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Nunavut Water Board
P.O. Box 119
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Attention: Ms. Dionne Filiatrault, P.Eng.,
Manager of Technical Services

Dear Dionne:

Lupin Gold Mine
Review of 2003
Annual Geotechnical Inspection

At the request of Nunavut Water Board (NWB), Acres International Limited (Acres) has reviewed the 2003 Annual Geotechnical Inspection Report for the Lupin Gold Mine. The inspection report was prepared by BGC Engineering Inc. (BGC) for Kinross Gold Corporation (Echo Bay Mines Ltd - the Mine.) in September 2003. It was prepared as a partial fulfillment of Part D, Item 6(g) of the Water License No. NWB1LUP0008, and issued by NWB for the Lupin Mine in Nunavut.

Background

Mr. James Cassie, P.Eng. of BGC conducted the inspection of the Tailing Containment Area (TCA) of the mine on July 29 and 30, 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 the Mine was issued by BGC on July 30, 2003. The final report, titled "Kinross Gold Corporation - 2003 Geotechnical Inspection of Perimeter Tailings Dams and Waste Containment Dikes", was issued on September 19, 2003.

The Lupin mine utilizes a number of low embankment dams which form five containment cells for solid accumulation of tailings deposits, Pond 1 which acts as the supernatant storage accumulation, and the adjacent Pond 2 which holds and conditions the water prior to its discharge to the environment.

The perimeter dams at Lupin's TCA consists of Dams 1A,1B and 1C to the west of Pond 2, Dam 2 to the north of Pond 2, Dam 3 on the east end of the tailings area, bordering with Boomerang Lake, and Dams 4, 5 and 6 to the south of the TCA. Dams 1A, 2 and 4 have heights of 8, 5.5 and 6 m above the surrounding tundra at its downstream end, respectively. The remaining perimeter dams vary

between 1.5 and 2.5 m in maximum height. BGC inspected all of the above dams and a summary report and photographs were prepared for each of the dams.

The internal dams within the TCA consist of a J Dam which separates Pond 1 and 2, K Dam to the south of Pond 2, L Dam which separates Cell 3 and 4, M Dam to the east of Pond 2, and Dam 3D which is located between Pond 1 and Cells 1 and 2. These dams were briefly reported by BGC (Appendix 1), but no summary report or photographs were presented in the main report.

There are also other internal dams within the TCA: N Dam to the north of the M Dam, and Dams 3C and 3E which are partition dams between the Cell 1 and 2. None of these dams were discussed in the report.

As requested by the Mine, BGC's 2003 inspection also included two emergency tailings dump ponds, and two sewage containment dikes. In their report, BGC indicated that they never inspected these structures previously, and no records were available for review at the time of the inspection.

Tailings Dump Pond No. 1 is located next to the sewage containment area. Tailings Dump Pond No. 2 is located approximately 2 km from the Lupin Mine Complex, along the access road to the TCA. The two sewage lakes and associated containment dikes are located just southwest of the Lupin Mine complex.

Review and Comments on BGC Inspection Report

We generally concur with the finding and recommendations indicated in BGC's inspection report. Based on the field observations and photographs presented in the report, there are no significant concerns related to the performance of the perimeter tailings dams.

The cover letter that was prepared by Echo Bay Mines Ltd., and accompanied the 2003 inspection report indicates that remedial work as suggested by BGC was completed for all of the perimeter tailings dams in August 2003. However, none were carried out in any of the internal tailings dam, as suggested in Appendix 1 of the report. The internal tailings dams may not affect the overall stability of the TCA. However, considerations should be given for rehabilitation work as suggested by BGC. Alternatively, an explanation or brief analysis must be provided to show that under a worst scenario, failures in any of the internal tailings dams would not results in overtopping of the perimeter tailings dams. While the stability of the internal tailings dams may not be critical, failures of these dams may result in slumping of the materials into the Pond 1 or Pond 2, hence raising the water level in these ponds. Breaching of J Dam will drain the water from Pond 1 to Pond 2. Such incidents may result in reduction of the freeboards of the perimeter tailings dams, or overtopping of these dams.

The crest elevation of the dams should be checked against the as-built elevation. This would help to determine whether settlement has occurred and if remedial work to top up the crest of the dam will be required. GPS kinematic survey elevations were established on most of the dams and reported in the 2000 Annual geotechnical inspection. Similar surveys may be carried out to compare the new

elevations to this survey data. As indicated in the inspection report and in the water license, a minimum freeboard of 1 m shall be maintained for the crest of the dam at all times. However, it is not known whether crest settlements may have occurred since they were last surveyed. No information is available on the current and actual freeboard of the dams during high water level conditions.

The 2003 inspection report also included inspections and recommended remedial work for the dump pond dikes and the sewage containment dikes. While these dikes are not covered under Part D, Item 6(g) of the Water License, remedial work for these dikes will be required as part of the closure and reclamation activities for the Mine.

Finally, as recommended by BGC, it is important that the site personnel must have some basic knowledge about information that is critical for the stability of the dam during their routine inspections. Observations, such as increase of seepage flow, minimum freeboard, erosion, slumping, cracking and development of any sinkholes along the dams 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.

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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