

Kitikmeot Inuit Association

Technical Submission

Doris North Type A Water Licence Amendment Application



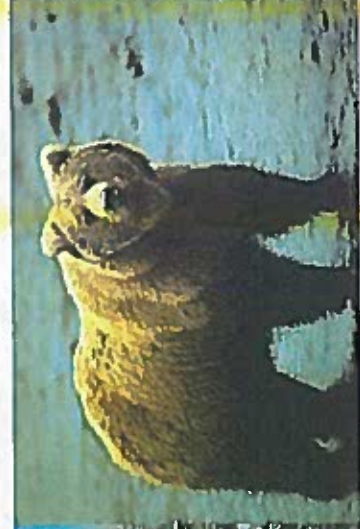
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Technical Overview

This presentation provides an summary of KIA's Technical Submission of TMAC's amendment application regarding:

- Major Issues related to Type A Water Licence
- Final Environmental Assessment Guidelines
- KIA statement
- Recommendation





Major Issues to the Project and Type A Water Licence: Water Quality Predictions

Site-Wide Water and Load Balance:

Site-Wide Water and Load Balance (KIA-11A)

- **Issue:** The water quality modeling does not consider the effects of climate change & varying hydrological conditions.
- **Recommendation:** Update the water quality model to include climate change and define hydrological conditions that will affect the water load balance.
- **Response and Status:** TMAC ran variable hydrology models with sensitivity analysis.
- The review of changes in wet & dry condition indicated no impact on the load balance model or effluent quality. The issue is resolved.



Site-Wide Water and Load Balance (KIA-11B)

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Site-Wide Water and Load Balance (KIA-11C)

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Major Issues to the Project and Type A Water Licence: Water Quality Predictions



Groundwater Quality and Volume Predictions:

Hydrology (KIA-10)

- **Issue:** How groundwater inflow will be handled, including post closure.
- **Recommendation:** Provide details on the variance in the volume & quality of groundwater inflow and its management.
- **Response and Status:** The requested information was provided to KIA's satisfaction and the issue is resolved.

Major Issues to the Project and Type A Water Licence: Water Quality Predictions



Roberts Bay Discharge:

Potential Interaction with Marine Environment (KIA-7)

- **Issue:** Saline groundwater & water from TIA have the potential to interact with marine environment.
- **Recommendation:** Variance in water discharge, chemical differences & the potential impact on seawater should be addressed in further detail.
- **Response and Status:** The information on groundwater quality and the saline variation of ocean discharge was below CCME guidelines. This issue is resolved.

Major Issues to the Project and Type A Water Licence: Roberts Bay Discharge Monitoring



Aquatic Monitoring Framework (AEMP and EEM Program):

Roberts Bay Discharge and AEMP (KIA-6)

- **Issue:** Roberts Bay hosts waterfowl and mammals that feed on benthic food items like bivalves. Update AEMP in Roberts Bay to protect wildlife.
- **Recommendation:** AEMP changes should include increased sampling locations and frequency for diffuser outfall.
- **Response and Status:** The sensitivity analysis of water load balance indicates TIA effluent concentrations are below CCME and MMER guidelines. Proposed sampling locations in Robert Bay and the TIA were found to adequate for AEMP. This issue is resolved.

Major Issues to the Project and Type A Water Licence: Roberts Bay Discharge Monitoring



Effluent Discharge Criteria:

Mixing Zone Delineation (KIA-8)

- **Issue:** The methods used to predict water quality in Roberts Bay does not determine the size & properties of the mixing zone where water quality will be above the CCME guidelines.
- **Recommendation:** The size & shape of the mixing zone, where water quality will be above CCME guidelines should be modeled & presented, using 75th percentile concentrations.
- **Response and Status:** 3-D modeling of mixing zones, plume movement, and water quality concentrations using 75th percentile concentrations indicates that CCME water quality requirements were met within 1 m of the diffuser. The issue is resolved.



Prediction of Environmental Effects on Water Quality (KIA-12)

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Increasing Contaminants of Potential Concern in **Roberts Bay (KIA-9)**

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Major Issues to the Project and Type A Water Licence: Waste Rock and Tailings



Use of Waste Rock in construction:

Waste Rock Management Plan:

No Issues

Major Issues to the Project and Type A Water Licence: Waste Rock and Tailings



Tailings Management:

TIA Expansion Capacity (KIA-1)

- **Issue:** Does the TIA have sufficient capacity for Madrid/Boston projects?
- **Recommendation:** TMAC should provide an assessment of TIA capacity for future projects & should include these project in the CEA.
- **Response and Status:** Additional studies for TIA & Robert's Bay will be addressed in the Phase 2 DEIS.
- This issue is resolved.

Major Issues to the Project and Type A Water Licence: Waste Rock and Tailings



Tailings Management:

TIA Wildlife Attraction and Deterrence (KIA-2)

- **Issue:** Attraction to, and consumption of tails or vegetation impacted by tailing leachates by wildlife.
- **Recommendation:** An adaptive management program detailing the frequency, thresholds, and methods of monitoring and mitigation.
- **Response and Status:** TMAC has agreed to develop a monitoring plan to detect wildlife attraction and feeding in or near the TIA. This includes a risk assessment and implementation of wildlife deterrents as necessary.
- The issue is resolved.



TIA NPAG Tailings Cover Depth (KIA-5)

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Major Issues to the Project and Type A Water Licence: Waste Rock and Tailings



Tailings Monitoring:

TIA Floatation Tailings Dust Fall and Leaching (KIA-3)

- **Issue:** Attraction to, and consumption of tails or vegetation impacted by tailing leachates by wildlife.
- **Recommendation:** An adaptive management program detailing the frequency, thresholds, and methods of monitoring and mitigation.
- **Response and Status:** A sensitivity analysis of TIA water quality indicates a very low concentration of toxic substances that are well below CCME guidelines.
- The issue is resolved.

Major Issues to the Project and Type A Water Licence: Waste Rock and Tailings



Tailings Monitoring:

TIA Elevated Parameters of Potential Concern Upon Closure(KIA-4)

- **Issue:** Water and load balance model uses median values to predict water quality & loadings.
- **Recommendation:** Use 75th percentile concentrations for model inputs for “enriched” conditions.
- **Response and Status:** A sensitivity analysis of the water & load balance using the 75th percentile concentrations for model inputs resulted in toxicity levels being below CCME and MMER guidelines, and being non-toxic to Caribou and Birds. This issue is resolved.

Major Issues to the Project and Type A Water Licence: Waste Rock and Tailings



Underground Disposal of Impacted Waste Rock:

No Issues

Major Issues to the Project and Type A Water Licence: Mitigation Measures



Doris Lake and Outflow Water Levels:

Doris Lake Water Levels (KIA-13)

- **Issue:** Groundwater inflow could affect Doris Lake water levels, fisheries, spawning habitat, and egg incubation.
- **Recommendation:** Include baseline information to update the effects assessment, guide mitigation and monitoring plans.
- **Response and Status:** Additional data collection to quantify effects to fish & fish habitat in Doris Lake was done and reviewed. The issue is resolved.

Major Issues to the Project and Type A Water Licence: Mitigation Measures



Construction and Operation of Roberts Bay Discharge

Pipeline:

Road and Water Crossing:

Sediment Quality:

Effluent Buoyancy: **KIA-12**

Dust Suppressant of Tailings:

No Issues

Major Issues to the Project and Type A Water Licence: Water Treatment



Water and Sewage Treatment:

No Issues

Major Issues to the Project and Type A Water Licence: Management Plans and Reports



Content of Plans:

The KIA has been involved with and reviewed the EEM Program, AEMP, GWMP, TIA OMS Manual, and the proposed changes to the SNP and found everything to be adequate.

No Issues



Major Issues to the Project and Type A Water Licence: Management Plans and Reports:

Updates to Plans:

Approval of Plans:

No Issues



Final Environmental Assessment Guidelines:

Eco-Systemic & Socio-Economic Effects:

- Framework Agreement and IIBA,
- Net Smelter Royalty Agreement,
- Water and Wildlife Compensation Agreement,
- Mineral Rights Agreement with NTI, and
- KIA shareholdings in TMAC Resources Inc.
- All of this creates substantial benefits for Inuit in the Kitikmeot region.



KIA Statement:

- KIA has resolved all technical issues brought forward to the Technical Meeting through our ongoing collaboration with TMAC Resources Inc.
- The final resolution of reclamation security is still pending at this time.



KIA Statement:

- The KIA and TMAC have signed a water compensation agreement as part of the Framework Agreement for the Doris North Project.
- This agreement addresses Inuit Article 20 rights and TMAC compensation obligations.
- Direct compensation is provided to KIA for land access, quarry materials and water usage.
- KIA also receives royalties from gold production as does NTI.



KIA Statement:

- KIA currently has \$3.49 million is letters of credit from TMAC.
- KIA also currently has \$8.0 million Corporate Guarantee under Schedule K of the Commercial Lease for Doris North for a total of \$11.49 million.
- In addition to this, KIA has a General Security Agreement (GSA) under Schedule I of the Commercial Lease providing a claim on TMAC Assets.



KIA Statement:

- The KIA considers the current amount of security to be inadequate for the Doris North mine site.
- KIA's engineering consultant reviewed TMAC and INAC Reclamation Security cost estimates.
- Major conclusions:
 - \$28.94 million quantum is reasonable and more accurate.
 - \$24.20 and \$4.74 million land and water split (84% Land, 16% Water).
 - Residual risks and cost escalation identified with a contingency of 20%, KIA agrees with TMAC quantum and contingency.



KIA Statement:

- INAC's reclamation cost estimate is \$44.12 million.
- \$43.42 million (98%) is IOL and \$0.7 million (2%) is Crown Land.
- Of the \$43.42 million, \$19.71 million (45%) was allotted to land liability and \$23.72 million (55%) was allotted to water liability.
- KIA finds this split of land and water liability to be unreasonable given its experience with the Orbit 25 brine spill.



KIA Statement:

- Given this and the substantial benefits that will be obtained for Inuit from the project we believe that the amendment of the Doris North Type A Water Licence is warranted and in the best interest of the Inuit people pending the satisfactorily resolution of reclamation security and the split of land and water liability.

Recommendations:

- KIA recommends approval of the TMAC application for amendment to Certificate 003 for the Doris North Project.
- Thank you
- Questions?

