

Environmental Protection Branch
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Mackenzie Valley Environmental Impact Review Board
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Our file:

Via facsimile

**Re: MV2005C0001 – Draft Terms of Reference and Work Plan for the Environmental Assessment of Tyhee NWT Corp's Yellowknife Gold Project
Proponent – Tyhee NWT Corp., Vancouver, BC**

On behalf of Environment Canada (EC), I have reviewed the Draft Terms of Reference and Work Plan for the Environmental Assessment of Tyhee NWT Corp's Yellowknife Gold Project (YGP). The following comments are 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*.

1. It should be made clear that in the General Terms of Reference (ToR) that the Developer's Assessment Report (DAR) should be a stand alone document. The necessary information to address the ToR should be all inclusive to the DAR and not be dealt with by referring to previous reports or submissions.
2. In a number of places the acronym YPG is used in place of the YGP.
3. Scope of Development
 - Mining Process – 7th bullet should read: *"Mine dewatering and the management and treatment of mine water."*
4. Specific Items
 - A Summary – Include in the DAR an estimate of the mine life (duration of operations phase) of the YGP, or the duration of the construction and post-mining A&R phases
 - B - Developer c. – This should read: *"The method by which Tyhee intends to finance the development of the YGP from construction through to operations closure and post monitoring"*
 - C - Description of the Existing Environment, Preamble, sec II. Site Hydrology – Add *"surface water, shallow subsurface water and groundwater"*
 - C - Description of the Existing Environment, Preamble, sec VII. Terrain – We suggest that soils and lake sediments have a separate bullet and include its physical and chemical makeup, e.g., *"physical and chemical makeup of soils and lake sediments"*
 - C - Description of the Existing Environment – Include a description of Giauque Lake sediments that were previously mercury contaminated due to old/rare amalgamation of mercury with gold technique for LODE gold mining.
 - D - Development Description, VI. - We recommend that this read "A description of the process plant, milling facility and its support infrastructure..."
 - E – Alternatives, Preamble, sec I. – We recommend that geotechnical information and information on groundwater movements be included in the discussion for each of the alternatives suggested.
 - E – Alternatives, Preamble, sec VI. – Add to this *"...and possibilities for cogeneration"*.
 - E – Alternatives, Preamble, sec VIII. – A section should be added that addresses alternatives considered for the winter road that will resupply the mine, i.e., using the existing Lupin Mine road rather than opening and maintaining a second road in the area.
 - G – Assessment Boundaries - The aquatic/water Local & Regional Study Areas (LSAs, RSAs) are partially described for some aquatic VECs (e.g., watersheds) and VSECs (e.g., impacted communities), but not dealt with for many aquatic and terrestrial VECs.

5. Biophysical Environment (pg 20)

- **Text Box** – add to the first bullet “Identify any valued ecosystem components (VECs) used, how they were determined *and how they will be carried forward into the various ongoing monitoring programs*”. In other words, has the proponent selected the **appropriate** VECs to be used in future monitoring programs?
- **Preamble** – Change the last sentence of the first paragraph to the following: “*Additionally the potential impacts from the discharge of effluents from all possible sources were also concerns as they may contain contaminants such as cyanide, heavy metals, nutrients and hydrocarbons*”.
- **Water Resources, Item III** - When discussing water quality, a consideration of surface and subsurface waters should be reflected in the draft ToR. Therefore, in considering both surface and subsurface flows, the underground workings and groundwater flows for both sites must also be considered in this part of the assessment. Also, ground water is a major contributor to water quality/quantity in late winter, according to EC's 1991 report on Yellowknife River Basin, and this is not discussed adequately.
- **Water Resources, Item IV** - A lot of emphasis have been provided for the MMERs which may leave the proponent with the impression that the MMERs will be providing the absolute limits for effluent releases. This may very well not be the case as the limits set by the MVWLB may be even more stringent. It should be noted that **at a minimum** the MMERs will apply.
- **Water Resources, Item IX** - There should also be a discussion regarding the impacts of the mine working, following closure, on the surrounding ground water regime - particularly if paste backfill is employed at the sites.
- **Water Resources, Item XII** – We strongly recommend that this sentence read as follows: “The role that YGP activities will have on the discharge of *heavy metals, including arsenic*, into the receiving environment and its potential impact on water quality”.
- **Water Resources, Item XVI, sub a** – We suggest that this item be changed to reflect the larger program rather than just a water quality Monitoring plan. It should be more inclusive and state that it's an Aquatic Effects Monitoring Program (AEMP). This could be combined with the same request asked for in the Aquatic Habitat sec page 24 sub item XI
- **Additional information required on - Acid rock/mine drainage (ARD/AMD)**
 - This is discussed in passing with no reference to bedrock geology, mineralogy and petrology/rock types (or mine zones within rock types) likely to produce metal leaching (ML) and ARD/AMD.
 - There was no mention of the minerals present that are likely to cause ARD/AMD, and their abundance in various rock types (discernable by microscope petrographic work).
 - There was no mention of specific batch or column geochemical testing of various rock types and zones with ARD/AMD potential.
 - There was no preliminary mention of possible mitigation techniques in the mine and at the toes of tailings piles in the TCA.

6. Air Quality and Climate

- The dust from tailings impoundment areas should also be addressed.

7. Closure and Reclamation Activities

- There do not appear to be any references to an environmental damage deposit.
- A conceptual management and monitoring program for waste rock, overburden etc. has not been described.
- It is not only tailings oxidation or resuspension of the tailings that are a concern, but also the movement of groundwater through these tailings masses that are of concern. How does the proponent intend to address this issue in final abandonment?

8. Accidents and Malfunctions

- The proponent should be requested to provide a copy of the contractor's fuel handling and spill clean-up procedures, and an explanation of how the proponent has ensured that the contractor is cognizant of, and in adherence to, permit conditions.
- A description of the measures to be used to prevent, prepare for, respond to and recover from, any accident or malfunctions identified in the environmental emergency response plans should be included. Spill contingency plans should include locations of disposal sites approved to accept wastes and means of storage prior to disposal.
- The proponent should also identify measures to be taken to notify members of the public who may be adversely affected by an environmental emergency.

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) 669-4708 or by email at ivy.stone@ec.gc.ca.

Sincerely,

Ivy Stone
Environmental Assessment

cc: Steve Harbicht (Head, Assessment & Monitoring, EPB, Environment Canada, Yellowknife, NT)
Mike Fournier (Northern Environmental Assessment Coordinator, EPB, Environment Canada, Yellowknife, NT)