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NWB1NAN0208
Our file - Notre référence
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May 20, 2005

Manager of Licensing
Nunavut Water Board
P.O. Box 119
Gjoa Haven, NU, X0E 1J0

Via electronic mail to:
licensing@nwb.nunavut.ca

Re: Review of Nanisivik Mine, Instrument Installation and Contingency Plan

On behalf of Indian and Northern Affairs Canada (INAC), I would like to thank the Nunavut Water Board (NWB) for the opportunity to provide comment on the *Instrument Installation and Contingency Plan* (the Plan) for the Nanisivik mine site. This report was submitted by CanZinco Ltd. (The Licencee) in accordance with Water Licence NWB1NAN0208 (the Current Licence). INAC's review of this report was undertaken in consultation with EBA Engineering Consultants Ltd.

INAC is of the opinion that the proposed suite of instruments is appropriate. Should, however, the NWB approve the disposal of hydrocarbon contaminated sediment from the K-Baseline area into the East Open Pit, INAC recommends the installation of a monitoring well slightly downslope of the East Open Pit. Additional comments on the plan follow below:

1. Some of the existing ground temperature cables (thermistor and thermocouple cables) do not penetrate completely through the tailings in the West Twin Disposal Area (WTDA) (see BGC report report titled, 2004 Geotechnical Inspection of Waste Containment Dikes dated November 10, 2004). No depths for new instruments were provided in the instrumentation plan. It is strongly recommended that all future thermistor cables in the WTDA penetrate far enough below the original ground surface to be able to define the depth of zero amplitude in ground temperatures, and to confirm that all of the tailings materials are indeed frozen.

2. BGC suggest that monitoring of some of the existing ground temperature instruments in the WTDA be discontinued, citing the poor quality of some of the readings close proximity to other instruments, and the minimal cooling of materials. INAC recommends that data continue to be obtained from all working instruments, as the entire WTDA is yet to be

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capped/reclaimed and the ground temperature profiles will change post reclamation. The working instruments will provide an additional degree of confirmation that the capping system is working as designed, and that freeze back in occurring as anticipated.

3. It is noted that the determination the tailing are frozen (no talik exists) is based on <0ºC temperatures, without regard for the potential of freeze point depression due to solutes in the porewater. Information in Report G.5, West Twin Disposal Talik Investigation, notes that water samples from the Surface Cell showed freeze point depression of 0.2ºC to as much as 1.2ºC. It is therefore recommended that future interpretation with respect to the thawed/frozen state of tailings consider the freeze point depression of porewater. It is further suggested that the proposed installation of the new instruments affords an opportunity to characterize the porewater chemistry and determine the freeze point depression applicable to each instrument location. This information could be used to evaluate the boundary of the actual frozen/unfrozen boundary from the gathered data.

4. Frost gauges will define the location of the 0ºC isotherm. As discussed in Point 3 above, however, this may not necessarily coincide with the actual location of the frozen/unfrozen boundary. If freeze point depressions exist, the definition of the frozen/unfrozen boundary using frost tubes may be inappropriate.

5. The monitoring wells installed in the surface cell are apparently no longer functioning because either the heat trace cables have malfunctioned, or because there were never any installed because the wells were considered preliminary short-term installations. As the description of the new installations appear to be similar to that of the originals, it is recommended that the Licencee provide the requisite assurances and/or design changes to ensure the continued performance of the new instruments.

Please do not hesitate to contact the undersigned at (867) 975-4555 or hawkinss@inac-ainc.gc.c if there are any questions or concerns with respect to this submission.

Best regards,

Original signed by:

Stephanie Hawkins, M.Sc.
Qikiqtani Regional Coordinator