FINAL INTERVENTION FOR THE PUBLIC HEARING:

MEADOWBANK MINING CORP. / AGNICO-EAGLE MINES LTD.

MEADOWBANK GOLD MINE PROJECT

WATER LICENSE APPLICATION

Prepared By:

Government of Nunavut

Department of Environment

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EXECUTIVE SUMMARY

The Type A water license application for the Meadowbank gold mine project was submitted by Meadowbank Mining Corp., a subsidiary of the Agnico-Eagle Mines Ltd. (AEM). The Government of Nunavut, Department of Environment (GN-DOE) reviewed the application based on our legislative mandate and responsibility (i.e., *Environmental Protection Act*, *Wildlife Act* and Canada-wide Standards). On Feb. 13, 2008, GN-DOE provided technical comments on the application, many of which were addressed at the Technical Meetings on Feb. 26 and 27, 2008 in Baker Lake, or within the follow-up written response provided by AEM on Mar. 7, 2008.

This final intervention for the Public Hearings has identified remaining issues on seven of the sixteen topics to be discussed at the hearing, on matters relating to the Type B water licenses, water quality & water management, waste management, geochemistry, contingency planning, monitoring, and closure and reclamation. These issues are summarized below.

A. Type B Water Licenses

The GN-DOE review focused mainly on the mine site and not components contained in previously issued water licenses related to the all-season road (8BE-TEH), the Baker Lake marshalling area (8BC-MEA), and the temporary construction camp (3BC-TEH). However, it is our belief that the terms and conditions of these three previously approved Type B water licenses, should be incorporated into a single enforceable Type A water license that deals with management, mitigation and monitoring of waste and water related issues holistically.

B. WATER MANAGEMENT & WATER QUALITY

AEM provided technical analysis to support the conclusions used in project design and water management/treatment plans, and generally provided satisfactory mitigation and management procedures for the various waste streams on-site. AEM also committed to update and refine water quality predictions and waste management plans, including treatment needs based on monitoring data during mine operation. Finally, AEM proposed to meet appropriate standards for the discharge of mine-contact water to the receiving environment. GN-DOE recommends these commitments form terms of the water license if issued.

C. WASTE MANAGEMENT

AEM provided various supporting documents to substantiate how they will manage various waste management facilities. GN-DOE found the proposed management and mitigation measures for these facilities were generally sound. In the case of sewage treatment and management, AEM has proposed to meet appropriate effluent quality standards prior to the discharge to Tear Drop Lake, a facility that is to be used as a stormwater management pond during operation. However, from the license application, it is unclear if after mine closure the lake water quality will be, or need to be, restored to appropriate standards. Additionally, GN-DOE was unclear if AEM plans to submit for review, design, construction and as-built drawings for a number of engineered waste management facilities. The requirements for these drawings should be addressed to NWB's satisfaction at the hearings.

D. GEOCHEMISTRY

An important conclusion from the review is that adaptive management will be a requirement at this site. The potential for acid rock drainage (ARD) and metal leaching (ML) is certain unless mitigation measures are successfully implemented. AEM has committed to re-evaluate ARD and ML potential for the mine and along the all-weather road (i.e., quarry sites); these results collected in the future will be used to verify existing information about rock characterization and volume calculations of waste rock. GN-DOE recommends these commitments form terms of the water license if issued.

E. CONTINGENCY PLANNING

GN-DOE believes that AEM's Spill Contingency Plan is generally satisfactory. However, in our Feb. 13, 2008 technical submission, GN-DOE provided some detailed comments that could result in improvements to the plan. AEM has agreed to incorporate our recommendations and has also committed to revise the Plan as needed (yearly as a minimum).

Additionally, GN-DOE has provided comments on contingency planning for large spills. AEM has suggested that they may be required to build additional landfarms to store and treat spilled materials. In response to an Environment Canada concern on this matter, AEM indicated they will initiate contingency planning for such spills, yet they have not provided details for review. GN-DOE recommends these commitments to improve and review the mine's spill contingency planning, form terms of the water license if issued.

F. MONITORING

Monitoring plans for water quality and various waste management facilities were generally acceptable. AEM committed to conduct thermal monitoring for the Tailings Storage Facility until the core of the facility is frozen and does not present environmental risk. However, it was unclear to GN-DOE if AEM plans to monitor thermal condition and geochemical stability of the two waste Rock Storage Facilities. Considering the important implications of these monitoring results, GN-DOE suggests that these commitments and recommendations form terms of the water license if issued.

G. Closure and Reclamation

GN-DOE reviewed the Preliminary Closure and Reclamation Plan, and believed the plan was generally acceptable. AEM committed to meet appropriate water quality standards for mine-contact water within pit lakes prior to dike breaching and water being discharged to the receiving environment. AEM has also committed to monitor vegetation recovery on the disturbed mine sites until re-vegetation success is assured. Furthermore, GN-DOE believes that it is important for AEM to revise closure plans for the TSF, and the two RSFs as operational information and management plans are revised. These commitments and recommendations should form terms of the water license if issued.

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ᐃᒪᐃᑦᑐᒥᒃ ᐃ-ᒥᒃ ᐃᒪᕐᒧᑦ ᓚᐃᓴᒧᑦ ᑐᒃᓯᕋᐅᑕᐅᔪᖅ ᒥᐊᑐᐸᙵ ᒨᓗᒧᑦ ᐅᔭᕋᖕᓂᐊᕐᕕᖕᒧᑦ ᒥᐊᑐᐸᙵ ᐅᔭᕋᖕᓂᐊᖅᑎᑦ ᑯᐊᐳᓈᓴᖕᒋᓐᓂ ᑐᓐᓂᖅᑯᑕᓚᐅᖅᐳᖅ, ᒐᕙᒪᒃᑯᓐᓄᑦ ᐊᐅᓚᑕᐅᔪᒧᑦ AEM Ltd.-ᑯᓐᓂ. ᓄᓇᕗᑦ ᒐᕙᒪᖓᓂ, ᐊᕙᑎᓕᕆᔨᒃᑯᑦ ᕿᒥᕐᕈᓚᐅᖅᐳᑦ ᑐᒃᓯᕋᐅᑎᒋᔭᐅᔪᒥᒃ ᒪᓕᒐᓕᐅᕐᕕᖕᒥ ᑎᓕᔭᐅᓯᒪᓂᖏᑦ ᑲᒪᒋᔭᒃᓴᖃᖅᑎᑕᐅᔪᓪᓗ ᒪᓕᒃᓱᒋᑦ (ᓲᕐᓗ ᐊᕙᑎᑦᑎᓐᓂ ᓴᐳᔾᔨᓂᕐᒧᑦ *ᒪᓕᒐᖅ, ᐆᒪᔪᓕᕆᓂᕐᒧᑦ ᒪᓕᒐᖅ* ᐊᒻᒪ ᑲᓇᑕᓕᒫᒥ ᒪᓕᒃᑕᐅᕙᒃᑐᑦ). ᕕᕗᐊᕆ 13, 2008-ᒥ, ᓄᓇᕗᑦ ᒐᕙᒪᖓᓂ ᐊᕙᑎᓕᕆᔨᒃᑯᑦ ᓴᖅᑭᑎᑦᑎᓚᐅᖅᐳᑦ ᐱᓕᕆᔾᔪᑎᓄᑦ ᐅᖃᐅᓯᒃᓴᓂᒃ ᑐᒃᓯᕋᐅᑎᒧᑦ, ᐅᓄᖅᑐᑦ ᐅᖃᐅᓯᐅᓚᐅᖅᓱᑎᒃ ᐱᓕᕆᔾᔪᑎᓄᑦ ᑲᑎᒪᑎᓪᓗᒋᑦ ᕕᕗᐊᕆ 26-ᒥ 27-ᒥᓗ, 2008-ᒥ ᖃᒪᓂ'ᑐᐊᕐᒥ, ᑭᖑᓂᐊᒍᓪᓘᓐᓃ ᐱᓕᕆᒃᑲᓂᖅᑎᓪᓗᒋᑦ AEM-ᑯᑦ ᑎᑎᕋᖅᓱᑎᒃ ᑭᐅᔾᔨᑎᒋᓚᐅᖅᑕᖓᓄᑦ ᒫᔾᔨ 7, 2008-ᖑᑎᓪᓗᒍ.

ᑭᖑᓪᓕᖅᐹᒥ ᑐᑭᓯᒋᐊᖅᑎᑦᑎᓇᓱᒃᑎᓪᓗᒋᑦ ᐃᓄᓕᒫᖅᑎᑦᑎᓪᓗᑎᒃ ᓇᓗᓇᕈᓐᓃᖅᑎᑦᑎᓚᐅᖅᐳᑦ ᐃᓱᒪᓘᑕᐅᔪᓂᒃ 7-ᖑᔪᓂᒃ ᑖᒃᑯᓈᙳᖅᓱᑎᒃ 16-ᓂ ᐅᖃᐅᓯᐅᔪᓂᒃ ᐅᖃᐅᓯᐅᔭᕆᐊᖃᕐᓂᐊᖅᑐᓂᒃ ᐃᓄᓕᒫᖅᑎᑦᑎᓕᖅᐸᑕ, ᐱᔾᔪᑎᓕᖕᓂᒃ ᐲ-ᖑᓂᖓᓂ ᐃᒪᕐᒧᑦ ᓚᐃᓴᒧᑦ, ᐃᒪᐅᑉ ᐱᐅᓂᖓᓄᑦ ᑲᒪᒋᔭᐅᓂᖓᓄᓪᓗ, ᐊᒃᑕᖅᑕᐅᕙᓪᓕᐊᕙᒃᑐᒧᑦ ᑲᒪᒋᔭᖃᕐᓂᕐᒧᑦ, ᓄᓇᐅᑉ ᖃᐅᔨᓴᖅᑕᐅᓂᖓᓄᑦ, ᐅᐸᓗᖓᐃᔭᐅᑎᓄᑦ ᐸᕐᓇᐃᓂᕐᒧᑦ, ᖃᐅᔨᓴᖅᐸᓪᓕᐊᓂᕐᒧᑦ, ᒪᑐᔭᐅᓂᖓᓄᑦ ᐅᑎᖅᑎᑦᑎᓂᕐᒧᓪᓗ. ᑖᒃᑯᐊ ᐃᓱᒪᓘᑎᒋᔭᐅᔪᑦ ᐊᑖᓂ ᐅᖃᐅᓯᐅᓯᒪᕗᑦ.

ᐃ. ᐃᒪᐃᑦᑐᒥᒃ ᐱ-ᒥᒃ ᐃᒪᕐᒧᑦ ᓚᐃᓴᒥᒃ

ᓄᓇᕗᑦ ᒐᕙᒪᖓᓂ ᐊᕙᑎᓕᕆᔨᒃᑯᑦ ᕿᒥᕐᕈᓂᖓ ᐱᔾᔪᑎᖃᓪᓗᐊᑕᓚᐅᖅᐳᑦ ᐅᔭᕋᖕᓂᐊᕐᕕᐅᔪᒥ ᑭᖑᓂᑦᑎᓐᓂ ᓴᖅᑭᑕᐅᓚᐅᖅᑐᒧᑦ ᐃᒪᕐᒧᑦ ᓚᐃᓴᒧᑦ ᐃᓚᒋᔭᖏᓐᓂᐅᙱᑦᑐᖅ ᐊᕐᕌᒍᓕᒫᒥ ᐊᖅᑯᑎᒋᔭᐅᔪᓐᓇᖅᑐᒥ ᐱᔾᔪᑎᓕᖕᒥᒃ (8BE-TEH), ᖃᒪᓂ'ᑐᐊᕐᒥ ᐋᖅᑭᒃᓯᐃᕕᐅᕙᒃᑐᒥ (8BC-MEA), ᓴᓇᕝᕕᒋᔭᐅᓚᐅᕝᕙᒃᑐᒥᓪᓗ ᑕᖕᒫᖅᓯᒪᕝᕕᐅᓪᓗᓂ (3BC-TEH). ᑭᓯᐊᓂ, ᐅᒃᐱᓇᔭᖅᑲᖅᐳᒍᑦ ᑖᒃᑯᐊ ᐱᖓᓱᑦ ᑭᖑᓂᑦᑎᓐᓂ ᐊᖏᖅᑕᐅᓚᐅᖅᑐᑦ ᐲ-ᖑᓪᓗᑎᒃ ᐃᒪᕐᒧᑦ ᓚᐃᓴᒋᔭᐅᔪᑦ ᒪᓕᒋᐊᖃᖅᑕᖏᑦ ᖃᓄᐃᓕᖓᓂᖏᓪᓗ, ᐊᑕᐅᓯᕐᒧᑦ ᑲᑎᑕᐅᔭᕆᐊᖃᕐᓂᖏᓐᓂᒃ ᐊᑐᖅᑎᑦᑎᒻᒪᕆᒋᐊᓕᖕᒥᒃ ᐃᒪᐃᑦᑐᒥ ᐄ-ᒥᑦ ᐃᒪᕐᒧᑦ ᓚᐃᓴᒥᒃ ᐱᓕᕆᕝᕕᖃᕐᓂᐊᖅᑐᓂᒃ ᑲᒪᒋᔭᖃᕐᓂᕐᒥᒃ, ᒥᒃᓵᒋᐊᖅᑎᑦᑎᓂᕐᒥᒃ ᖃᐅᔨᓴᖅᐸᓪᓕᐊᓂᕐᒧᓪᓗ ᐊᒃᑕᖅᑕᐅᕙᓪᓕᐊᕙᒃᑐᓂᒃ ᐃᒪᕐᒥᓪᓄ ᐱᔾᔪᑎᓕᖕᓂᒃ ᐃᓱᒪᓘᑕᐅᔪᓂᒃ ᐊᑕᖑᔪᒥᒃ.

ᐱ. ᐃᒪᕐᒥᒃ ᐊᐅᓚᑦᑎᓂᖅ ᐃᒪᐅᓪᓗ ᐱᐅᓂᖓ

AEM-ᑯᑦ ᐱᓕᕆᔾᔪᑎᓄᑦ ᖃᐅᔨᓴᕐᓂᕐᑲᓚᐅᖅᐳᑦ ᐃᑲᔪᖅᑐᐃᔪᒪᓪᓗᑎᒃ ᑭᖑᓪᓕᖅᐹᖅᓯᐅᑎᖑᒋᓐᓂᒃ ᐊᑐᖅᑕᐅᓚᐅᖅᑐᒥ ᐱᓕᕆᐊᒃᓴᖅ ᑎᑎᕋᖅᑕᐅᑎᓪᓗᒍ ᐃᒪᐅᓪᓗ ᐊᐅᓚᑕᐅᓂᖓᓄᑦ/ᓄᖑᑉᐸᓪᓕᐊᑎᑦᑎᕙᒃᑐᒥ ᐸᕐᓇᐃᓂᕐᒧᑦ, ᓴᖅᑭᑎᑦᑕᐅᖅᓱᓂᓗ ᑕᒪᐃᓐᓄᐸᓗᒃ ᓈᓚᒃᑐᓂᒃ ᒥᒃᓵᒋᐊᕈᑕᐅᓂᐊᖅᑐᓂᒃ ᐊᐅᓚᑦᑎᓂᕐᒧᓪᓗ ᐊᑐᓇᐊᖅᑲᖅᑕᖕᒋᓐᓂᒃ ᐊᔾᔨᒌᙶᑦᑐᓄᑦ ᑯᕕᖅᑲᖅᑕᐅᕙᓪᓕᐅᔪᒧᑦ ᑰᕕᐅᕙᒃᑐᒧᑦ. AEM-ᑯᑦ ᓄᑖᙳᓇᐊᖅᑎᑦᑎᓂᐊᕐᓂᕋᐃᓪᓚᓇᓚᐅᓇᕗᑦ ᐱᐅᓯᒋᐊᖅᑎᑦᑎᓗᑎᓪᓗ ᐃᒪᕐᒥᒃ ᐱᐅᔪᒥᒃ ᓂᕆᐅᒋᔭᐅᔪᒥᒃ ᑯᕕᖅᑲᖅᑕᐅᕙᓪᓕᐊᕙᒃᑐᒧᓪᓗ ᐸᕐᓇᒍᑎᓂᒃ, ᐱᖃᓯᐅᑎᓗᒋᑦ ᓄᖑᑎᑦᑎᕙᓪᓕᐊᕙᒃᑐᑦ ᐱᔭᐅᔭᓇᐊᖅᖃᒃᑐᑦ ᖃᐅᔨᓴᕈᑕᐅᓚᐅᖅᑐᑦ ᐅᔭᕋᖕᓂᐊᕐᓂᖅᑕᖅᑲᖅᑎᓪᓗᒍ ᒪᓕᒃᓱᒋᑦ. ᑭᖑᓪᓕᖅᐹᒥ, AEM-ᑯᑦ ᓴᖅᑮᓕᖅᑎᑦᑎᔪᒪᓚᐅᖅᐳᑦ ᒪᓕᒃᑕᐅᖃᑦᑕᕐᓂᐊᖅᑐᓂᒃ ᑯᕕᔭᐅᕙᓪᓕᐊᕙᒃᑐᒧᑦ ᐅᔭᕋᖕᓂᐊᕐᓂᕐᒧᑦ ᐊᒃᑐᖅᑕᐅᓯᒪᔪᒧᑦ ᐃᒪᕐᒧᑦ ᐱᕙᓪᓕᐊᔪᒧᑦ ᐊᕙᑎᒧᑦ. ᓄᓇᕗᑦ ᒐᕙᒪᖓ-ᐊᕙᑎᓕᕆᔨᒃᑯᑦ ᐊᑐᓕᖅᑯᔨᓯᒪᕗᑦ ᑖᒃᑯᓂᖓ ᐱᓕᕆᐊᖑᓪᒪᕆᒍᒪᔪᓂ ᒪᓕᒃᑕᐅᓴᕆᐊᓕᖕᓄᑦ ᐃᒪᕐᒧᑦ ᓚᐃᓴᒋᔭᐅᔪᒧᑦ ᑐᓂᔭᐅᒃᐸᑕ.

ᑎ. ᐊᒃᑕᖅᑕᐅᕙᓪᓕᐊᕙᒃᑐᒧᑦ ᐊᐅᓚᑦᑎᓂᖅ

AEM-ᑯᑦ ᐊᔾᔨᒌᙶᑦᑐᓂᒃ ᐃᑲᔪᖅᑐᐃᔪᓂᒃ ᑎᑎᕋᖅᓯᒪᔪᓂᒃ ᓴᖅᑭᑎᑦᑎᖃᑦᑕᖅᐳᑦ ᐃᑲᔪᖅᑐᐃᓇᓱᒻᒍᓄᑦ ᖃᓄᖅ ᐊᐅᓚᑦᑎᓇᓱᕐᒪᖔᑕ ᐊᔾᔨᒌᙶᑦᑐᓂᒃ ᐊᒃᑕᖅᑕᐅᕙᓪᓕᐊᕙᒃᑐᒧᑦ ᐊᐅᓚᑦᑎᓂᕐᒧᑦ ᐊᑐᖅᑕᐅᖃᑦᑕᕐᓂᐊᖅᑐᓄᑦ. ᓄᓇᕗᑦ ᒐᕙᒪᖓ-ᐊᕙᑎᓕᕆᔨᒃᑯᑦ ᐊᐅᓚᑦᑎᔾᔨᑕᐅᔪᒪᔪᓂᒃ ᒥᒃᓵᒋᐊᖅᑎᑦᑎᑦᑕᐃᓕᒪᔾᔨᑏᓪᓗ ᑖᒃᑯᓇᖓ ᐃᓂᒋᔭᐅᓂᐊᖅᑐᓄᑦ ᓈᒻᒪᒃᑐᐃᓐᓇᐅᓚᐅᖅᐳᑦ. ᑭᓈᓗᖃᕚᖓᒧᑦ ᓄᖑᑎᑦᑎᕙᓪᓕᐊᕙᒃᑐᖅ ᐊᐅᓚᑦᑎᓂᕐᓗ ᐱᔾᔪᑎᒋᓪᓗᒋᑦ, AEM-ᑯᑦ ᓴᖅᑮᓕᖅᑎᑦᑎᔪᒪᓚᐅᖅᐳᑦ ᓈᒻᒪᒃᑐᓂᒃ ᑯᕕᕙᓪᓕᐊᕙᒃᑐᒧᑦ ᐱᐅᔪᓂᒃ ᒪᓕᒃᑕᐅᕙᒃᑐᓂᒃ ᑯᕕᑎᑕᐅᓚᐅᙱᑎᓪᓗᒍ Tear Drop ᑕᓯᕐᒧᑦ, ᑯᕕᖅᑕᕝᕕᐅᖃᑦᑕᕋᔭᖅᓱᓂ stormwater-ᒥ ᑕᓯᑯᓗᖕᒧᑦ ᐊᐅᓚᓂᖃᖅᑎᓪᓗᒍ. ᑭᓯᐊᓂ, ᓚᐃᓴᒋᔭᐅᔪᖅ ᒪᓕᒃᓱᒍ, ᓇᓗᓇᐃᖅᑕᐅᓯᒪᑦᑎᐊᙱᓪᓚᑦ ᐅᔭᕋᖕᓂᐊᕝᕕᒃ ᒪᑐᓯᒪᓕᖅᑎᓪᓗᒍ ᑕᓯᐅᑉ ᐃᒪᖓᑕ ᐱᐅᓂᖓ ᐱᐅᓯᒋᐊᖅᑎᑕᐅᓂᐊᕐᓂᖓᓂᒃ ᐅᕙᓗᓐᓃᑦ ᐱᐅᓯᒋᐊᖅᑕᐅᔭᕆᐊᖃᕐᓂᐊᕐᓂᖓᓂᒃ ᓈᒻᒪᒃᑐᓄᑦ ᒪᓕᒃᑕᐅᕙᒃᑐᓄᑦ. ᐊᒻᒪᓗᑦᑕᐅᖅ, ᓄᓇᕗᑦ ᒐᕙᒪᖓ-ᐊᕙᑎᓕᕆᔨᒃᑯᑦ ᑐᑭᓯᐅᒪᑦᑎᐊᓚᐅᙱᓚᑦ AEM-ᑯᑦ ᑐᓂᓯᔪᒪᓂᐊᕐᒪᖔᑕ ᕿᒥᕐᕈᔭᐅᕐᑯᔨᓗᑎᒃ, ᐋᖅᑭᒃᓯᐃᕐᑯᔨᓗᑎᒃ, ᓴᓇᔭᐅᕐᑯᔨᓗᑎᒃ ᐊᒻᒪᓗ ᓴᓇᔭᐅᓂᐊᖅᑐᖅ ᑎᑎᕋᐅᔭᖅᑕᐅᓂᖓᓄᑦ ᖃᕝᓯᑲᓪᓚᖓᓄᑦ ᓴᓇᔭᐅᓯᒪᔪᓄᑦ ᑯᕕᖅᑕᖅᑕᐅᕙᒃᑐᒧᑦ ᐊᐅᓚᑦᑎᓂᕐᒧᑦ ᐃᓂᒋᔭᐅᔪᒧᑦ. ᑎᑎᕋᐅᔭᖅᑕᐅᔪᓄᑦ ᐊᑐᓇᐊᖅᑲᖅᑕᖏᑦ ᐅᖃᐅᓯᐅᔭᕆᐊᖃᖅᐳᑦ ᓄᓇᕘᒥ ᐃᒪᕐᒥᐅᑕᓕᕆᔨᒃᑯᑦ ᓈᒻᒪᒋᔭᖓᓄᑦ ᐃᓄᓕᒫᖅᑎᑦᑎᓪᓗᒋᑦ.

ᑭ. ᓄᓇᒥᒃ ᖃᐅᔨᓴᕐᓂᖅ

ᕿᒥᕐᕈᓚᐅᖅᑎᓪᓗᒋᑦ ᐱᓪᒪᕆᐅᔪᒥᒃ ᐱᐊᓂᒍᑎᖃᓚᐅᖅᐳᑦ ᐋᖅᑭᒋᐊᕈᑎᒃᓴᓂᒃ ᐊᐅᓚᑦᑎᔾᔪᑎᒥᒃ ᐱᔭᓇᐊᖃᕐᓂᐊᕐᓂᖏᓐᓂᒃ ᑕᕝᕙᓂ ᐃᓂᒥ. ᓯᕗᓂᒃᓴᒥ ᐆᑦᑐᓇᖅᑐᖅ ᐅᔾᔭᖅᑲᒧᑦ ᑯᕕᑐᐃᓐᓇᓇᐊᓕᒃ ᓴᕕᕋᔾᔭᒃᓴᕐᓗ ᑯᑐᒐᔾᔪᕐᓂᖓ ᖃᐅᔨᒪᔾᔭᐅᖅᑎᐊᖅᐳᖅ ᑭᓯᐊᓂ ᒥᒃᓵᒋᐊᖅᑎᑦᑎᑦᑕᐃᓕᒫᔪᑎᓂᒃ ᐊᑐᓕᖅᑎᑕᐅᔪᖅᑲᖅᐸᑦ. AEM-ᑯᑦ ᖃᐅᖑᔨᔅᑲᓐᓂᕐᓂᐊᕐᓂᕋᐃᓯᒪᓪᓚᓇᒃᐳᑦ ARD -ᒥᒃ ᐊᒻᒪ ML-ᒥᒃ ᐅᔾᔨᖕᓂᐊᕐᕕᖕᒥ ᐊᑐᖅᑕᐅᑐᐃᓐᓇᓇᐊᓖᑦ ᐊᖅᑯᑎᒃᑯᓪᓗ (ᓵᕐᓗ, ᐅᔾᔨᒃᑕᕐᕕᖕᓂ); ᓯᕗᓂᒃᓴᑦᑎᓐᓂ ᖃᐅᔨᓴᕈᑕᐅᔪᑦ ᑲᑎᖅᓱᖅᑕᐅᔪᑦ ᐊᑐᖅᑕᐅᓂᐊᖅᐳᑦ ᓇᓗᓇᕈᓐᓃᖅᑎᑦᑎᓇᓱᒡᓗᑎᒃ ᑐᓴᒃᓴᓇᔭᐅᔪᓂᒃ ᐅᔾᔨᐃᑦ ᖃᓄᐃᑦᑑᓂᖏᓐᓂᒃ ᐊᖏᓂᓇᔭᐅᓇᓯᒋᔭᐅᔪᓪᓗ ᐱᔾᔪᑎᒋᓪᓗᒋᑦ ᐊᒃᑕᖅᑕᐅᕙᓪᓕᐊᕙᒃᑐᑦ ᐅᔾᔮᒃᑦ. ᓄᓇᕗᑦ ᒐᕙᒪᖓ-ᐊᕙᑎᓕᕆᔨᒃᑯᓐᓂ ᐱᓕᕆᐊᖑᓪᒪᕆᒍᒪᔪᓂ ᒪᓕᒋᐊᓕᖕᓂᒃ ᐋᖅᑭᒃᓯᐃᕐᑯᔨᕗᑦ ᐃᒪᕐᒧᑦ ᓚᐃᓴᓐᓯᔭᐅᔪᒧᑦ ᑐᓐᓂᔭᐅᒃᐸᑦ.

ᒋ. ᐅᐸᓗᖓᐃᔭᐅᑎᑦ

ᓄᓇᕗᑦ ᒐᕙᒪᖓ-ᐊᕙᑎᓕᕆᔨᒃᑯᓐᓂ ᐅᒃᐱᕈᓱᒃᐳᑦ AEM-ᑯᑦ ᑯᕕᔪᖅᑲᕐᓂᖅᐸᑦ ᐅᐸᓗᖓᐃᔭᐅᑎᓂᒃ ᓈᓪᓚᒍᓯᒋᔭᐅᓪᓗᑎᒃ. ᑭᓯᐊᓂ, ᕖᕝᕗᐊᕆ 13, 2008-ᒥ ᐱᓕᕆᕝᕙᑎᓄᑦ ᑐᓂᖅᑯᑎᒋᓚᐅᖅᑕᕗᑦ, ᓄᓇᕗᑦ ᒐᕙᒪᖓ-ᐊᕙᑎᓕᕆᔨᒃᑯᑦ ᐃᓚᒋᓐᓂᒃ ᐅᖃᐅᓯᖃᓚᐅᕐᒪᑕ ᐋᖅᑭᒋᐊᕈᑕᐅᑐᐃᓐᓇᓇᐊᓕᖕᓂᒃ ᐸᕐᓇᒃᑕᐅᓯᒪᔪᒧᑦ. AEM-ᑯᑦ ᐊᖏᖃᑎᖃᓚᐅᖅᐳᑦ ᐃᓚᓕᐅᔾᔨᔪᒪᓪᓗᑎᒃ ᐊᑐᓕᖁᔭᑦᑎᓐᓂᒃ ᐋᖅᑭᒋᐊᖅᓯᓂᐊᕐᓂᕋᐃᓪᓚᓇᒃᐳᓪᓗ ᐸᕐᓇᒍᑕᐅᔪᒥᒃ ᐱᔭᓇᐊᖃᓕᕐᖓᑦ (ᐊᕐᖂ ᐊᑕᐅᓯᐊᕐᓗᒍ).

ᐊᒻᒪᓗᑦᑕᐅᖅ, ᓄᓇᕗᑦ ᒐᕙᒪᖓ-ᐊᕙᑎᓕᕆᔨᒃᑯᑦ ᐅᖃᐅᓯᖃᓚᐅᕆᕗᑦ ᐅᐸᓗᖓᐃᔭᐅᑎᓄᑦ ᐸᕐᓇᒃᑕᐅᓯᒪᔪᓄᑦ ᑯᕕᔪᖅᑲᔪᐊᕐᓂᖅᐸᑦ. AEM-ᑯᑦ ᐃᒪᐃᖅᑯᓯᒪᕗᑦ ᓴᓇᔭᕆᐊᖃᒃᑲᓐᓂᖅᑎᑕᐅᓗᑎᒃ ᓄᓇᒥ ᓴᓇᔭᐅᓯᒪᔪᑦᓂᒃ ᑐᖅᑯᕐᕕᐅᒃᑕᑦᑕᕐᓂᐊᖅᑐᒥᒃ ᑲᒪᒋᔭᐅᕝᕕᐅᓂᐊᖅᑐᒥᓪᓗ ᑯᕕᔭᐅᔪᓂᒃ. ᐊᕙᑎᓕᕆᔨᒃᑯᑦ ᑲᓇᑕᒥ ᐃᓱᒫᒎᑎᒋᔭᐅᔪᖅ ᑕᒪᑐᒪ ᒥᒃᓵᓄᒃ ᑭᐅᔾᔪᑎᒋᓗᒍ, AEM-ᑯᑦ ᓇᓗᓇᐃᖅᓯᓚᐅᖅᐳᑦ ᐱᒋᐊᖅᑎᑦᑎᓂᐊᕐᓂᖏᓐᓂᒃ ᐅᐸᓗᖓᐃᔭᐅᑎᒋᔭᐅᓂᐊᖅᑐᓂᒃ ᑯᕕᔪᖅᑲᕐᓂᖅᐸᑦ, ᓱᓕ ᕿᒥᕐᕈᔭᐅᔭᕆᐊᖅᑲᕐᓂᖓᓄᑦ ᓇᓗᓇᐃᖅᓯᓯᒪᙱᑦᑐᑦ. ᓄᓇᕗᑦ ᒐᕙᒪᖓ-ᐊᕙᑎᓕᕆᔨᒃᑯᑦ ᑖᒃᑯᓂᖓ ᐱᓕᕆᐊᖑᓪᒪᕆᒍᒪᔪᓂᒃ ᐋᖅᑭᒋᐊᖅᑕᐅᕐᑯᔨᕗᑦ ᕿᒥᕐᕈᔭᐅᓗᑎᒡᓗ ᐅᔾᔨᖕᓂᐊᕐᕕᖕᒥ ᑯᕕᔪᖅᑲᕐᓂᖅᐸᑦ ᐅᐸᓗᖓᐃᔭᐅᑎᓂᒃ, ᒪᓕᒃᑕᐅᓂᐊᖅᑐᓂᒃ ᐃᒪᕐᒧᑦ ᓚᐃᓴᓐᓯᔭᐅᔪᒧᑦ ᓴᖅᑭᑎᑕᐅᒃᐸᑦ.

ᒥ. ᖃᐅᔨᓴᖅᐸᓪᓕᐊᓂᖅ

ᓇᐅᑦᑎᖅᓱᕐᓂᕐᒧᑦ ᐸᕐᓇᐅᑎᒋᔭᐅᔪᑦ ᐃᒪᐅᑉ ᐱᐅᓂᖓᓄᑦ ᐊᔾᔨᒌᙱᑦᑐᓄᓪᓗ ᐊᒃᑕᕐᕕᒋᔭᐅᕙᒃᑐᓂ ᓈᒻᒪᒋᔭᐅᓚᐅᖅᐳᑦ. AEM-ᑯᑦ ᐱᓕᕆᐊᖃᕐᓂᐊᕐᓂᕋᓪᓚᓇᓚᐅᖅᐳᑦ ᐆᓇᖅᑎᑦᑎᔭᓇᖅᑐᒥᒃ ᖃᐅᔨᓴᖅᐸᓪᓕᐊᓗᑎᒃ ᑐᖅᑯᖅᓯᕖᕆᔭᐅᒃᑲᑦᑕᕐᓂᐊᖅᑐᒥᒃ ᑭᓯᐊᓂ ᐃᓂᖓᑕ ᕿᑎᐊ ᖁᐊᖅᓯᒪᓕᖅᐸᑦ ᐊᕙᑎᖓᓂᓗ ᖁᐊᖅᓵᕐᓇᖅᑎᑦᑎᙱᓪᓗᓂ. ᑭᓯᐊᓂ, ᓇᓗᓇᐃᖅᑕᐅᑎᐊᓚᐅᙱᓪᒪᑦ ᓄᓇᕗᑦ ᒐᕙᒪᖓ-ᐊᕙᑎᓕᕆᔨᒃᑯᑦ ᖃᐅᔨᓴᖅᐸᓪᓕᐊᔪᒪᓂᐊᕐᒪᖔᑕ ᐆᓇᔪᖅᑎᑦᑎᔪᓇᕐᓂᖓᓂᒃ ᓄᓇᐅᑦᑐ ᑲᐅᔨᓴᖅᑕᐅᓂᖓᓂᒃ ᐋᕿᑦᑎᐊᖅᓯᒪᔭᕆᐊᖃᕐᓂᖓᓂᒃ ᑖᒃᑯᓄᖓ ᒪᕿᕐᖓᓄᑦ ᐊᒃᑕᕐᕕᐅᒃᑲᑦᑕᕐᓂᐊᖅᑑᖓᓄᑦ. ᐃᓱᒪᒋᓪᓗᒍ ᐱᓪᒪᕆᐅᔪᑦ ᓴᖅᑭᑦᑐᔾᔭᖅᑐᑦ ᖃᐅᔨᓴᖅᑕᐅᕙᓪᓕᐊᔪᖃᓚᐅᖅᑎᓪᓗᒍ, ᓄᓇᕗᑦ ᒐᕙᒪᖓ-ᐊᕙᑎᓕᕆᔨᒃᑯᑦ ᐃᒪᐃᖅᑯᔨᕗᑦ ᐱᓕᕆᐊᖑᓪᒪᕆᒍᒪᔪᑦ ᐊᑐᓕᖅᑯᔭᐅᔪᓪᓗ ᒪᓕᒋᐊᓕᖕᓂᒃ ᐋᕿᒃᓯᓗᑎᒃ ᐃᒪᕐᒧᑦ ᓚᐃᓴᓐᓯᔭᐅᔪᒧᑦ ᓴᖅᑭᑎᑕᐅᒃᐸᑦ.

ᓂ. ᒪᑐᔭᐅᓂᖕᒐ ᐅᑎᖅᑎᑦᑎᓂᕐᓗ

ᓄᓇᕗᑦ ᒐᕙᒪᖓ-ᐊᕙᑎᓕᕆᔨᒃᑯᑦ ᕿᒥᕐᕈᓚᐅᖅᐳᑦ ᓯᕗᓕᖅᐹᒥ ᒪᑐᔭᐅᓂᖕᒐᓄᑦ ᐅᑎᖅᑎᑦᑎᓂᕐᒧᓪᓗ ᐸᕐᓇᒍᑕᐅᔪᒥᒃ, ᐸᕐᓇᒍᑎᒋᔭᐅᔪᕐᓗ ᓈᓪᓚᒍᓯᒋᔭᐅᓪᓗᓂ. AEM-ᑯᑦ ᒪᓕᓪᒪᕆᒍᒪᓚᐅᖅᐳᑦ ᐃᒪᐅᑉ ᐱᐅᓂᖕᒐᓄᑦ ᒪᓕᒃᑕᐅᕙᒃᑐᓂᒃ ᐅᔾᔨᖕᓂᐊᕐᕕᖕᒧᑦ ᐊᒃᑐᖅᑕᐅᓯᒪᔪᓂᒃ ᐃᒪᕐᒧᑦ ᑕᓯᐅᑉ ᐃᓗᐊᓂ ᐳᖅᑐᓯᒋᐊᖅᓯᒪᔪᒥ ᓱᕋᐃᓚᐅᙳᕆᑎᓪᓗᒋᑦ ᐃᒪᕐᓗ ᑯᕕᓗᓂ ᐊᕙᑎᒋᔭᖕᒐᓄᑦ. AEM-ᑯᑦ ᖃᐅᔨᓴᖅᐸᓪᓕᐊᓂᐊᕐᓂᕋᓚᐅᕆᕗᑦ ᐅᑎᖅᐸᒃᑐᓂᒃ ᐅᔾᔨᖕᓂᐊᕐᕕᐅᓯᒪᔪᑦ ᑭᓯᐊᓂ ᐱᕈᖅᐸᓪᓕᐊᑎᐊᖅᐸᒃᑐᑦ ᖃᐅᔨᒪᔭᐅᑎᐊᓕᖅᐸᑦ. ᐊᓯᐊᒃᑲᓂᖅ, ᓄᓇᕗᑦ ᒐᕙᒪᖓ-ᐊᕙᑎᓕᕆᔨᒃᑯᑦ ᐅᒃᐱᕈᓱᒃᐳᑦ ᐱᓪᒪᕆᐊᓘᓂᖕᒐᓂᒃ AEM-ᑯᑦ ᐊᓯᔾᔨᕆᐊᖅᓯᓗᑎᒃ ᒪᑐᔭᐅᓂᖕᒐᓄᑦ ᐸᕐᓇᐅᑎᒋᔭᐅᔪᓂᒃ TSF-ᒧᑦ ᑐᕐᖑᕕᓂᒃ, ᒪᕐᕉᓪᓗ TSF, ᐊᒻᒪ ᒪᕐᕉᒃ RSF ᐊᐅᓚᓂᓇᔭᖕᒐᓄᑦ

ᖃᐅᔨᒋᐊᕐᓂᕐᒧᑦ ᐊᐅᓚᑦᑎᓂᕐᒧᑦ ᐸᕐᓇᒃᑕᐅᓯᒪᔪᑦ ᐋᖅᑭᒋᐊᖅᑕᐅᓗᑎᒃ. ᑖᒃᑯᐊ ᐱᓕᕆᐊᖑᓪᒪᕆᒍᒪᔪᑦ ᐊᑐᓕᖅᑯᔭᐅᔪᓪᓗ ᐋᖅᑭᒃᓯᔪᓇᐊᖅᑲᖅᐳᑦ ᒪᓕᒋᐊᓕᖕᓂᒃ ᐃᒪᕐᒧᑦ ᓚᐃᓴᓐᓯᔭᐅᔪᒧᑦ ᓴᖅᑭᑎᑕᐅᒃᐸᑦ.

ᑐᑭᓕᐅᓇᔭᐅᔭᓇᐊᓕ!

INTRODUCTION

The Meadowbank gold mine project proposed by Meadowbank Mining Corp., a subsidiary of the Agnico-Eagle Mines Ltd. or AEM (previously Cumberland Resources Ltd.), is located 70 km north of the Bake Lake Hamlet. This project includes three open pits to mine 22 million tonnes (Mt) of gold ores over eight years. The project projects to produce 182 Mt of mine waste rock, 9 Mt of till and 22 Mt of tailings. The mine has approximately twelve years of mine life, and will have in average 344 people on site. There will be various maintenance and waste management facilities on the mine site.

The Meadowbank project has been subject to considerable review, including that by GN-DOE, during the environmental review process conducted by the Nunavut Impact Review Board (NIRB) between March 2003 and November 2006. On November 17, 2006, the project was approved by the Minister of Indian and Northern Affairs Canada based on recommendations provided by NIRB. A Project Certificate with terms and conditions was then issued to AEM with a requirement that a number of these terms and conditions be implemented through appropriate regulatory approvals such as the water license if issued by NWB.

AEM's Meadowbank water license application and its 73 supporting documents were distributed for review in December 2007, with GN-DOE providing technical comments to NWB on Feb. 13, 2008. GN-DOE also participated in Technical Meetings and a Pre-Hearing Conference to discuss technical and hearing related issues, held in Baker Lake on Feb. 26 & 27, 2008. In response to parties' technical comments, AEM provided a written response on Mar. 7, 2008, which addressed most of GN-DOE original concerns. It was determined by NWB that the Public Hearing would focus on issues related to the following 16 topics.

1. Nunavut Impact Review Board Schedule 12.4.3 Determination;
2. Type B Water Licence Applications;
3. Term of Licence;
4. Type and Amount of Security;
5. Compensation Agreements;
6. Construction;
7. Geotechnical and Permafrost Issues;
8. Water Use;
9. Water Management; Water Quality

10. Waste Management;
11. Geochemistry;
12. Tailings Storage Facility;
13. Contingency Planning;
14. Monitoring;
15. Closure and Reclamation; and
16. Other Issues.

GN-DOE's final intervention for the Public Hearing includes issues on 7 of the 16 topics relevant to our legislative mandate and responsibilities (i.e., *Environmental Protection Act*, *Wildlife Act* and Canada-wide Standards).

REVIEW SCOPE

In undertaking this review GN-DOE provided comments that are consistent with our legislative responsibilities and national commitments as follows:

Section 5(1) of Nunavut's *Environmental Protection Act* (EPA) states: "subject to subsection (3), no person shall discharge or permit the discharge of a contaminant into the environment." A contaminant is any heat, noise, vibration or substance that endangers the health and/or safety of person, wildlife, plants or the physical environment. There are a number of regulations, guidelines and policies that have been developed and/or enacted under the EPA, these are indicated below:

- *Spill Contingency Planning and Reporting Regulations*
- *Guideline for Dust Suppression*
- *Guideline for the General Management of Hazardous Waste in Nunavut*
- *Guideline for Industrial Waste Discharges in Nunavut*
- *Guideline for Ozone Depleting Substances*
- *Guideline for Contaminated Site Remediation*
- *Guideline for Air Quality - Sulphur Dioxide & Suspended Particulates*
- *Contingency Planning and Spill Reporting in Nunavut: a Guide to the New Regulations*
- *Guideline for the Management of Waste Antifreeze*
- *Guideline for the Management of Waste Asbestos*
- *Guideline for the Management of Waste Batteries*
- *Guideline for the Management of Waste Paint*
- *Guideline for the Management of Waste Solvents*
- *Guideline for the Management of Waste Lead and Lead Paint*
- *Disposal Guidelines for Fluorescent Lamp Tubes*

The Nunavut *Wildlife Act* (WA) assigns GN-DOE responsibility for wildlife management within Nunavut. Management means the regulation of wildlife populations and their habitats for the purpose of sustaining them for human use or enjoyment in perpetuity. This *Act* requires GN-DOE to ensure mitigation and regulation of land-use activities having significant impacts on wildlife and wildlife habitat.

Additionally, the GN is signatory to the *1998 Canada Wide Accord on Environmental Harmonization* and the *Canada-wide Environmental Standards sub-agreement*, to provide for the continual development, improvement, and attainment of priority Canada-wide Standards (CWS's) for environmental quality and human health across Canada, consistent with the vision and principles of the Accord. The following CWS's are relevant to this project:

- *Canada-Wide Standards for Dioxins and Furans*
- *Canada-Wide Standards for Mercury Emissions*
- *Canada-Wide Standards for Petroleum Hydrocarbons (PHC) in Soil*

ACRONYM

AEM	Agnico-Eagle Mines Ltd.
ARD	Acid Rock Drainage
BTEX	Benzene, Toluene, Ethylbenzene and Xylene
CCME	Canadian Council of Ministers of the Environment
CCME FWAL	Canadian Water Quality Guidelines for the Protection of Fresh Water Aquatic life
CWS	Canada-Wide Standards
DOE	Department of Environment
EC	Environment Canada
EPS	Environmental Protection Act
GN	Government of Nunavut
GNWT	Government of the Northwest Territories
KIA	Kivalliq Inuit Association
ML	Metal Leaching
NPAG	Non-Potentially Acid Generating
NIRB	Nunavut Impact Review Board
NP	Neutralization Potential
NWB	Nunavut Water Board
PAG	Potentially Acid Generating
PCB	Polychlorinated Biphenyl
RBC	Rotating Biological Contacting
RSF	Rock Storage Facility
TPH	Total Petroleum Hydrocarbons
TSF	Tailings Storage Facility
WA	Wildlife Act

COMMENTS AND RECOMMENDATIONS

The issues discussed below are based on the Meadowbank water license application, its 73 supporting documents, and the following additional references:

- Meadowbank Type A Water License – Response to Pre-Hearing Commitments (referred to as AEM Response Doc.) Mar. 7, 2008 response
- Review of Meadowbank Mining Corp. Water License Application for the Meadowbank Gold Mine Project (referred to as GN-DOE Feb. 13, 2008 Submission)

A. TYPE B WATER LICENSE APPLICATIONS

Issue # 1: Type B Water Licenses

Comment

In the GN-DOE submission dated Feb. 13, 2008, GN-DOE recommended that the terms and conditions from previously issued Type B water licenses (8BC-TEH, 8BC-MEA, and 3BC-TEH), be incorporated into a single enforceable Type A water license for the Meadowbank mine. If the Type A is issued, this will allow management, mitigation and monitoring of waste and water related issues be dealt with holistically.

However, AEM has also been requesting that their Type B water license related to mineral exploration (2BE-MEA) be amended to allow pre-development of the Meadowbank mine project. AEM in the AEM Response Doc. (GNDOE-2 issue) requested that terms related to 2BE-MEA be incorporated into the Type A license if the amendment is approved. GN-DOE does not support the terms of this Type B exploration license being incorporated into the Type A license. GN-DOE believes that project components related to exploration are not part of the Meadowbank mine project scope.

Recommendation

- If a Type A water license is issued for the Meadowbank mine project, GN-DOE recommends that NWB incorporates the terms and conditions of approved Type B water licenses (8BC-TEH, 8BC-MEA, and 3BC-TEH), but not the Type B exploration water license (2BE-MEA).

B. WATER MANAGEMENT & WATER QUALITY

Issue # 2: Water Quality

Comment

During years 4 to 8 of mine operation, discharge to the environment in the Vault area is planned from the Vault Attenuation Pond through a diffuser into the Wally Lake. In the Portage area, from years 1 to 5, discharge during operation to the environment will be from the Portage Attenuation Pond into the Third Portage Lake. AEM indicated that discharges would comply with the Metal Mining Effluent Regulations (MMER) at the diffuser discharge points. AEM further indicated that for Wally Lake, the discharge from the diffuser will meet the Canadian Council of Ministers of the Environment (CCME) guidelines or existing background concentrations at the receiving environment. Specifically, AEM committed to comply with the CCME: Canadian Water Quality Guidelines for the Protection of Fresh Water Aquatic Life (FWAL) or the existing background water quality within a 30 meter radius of the Wally Lake diffuser. However, it is unclear if AEM is planning to apply the same standard (i.e., CCME-FWAL guidelines or the existing background concentrations at a 30 m radius mixing zone) to the Third Portage Lake diffuser discharge. GN-DOE raised this concern in our Feb. 13, 2008 submission.

In response to the GN-DOE concern, AEM indicated in the AEM Response Doc. (GNDOE-8 and EC-6 issues) and at the Technical Meetings on Feb. 26 and 27, 2008 in Baker Lake, that they will ensure water quality meets either the CCME-FWAL within a 30 meter radius of the two diffusers or site-specific criteria approved by Environment Canada for certain parameters.

Recommendation

- AEM is committed to meet, as a minimum, standards prescribed in the MMERs at the Wally Lake and the Third Portage Lake diffuser discharge points. AEM has further committed to meet the CCME-FWAL criteria within a 30 m radius of the two diffusers or site specific discharge criteria approved by Environment Canada for certain parameters. These commitments should form a condition of the water license if issued.

Issue # 3: Water Management

Comment

AEM proposed water management and mitigation measures that would control and minimize discharges to the environment for water in contact with mine site components. AEM also proposed treatment methods to address concentrations of total suspended solids, metals and cyanide species. It is identified by AEM that during years 6 to closure, there are possible exceedances of cyanide and copper in the Portage area. There is also a concern of potential arsenic exceedances. AEM committed to implement the treatment if required to address these concerns. In our Feb. 13, 2008 submission, GN-DOE commented that even the best models can not compare with the evaluation of operational monitoring data that allows for refined predictions and management plans. GN-DOE therefore recommended that AEM refines predictions and management plans including treatment needs based on operational monitoring data.

AEM in their response document (GNDOE-10 issue) concurred with the GN-DOE comment stating that they would refine and update water quality predictions and management plans including treatment needs based on operational monitoring data.

Recommendation

- AEM is committed to refine and update water quality predictions and management plans including treatment needs based on operational monitoring data; these updates should be provided to NWB for review. This should form a condition of the water license, if issued.

C. WASTE MANAGEMENT

Issue # 4: Sewage Treatment & Management

Comment

AEM indicated that during mine construction, treated sewage will be discharged to a fishless lake, namely the Tear Drop Lake. The Lake will also be built up in depth with installation of impervious walls to serve as a stormwater management pond (AEM Response Doc.: Appendix K). AEM has stated that a Rotating Biological Contacting (RBC) sewage treatment system will be installed and able to meet a range of effluent quality (i.e., 4 to 40 mg/L for Biochemical Oxygen Demand and Total Suspended Solids). However, there was no further discussion on specific effluent discharge criteria that AEM intends to meet.

In response to the GN-DOE concern, AEM in the AEM Response Doc. (GNDOE-12 issue) committed to meet the *Guidelines for the Discharge of Treated Municipal Wastewater in the Northwest Territories* for their discharge to Tear Drop Lake, and to monitor the quality of treated sewage effluent prior to the discharge. However, upon mine closure, it is unclear whether or not AEM plans to restore the lake (i.e., water quality) to appropriate standards.

Recommendation

- AEM has committed to meet the *Guidelines for the Discharge of Treated Municipal Wastewater in the Northwest Territories* for the discharge of treated sewage effluent to the Tear Drop Lake, and to monitor the quality of the treated effluent prior to the discharge. This should form a condition of the water license, if issued.

- AEM should restore ensure that water quality in Tear Drop Lake meets appropriate standards, such as the CCME: Canadian Water Quality Guidelines for the Protection of Freshwater Aquatic Life, upon closure. This should form a condition of the water license if issued.

Issue # 5: Landfill and Landfarm Design/Construction Drawings

Comment

In the GN-DOE Feb. 13, 2008 submission, we raised a concern that design/construction drawings were not finalized for the two landfills and a landfarm. AEM indicated at the Technical Meetings in Baker Lake (Feb. 26 and 27 of 2008), and in the AEM Response Doc. (GNDOE-14 & GNDOE-16 issues) that final construction drawings will be based on the final design drawings which were stamped by professional engineers registered in the Northwest Territories, and that

the construction drawings will be provided to NWB for review prior to construction. AEM further indicated that a final design drawing for landfill #2 is not available because the landfill will be built upon a structure to be built during mine operation. AEM proposed that the final design drawing will be provided for review a minimum of one year before commissioning the landfill.

Recommendation

- AEM has committed to submit, construction drawings for the landfill #1 and the landfarm prior to construction of these facilities. Prior to construction, AEM should also provide both final design and construction drawings for Landfill#2, to NWB for review. Additionally, as-built drawings should be submitted for both the landfills and the landfarm. These should form a condition of the water license if issued.

Issue # 6: Landfill Management

Comment

AEM has outlined a list of materials to be landfilled including asbestos, white goods (i.e., refrigerators), and light bulbs (i.e., fluorescent lamp tubes); however, AEM did not provide detailed landfilling procedures for these items. In the GN-DOE Feb. 13, 2008 submission, we referred AEM to the GN-DOE's *Guideline for the Management of Waste Asbestos*, *Guideline for Ozone Depleting Substances*, and our policy for disposal of fluorescent lamp tubes. AEM responded in the AEM Response Doc. (GNDOE-15 issue) with a commitment to handle, segregate and manage wastes according to relevant federal and territorial guidelines.

Recommendation

- AEM's commitment to comply with relevant government guidelines or policies in the context of landfilling asbestos, equipment containing ozone-depleting substances, and fluorescent lamp tubes, should form a term of the water license, if issued.

Issue # 7: Remediation Guidelines for Hydrocarbon Contaminated Soil

Comment

In the GN-DOE Feb. 13, 2008 submission, we requested that AEM clarifies which remediation guidelines will be used, and the parameters that will be measured, for remediation of hydrocarbon contaminated soil. AEM responded in the AEM Response Doc. (GNDOE-18 issue) that they intend to utilize both the CCME *Canada-Wide Standards for Petroleum Hydrocarbons (PHC) in Soil*, and the GN-DOE *Guideline for Contaminated Site Remediation*. AEM plans to measure hydrocarbon Fraction 1, Fraction 2, total petroleum hydrocarbon (TPH), and BTEX (benzene, toluene, ethylbenzene and xylene). AEM may also measure lead and polychlorinated biphenyl (PCB) where appropriate. GN-DOE is satisfied with AEM's response, and recommends this form a term of the water license if issued.

Recommendation

- AEM's commitment to measure hydrocarbon Fraction 1, Fraction 2, total petroleum hydrocarbon (TPH), and BTEX (benzene, toluene, ethylbenzene and xylene), and to meet the *Canada-Wide Standards for Petroleum Hydrocarbons (PHC) in Soil* and the GN-DOE

Guideline for Contaminated Site Remediation for hydrocarbon contaminated soil remediation, are recommended to form a term of the water license if issued.

D. GEOCHEMISTRY

Issue # 8: Acid Rock Drainage and Metal Leaching

Comment

AEM has developed sampling and management plans for potentially acid generating (PAG) materials to mitigate the potential for acid rock drainage (ARD) and metal leaching (ML). The management plans include separation of PAG from non-PAG (NPAG) waste rock, permafrost encapsulation of PAG waste rock, subaqueous disposal of PAG and ML tailings, and flooding of pits. Additionally, AEM developed a Water Quality and Flow Monitoring Plan (Doc. 450) to track changes in drainage chemistry.

In the GN-DOE Feb. 13, 2008 submission, we raised a concern about how changing ARD test methods during re-evaluation of ARD and ML may affect rock characterization and volume calculations of waste rock. Specifically, we were concerned how changing NP (neutralization potential) determination using on-site analysis would affect current information about rock characterization and waste rock volumes. The difference in test results may affect overall plans for management of waste rock. AEM indicated in the AEM Response Doc. (GNDOE-3 issue) that all additional test results collected in the future will be used to verify the current information.

Additionally, in the Feb. 13, 2008 submission, GN DOE identified a concern about insufficient testing for ARD and ML potential of materials along the all-weather road (i.e., quarry sites). AEM responded in the AEM Response Doc. (GNDOE-6 issue) that they will be "surveying rock quality and drainage water chemistry at each quarry site over the summer of 2008 in order to finalize quarry closure plans."

Recommendation

- AEM's commitment to re-evaluate ARD and ML potential and to confirm that rock characterization and waste rock volume calculations are still valid, is recommended to form a term of the water license if issued.

- AEM's commitment to survey rock quality and drainage water chemistry at quarry sites along the all-weather road in order to address ARD and ML concerns, and to finalize quarry closure plans, is recommended to form a term of the water license if issued.

Issue # 9: Metal Leaching

Comment

In the GN-DOE Feb. 13, 2008 submission, we identified the lack of correlation between total metal concentration and metal leaching rate for waste rock. Without this correlation, it is difficult to understand metal leaching potential of non-potentially acid generating (NPAG) materials, which are to be used for construction/capping materials in some instances.

AEM responded in the AEM Response Doc. (GNDOE-5 issue) that they will continue to conduct total metal analysis and Shake Flask Extraction tests. They are also committed to continue operating humidity cells and large field cells to better understand metal leaching potential and leaching rate for both NPAG and potentially acid-generating (PAG) materials. By including some of these PAG materials in the programs discussed above, AEM can understand maximal metal leaching rates possible from materials on site. Finally, AEM indicated that this additional data will be used to update water quality predictions.

Recommendation

- AEM is committed to re-evaluate metal leaching potential by establishing correlations between total metal concentration and metal leach rates for NPAG materials. AEM, in this re-evaluation, also committed to include some PAG materials to understand maximal leach rates. The requirement to conduct and report on these re-evaluations should form a term of the water license, if issued.

E. CONTINGENCY PLANNING

Issue # 10: Landfarm Management & Contingency Planning

Comment

Soil contaminated by spills is to be treated in an on-site landfarm and remediated to CCME *Canada-Wide Standards for Petroleum Hydrocarbons (PHC) in Soil*, and the GN-DOE *Guideline for Contaminated Site Remediation.* However, in their application AEM made reference to a temporary stockpile area, to be used in circumstances where there is insufficient capacity to deal with a large spill.

In GN-DOE's Feb. 13, 2008 submission, we requested that AEM provides details of this proposed emergency stockpile area. AEM responded in the AEM Response Doc. (GNDOE-17) that the tank farm will be utilized as a temporary stockpile area; however, no further details are provided. GN-DOE believes that AEM should provide further details on their contingency plan; for example, how long will contaminated materials be stored at the tank farm, considering that the tank farm bermed area will have reduced capacity in the event of a spill? What is the implication of this storage on the liner within the tank farm? Will the liner be degraded, as contaminants from the spills can potentially disintegrate the liner?

Furthermore, in their response to Environment Canada, AEM indicated their intention to initiate contingency planning for the construction of additional land farms to handle large spills (AEM Response Doc.: EC-16 issue). However, AEM provided no evidence of this contingency planning exercise such as location, size, and design. Additionally, AEM needs to consider the construction needs of the facility such as manpower and materials, to ensure that they are able to build the facility rapidly in an emergency situation. Preparedness for rapid construction of an additional landfarm will reduce the time that the contaminated material is contained within the berms of the tank farm.

Recommendation

- AEM should provide contingency planning details for large spills where the landfarm can not accommodate contaminated materials; these details can be incorporated into the Landfarm Design and Management Plan. This is recommended to form a term of the water license if issued.

Issue # 11: Spill Contingency Planning

Comment

In the GN-DOE Feb. 13, 2008 submission, we indicated that the Spill Contingency Plan was generally satisfactory. However, we noted some areas in the plan that could be improved; detailed comments are provided in the GN-DOE submission. Specifically we noted possible weaknesses related to contingency measures in the case of dam failure, third party response, all-weather road operation, emergency contact information, spill response training, general spill prevention measures, site maps, and others. AEM in the Technical Meetings in Baker Lake indicated their willingness to incorporate our comments and improve the plan; however, this commitment has not been noted in the AEM Response Doc. (GNDOE-20 issue).

Additionally, in the Feb. 13, 2008 submission, GN-DOE recommended AEM revised their spill plan, if needed, when the mine becomes operational. Subsequent to this, AEM should re-visit and update the plan yearly. AEM concurred with GN-DOE in the AEM Response Doc.

Recommendation

- AEM's commitment to revise the Spill Contingency Plan as needed (yearly as a minimum), is recommended to form a termof the water license if issued. The revisions should also include the detailed GN-DOE comments submitted on Feb. 13, 2008.

F. MONITORING

Issue # 12: Thermal Monitoring & Tailings Storage Facility

Comment

AEM predicted that frozen conditions within the Tailing Storage Facility (TSF) will take 10 to 15 years. Once frozen conditions are established, the ability of the tailings to produce acid drainage and leach metals will be minimized. However, in our Feb 13, 2008 submission, GN-DOE highlighted uncertainty about the duration of AEM's commitment for post-closure thermal monitoring to ensure frozen condition will remain in perpetuity.

The AEM Response Doc. (GNDOE-25 issue) indicated:

> "AEM will continue to monitor the thermal conditions within the Tailings Storage Facility (TSF) through the final decommissioning phase, through the placement of the proposed waste rock cover and through the post closure time period until it can be clearly demonstrated that the underlying tailings mass has fully frozen and no longer presents an environmental risk to the surrounding environment. For the purposes of estimating reclamation liability it has been assumed that this will require a minimum post closure time period for this monitoring of 15 years,"

GN-DOE is satisfied with AEM's commitment to monitor the thermal condition of the TSF until the TSF core is frozen, and the TSF does not present an environmental risk.

Recommendation
AEM is committed to conduct thermal monitoring to ensure the TSF core post closure will be frozen in perpetuity. Their commitment for a minimum of 15 years post-closure monitoring along with an annual reporting requirement, should form a term of the water license, if issued. Furthermore, the license should include a requirement for extended post-closure monitoring if results demonstrate any uncertainty regarding frozen conditions within the TSF.

Issue # 13: Monitoring & Rock Storage Facilities

Comment
Waste rock from mining operations will be disposed of in two waste rock storage facilities. The establishment of frozen conditions within these facilities will minimize the likelihood of acid rock drainage and metal leaching. In the GN-DOE Feb. 13, 2008 submission, we identified the absence of a commitment from AEM to monitor the thermal condition of the Portage Rock Storage Facility (RSF), and the Vault RSF. The AEM Response Doc. (GNDOE-25 issue) stated that AEM "intend to monitor thermal conditions and chemical drainage conditions in both RSFs to verify physical and chemical stability. Mitigative measures will be employed if monitoring indicates that chemical and physical stability are not present."

Recommendation:
- AEM is committed to monitor thermal conditions and chemical/ physical stability in the Portage RSF and the Vault RSF; mitigation measures will be implemented if these stable conditions are not present. These commitments should form a term of the water license , if issued

G. CLOSURE & RECLAMATION

Issue # 14: Dikes Breaching & Water Quality

Comment
Upon closure, AEM has proposed rapid filling of open pits to submerge potentially acid generating pit walls and waste rock materials, limiting ARD and ML reactions. Dikes separating the flooded pits from nearby lakes will eventually be breached. In the GN-DOE Feb. 13, 2008 submission, we raised uncertainty about the standard of water quality in the flooded pits at the point where the dikes are breached. GN-DOE recommended that water quality in pit lakes meet the CCME - Canadian Water Quality Guidelines for the Protection of Fresh Water Aquatic life (FWAL) prior to breaching of dikes.

AEM in the AEM Response Doc. (Appendix E titled: Errata – Meadowbank Gold Project Preliminary Closure and Reclamation Plan) stated the following:

> "… AEM proposes to breach the dikes only where water quality within the pit lakes meets CCME Aquatic Life Guidelines (CCME, 2006), background lake concentrations, or other

risk based assessment criteria as determined through aquatic effects studies and/or an approvals process initiated through the Nunavut Water Board and KIA."

GN-DOE supports AEM's proposal to meet CCME-FWAL guidelines, or site specific criteria approved by Environment Canada for certain parameters, within pit lakes prior to dike breaching.

Recommendation
GN-DOE supports AEM's proposal to meet CCME-FWAL guidelines, or appropriate site specific criteria approved by Environment Canada in pit lakes prior to dike breaching. We recommend that this form a term of the license, if issued.

Issue # 15: Closure Plans for Tailings Storage Facility & Rock Storage Facilities

Comment
In our Feb. 13, 2008 submission, GN-DOE indicated that closure success of the TSF and the two RSFs is based on assumptions such as correct rock characterization, and establishment of frozen condition within the cores of the TSF and the RSFs. However, there are underlying field realities that may affect these assumptions during mine operation. GN-DOE therefore recommended that AEM revises closure plans for the TSF and the two RSFs as operational information and management plans are revised.

AEM, in the AEM Response Doc. (GNDOE-24 issue), indicated that they will update their closure plan for the Vault RSF based on additional rock characterization information; however, it is unclear to GN-DOE if this commitment to update closure plans will also be applied to the TSF and the Portage RSF.

Recommendation
- AEM should revise closure plans for the TSF and the two RSFs as operational information and management plans are revised. This is recommended to form a term of the water license if issued.

Issue # 16: Re-vegetation & Reclamation

Comment
In our Feb. 13, 2008 submission, GN-DOE raised concerns about the short duration proposed for re-vegetation monitoring post closure; AEM previously proposed that they would monitor re-vegetation until year 11 post closure.

The AEM Response Doc. (GNDOE-22 issue) stated that "AEM will continue to monitor the conditions at the reclaimed Meadowbank site, including the success of revegetation measures until the landowner (the KIA) and the NWB are satisfied that the site is chemically and physically stable and that the ongoing risk of release of contaminants to the surrounding environment has been adequately addressed." AEM further stated that they understand re-vegetation on disturbed sites will take many decades, and propose that "once the reclaimed site is confirmed to be physically and chemically stable, then vegetation monitoring can be completed through site visits at intervals of five to ten tears apart."

GN-DOE is satisfied with AEM's response.

Recommendation

- AEM's commitment to monitor vegetation recovery on the disturbed mine site until re-vegetation success, is recommended to form a term of the water license if issued.