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RE: Tahera Diamond Corporation – Jericho Landfill Design, Waste & Hazardous Materials Management Plan - 2AM-JER/TR/D6, H5

I would like to thank the Nunavut Water Board for providing Environment Canada time to review and comment on Tahera Diamond Corporation's Landfill Design and Waste Management Plan. The following specialist advice has been provided pursuant to Environment Canada's mandated responsibilities for the enforcement of the *Canadian Environmental Protection Act*, Section 36(3) of the *Fisheries Act*, the *Migratory Birds Convention Act*, and the *Species at Risk Act*.

The Jericho Diamond Mine is located in the West Kitikmeot region of Nunavut, approximately 350 km southwest of Cambridge Bay, Nunavut. The Proponent has submitted a Landfill Design, Waste & Hazardous Materials Management Plan as a requirement of Part D, Item 6 & Part H, Item 5 of their water license. The mine generates a variety of wastes, both hazardous and non-hazardous. A landfill is used to dispose of non-hazardous wastes that cannot be recycled and is the subject of this landfill management plan. Food wastes are incinerated and hazardous materials are separated, stored and sent off-site for disposal or for the recycling of hazardous recyclables via the winter road.

Regulatory

- Environment Canada would like to remind the proponent that in addition to the mandatory regulations listed in section 2.0 *Regulatory Setting*, the *Fisheries Act* shall apply in association with water use for waste disposal and camp operations at the Jericho diamond mine. The proponent shall not deposit, nor permit the deposit of any fuel, chemicals, wastes or sediment into any water body. According to the *Fisheries Act*, Section 36(3), the deposition of deleterious substances of any type in water frequented by fish, or in any place under any conditions where the deleterious substance, or any other deleterious substance that results from the deposit of the deleterious substance, may enter any such water, is prohibited.
- In section 3.5 *Burning* the proponent is unclear concerning its commitment to the FSC (2003) guideline titled "Guidelines for the Planning, Design, Operations and Maintenance of Modified Solid Waste Sites in the NWT". The proponent states "the landfill has been designed to conform to the requirements of the *Guideline*" and "those principals that are applicable have been adopted in the design". Burning is a practice which is strongly discouraged in the FSC (2003) guideline. The proponent should clearly describe the rationale behind choosing plan designs which do not adhere to the FSC (2003) guideline. For instance the Plan may be in conflict with the following parts of the FSC (2003) guideline:

i) Open Pit Burning

- Solid wastes that are conditionally suitable for open burning are paper products, paperboard packaging and untreated wood. Plywood, painted wood or other treated wood should not be disposed of in an open burn pit.

ii) Incineration

- The proponent should ensure that the installation of an incineration device is capable of meeting the emission limits established under the *Canada-wide Standards (CWS) for Dioxins and Furans* and the *CWS for Mercury Emissions* is required (both the Government of Canada and the Government of the Nunavut are signatories to these Standards and are required to implement them according to their respective jurisdictional responsibility).
- Used absorbent materials, oily or greasy rags, and equipment servicing wastes (such as used engine oil, antifreeze, hydraulic oil, lead acid batteries, brake fluid and other lubricants) should be safely stored and transported in sealed containers (odour free to prevent animal attraction) and safely transported to a facility that is authorized for the treatment and disposal of industrial hazardous wastes.
- Table 5.1 indicates that incineration ash will be disposed of at the landfill. Incineration ash can be contaminated with incineration byproducts (listed above) and therefore should be tested to ensure the ash is suitable for the landfill.
- An **incineration management plan** should be developed in consultation with EC. The management plan should include annual reports to provide details on the following:
 - Recycling/segregation waste program
 - Incineration technology selected
 - The amount and types of waste incinerated
 - Operational and maintenance records
 - Operator training
 - Emission measurements
 - Incineration ash disposal

iii) Sludge Pit

- Section 3.6 *Sludge Pit* the proponent briefly outlines the use of a sludge pit for the disposal of solids received from the wastewater clarifier (WWC). The solids are placed into a pit adjacent to the landfill within the waste rock dump. Downslope groundwater water quality monitoring is used to maintain a review of any potential changes to surface and subsurface water quality from flows that may come from the rock dump area. All downslope flow is directed to the pit catchment area. Environment Canada has concerns about the operation and performance of this sludge pit. Water of this nature should not be running freely overland. EC recommends that more details be provided to the NWB including how Tahera will prevent contaminated water from running uncontaminated from the pit.
- According to the *Fisheries Act*, Section 36(3), the deposition of deleterious substances of any type in water frequented by fish, or in any place under any conditions where the deleterious substance, or any other deleterious substance that results from the deposit of the deleterious substance, may enter any such water, is prohibited. Successful long-term performance requires pro-active detection and resolution of problems prior to significant environmental impacts. In order to help mitigate further impacts to water quality, EC recommends that this include:

General

- EC recommends that all potential products that are attractants to wildlife be made inaccessible to wildlife at all times. Camp waste can attract predators of migratory birds (e.g., foxes and ravens) to an area if not disposed of properly.
- Section 6.0 *Landfill Management* states “Equipment containing petroleum hydrocarbons will be drained prior to landfilling. EC is concerned there are inadequate provisions made to ensure that equipment contaminated with hydrocarbons will be properly cleaned prior to being placed in the landfill. EC would like confirmation that these procedures would also apply to any equipment being disposed of in the landfill. Details of solvent disposal should be provided.

- The Plan does not address how products contaminated lead will be handled. There are a few options in disposing of these types of contaminants. One is to dispose of the components off site as hazardous waste. The second is to remove any lead paint on site and dispose of with components on site with the non-hazardous waste. If the Proponent anticipates having to dispose of any waste contaminated with lead paint clarification is required regarding which option will be implemented. If the decision is made to remove the lead paint on site, detailed information is required regarding how the lead chips will be contained on site, and if water is used, how the water will be contained and treated.
- The Plan should address the total volumes of waste which will be placed in the landfill.
- The documentation should describe testing for and disposing of contaminated rocks and soils. Details of landfarm operation should be provided in the waste management plan.

If there are any changes in the proposed project, EC should be notified, as further review may be necessary. Please do not hesitate to contact me with any questions or comments with regards to the foregoing at (867) 975-4631 or by email at cindy.parker@ec.gc.ca.

Yours truly,

Original signed by

Cindy Parker
Environmental Assessment Specialist

cc: (Carey Ogilvie, Manager Environment Canada, EPOD, Yellowknife, NWT)