment plant will be directed to Contact Water Collection System Lake #1 and will be subsequently released into Second Portage Lake.

  To determine the RBC sewage treatment plant's efficiency, INAC recommends that AEM monitor raw sewage entering the sewage treatment plant and treated effluent directed to Lake #1. This monitoring should include, but not be limited to, the sampling of total suspended solids (TSS), biological oxygen demand (BOD_5), fecal coliforms, and pH. It is understood that the Type A water license requires monitoring prior to and during discharge from Lake #1 to Second Portage Lake at monitoring stations ST-33 and ST-35. Compliance limits for discharged effluent are listed in Part D, Item#'s 10 and 21 of the Type A license.

B. Contact Water Collection System Lake #1

- Contact Water Collection System Lake #1 is situated in the immediate area of the project's mill and service facilities. AEM proposes to increase the capacity of this lake through the construction of impervious walls.

  INAC recommends that more detailed information related to the construction/operation of this lake be provided in the plan. At a minimum, AEM should specify:

  - the original depth, area, and volume of Lake #1;
  - proposed changes to the depth, area, and volume of Lake #1;
  - construction of the impervious walls; and,
  - mitigation measures should collected water not meet discharge criteria.

  This information could be provided as part of the requirements of Part D, Item #'s 1 and 26 of the Type A license.

C. Contact Water Collection System Lake #2

- Contact Water Collection System Lake #2 is situated north of Second Portage Lake and will be utilized for the retention of contact water prior to its transfer into Second Portage Lake. This lake must meet effluent water quality limits listed in Part D, Item #10 of the Type A license. Furthermore,

effluent discharged from Lake #2 must be monitored in accordance with requirements listed in Schedule I, Table 2 of the Type A license at monitoring station ST-36.

INAC recommends that more detailed information related to the operation of this Contact Wate Collection System lake included in the plan. At a minimum, AEM should specify:

- the original depth, area, and volume of Lake #2;
- all sources of surface water entering Lake #2;
- discharge procedures; and,
- mitigation measures should collected water not meet discharge criteria.

This information could be provided as part of requirements of Part D, Item #'s 1 and 26 of the Type A license.

D. Attenuation Ponds #'s 1 and 2

- AEM makes reference to the use of Attenuation Ponds #1 and #2 for the collection of surface water prior to its transfer into Contact Water Collection System Lakes. Surface water within Attention Pond #1 will be directed to Lake #1 and surface water within Attenuation Pond #2 will be directed to Lake #2.

  INAC recommends that AEM include a description of the capacity of Attenuation Ponds #1 and #2 A diagram/schematic identifying all collection systems, ponds, and volumes would benefit the overall plan (as previously noted).

  The plan should identify contingency measures should the capacity of these collection systems become an issue due to unexpected high flows.

4. Non-contact Water Collection

- It is stated that all non-contact water will be intercepted by a network of ditches and culverts, and conveyed to sediment control ponds for the settling of suspended solids prior to discharge into the natural receiving environment. Non-contact water flows and collection should be identified clearly in a diagram as recommended in Section 2, Bullet 2.

- detailed information is provided regarding the management of non-contact water on-site (e.g., will some sources of non-contact water enter the Contact Water Collection System?). INAC recommends that the

management of collected non-contact water be communicated to the NWB.

This information could be provided as part of requirements of Part D, Item #'s 1 and 26 of the Type A license.

5. Access Road Construction

- General sediment and erosion control measures for roads under construction or newly constructed roadways near water crossings are provided. It is recommended that a standard operation procedure and a corresponding flowchart that identifies triggers/thresholds which prompt response strategies be provided in this plan.

Should you have any questions regarding the recommendation / comments provided, feel free to contact me at 867-975-4555 or at AbernethyD@inac-ainc.gc.ca.

Regards,
David W. Abernethy

Cc. Kevin Buck, Manager of Water Resources
Bernie MacIsaac, Manager of Field Operations