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NUNAVUT WATER BOARD
NUNAVUT IMALIRIYIN KATIMAYINGI

File: NWB1JER0410/F1
By Fax: 1-416-777-1898

May 17th, 2006

Greg Missal
Vice-President Nunavut Affairs
Tahera Diamond Corporation
Suite 803, Richmond Street West
Toronto, Ontario M5H 2K1

Subject: NWB review of the submitted TDC Site Water Management Plan (SWMP)

Dear Mr. Missal:

The Nunavut Water Board (NWB) requests further clarity on issues related to the Jericho Diamond Mine *Site Water Management Plan* (**Part F, Item 1**). The following documents were consulted in reviewing the Site Water Management Plan:

i. **Site Water Management Plan** – *Site Water Management Plan Jericho Project, Nunavut October 2005* (received: November 18th, 2005)

ii. **INAC Public Hearing Intervention Statement** – *INAC Intervention, Tahera Diamond Corporation Limited Water Licence Application* (received: November 30th, 2004)

iii. **Jericho Water Licence Public Hearing Transcripts** – *Nunavut Water Board Benachee Resources Inc. Water Licence Application* (Dicta Court Reporting December 2004)

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

a. **Schedule F Item 1(d)** states that the SWMP should contain *a summary of plans for the management of all other waters in the project area*. As per **Part D Item 9** and **Schedule D Item 9** of water licence **NWB1JER0410**:

(Part D.9)

The Licensee shall, submit to the Board for approval, a detailed Design Plan at least sixty (60) days prior to the construction of the Site Water Management Facilities, including drawings stamped by an Engineer. The plan shall be development in accordance with Schedule D Item 9.

(Schedule D.9)

The detailed design report for the Site Water Management Facilities referred to in Part D, Item 9 of the Licence, shall include but not necessarily be limited to the following:

a. Detailed Implementation schedule for construction of all facilities;
b. Design Criteria and parameters;
c. The report shall include design criteria for C4 Ditch; and
d. The effect of roads on surface drainage;
e. Monitoring requirements for each facility during construction; and
f. Overview of general operation and maintenance requirements.

There needs to be a full understanding and detailed discussion of the Site Water Management Facilities. Sizing details for all water containment and diversion infrastructure (drainage ditches, sumps, ponds etc.) and the final design and specifications of each has not been provided. There lacks a formal understanding on the quantity limits of each structure. Without understanding infrastructure details a management strategy cannot be adequately assessed. Appropriate engineering discussion should be provided in how each structure is to be designed. How can water be managed if the system specifics are not fully understood?

b. The Proponent states that "*maximum drawdown on Carat Lake is estimated to be 10.5 cm per year with no releases from the PKCA and under draught weather conditions"*. The Board requests further information and detail into how this was calculated. If this calculation has been completed and submitted in another document the Proponent is invited to provide a detailed reference in where this may be found.

c. Conceptual sizes and locations have only been provided for contingency ponds. Discussion should be provided into the specifics of these structures.

d. It is now understood that the East Sump replaces Pond C infrastructure. Water from the East Sump could be used for construction or road maintenance yet monitoring specifications and acceptable limits to release into the environment have not been stated. Monitoring and discharge specifications must be provided. Will CCME criteria be used as the marker? If not why not? Further discussion must be provided into which criteria is to be used and why.

e. (**Section 2.1 - SWMF General Description)** Staged contingency structures are to be installed to maintain site water quantity and quality yet there has not been an established set of decision criteria presented that signals the need to install a contingency structure. The Proponent cross references the Waste Rock Management Plan Part 1 for monitoring plans and a mean of evaluating the need for a contingency structure. The Board requests a detailed reference within the Waste Rock Management Plan Part 1 that appropriately addresses monitoring to be completed that will signal the need to install SWMP contingency structures.

f. **(INAC - Public Hearing Record Page 255 Lines 11-16)** As per INAC's Intervention at the Public Hearing and in conjunction with **Bullet e**. "*there is uncertainty with respect to potential effects of uranium leeching and possibly other metals such as copper. It is recommended that laboratory and field testing be conducted as soon as material is available*". The Proponent is to provide detail into how and what monitoring has taken place at site with respect to the above. These details should be included in the SWMP and WRMP respectively. If another technical report is referenced the Board requests a detailed reference in where the information in question can be found within the document.

g. (**Section 2.3.2 – C4 Area Water Management)** The Proponent states that a "*Runoff diversion is not required until such time that waste rock placement extends into the catchments of Lake C4*". A definition of the Lake C4 catchments should be included in

the SWMP. When does the Proponent anticipate waste rock being placed in the catchments of Lake C4? Has placement occurred prior to the issuance of this letter?

h. (**Section 2.3.2 – C4 Area Water Management)** The Proponent is to provide further detail into the specifics of proposed/completed construction that will barrier and divert clean runoff water away from the rock dump and towards Lake C4. The Proponent conceptually identifies the upstream toe of the Waste Rock Dump and/or area access roads to be used. The Board requests information involving impact, potential impact, flow alterations of freshwater, and the deposition of waste related to the structures providing a diversion and barrier function.

i. (**Section 2.3.3 – Collector Ditches and Site Grading)** The Proponent is to provide further detail in this section. The Proponent indicates that areas will be graded and constructed to direct local runoff yet there is no detail or specification in how this will be achieved. The Proponent states that excavation cuts will be avoided to minimize potential impact to permafrost and erosion protection will be provided as required. No detail has been provided in how these will both be achieved. The Proponent is to provide a detailed account in how suspended sediments involved in ditch operation are to be managed. Without contingency structures in place? How will water move through the system? The Board requests full details for all aspects addressed under this bullet.

j. (**Section 2.4 – Collection Ponds A,B,C)** Criteria are not in place to determine and signal the need for a collection pond. The Proponent is to build further on how the ponds will accept and manage runoff. Further detail is needed detailing how water will move to and from these collection ponds.

k. (**Section 2.5 – Pit Pond)** The report lacks detail and delineation in there and what pit sumps will be in place. The Proponent is to provide to the Board a detailed outline pit sump specifications and location.

l. (**Section 2.7 – PKCA Facility)** What are the water quality limits for water reclaimed from the downstream side of the divider dyke? The Proponent states that water not used for reclaim will be discharged into Lake C3 on a seasonal basis to not exceed the hydraulic capacity of Stream C3. The Proponent should provide further detail into the specifics of seasonal basis (with respect to timing schedule and specifics) and provide a full understanding of the hydraulic capacity of Stream C3. Methods and procedure into how discharge is to take place are to also be provided.

m. (**Section 2.7 – PKCA Facility)** The Proponent states that dam and pond water levels will minimize/eliminate water storage values to allow for cover. There has not been a satisfactory argument presented to the Board outlining water level conditions or the mechanisms and procedures in place to minimize/eliminate waters. The Proponent is to outline, in detail, water conditions with respect to temporal and spatial dimensioning of waters in the pond and dam structure and to provide procedures and mechanisms in place to minimize and eliminate waters in these structures.

n. (**Section 2.8 – Fresh Water Intake)** The Proponent lists the use of clean coarse rock. The Board would like to point the Proponent to the September 1st, 2005 letter from DFO to the Proponent and the Letter from the NWB to the Proponent regarding the Freshwater Intake Causeway (April 24th, 2006). The Board requests that the Proponent appropriately quantify the terms coarse and clean or remove the reference from the document.

o. (**Section 2.10 – Other Facilities)** The Proponent gives briefly mentions that culverts may be required. The Board requests full details on the location, specifications, and

detailed delineation in where these culverts are to be installed. The Proponent also states that a culvert inspection and maintenance program will take place. The Board requests full details of this program and would like to know how and when the results from this program will be presented to the Board.

p. (**Section 2.11 – Closure Considerations)** What criteria is in place for determining a '*significant flow*' that will be directed to the open pit? What criteria are in place to evaluate if the pit is filling at a faster rate then desirable? The Proponent states that "*Prior to filling of the open pit an in-pit water quality assessment will be conducted to determine the desirable fill rate and if required alternative methods of treatment*". The Board requests additional information fully detailing the program and would like to know how and when the results from this program will be presented to the Board. Why has the Proponent not provided a range of scenarios evaluating the water balance with respect to the various water sources and rates of water level rise in the pit (with appropriate calculations)? Does the Proponent agree that water quality should be assessed early in mine operation so contingency measures can be developed as soon as possible?

q. (**Section 2.11 – Closure Considerations)** More detail is also needed regarding the particulars of flows from the pit meeting "*water quality acceptable for release*". What is this value? The Proponent states that "*flows from the pit could be directed into C1 stream or a separate open channel discharging along the East Shore of Carat Lake*". The Board requests further specifics into this scenario. Full detail should be provided.

r. (**Section 3.2 – SWB Estimated 2006 Water Balance)** The Proponent states that 120000 cubic meters of water has been removed from Long Lake and discharged to Lake C3 via Stream C3 during the 2005 season. The Board request full detail on how this undertaking took place. Long Lake dewatering was not authorized by the Board and there lacks an understanding in how the Proponent completed these activities.

s. (**Section 3.3 – SWB Discussion)** The Board requests discussion from the Proponent discussing the conservatively of the assumptions made in the Water Balance. The Proponent has stated that the Water Balance was based on a number of highly conservative assumptions. How can the Proponent effectively truly understand the system in place (including the water balance) if a number of structures are not in operation and the system is based on assumptions and adaptive design? The Proponent states that the processing rate may be altered. If this is the case would this alter the water balance? Appropriate discussion is required in examining how processing rate would alter the current water balance.

t. (**Section 3.3 – SWB Discussion)** The Proponent is to provide properly stated references and justification that detail effective wetting of rock surfaces in combination with freeze-back of permafrost will greatly reduce runoff amounts. Concentrations and quantities of water are dependent on this.

u. (**Section 3.3 – SWB Discussion)** A full discussion on settling effectiveness of processed kimberlite is required. The Proponent indicates there is a planned efficiency for settling. What is this? Further detail on the decision making process to install an additional filtering dyke is required. The Proponent states that if specific water quality parameters become an issue during operation other treatment methods would have to be evaluated at that time. The Board would like further clarity into the limits being examined and compared against for water quality under this instance. The Board also requests further detail and specifications of the proposed alternative treatment methods.

v. (**Section 3.3 – SWB Discussion)** Does the Proponent agree that a bathometric survey would be an adequate tool in assessing settling efficiency and storage amounts over time? Would a bathometric survey prove useful in managing waters in the PKCA?

w. (**Section 4.0 – Water Monitoring Requirements)** SNP station should be set up for the East Sump and along the Carat Lake shoreline downgradient from the waste rock sites.

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
Technical Advisor