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NUNAVUT WATER BOARD
NUNAVUT IMALIRIYIN KATIMAYINGI

September 12th, 2006

File: 2AM-JER0410/D2
By Fax: 1-416-777-1898

Greg Missal
Vice-President Nunavut Affairs
Tahera Diamond Corporation
130 Adelaide Street West, Suite 1900
Toronto, Ontario M5H 3P5

Subject: NWB review of the submitted TDC East and Southeast Dam, Intervener Comments, and associated TDC responses

Dear Mr. Missal:

The Nunavut Water Board (NWB) requests further clarity on issues related to the Jericho Diamond Mine East and Southeast Dam Design (**Part D, Item 2**). The following documents were consulted in reviewing the East and Southeast Dam Design:

- i. **Original East and Southeast Dam Design** – *Tahera Diamond Corporation - Jericho Project East Dam and Southeast Dam Design 1100060.004* (received: September 28th, 2005)
- ii. **INAC Intervention Statement** – *Jericho Project, East Dam & Southeast Dam Design Report and Construction Specifications* (received: November 14th, 2005)
- iii. **Acres International Limited Intervention Statement** – *Jericho Diamond Mine Review of East and Southeast Dams Design Report NWB Water Licence NWB1JER0410* (received: October 26th, 2005)
- iv. **EC Intervention Statement** – *Tahera Diamond Corporation, Jericho Diamond Project – East and Southeast Dam Construction Specifications* (received: November 21st, 2005)
- v. **TDC Response to INAC comments** – *Jericho Diamond Mine Processed Kimberlite Containment Area East and Southeast Dam – Reply to INAC – Nunavut Regional Office* (received: February 14th, 2006)
- vi. **TDC Response to Acres and INAC comments** – *Jericho Diamond Mine Processed Kimberlite Containment Area East and Southeast Dam – Reply to Acres and INAC – Nunavut Regional Office* (received: February 14th, 2006)

On May 16th, 2006 Ramli Halim provided the NWB with a set of comments to follow up TDC's January 26th, 2006 response to Acres October 20th, 2006 Intervention statement. The May 16th, 2006 comments have been annexed to the covering email correspondence. **The NWB requests a formal response to Ramli Halim's comments.**

On May 23rd, 2006 the NWB had sent correspondence to Jim Rogers of INAC to ensure that TDC's January 26th, 2006 response had satisfied all of INAC's concerns outlined in INAC's November 14th, 2005 Intervention statement. The NWB had indicated in this correspondence that a non-response from INAC after June 2nd, 2006 would indicate that TDC did in fact satisfy INAC's concerns. INAC did not file a response to the NWB's May 23rd, 2006 correspondence.

After a review of the above bulleted correspondence it has been determined that additional information and clarity is needed. The NWB requests additional information regarding the following:

- a. **(2.2 – Foundation Conditions)** TDC indicates that borehole locations are listed on Drawing ED-3 yet after consulting the referenced drawing these locations could not be found. Could TDC please further clarify?
- b. **(2.2 – Foundation Conditions)** TDC states "*The liner will be keyed into the foundation materials, and sufficient cover over the key trench will maintain the base of the liner in a frozen condition*". The Board requests additional clarity on the term "*sufficient cover*" through further discussion and a quantification of the term.
- c. **(5.0 – Settlement; 9.2 – Thermal Monitoring)** As per **Section 5.0** TDC states that "*The frozen condition of the foundation soils below the liner will be maintained;*" and through **Section 9.2** TDC indicates that horizontal ground temperature cables will be installed in the key trench backfill of each dam. How will this monitoring information be presented to the NWB? Will TDC be filing this information through the annual geotechnical inspection to be filed with the Board as per **Part G, Item 2 (g)**?
- d. **(6.0 – Worse Case Failure Scenario)** In TDC's response (received February 14th, 2006) TDC states "*It is recognized that there is a risk of seepage from the dam. If excessive seepage is observed, a collection system can be constructed downstream of the dam, and the seepage returned to the PKCA*". Is TDC committing to the construction of a collection system downstream to ensure waters leaving the PKCA are managed? The NWB requests additional information in what the qualitative and quantitative markers are in determining if a collection system is to be constructed and a brief description of the design of the collection system that would be constructed if it is qualitatively and quantitatively determined that the collection system is needed.
- e. **(7.0 – Material Properties)** The NWB understands that TDC, through the response received February 14th, 2006, states that coarse processed kimberlite and dam fill materials are not acid generating or metal leaching. The NWB requests detail in how construction materials were characterized (methods, quantifiable markers, sampling etc.) with respect to ARD and metal leaching potential. If TDC has provided this detail through another stand alone document, the NWB invites TDC to appropriately reference where this information can be found (document title, document section, page numbers where detail can be found).
- f. **(7.1 – Slope Protection)** As described by TDC "*The coarse tailings will be replaced if wave action erodes them. The initial performance will be monitored and slope protection added if required*". Will this information be communicated to the NWB through the construction records to be submitted? If not, how will this follow-up information be communicated to the NWB?

- g. **(8.2 – Construction Requirements)** TDC states that *“It is anticipated that the contractor chosen to conduct work will develop a construction plan. This construction plan must satisfy the requirements presented in the Construction Specifications to meet their design intent”*. The Board requests the construction plan referenced and also requests construction records of the South and Southeast Dam be provided to the Board as per **Part D, Item 19** of water licence **2AM-JER0410** (formerly NWB1JER0410).
- h. **(8.3 – Schedule)** In TDC's response (received February 14th, 2006) construction of the South and Southeast Dams had taken place. TDC also stated that dam construction was to take place January through April 2006. The NWB understands that this structure has been completed and the PKCA is in operation. Thus the NWB understands that dams are retaining waters. Furthermore TDC states that *“It is planned to construct the dams as shown on the drawings to the full height in 2006. If there is a requirement to raise the dam, a design will be prepared and submitted for regulatory approval”*.
- i. **(8.5 – Moisture Conditioning of Embankment Materials)** Through the final design presented TDC states *“Water must be added to the 20 mm material to bring the moisture content to about 2% above optimum water content as determined by ASTM 698 (by mass). The water must be heated to prevent freezing before placement in the key trench”*. After construction, how will this information be communicated to the NWB? Does TDC intend to include this information in the construction records they are to submit to the NWB as per **Part D, Item 19** of water licence **2AM-JER0410** (formerly NWB1JER0410)?
- j. **(8.6.1 – Key Trench Backfill)** TDC states *“When required, the moisture content of the key trench backfill must be maintained so that excessive water is not available to form ice lenses”* and *“... parameters such as mixing water content, surface cleaning and lift thickness should be optimized by controlled experimentation early in the construction season. These parameters may need to be periodically changed to suit varied weather conditions”*. The NWB requests a follow-up to this information. Does TDC plan to include the follow-up details in the construction records they are to submit to the NWB as per **Part D, Item 19** of water licence **2AM-JER0410** (formerly NWB1JER0410)? If not, how does TDC plan to report this information to the NWB?
- k. **(8.6.3 – Run-of-Mine Material)** The NWB requests additional information on how materials are to be placed and not cause segregation and nesting.
- l. **(8.6.4 – 200 mm Transition Material)** TDC states *“It is anticipated that the number of passes, vibration frequency and volume of water required will be checked periodically throughout construction using a proof roll”*. The NWB requests additional information on how TDC is to report the findings of the proof roll. Will discussions related to this issue be included in the construction records to be provided to the NWB?
- m. **(9.3 – Survey Monitoring)** The NWB understands that TDC will be installing pipe anchored into the dam fill as surveying monuments. The NWB would like to better understand how survey monitoring data will be presented to the Board. Will this be communicated through the annual geotechnical inspection to be filed with the Board as per **Part G, Item 2 (g)**? The NWB would like to remind TDC that the results of the annual July geotechnical inspection of the PKCA are to be submitted within sixty (60) days of the inspection. Thus the NWB anticipates the geotechnical inspection (as per **Part G Item 2 (g)**) shall be submitted no later than September 30th, 2006 (with July 30th, 2006 being the last day in July to inspect the PKCA).

The NWB has made an arrangement with TDC to meet up face-to-face on issues related to this technical report. The NWB would like to secure dates to discuss the dam designs for the Jericho Mine. In summary the Board requests a formal response to each of the above stated provisions. Sufficient detail and an avoidance of ambiguity should be followed in submitting response materials to the listed provisions. If you require assistance whatsoever please feel free to contact the undersigned at (867) 360-6338 or tech1@nwb.nunavut.ca .

Sincerely,

Original signed by:

Joe Murdock
Director of Technical Services

cc. Ramli Halim (Hatch-Acres)
Jamie Van Gulck (VGQ)
Carl McLean (INAC)
Jim Rogers (INAC)
Peter Kusugak (INAC)
David Abernethy (INAC)
Geoff Clark (KIA)
Colette Spagnuolo (EC)
Tania Gordanier (DFO)
Mike Atkinson (GN-DOE)
Josh Gladstone (NIRB)
Kevin Buck (NIRB)

Attached: (Hatch_Acres_Followup_Review_East_Southeast_Dams_05162006.pdf)