

December 1, 2005

Ms. Phyllis Beaulieu Manager of Licensing Nunavut Water Board Box 119, Gjoa Haven, NU. X0B 1J0

# RE: Responses to letter, dated Nov. 17/05 from INAC to the NWB in relation to the Waste Rock Management Plan

Dear Ms. Beaulieu,

Tahera Diamond Corporation would like to take this opportunity to respond to the questions raised by INAC in their letter dated November 17, 2005 after their review of the submitted Waste Rock Management Plan-Part 1, submitted in May 2005.

# **INAC Comments on ARD and Metal Leaching**

## Response to questions 1& 2

In the water licence application, Tahera proposed weekly sampling of blasted waste rock, with analysis of paste pH, reaction with HCl, and uranium on every sample for the first year of mining, and full ABA and ICP analyses on every tenth sample. The frequency was to be reduced if the first year of data indicated low variability.

We understand that there was some confusion with respect to the frequency of sampling, possibly caused by the statement that "In the first two years of the mine operation blasting will occur approximately once per day" (SRK Technical Memo M, August 2004). The intervention submitted by INAC indicated that "Tahera's proposal is to sample solids from daily blast analyzed for special items". The intention to do weekly sampling was clarified during the water licence hearings, and through a personal correspondence with INAC's geochemical consultant.

During the water licence hearing, INAC also recommended adding copper to the weekly suite of analyses and increasing the frequency of the full ABA and ICP analyses to once per month for the first year of mining. These changes were acknowledged by Tahera and added to the updated monitoring plans. Given the low variability in the pre-mine characterization data, this frequency of analyses is considered to be more than sufficient for monitoring and managing the waste rock.



# Response to question 3

Samples of drill cuttings are collected from each drill hole of a blast pattern. The sub samples are composited into one sample representative of the drill pattern. At the time of sampling; date, pit, rock type, bench, and pattern# are recorded on the sample bag.

Samples are shipped to the laboratory where the sample is weighed. After weighing the sample is crushed to the point where 70% of the sample is less than 2mm the sample is then split with one portion being archived and the other sample being pulverized to 85% of sample < 75um. The less than 75um split is then analyzed.

The sample collection method will be included in the waste rock management plan.

# Response to question 4

Tahera recently submitted the Explosives Management Plan in November 2005.

A letter was sent to the NWB requesting an extension until March 31<sup>st</sup>, 2006 for the submittal of the Interim Closure and Reclamation Plan required in Part M Item 2 to coincide with an updated estimate and to have construction work substantially completed. Both the Interim Closure and Reclamation plan and the updated estimate required in Part M Item 7 will be submitted on March 31<sup>st</sup>, 2006 after completion of construction.

#### **Response to Question 5**

As indicated in the report material volumes and scheduling are variable and dependant upon economics determined during the first year of mining. Although dump volumes may change the overall dump footprint should not be affected. As per the Water Licence, a buffer area of 200m will be maintained between the toe of the dump and Carat Lake.

Volume changes in dump capacity would result in higher or lower dump heights. Therefore affected drainage areas from dumps would remain static and impacts are anticipated to essentially remain the same.

# There is no question 6

#### Response to questions 7 & 8

Tahera intends to monitor both the quality and quantity of seepage throughout operations regardless of whether these ponds are required. Over the course of mining, the monitoring data should provide greater certainty regarding the need for water management after closure. Regular



updates to the closure plan will be prepared and where relevant, information from other northern sites will be incorporated into these plans.

## Response to question 9

Pre-mine geochemical characterization data indicated very low variability in the ARD/ML potential of the waste rock. The geochemical monitoring program will provide adequate characterization of all the rock placed in the dumps, and will help to establish whether or not there is significant variability in the waste rock properties. Unless the monitoring data indicates there are areas of the pit that contain anomalous materials (i.e. elevated sulphur or metal levels), there will be no need to increase the sampling frequency in the active zone material.

#### **INAC Comments on Geotechnical:**

1. Foundation conditions for the two waste rock/overburden stockpiles comprise bedrock, with small thin pockets of granular colluvial soils or till. Thin organic veneer is noted in some areas. As such, deep seated failure through the bedrock is not considered to be one of the failure modes. Stability analyses considered shallow failures within the waste stockpiles themselves as well as failures through the foundation soils, which are appropriate for the expected site conditions.

## No response required.

2. To improve foundation conditions, a pad of waste rock will be constructed over the foundation surface after removal of the organic soils. This will be done in the winter to preserve the permafrost and maintain frozen conditions in the foundation. Consideration should be given to assessing the required extent of thermal protection for the overburden slopes that are exposed in the open pit in the area adjacent to the toes of the waste rock and overburden stockpiles. There may be a need to extend the thermal protection on the pit slopes past the pit crest and integrate it with the waste dump foundations. This can be done in the field, during construction, when actual site conditions are exposed.

Prior to mining, Tahera had a plan to deal with the stabilization of the overburden in the pit slopes. During 2005, as a starter pit was excavated for construction material, Tahera was able to assess the performance of slopes that intersected the overburden. Observations from that period suggest to Tahera that the slope performance will be similar to, or slightly better than, expected. Tahera has concluded, therefore, that the current plan for overburden stabilization is adequate.

In any case, the main thawing front would be from the pit face rather than from the natural ground surface overlying the overburden. Therefore, given the thickness of the overburden and the depth of the active layer, even with potential changes to the sparse vegetative cover, very little benefit to overburden stability would be gained by placing material over the natural ground around the pit.



3. The way the plan is written, it seems that the construction of the waste rock buttress and the waste rock containment berms for Waste Dump #2 are an option, in the event that the overburden waste begins to flow. INAC recommends that the waste rock buttress and containment berms be incorporated as shown in Drawing WRMP-P1-5. The concern is with respect to the potential loss of fines within the active zone of the overburden waste. The waste rock buttress and containment berms will act as a trap for any fine particles that may be transported by seepage from the thawing overburden waste. In addition, the presence of the berms helps to insulate the waste material, thereby minimizing the depth of the active zone within the waste materials.

Prior to the placement of overburden in Waste Dump #2 last spring, a waste rock buttress was constructed on the downstream (north) side of the dump footprint. Subsequent to the commencement of overburden deposition in the spring, Tahera monitored the performance of the waste dump and its slopes. Based on observations over the course of the summer, Tahera concluded that the degradation of the slopes due to thawing conformed to acceptable limits (overburden material stayed within the dump footprint) and did not, therefore, require buttressing on the other sides of the dump.

Run-of-mine waste rock is too coarse to act as a filter for overburden fines, so some fines did wash through the waste rock buttress and report to the pit sump. These fines were handled as part of normal pit water. This arrangement will continue over the life of the mine.

Although the migration of fines is expected to slow with permafrost aggradation into the dump, the performance of Waste Dump #2 will be continue to be monitored. If modifications to the closure design, such as incremental buttressing, are warranted, Tahera will include these as part of revisions to the closure plan.

4. The materials selected for the construction of the waste rock buttress and the containment berms should ideally be well graded so that they act as a compatible filter to the gradation of the overburden materials. It is understood that the overburden material consists of a granular till.

The run-of-mine waste rock generated on site is not a suitable filter for the fines (material passing the No. 200 sieve) associated with the overburden. However, as noted above, to the extent that overburden fines pass through the buttress, the fines move with the seepage/runoff and are handled as part of pit water management.

5. There is a slight discrepancy in the values quoted for the assumed angle of repose of the waste rock. In the text it is quoted as being 1.4H:1V (35°). On Drawing WRMP-P1-3 it is shown as "1.5H:1V (35°)", but this is actually about 33°.

INAC has correctly pointed out the discrepancy between the text (which indicates that the angle of repose is 1.4H:1V) and Drawing WRMP-P1-3 (which indicates that the angle of repose is



1.5H:1V). In fact, 1.4H:1V is 35.5° and 1.5H:1V is 33.7°. The angle of repose at that time was an estimate. In reality, the angle will vary slightly depending on factors such as gradation, lithology and deposition method.

6. With respect to the placing of materials within the dump itself, the Plan mentions that a bulldozer will be used to spread the material at the dump crest. INAC recommends that consideration be given to having the haul trucks dump directly down the dump face from the crest. In this way the larger sized material will naturally roll to the bottom, forming a zone of coarse grained material that acts as a drain. The dump face will always be at the natural angle of repose for the material. With this method, the upper parts of the slope will not become oversteepened and subject to failure as may be the case when material is bulldozed over the crest resulting in larger sized particles being mixed in with finer material.

The current method of deposition is based on a variety of factors, including the safety of truck drivers. Even with the current method, Tahera believes the dump will be free-draining. The final face of the dumps will, in general, have a slope that is flatter than the angle of repose. As regards the internal or interim dump faces, the height of the dumps is modest (typically 10m or less) for a mining operation. The risks related to potential dump failure are thought to be very low.

7. There should be some discussion on how the setback distance between the edge of the open pit and the toe of the waste dumps was established. The discussion should include the potential pit wall failure modes considered and the monitoring that will be carried out during mining in this area.

In view of the limitations on structural data at the open pit during the design phase, the setback distance between the edge of the open pit and the toe of each of the waste dumps was based on judgment and access issues. As the pit develops and the final pit walls are exposed, Tahera will map the local structure and re-evaluate the pit wall stability. In addition, a series of survey hubs will be established around the pit to enable the performance of the pit walls to be monitored on a regular basis. Although the final toe of Waste Dump #2 is already occupied by waste material, the final location of the toe for Waste Dump #1 may be modified depending on the results of the mapping and monitoring.

Should you have any additional questions do not hesitate to contact the undersigned. Sincerely,

Cheryl Wray **Environmental Coordinator** Tahera Diamond Corporation Jericho Project

Greg Missal Vice President and Government Regulatory Affairs Tahera Diamond Corporation Jericho Project