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MV2006L2-0003

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### **Tamerlane Ventures Inc. - Water Licence MV2006L2-0003 Comments**

I have reviewed, with some haste, the application and supporting material submitted by Tamerlane Ventures Inc. relating to their proposed Bulk Sample pilot project in the R-190 area East of the town of Hay River. My particular focus was directed to the impacts and handling of water, as I believe these to be the most sensitive and unpredictable aspects of this project.

## **2.8 Waste Management**

### **.1 Waste Rock Storage**

- Waste Rock is to be stockpiled on surface where it will be covered and placed on a concrete pad or bermed to contain potential drainage. The drainage will then be introduced to the DMS circuit.

\* The waste rock should be dry when it reaches the surface, so if it is covered there should be no reason to line the facility as there will not be any drainage.

### **.2 DMS Discharge**

- This waste is to be directed to the temporary waste rock storage area, and will be covered and protected from the elements. The area will be monitored for seepage which will be captured and reused in the DMS or discharged to the Infiltration Basin.

\* The report does not describe the form in which the DMS Discharge will exist - Solid, Liquid, Slurry, etc. Water usage in this circuit is projected to be 293 million litres, or about 800 cubic metres per day, so the numbers would suggest a slurry - or at least significant moisture content. What volume are we looking at here, and if this "Seepage" is going to be discharged to the Infiltration Basin there is really no difference than just having it soak into the ground right there? Additional details are required to assess the handling and potential treatment of this waste.

## **2.9 Water Management**

### **.2 Water Balance**

\* Well water through most of that area is high in sulphides and not suitable for potable use unless distilled or treated with reverse osmosis etc. - and even then is poor.

Surface sketches did not show the infiltration basin. Depending on the volume this process may be compromised during the winter months with glaciation, especially if dewatering volumes are higher than forecast and DMS discharges are in the 800 cubic metres per day range.

Will waste discharged from the DMS circuit be filtered / clarified, or contain high volumes of suspended solids. Discharge of fine solids would compromise infiltration in a soak away system.

### **.3 Water Releases**

- Water released from the Infiltration Basin will meet MVLWB criteria.

\* What assurance do we have to support this statement, as once it reaches the basin there is no longer any control. I haven't seen any plan within the process for intermediate containment, analyses, and treatment (if required), prior to discharge.

## **2.10.4 Explosive Storage**

\* The section does not suggest what type of explosives will be utilized. If it is a "fertilizer" mixture we have seen elevated levels of nitrates downstream in the process. This may or may not be a concern depending on where the waste water eventually end up.

## **4.0 Environmental Overview**

### **.2 Climate**

- Just a typo here in that the Hay River weather station is due **West** of the site, not East.

## **5.2 Ground Water Effects**

- The project description notes that blast impacted water will be pumped to the surface and fed through the recovery process, and that Nitrates introduced to the groundwater from blasting will be minimal. It also states that the company will monitor the aquifer surrounding the Bulk Sample Area, and corrective action will be taken if and when necessary.

\* Blast impacted water fed through the recovery process is ultimately destined for the Infiltration Basin ie. soaking into the ground. As noted above, elevated levels of nitrates (particularly ammonia), have been observed in waste water at other projects when certain types and mixtures of explosive are used. Monitoring of the aquifer is not an acceptable technique for determining whether or not corrective action is required - but will be necessary to measure whether or not impacts have occurred. In considering the realities of this project, if the

underlying aquifer becomes polluted there is no way it will be treated or remediated. Therefore it is essential that the proper checks and balances be applied initially to prevent such an occurrence.

### **General Comments**

The approach presented by Tamerlane Ventures for the Pine Point Pilot Project is new to this geographical area, but contains some very interesting concepts. I am particularly nervous about the Freeze Wall, as the package mentions that the results are based on limited available information and a number of assumptions. Other statements which make me uncomfortable are as follows: ground water seepage at the base may cause thermal erosion thus make it difficult to seal off, voids or cavities may act as a conduit for ground water flow during dewatering, and because of these uncertainties there is a risk that the frozen wall may not fully develop and / or may not act as an impermeable barrier.

While working underground Pine Point Mines Ltd. experienced instability and solution cavities within the host rock. This condition appears to be consistent throughout the area with the observation of many surface collapse features. With the porous nature of the rock structure, I am concerned that a failure of the freeze wall during production could become catastrophic. Perhaps additional detailed information will enable engineers to provide a higher degree of certainty in this regard, but at present I have reservations about the process under these conditions.

Thank you for allowing me an opportunity to comment on this application, and I remain most willing to provide further input if required.

Sincerely,

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DIAND  
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