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NUNAVUT WATER BOARD  
NUNAVUT IMALIRIYIN KATIMAYINGI

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September 12, 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 submitted TDC responses to west dam construction specification**

Dear Mr. Missal:

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

- i. **TDC West Dam Construction Specifications – Tahera Diamond Corporation - Jericho Project West Dam Construction Specifications 1100060.004** (received: October 18, 2005)
- ii. **TDC West Dam Design Report - Tahera Diamond Corporation - Jericho Project West Dam Design Report 1100060.004** (received: October 18, 2005)

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

- a. Throughout the construction specifications there have been commitments made to have the engineer on site judge/evaluate/approve certain provisions. The engineering body responsible for supervision should produce construction and engineering records that detail how each of these commitments were carried through. The Board requests a detailed report (partnered with as-built construction and engineering records) discussing how each of the following provisions within the listed specifications was carried through:
  - General (Item 3.2)
  - Water Control (Item 2.2)
  - Foundation Preparation (Items 2.1, 2.2, 3.1, 3.2, 3.4, 4.6, 4.7, 4.8, 5.0)
  - Fill Materials (Items 2.8, 2.9, 3.3c)
  - Fill Placement (Items 1.3, 2.1, 2.4, 2.7, 2.9)
  - Geosynthetic Clay Liner (Items 4.2, 4.3, 6.7, 6.8, 7.1, 7.2)
  - Instrumentation (Items 1.2, 1.3, 3.2, 4.1)
  - Quality Assurance (Items 2.1c, 2.3c)
  - Adfreeze Piles (Item 2.4)

- b. **(Foundation Preparation Items 3.1, 3.3, and 3.4)** TDC stated that the base of the key trench excavation must have no natural or excavation related open voids or joints. The Board requests additional information and detail on measures used to establish the quality of rock upon which "the Engineer may limit the excavation". 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)?
- c. **(Foundation Preparation Item 4.0)** TDC stated that the contractor must use excavation methods that minimize fracturing beyond excavation limits. The Board request additional documentation on how fracturing will be monitored. 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)?
- d. **(Foundation Preparation Item 5.0)** TDC stated that the foundation must be inspected and approved by the Engineer before fill is placed. The Board requests additional documentation outlining inspection details. 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)?
- e. **(Fill Materials Item 1.4)** A record of damage by rain, snow, or any other cause should be provided with remedial measures during construction to the Board. 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)?
- f. **(Fill Materials Item 2.3, 2.8)** TDC stated that placement of the key trench requires construction in temperatures below -15°C for freezing to occur in a soil lift within a 24 hour period. Freezeback was defined as a maximum temperature of -2°C. The Board requests additional information and details on how soil freezing will be monitored and the frequency of testing, additionally, a statement of where temperature within the soil lift is monitored should be provided.
- g. **(Fill Materials Item 2.4)** TDC stated that the 20 mm minus material requires mixing with heated water prior to placement in the trench so that it does not contain interstitial ice. The Board request additional detail and discussion on how the temperature of the heated water will be selected to achieve the specification.
- h. **(Fill Materials Item 2.12)** A record of damage to the GCL liner or thermosyphons should be provided with remedial measures during construction to the Board. 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)?
- i. **(Fill Materials Item 3.4)** TDC has provided no specifications regarding the mining of the till in the borrow area. Since the till may be in a frozen state when it is excavated from the open pit area, some processing may be required. The specifications for till do not address the quality of the till that should come from the pit except for maximum particle size and that particles must be "hard, durable and angular". The Board request additional detail and discussion on processing till to ensure an effective barrier for water flow.
- j. **(Fill Materials Item 6.0)** TDC stated compaction methods for the placement of till material; however, there is no specification on density to be achieved. The Board request additional detail to address this issue and how compaction specification of the till material will be monitored and reported.
- k. **(Geosynthetic Clay Liner Item 2.2)** The Board requests commercial specifications for the GCL with as-built construction records. The Board requests signed manufacturing

certifications to be referenced, annexed and provided with as-built construction and engineering records.

- l. **(Geosynthetic Clay Liner Item 3.3)** TDC stated that it is essential to protect the GCL rolls from exposure to water. The Board requests additional detail and discussion on how the GCL will be protected from solar degradation during storage.
- m. **(Geosynthetic Clay Liner Item 6.0)** TDC stated that the cover material must be compacted in excess of 90% maximum dry density or as specified by the Geotechnical Engineer to prevent damage to the GCL. The Board request additional detail and discussion on how and frequency the dry density will measured. 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)?
- n. **(Geosynthetic Clay Liner Item 6.6)** TDC stated that damage of the GCL during placement of the cover material should avoid damage to the liner. The Board requests additional detail and discussion on what measures and specifications will be completed to assess the potential for GCL damage during cover placement. 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)?
- o. **(Geosynthetic Clay Liner Item 7.1 and 7.2)** A record of any damage to the liner should be submitted to the Board along with a note indicating that the proposed remedial measures were implemented. 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)?
- p. **(Quality Assurance)** The material contained within this section suggests that a monitoring program will be installed in evaluating the QA. The Board requests a thorough report embodying all elements of this program that evaluate all components after construction. This shall be submitted to the Board with the final construction and engineering records. 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)?
- q. **(Quality Assurance Item 2.3c)** TDC stated that cored samples from the key trench will be examined and photographed by the Engineer and that the bonding between layers, ice-saturation, and ice bonding will be evaluated. The Board requests additional detail and discussion on the evaluation criteria and what characteristics of the core represent an acceptable evaluation. 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)?

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 Dr. Jamie Van Gulck, P.Eng. at (204) 792-4129 or [yangulck@vqqconsulting.com](mailto:yangulck@vqqconsulting.com).

Sincerely,

*Original signed by:*

Joe Murdock  
Director Technical Services

cc. Bruce Ott (AMEC)  
Carl McLean (INAC)  
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