Indian and Northern Affairs Canada
Affaires indiennes et du Nord Canada

Water Resources Division
Nunavut Regional Office
Iqaluit, NU X0A 0H0

Our File: 9545-2 / CIDMS 150183
Your File: 1BR-ROB

May 25, 2007

Richard Dwyer
Licensing Trainee
Nunavut Water Board
Gjoa Haven, NU X0B 1J0

Re: 1BR-ROB / Indian and Northern Affairs Canada / Roberts Bay Project / licence application

On behalf of Indian and Northern Affairs Canada (INAC) I have reviewed the water licence application 1BR-ROB for the Roberts Bay Project. The following advice has been provided pursuant to INAC's mandated responsibilities for the enforcement of the *Nunavut Waters and Nunavut Surface Rights Tribunal Act* (NW&NSRT), *Arctic Waters Pollution Prevention Act* (AWPPA), and the *Department of Indian Affairs and Northern Development Act* (DIAND Act).

The Contaminated Sites Directorate of Indian and Northern Affairs Canada has applied for a Class B licence to support reclamation activities at the abandoned Robert's Bay Silver Mine and Ida Bay Silver Deposit, situated approximately 115 kilometres (km) southwest of the Hamlet of Cambridge Bay. Specifically, this project area has a general coordinate of 68˚10'45" north latitude by 106˚33'29" west longitude and is adjacent to the Melville Sound in Nunavut's Kitikmeot Region. The Robert's Bay Silver Mine was operational for a short duration from 1973 to 1975, producing approximately 74,500 ounces of flotation silver concentrate. Indian and Northern Affairs Canada is implementing the Government of Canada's Federal Contaminated Sites Action Plan to clean up this project area because it is federally owned and poses a risk to human health and the environment.

The reclamation activities proposed for both the Robert's Bay Silver Mine site and the Ida Bay Silver Deposit are listed in point form below:

<u>Robert's Bay Silver Mine Site</u>

a) Remaining infrastructure;
b) Tailings Pond;
c) Waste Rock;
d) Non-hazardous waste;
e) Hazardous waste;
f) Petroleum and metals impacted soil; and,
g) Mine openings

Ida Bay Silver Deposit

a) Remaining infrastructure;
b) Non-hazardous waste;
c) Hazardous waste;
d) Waste rock;
e) Mine openings; and,
f) Marine sediments

Indian and Northern Affairs Canada, Contaminated Sites Directorate, has submitted a licence application, exploration and remote camp supplementary questionnaire, a remediation action plan, and corresponding appendices for review.

The following comments are provided for your consideration when reviewing this application:

a) The submitted executive summary states that a comprehensive Remediation Action Plan was developed in 2006 for the clean-up of the Robert's Bay Silver Mine and Ida Bay Silver Deposit. This Plan was developed using information gathered from previous environmental site assessments, which include geotechnical, geophysical, and geochemical assessments. INAC Water Resources does not believe a comprehensive abandonment and reclamation plan has been provided and recommends that the proponent review the applicability of this Plan. The application is a series of possible means to reclaim the project area along with previous assessment reports. The Nunavut Water Board should receive a complete, comprehensive licence application that clearly defines which reclamation activities will be practiced and the mitigative measures that will be implemented to protect the quality of freshwater resources. INAC Water Resources requests that the proponent provide copies of all final plans associated with the Robert's Bay Project for review before proceeding.

b) The proponent should apply for longer licence time-frame. A three (3) year licence is inappropriate due to foreseen licence monitoring program requirements.

c) The proponent should develop a project specific monitoring program and provided it to the Nunavut Water Board for review. INAC Water Resources recommends that this monitoring program address specific monitoring activities (i.e., What will be monitored, how will this be achieved, what is the frequency of monitoring, who collect monitoring data?), provide global positioning system coordinates of all monitoring stations, and provide a detailed schematic map which identifies all monitoring station sites in relation to project infrastructure and topography. INAC Water Resources recommends that this project specific monitoring program be made available to licence application reviewers.

d) Sealed engineer design plans should be provided for all construction activities which apply to surface water management. This includes the capping of mine adits, modification tailings impoundment areas, and construction of non-hazardous material landfills.

e) The Remediation Action Plan makes reference to the possible application of waste rock backfill or permanent bulkheads on mine openings (sections 5.1.8 and 5.2.3). INAC Water Resources recommends that the proponent clearly state to the NWB how it will reclaim mine openings (adits and vent raises) and provide design plans signed by an engineer registered in Nunavut. The proponent must instill confidence that precipitation runoff will not enter and collect within the underground mine workings which can result in the subsurface movement of water, permafrost degradation, and contamination of freshwater resources.

f) According to section 5.1.2.2 of the Remediation Action Plan, at least two (2) metres of waste rock will be placed on the drained tailings impoundment area to promote permafrost within the recovered tailings and the impoundment area's berms will be graded to an adequate slope. INAC Water Resources recommends that the proponent provide the NWB with the tailings impoundment area construction design plans, signed by a engineer registered in Nunavut, along with data which supports the likelihood of freeze-back permafrost conditions within the tailings be provided to prior to construction activities at the tailings impoundment area.

g) Potential landfill sites are provided in section 3.1.7 of the Remediation Action Plan. The proponent should clearly state its plan for the disposal of non-hazardous solid waste. The topography and cover designs of selected borrow sites should be signed by a professional engineer registered in Nunavut. The management of precipitation runoff is critical when encapsulating waste material so as to minimize leachate production.

h) Potential aggregate material borrow sites are addressed in section 3.1.7 of the Remediation Action Plan. The proponent should list the quarry sites and present monitoring data to demonstrate that the quarry material is not potentially acid generating. The proponent should indicate how it will confirm that runoff conforms to the Canadian Council of Ministers of the Environment Canadian Water Quality Guidelines for the Protection of Aquatic Life. All monitoring samples should be analyzed at a CAEL laboratory and be provided to the Nunavut Water Board for review.

i) The proponent intends to pump water from the tailings impoundment area into the Robert's Bay underground mine adit prior to improving the tailings impoundment area design. The proponent should provide an operations and maintenance plan for review which describes how this water will be transferred, which contingency plans are in place, what treatment measures will be practiced if deemed necessary, and what triggers a requirement to treat this water (as per Table 7.1).

j) The proponent has stated that it will construct two (2) independently operated temporary lagoons for the treatment of camp sewage generated by project staff (refer to Supplementary Questionnaire, section 2). These lagoons will have 45 day

individual storage capacities and treat sewage to a discharge criteria presented in the Supplementary Questionnaire. The proponent should indicate how the design capacity was estimated and state the capacity (storage volume) of each lagoon, and provide engineered sewage lagoon design plans, an operations and maintenance plan, sampling protocols, abandonment and reclamation plan, and the actual locations of the sewage lagoons to the Nunavut Water Board prior to their construction.

k) The proponent should provide a project specific spill contingency plan. This Plan should include the INAC Water Resources officer as an emergency contact [Andrew Keim, office telephone (867) 975-4289], applicable Material Safety Data Sheets, a detailed schematic diagram of the fuel storage area in relation to nearby water resources, project infrastructure, and baseline topography, and a copy of the Government of Nunavut Spill Report Form accessible on the Nunavut Water Board public registry.

l) The proponent is expected to provide an abandonment and reclamation plan for its project. INAC Water Resources recommends that this plan be provided to the Nunavut Water Board for review.

Indian and Northern Affairs Canada suggest that the NWB request the proponent to notify it any changes in the project, as further review may be necessary. Please contact me should you have any questions or comments at (867) 975-4555 or by email at abernethyd@inac-ainc.gc.ca.

Sincerely,

ORIGINAL SIGNED

David W. Abernethy
Water Resources Coordinator

Cc. Jim Rogers, Manager of Water Resources – Indian and Northern Affairs Canada, Nunavut Regional Office