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NUNAVUT TUNNGAVIK INC. SUBMISSION TO THE NUNAVUT WATER BOARD FOR THE FINAL HEARING (June 2004, ARCTIC BAY) OF THE BREAKWATER RESOURCES RECLAMATION CLOSURE PLAN OF THE NANISIVIK MINESITE

As stated in our original submission for the July 2002 Public Hearings, the main issue from the NTI point of view is:

> To effectively ensure reclamation of the entire mine site, and address the various interests to have an alternate use of the Mine facilities will require a comprehensive plan for the reclamation. This will involve the proponent (Breakwater), the Government of Nunavut (GN), Dept of Fisheries and Oceans (DFO), and the community of Arctic Bay in coordinating their efforts. Only in this way will the reclamation of the Nanisivik mine site be possible, yielding the maximum benefit for the community and the people of Nunavut.

NTI understands that this site implicates multiple jurisdictions and responsibilities, and as such the current plan only addresses those parts of the site that fall under the responsibility of Breakwater Resources. However, we believe it is important to reiterate the point that effective reclamation of this site will require a comprehensive plan integrating the different jurisdictions and sites including the Mine, Mill, Tailings, landfills, the town site and road network, and the dock facility and associated infrastructure. We request that all parties come together to develop an overall plan for the decommissioning of this site in an appropriate manner to ensure the safety of the site for future uses.

Having stated this as a starting point we turn our attention to the specifics of the plan dealing with the responsibilities of the proponent Breakwater Resources Ltd.

A review of the documentation provided in the various reports and supporting documents that makes up the "Nanisivik Mine 2004 Reclamation and Closure Plan" was carried out by NTI with the technical assistance of AMEC Earth & Environmental, a division of

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AMEC Americas Limited. This review focused on the ability of the measures proposed in the plan to achieve the objectives of long-term safety and stability of the mine site. The review addresses various aspects of the Reclamation Closure Plan in complying with best practices for Arctic Environments in the context of multiple land use for the future.

In this review NTI has identified the following issues that require clarification and elaboration to ensure that the objectives stated above are met.

Monitoring issues:

1. **Frequency of monitoring during 5-year post reclamation period appears low.**
2. **Duration of monitoring is short. Many processes active on the site would not appear within this time frame**
3. **A much longer closure monitoring period is strongly recommended to adequately assess the impacts of the reclamation and closure activities**

- The frequency of monitoring appears to be appropriate for the 2-year reclamation period. During the 5-year closure period, the monitoring frequency is reduced to once or twice during the summer season for all forms of monitoring, which is considered to be very infrequent. *Assessment of the practicality of more frequent readings from instruments during the 5-year period is recommended, especially during the warmer periods of the year.* Doing more appropriate and frequent readings would give the proponent a better understanding of what is happening during the reclamation period. This would allow the proponent time to react in an appropriate fashion. NTI believes that that every effort should be made to provide employment and training to Arctic Bay residents to participate fully in the reclamation and monitoring process.
- A significant concern resulting from the audit of the Reclamation Closure Plan is the very short duration of monitoring before the comprehensive review planned for the year 2010. Many of the processes active on the site that could lead to adverse environmental impacts will take decades to manifest. Some of these processes are; freeze-back of the taliks in tailings, ARD and degradation of the shale material in the reclamation covers. The intent of the 2010 review is to provide predictions of the ultimate success of the reclamation and closure works based on the 5 years of monitoring records, currently planned to be at infrequent

intervals. It is strongly considered that it will be impossible to predict the ultimate fate of the reclamation measures at the mine site in 2010, given the complex inter-related processes taking place, particularly within the tailings facility. A much longer closure monitoring period is strongly recommended to adequately assess the impacts of the reclamation and closure activities. The concern for NTI is that the long-term liability for this site could be prematurely released from the mining company based on predictions that eventually turn out to be inaccurate. *For example in the DND Environmental Agreement for the DEW Line sites commits to a 3 phase monitoring program:*

Phase I: 5 years +, confirm equilibrium achievable.

Phase II: 5 to 25 years, verification of equilibrium achieved.

Phase III: at 25 years, Verification of effectiveness of remediation.

NTI is suggesting that a *similar* approach be applied to monitoring of the Nanisivik site.

- In general, the contingency plans for potential failure modes range from increased monitoring through increasing levels of intervention, which is an appropriate approach to contingency measures. The ultimate contingency for water quality is to treat any water that is not acceptable for release. This and many other contingency measures are really maintenance solutions not permanent fixes, and bear a considerable commitment of time and expense possibly for the foreseeable future.

Closing

With the assistance of the residents of Arctic Bay, interveners such as DFO, GN, INAC, the reclamation and monitoring program objective can be reached at a mutual understanding where all parties are satisfied with the process.

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