

Review of Meadowbank Water License Application:

Public Hearing

Presentation to NWB
by Department of Environment
Government of Nunavut (GN-DOE)

April 15 – 17, 2008

Baker Lake



GN-DOE Legislated Role

Environment Protection Act

- The *Environmental Protection Act* provides GN-DOE with the authority to regulate the discharge of contaminants and their impact on the environment.

Wildlife Act

- This Act requires GN-DOE to ensure mitigation and regulation of land-use activities having significant impacts on wildlife and wildlife habitat.
- Most issues continue to be dealt with through NIRB project certificate requirements not the water license.

CCME: *Canada-Wide Standards (CWS)*



Issue Topics:

- **Water Management & Water Quality**
- **Waste Management**
- **Geochemistry**
- **Contingency Planning**
- **Monitoring**
- **Closure & Reclamation**



Issue # 1: Water Quality

- Discharge standards to the environment from Portage Diffuser & Wally Lake Diffuser.

Recommendation:

- AEM is committed to meet MMER standards at Wally Lake & Third Portage Lake diffuser discharge points.
- AEM is also committed to meet CCME – Fresh Water Aquatic Life guidelines within a 30 m radius of the two diffusers or site specific discharge criteria.
- Commitments above are recommended to form a term of the water license if issued.



Issue # 2: Water Management

- Refining and updating of water quality predictions and water management plans.

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.
 - Commitment above is recommended to form a term of the water license if issued.



Issue # 3: Sewage Treatment & Management

- Treated sewage discharge standard & restoration of the storm water management pond (Tear Drop Lake).

Recommendation:

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



Issue # 4: Landfill and Landfarm Design / Construction / As-Built Drawings

- Submission and review of these drawings.

Recommendation:

- AEM has committed to submit, construction drawings for the landfill #1 and the landfarm prior to construction.
- AEM should also provide both final design and construction drawings for Landfill#2.
- As-built drawings should be submitted for both the two landfills and the landfarm.
- Above should form a term of the water license if issued.



Issue # 5: Landfill Management

- Landfill management and relevant government 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 # 6: Remediation Guidelines for Hydrocarbon Contaminated Soil

Recommendation:

- AME is also committed to meet appropriate remediation standards:
 - *Canada-Wide Standards for Petroleum Hydrocarbons (PHC) in Soil*
 - *GN-DOE Guideline for Contaminated Site Remediation*
- For remediation of hydrocarbon contaminated soil, AEM is committed to measure appropriate parameters:
 - hydrocarbon Fraction 1, Fraction 2, total petroleum hydrocarbon (TPH), and BTEX (benzene, toluene, ethylbenzene and xylene).
- Above commitments should form a term of the license if issued.



Issue # 7: Acid Rock Drainage (ARD) and Metal Leaching (ML)

- Re-evaluation of ARD/ML potential.

Recommendation:

- AEM's commitment to re-evaluate ARD/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, to address ARD/ML concerns, and to finalize quarry closure plans, is recommended to form a term of the water license if issued.



Issue # 8: Metal Leaching

- Lack of correlation between total metal concentration and metal leaching rate for waste rock.

Recommendation:

- AEM is committed to re-evaluate metal leaching potential by establishing correlations between total metal concentration and metal leach rates for NPAG (Non-Potentially Acid Generating) materials.
 - This is recommended to form a term of the license.



Issue # 9: Landfarm Management & Contingency Planning

- Landfarm capacity and contingency planning to handle large spills.

Recommendation:

- AEM should provide contingency planning details for large spills where the landfarm can not accommodate contaminated materials; This is recommended to form a term of the water license if issued.



Issue # 10: Spill Contingency Planning

Recommendation:

- AEM's commitment to revise the Spill Contingency Plan as needed (yearly as a minimum), is recommended to form a term of the water license if issued.
- The revision of the Spill Contingency Plan should incorporate GN-DOE's detailed comments submitted on Feb. 13, 2008. This recommendation is advised to form a term of the water license if issued.



Issue # 11: Thermal Monitoring & Tailings Storage Facility (TSF)

- Uncertainty about post-closure thermal monitoring period for the TSF.

Recommendation:

- AEM is committed to conduct thermal monitoring (a minimum of 15 years) to ensure the TSF core post closure will be frozen in perpetuity, and does not present environmental risk; a license requirement.
- Annual reporting of thermal monitoring results, is recommended to form a term of the water license if issued.



Issue # 12: Thermal Monitoring & Rock Storage Facilities (RSF)

Recommendation:

- AEM is committed to monitor thermal conditions and chemical/ physical stability in the Portage RSF and the Vault RSF.
- AEM also commits to implement mitigation measures if these stable conditions are not present.
- These commitments should form a term of the water license if issued



Issue # 13: Dikes Breaching & Water Quality

- Water quality in pit lakes prior to breaching of dikes.

Recommendation:

- AEM's proposal to meet CCME-Fresh Water Aquatic Life guidelines, or site specific criteria in pit lakes prior to dike breaching.
 - The site specific criteria above should be approved by Environment Canada.
- These commitment and recommendation above are recommended to form a term of the license if issued.



Issue # 14: Closure Plans for Tailings Storage Facility (TSF) & Rock Storage Facilities (RSF)

- Updating closure plans for TSF and RSFs.

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 # 15: Re-vegetation & Reclamation

- Concerns for short monitoring period for re-vegetation.

Recommendation:

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



Summary

This Water License Application, and its supplemental information submitted by AEM describe measures to mitigate and manage potential impacts resulting from the Meadwobank project. The Application generally provides satisfactory mitigation and management procedures for all waste streams and hazardous materials.

We GN-DOE thanks the Nunavut Water Board for the opportunity to comment on this license application.



Nakurmik!

Thank you!

Any comments or Questions?

