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NUNAVUT WATER BOARD
NUNAVUT IMALIRIYIN KATIMAYINGI

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 long lake divider dyke construction specification

Dear Mr. Missal:

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

- i. **Divider Dyke Construction Specifications** – *Tahera Diamond Corporation – Jericho Project Long Lake Divider Dyke A Construction Specifications 1100060.004* (received: July 14, 2005)
- ii. **Divider Dyke Design Report** – *Tahera Diamond Corporation - Jericho Project Long Lake Divider Dyke Design Report 1100060.004* (received: July 14, 2005)
- iii. **Kitikmeot Inuit Association Intervention Comments** – *NWB1JER0410 – Tahera Diamond Corporation – Jericho Project Long Lake Divider Dyke Construction Specifications and Design Report* (received: October 18, 2005)
- iv. **Indian and Northern Affairs Canada (INAC) Intervention Comments** – *NWB1JER0410 – Tahera Diamond Corporation – Jericho Project Long Lake Divider Dyke A Construction Specifications* (received: October 21, 2005)
- v. **EBA response letter to INAC Intervention Comments** – *NWB1JER0410* – (received: November 23, 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:

1. The construction specification title refers to Divider Dyke A construction, however, in select locations within the design report there is reference to both Divider Dyke A and B. Are the construction specifications reported in this document only applicable to Dyke A? Will another construction specification document be formed to address construction of Dyke B?

2. 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 2.0)
 - Foundation Preparation (Items 2.0, 2.1, 3.4, 4.0)
 - Fill Placement (Items 1.3, 3.1, 3.2, 4.2, 5.0, 5.2)
 - Quality Assurance (Items 1.2, 2.1, 2.2)
3. (**General Item 2.0 - Materials**) The volumetric units are missing from the quantity of materials required for construction of Dyke A. The Board requests clarification is required to address this issue. Additionally, on page 2 within the “Notes” section, the Board requests clarification is required as to what “for Sections 2.1 and 2.2” refers to.
4. (**Foundation Preparation Item 3.0 – Key Trench**) TDC stated that select materials for the dyke must be keyed into the foundation. The Board requests additional detail and discussion on what characteristics, specifications, and criteria will be used to determine the design, extent, and depth of key trench. This information may be communicated in another TDC document. If this is the case the NWB invites TDC to appropriately reference where this information may be found.
5. (**Foundation Preparation Item 4.0 – Foundation Approval**) TDC stated that the contractor shall list which foundation areas require inspection and approval by the Engineer. Why are inspection areas limited to the contractors list? 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)?
6. (**Fill Materials Item 3.3 – Material Specifications**) TDC stated that the mine run shell rockfill will have a wide variation in gradation, with a maximum particle size of 1,000 mm. Is there a minimum percent passing of fines that would be unacceptable as shell rockfill for piping or hydraulic considerations?
7. (**Fill Placement Item 1.4 – General**) A record of damage to the embankment during construction should be provided with remedial measures during construction to the Board.
8. (**Quality Assurance Item 1.2 – General**) TDC stated that testing will be carried out by the Geotechnical Engineer or an independent testing firm engaged by the Owner. The Board requests clarification on whether the independent testing firm will require the services of a qualified engineer to complete the testing.
9. (**Fill Placement**) Placement of dyke materials will partially be completed in open water. The Board requests additional detail and discussion on how monitoring, and frequency of monitoring, of the slopes will be conducted during construction to ensure the design slopes, lines, grades, and elevations for each material type shown on the drawings are achieved. 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)?

10. **(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. 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)?
11. **(Quality Assurance Item 2.1 – Testing Requirements)** TDC stated that the shell, transition, and rip-rap materials will be tested for gradation to meet the specification. The Board requests clarification on the frequency of this measurement. Additionally, within the Fill Placement section of the construction specification, there is reference to compaction of these materials, which is associated with a maximum dry density. The Board requests additional detail on the value of the maximum dry density to be achieved during placement of the shell, transition, filter, and rip-rap materials, as well as, the method and frequency of testing in-situ density. 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)?
12. **(Quality Assurance Item 2.2 – Testing Requirements)** Additional details and discussion is required to clarify the method that will be employed to obtain the moisture-density relationship and in-situ density of the filter material.
13. Within Section 5.0 – Settlement section of the design report, TDC recommended to monitor dyke settlements following construction and when water levels rise. This issue has not been addressed in the construction specifications. The Board requests additional detail and discussion on where, how, and when settlement monitoring will occur. Since sections of the dyke will be built on permafrost foundations with potential thaw settlements, should temperature monitoring be completed?
14. Within Section 7.2 – Construction Requirements of the design report, TDC stated that filter placement and compaction should take place in above freezing temperatures. This requirement has not been addressed in the construction specifications. The Board requests details of this specification to be included in the construction specification. Additionally, are there any temperature requirements for the placement and compaction of other dyke materials? 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)?
15. Within Section 8.0 – Long-term Monitoring section of the design report, TDC stated that a program should be developed to “monitor the effectiveness of filters by water quality testing of collected waters in the tailings disposal facility cells”. This issue has not been addressed in the construction specifications. The Board request additional detail and discussion on monitoring water quality that is associated with characterizing the effectiveness of the filter. Will this be communicated through the annual geotechnical inspection to be filed with the Board as per **Part G, Item 2 (g)**?

The NWB is pleased with TDC's recent commitment to resolve the technical concerns addressed in this letter. The NWB is looking forward to meeting TDC face-to-face in the near future to discuss. 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 van gulck@vqqconsulting.com.

Sincerely,

Original signed by:

Joe Murdock
Director Technical Services

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