



Water Resources Division
Nunavut Regional Office
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June 13, 2011

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**Re: 2AM-JER0410 – Shear Diamonds (Nunavut) Corp. – Application for
Renewal – Indian and Northern Affairs Canada Intervention to June 20-21,
2011 Pre-Hearing Technical Meeting**

Aboriginal Affairs and Northern Development Canada (AANDC) would like to thank the Nunavut Water Board (the Board) for the opportunity to review the Shear Diamonds (Nunavut) Corp. (Shear) Type A water licence renewal application for its Jericho Project. On June 10, 2011 AANDC submitted a list of technical questions for consideration for the Pre-Hearing Technical Meetings scheduled for June 20-21, 2011 in Cambridge Bay, Nunavut.

Aboriginal Affairs and Northern Development Canada's role in the review of the Jericho Project Type A water licence application is to offer advice and insight relating to our department's responsibilities under the *Nunavut Waters and Nunavut Surface Rights Tribunal Act* and the *Department of Indian Affairs and Northern Development Act*.

AANDC recognizes the challenges faced by Shear to gather knowledge of site conditions since the acquisition of the property late in the field season of 2010. Additionally, AANDC recognizes Shear's commitment to transparency, openness and cooperation which has, and will continue to promote an effective water licence renewal process.

From a review of the application, it appears that Shear will continue to conduct activities on site consistent with a care and maintenance program for (approximately) the next 2 years. AANDC understands that Shear will carry out exploration activities to assess targets away from the original mine area, in addition to assessing the economic viability of the Jericho kimberlite. Shear also intends to reconfigure and occasionally activate the mill to evaluate and improve on its efficiency. In summary, it appears that activities will focus on care and maintenance, exploration, analysis of existing conditions and infrastructure, responding to known and as yet unknown site conditions requiring intervention and remediation.

In addition to the activities we expect Shear to undertake within the next 2-3 years, the licence should also support the implementation of full abandonment and restoration of the site, should that be necessary. Moreover, the Board should be cautious in the



development of any further licences not to inadvertently diminish the provisions of the abandonment and restoration obligations originating from the 2004 licence and all previous activities on site.

Shear has noted in their application and supporting materials their knowledge of the site conditions is incomplete, and plans submitted in support of the water licence renewal application are interim until more complete information is obtained. The plans are thus tentative and lack the detail required to conduct a meaningful technical evaluation.

It appears that several key plans and designs (including, but not limited to, Aquatic Effects Monitoring Plan for Operations, updated Mine Plan, Processed Kimberlite Containment Area Management Plan, Landfill Management and Design Plans, Facility Operation and Maintenance Plans, Abandonment and Restoration Plan) will not be adequately developed in advance of the planned hearing.

Therefore, in order to promote adaptive, responsible and sound resource management, AANDC recommends that any renewed licence permit only those activities for which Shear plans to undertake within the next 18 – 24 months, and which are supported by well-developed operational plans. We would then anticipate that further development in the project would be authorized through an amendment of the licence.

This approach would allow Shear to gather the information it needs to establish the baseline controls necessary to ensure responsible resource management, protection of persons, property and the environment through the development of plans and designs that are robust and complete.

Additionally, this approach provides clear direction in terms of process, and will allow interveners a defined mechanism by which to evaluate and participate in licensing longer-term activities supported by more fully developed, phase specific, plans and designs. An additional benefit of this approach is that it promotes a re-evaluation of the existing water licence's positive obligations (*e.g.*, for monitoring) to ensure that these obligations are clear, appropriate and achievable, given Shear's near-term planned activities on site.

Related to our technical intervention, AANDC is providing recommendations relating to surface and permafrost disturbance, water quality and quantity assessment, waste management, monitoring and abandonment and reclamation, related to Care and Maintenance, Exploration, and Abandonment and Restoration phases. Each issue is discussed in more detail in our written intervention.

Some general concerns include:

Release of water from the Processed Kimberlite Containment Area (PKCA) in 2011 appears to be critical to the management of the site. Two issues appear to be important: storing the 2011 freshet, and draining the pit for resource verification drilling. In order to release water from the PKCA, the water must meet discharge criteria. No evidence has yet been provided that the water has or will meet discharge criteria.



The PKCA Management Plan provides a water balance considering precipitation and runoff, but makes no reference to water used to process ore and generate tailings, including volumes of water recycled. AANDC understands that the focus is presently on Care and Maintenance, however, looking forward, details on the amount of processed kimberlite anticipated and how that compares to tailings storage capacity as well are necessary. At this time, it appears the overall tailings mass balance is not well considered, or was not well documented from previous permitting instances.

AANDC recommends that the Board re-evaluate the licenced criteria for minimum freeboard allowed in the PKCA. The present minimum freeboard allowed in the licence for the PKCA is 1.0 m; this number seems low. No documentation was provided on how this value was arrived at. Components of freeboard generally include storage of the design storm inflow, wave height, runup, and some amount of contingency storage. Should the derivations of this calculation be available, the Board should provide them to Shear, so that Shear may evaluate the adequacy of the value.

The Processed Kimberlite Management Plan states that CPK stockpiles and berms will be placed around the perimeter of Cell A to increase the volume of the facility. We are unsure how this will be functional as the liner in the East and SE Dams only go to 523.5 m. If this is implemented, details on how seepage control will be managed will have to be addressed.

Detailed evaluations of the landfill design and operation were conducted by BGC on behalf of AANDC in 2007. Most of the critical comments still remain outstanding. It is expected that similar reviews were done for other plans at that time by other interveners. Those detailed evaluations should be consulted by Shear so they can ensure that the comments are adequately addressed as they revise and update their plans.

AANDC recommends that Shear re-evaluate the licenced effluent quality discharge standards for the Boards consideration prior to the Hearing. A re-evaluation should include justification for the parameters proposed. The discharge criteria for various parameters were reviewed during the 2004 original water licence application. AANDC provided recommendations for discharge limits in the 2004 intervention statement. These limits should be reviewed by Shear with respect to the aquatic effects monitoring program and the results of any monitoring that was conducted by Tahera during operations. Additionally, there is a lack of detail on how Shear will treat water for discharge if it does not meet criteria. This includes water in the landfarm as well as the PKCA.

AANDC recommends that the use of flocculant be clarified in the licence. Flocculants act to settle out suspended solids and colloids. Some flocculants can have adverse impacts on aquatic life. As such, prior to any such use, Shear should undertake appropriate studies to ensure that no adverse impact from flocculant use will result. Further, a monitoring program will have to be established.



Aggradation of permafrost into the waste rock piles is anticipated. The impact on infiltration water as well as the landfill located in the waste rock dumps is important. It is unclear how monitoring of this behaviour will be done. The waste rock management plan alludes to the installation of thermistor strings, however the timing and location is not well defined. Installation of thermistor cables in the early stages of waste rock dump construction as well as in the landfill area should be considered by Shear, to provide early performance data, and also to provide early warning if the behaviour is not as anticipated so remedial activities can be planned and implemented in a timely manner. This analysis by Shear should be provided to the Board. Any activity specific remediation plans must be approved by the Board prior to their implementation.

Our written intervention is based on information provided by Shear and the Nunavut Water Board prior to June 1, 2011. AANDC looks forward to the opportunity to review and consider additional information as it is made available throughout the water licensing process.

AANDC appreciates the opportunity to participate in the Nunavut Water Board Type A water licencing process and will continue to support Shear, the Nunavut Water Board, the Kitikmeot Inuit Association, the Government of Nunavut, our federal partners and other relevant stakeholders.

Should you have any questions or comments please feel free to contact Tanya Trenholm, the departmental contact for this file, at (867) 975-4566 or by email at tanya.trenholm@inac.gc.ca

Sincerely,

Original signed by

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