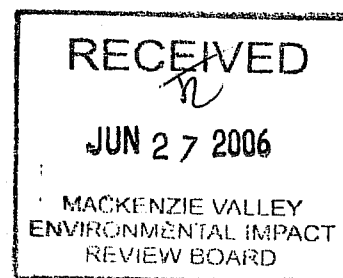




Environment Canada  
Environnement Canada

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June 27, 2006

Our File: 4708 001 008

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Attention: Lynn Carter

**Re: Tamerlane Ventures Inc. – Applications for Land Use Permit MV2006C0014  
and Water Licence MV2006L2-0003 – Pine Point Pilot Project**

Environment Canada has reviewed the above applications, and provides the following advice pursuant to Section 22 of the *Mackenzie Valley Resource Management Act*. Environment Canada's contribution to the request for specialist advice is based primarily on the mandated responsibilities for the enforcement of Section 36(3) of the *Fisheries Act*, the *Canadian Environmental Protection Act*, the *Species at Risk Act*, and the *Migratory Birds Convention Act*.

Tamerlane Ventures Inc. is proposing to mine a 1,000,000 tonne bulk sample from the Pine Point area, using freezing of the perimeter soils to prevent groundwater inflow. Temporary facilities will be constructed on surface to accommodate secondary crushing and dense media separation processes, as well as provide ancillary infrastructure.

As an RM contributing to the preliminary screening of the applications, Environment Canada is of the opinion that the above noted project "might have significant adverse impacts on the environment" and, therefore, requests that an environmental assessment of the Pine Point Pilot Project proposal be conducted. Environment Canada has identified a number of technical, environmental, and process concerns with the proposed Pine Point Pilot Project (PPPP).

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Technical and environmental concerns include the use of new technology with the freezing wall, lack of a contingency plan if water inflows occur, the potential for groundwater contamination, details on hazardous wastes and disposal, uncertainty around the ability to backfill all waste rock and tailings, and disposal of the wastes from the workforce, noting that there will be close to 150 people employed. Also, SARA-listed species in the area include whooping cranes and peregrine falcons, woodland caribou, and the potential for effects on these species and their habitat needs to be assessed.

Water management:

Use of a frozen perimeter zone is a new approach in the NWT, and the feasibility has been modeled using very limited information on site soil properties, and making a number of assumptions. The lack of field data as model inputs introduces a high degree of uncertainty. For example, there were no measured ground temperatures used, nor groundwater field data. One of the assumptions is that groundwater seepage rates are small, and temperature modeling relies on this, but no groundwater measurements have been done.

There was no discussion of the potential for blasting to disrupt the frozen perimeter wall, or of any other potential failure mechanisms. If there is considerable seepage through or up from below the frozen wall, how will inflows be disposed of?

Use of the infiltration pit for disposal has not been well detailed, and there are questions about the quality of wastewater to be disposed. Tamerlane is calling this "ground to ground" disposal, but this overlooks the addition of blasting residues, waste rock seepage (potentially containing metals), sewage constituents, and mill additives, as well as potentially hydrocarbons from spills. Any underground water which is in contact with the cement backfill may have elevated pH. Testing of wastewater quality would need to be done, and alternative disposal means or treatment identified in the event quality was unacceptable for release to the groundwater aquifer.

No information has been provided on the quality of groundwater in the vicinity of the proposed development, and the flow regime is not understood. These are information gaps which need to be addressed before this disposal method is considered.

Waste Management:

The application does not provide any details on the types and volumes of hazardous wastes which may be on site (section 2.8.4 of the Project Description Report), nor disposal methods.

Waste from the DMS plant will be stored in the temporary waste rock storage facility, than used as batched cement backfill in the underground primary stopes. What volumes are expected to be generated?

Disposal of waste rock is also not well detailed. What volumes are expected to be generated? Will the size fraction be small enough to go through a cement batching facility? Can all volumes reasonably be expected to be returned underground? Has testing been done to identify the potential for acid generation, or for metals leaching from the rock which is proposed to be used for construction?

With respect to the sewage treatment plant, will disinfection be used? How will solids be disposed of?

Closure:

It is noted that there is the potential for further work at this site, if the perimeter freezing is successful and the economics prove favorable to full scale mining. We note that this uncertainty should not affect the early development of complete site closure and reclamation plans, and that there would need to be an appropriate security deposit for the bulk sample stage of the project. Much more detail is needed on closure plans; for example, how will the frozen perimeter wall be decommissioned? What effect will that have on the groundwater flow in the area?

The proposal to monitor groundwater for 6 months following completion of mining is inadequate; once the proponent can show some understanding of the area's groundwater regime a defensible time period could be identified, and it would be expected to be on the order of years rather than months.

Species at Risk:

The following comments are pursuant to the Species at Risk Act (SARA), which came into full effect on June 1, 2004. Section 79 (2) of SARA, states that during an assessment of effects of a project, the adverse effects of the project on listed wildlife species and its critical habitat must be identified, that measures are taken to avoid or lessen those effects, and that the effects need to be monitored. This section applies to all species listed on Schedule 1 of SARA.

Species at Risk	Category of Concern	Schedule of SARA
Whooping Crane	Endangered	Schedule 1
Peregrine Falcon (subspecies anatum)	Threatened	Schedule 1
Woodland Caribou (Boreal population)	Threatened	Schedule 1
Wood Bison	Threatened	Schedule 1

Although the proponent has noted the above species are found in the study area, no specific analysis was done to identify any adverse effects of the project on these Species at Risk, nor were mitigation and monitoring measures provided. Thus, compliance with the *Species at Risk Act* (SARA) in connection with this project is one of the issues that has not been properly addressed.

Process Concerns:

With respect to process, we feel that this should be a Type A water licence based on the milling rate of 2800 metric tonnes per day. The definition of milling found in the Canadian Oxford Dictionary is to "extract (a mineral) from rock by crushing the rock in a mill". Tamberlane's letter of June 6<sup>th</sup> seeks to differentiate their proposed mineral extraction processes from conventional mine milling based on chemical use and sizing, but this is not a valid distinction in our eyes. The key threshold is the volume of ore to be milled, which is considerably in excess of the 100 tonnes per day specified in the *Northwest Territories Waters Regulations*.

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Please do not hesitate to contact Anne Wilson with any questions or comments with regards to the foregoing at (867) 669-4735 or by email at [anne.wilson@ec.gc.ca](mailto:anne.wilson@ec.gc.ca).

Yours truly,



Stephen Harbicht  
Head, Environmental Assessment North  
Environmental Protection Operations

cc: Anne Wilson (Water Pollution Specialist, EA, EPO)  
Mike Fournier (Coordinator, EA, EPO)  
Myra Robertson (CWS)

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