Acres International Limited
500 Portage Avenue, 6th Floor
Winnipeg, Manitoba, Canada • R3C 3Y8
Tel: 204-786-8751 • Fax: 204-786-2242
www.acres.com

April 7, 2004
P13808.03

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

Attention: Ms. Dionne Filiatrault, P.Eng.,
Manager of Technical Services

Dear Dionne:

Nanisivik Mine
Review of 2003 Geotechnical Inspection of Waste Containment Dikes

At the request of Nunavut Water Board (NWB), Acres International Limited (Acres) has reviewed the 2003 Geotechnical Inspection Report of the Waste Containment Dikes for the Nanisivik Mine. The inspection report was prepared by BGC Engineering Inc. (BGC) for Nanisivik Mine, a division of Canzinco Ltd. (Nanisivik Mine) in October 2003. It was prepared as a partial fulfillment of Part H, Item 6 of the Water License No. NWB1NAN0208, and issued by NWB on October 1, 2002.

Background

Mr. Gerry Ferris, P.Eng. of BGC conducted the site inspection on August 30 to September 1, 2003. An on-site project memorandum, containing the initial findings of the inspection and some comments on the required maintenance work to be completed by Nanisivik Mine was issued by BGC on September 11, 2003. The final report, titled "Nanisivik Mine, A Division of Canzinco Ltd. – 2003 Geotechnical Inspection of Waste Containment Dikes", was issued on October 28, 2003.

The containment dike structures that were inspected consist of West Twin Dike, East Twin Lake diversion dike and channel, East Adit Treatment Facility dikes (treatment pond and retention pond dikes), dump ponds (mill and upper pond dikes), day tank farm spill containment berm, and tank farm spill containment berm.

Review and Comments on BGC Inspection Report

We generally concur with the findings and recommendations indicated in BGC's inspection report. We also want to emphasize the importance of the repair and rehabilitation work on some of the dikes that were requested in the report, and were previously outlined by BGC on their on-site memorandum to Nanisivik Mine on September 11, 2003.

It is important that Nanisivik Mine took actions to repair the damages caused by the rainstorm event in August 2003, and in accordance to the steps outlined in the BGC's report. In particular, the repair work should be given priorities for both dikes (treatment pond and retention pond) in the East Adit

Treatment Facility, the West Twin Lake polishing pond dike, and the East Twin lake diversion dike and channel. This repair work should have been done to avoid further damages that may cause greater concerns prior to any potential upcoming rainfalls in the summer of 2004.

A temporary repair to the Mill dump pond berm should have also been carried out to prevent further removal of the tailings inside the pond into the Twin Lake Creek, should another rainfall storm occur in the summer 2004. It is understood that the tailings pipeline is not in operational now.

A few minor comments are provided in the following.

Climatic Information (p. 2)
The 24 h PMP value, based on 1998 Golder report is stated to range between 140 mm and 210 mm. The 2002 Golder report on the hydrological study at Nanisivik for the spillway at the West Twin Dike Area only mentioned the 140 mm value for the PMP. This value has been used for the design of the West Twin Dike spillway. The 2002 report did not explain on how the 140 mm was derived, and why the 210 mm value was dismissed from the analysis. Please comment on the validity of the 210 mm PMP value.

West Twin Dike – Monitoring (p.12)
As per recommendation by BGC, instrumentation monitoring of the piezometers, thermocouples and thermistors are important for the studies of the talik and dissipation of pore water pressure during the freeze back. As indicated in the report, routine visual inspection by site staff is also required. The site personnel must have some basic knowledge about information that is critical for the stability of the dike during their routine inspections. Observations, such as increase of seepage flow, minimum freeboard, erosion, slumping, cracking and development of any sinkholes along the dike that raise concerns or suspicions to their stability must be recorded, and reported immediately. If necessary, it must be further followed up by a review from a geotechnical engineer.

Test Cell Dike (p. 7, 13)
Relative water levels between the test cell dike and the reservoir should be reported, as seepage through the dike was discussed/mentioned.

East Adit Treatment Facility (p.8, pp.16-18, Figures 13 and 14)
The inspection should indicate or briefly report about the water level in the pond, as the seepage through the ponds is a function of the head of water in the pond. Photos show that the water levels in the two ponds were low. Are the water levels shown in the photos typical for the summer time periods since the mine shut its operation in 2002?

We hope that the above review and comments are suitable for your purpose. Should you have any further questions or concerns regarding the above, please do not hesitate to contact me.

Yours very truly,

RAH:sep

R. A. Halim, P.Eng.
Senior Geotechnical Engineer

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