



June 29th, 2012

Via e-mail to:
nspencer@reviewboard.ca

Mackenzie Valley Environmental Impact Review Board
#200 Scotia Center
5102-50th Ave
Yellowknife, NT
X1A 2N7

RE: Department of Fisheries and Oceans Supplemental Information Requests on New Information Provided by Tyhee NWT Corporation on the Yellowknife Gold project (EA0809-003)

The Department of Fisheries and Oceans (DFO) is pleased to provide the Mackenzie Valley Environmental Impact Review Board (Review Board) with our supplemental information requests for the Tyhee NWT Corporation (Tyhee) Yellowknife Gold project (YGP). DFO's submission, attached, is based on the new information provided by Tyhee since the submission of their Developer's assessment report (DAR) on May 11th, 2011.

DFO would also like to take this opportunity to express our concerns with the ongoing changes and the uncertainties related to the YGP activities, as well as the lack of detailed information provided for some components of project that are within the scope of this environmental assessment.

On March 28th 2012, Tyhee proposed operational changes to the project including the removal of Nicholas Lake deposit from the mine plan, the redesign of the tailings containment area, the relocation of the waste rock piles as well as the addition of a second waste rock pile in the area between Winter Lake and Narrow Lake. Tyhee also indicated in their submission that the decision to remove the Nicholas Lake deposit from the mine plan was mainly due to concerns with high levels of arsenic and thus would significantly reduce or eliminate potential environmental effects.

In its June 15th 2012 correspondence to the Review Board and the Yellowknives Dene First Nation (YKDFN), Tyhee clarified that the Nicholas Lake deposit was in fact still part of the proposed project, with the following statement:

"With respect to YKDFN comments on the mine plan and in particular Nicholas Lake, this resource remains a component of the YGP as originally proposed in the Project Description Report and subsequent DAR and as such remains a part of the EA."

On June 25th, Aboriginal Affairs and Northern Development Canada also addressed these contradictory remarks in correspondence with Tyhee posted on the Review Board registry. Tyhee once again confirmed that Nicholas Lake is still part of the YGP.

It is DFO's current understanding that the Nicholas Lake deposit will be mined and the ore will be processed in year 5 of operation at the Ormsby mill. However, metallurgical test work is still underway for Nicholas Lake ore and as such, critical information on its

contribution to the overall water balance and the tailings management for the YGP has not been evaluated.

At this time, DFO feels that in order to properly evaluate the potential impacts of the project, a consolidated revised version of information that reflects all activities at Nicholas Lake, including how it will contribute to the overall water and waste management plans must be provided.

If you have any questions or comments, please contact Sarah Olivier at (867) 669-4919 or e-mail (sarah.olivier@dfo-mpo.gc.ca).

Sincerely,

A handwritten signature in blue ink, appearing to read 'L. Dow'.

Larry Dow
A/Area Director
Fisheries and Oceans Canada

cc Kelly Burke, Fisheries and Oceans Canada
Bev Ross, Fisheries and Oceans Canada
Lorraine Sawdon, Fisheries and Oceans Canada
Corrinne Gibson, Fisheries and Oceans Canada

Tyhee NWT Corp. Yellowknife Gold Project
Fisheries and Oceans Canada Supplemental Information Requests

IR # : DFO_2.1 (the following IRs are in addition to DFO_2 from June 8th submission)
Subject: Tailings Containment Area (TCA)
Section: DAR 4.12.3; 4.12.4; 4.13.1; Tables 6.2-2; 6.2.1.1; 6.3.3.2; 6.8.1.4; 8.4; 11.0 ;
March 28, 2012 Tyhee NWT Corporation's letter to MVEIRB; May 31st 2012
Tyhee NWT Corporation's IR Responses to MVEIRB; June 15th, 2012 Tyhee
NWT Corporation's letter to YKDFN

Preamble/Rationale:

In the letter submitted to the Review Board on March 28th 2012, Tyhee discussed various operational changes including the redesign of the TCA to better manage the tailings, the relocation of the waste rock piles around Round Lake, and a second waste rock pile in the area between Winter Lake and Narrow Lake.

Request:

1. Provide an updated water balance that demonstrates that the TCA will have sufficient capacity over the life of mine to store and treat all the tailings from Ormsby Mill (including Ormsby deposit and Nicholas deposit) as well as all other waste water generated from the project (eg. site and waste rock seepage)
2. Tyhee's response to IR 1-1-4 indicates that monitoring will occur on a monthly basis from natural and constructed seepage ponds. However, the figure provided (entitled Part I – Information Request Responses General Facilities Layout) does not indicate where either natural or constructed seepage ponds are located.
 - a. Please provide an updated figure clearly showing all seepage collection ponds.
3. Please provide the following regarding the operations of the TCA:
 - a. Tyhee's response to IR 1-1-1 indicates that TSS will exceed MMEER limits of 15mg/L. Currently, TSS levels in Narrow Lake are below 3 mg/L (DAR, Appendix C, Table 10). What measures will be incorporated to reduce TSS levels prior to discharge to the environment?
 - b. The DAR (pg 424) states that "*discharges from the TCA to the Narrow Lake Inlet stream will be regulated to simulate, within practical limits, background flow volumes and the seasonal cycle.*" However, information provided in Tyhee's May 31st, 2012 submission indicates that while the water balance did not include discharge from the TCA, up to 100 000m³ over 30 days may be released between May to October, most likely between May and June (Tyhee's response to IR 1-1-1).
 - i. Please explain why the water balance indicates that discharge from the TCA is not required yet Tyhee is expecting to release up to 100 000m³ between May and October (Tyhee's May 31st, 2012 submissions).
 - ii. Under what conditions would discharge from the TCA occur?
 - iii. Provide a description of how the discharge schedule (no discharge, continuous or over a 30 day period) could impact fish and fish habitat with consideration to all life

stages. Also include a discussion of mitigation measures to reduce or eliminate any potential effects on fish and fish habitat.

4. Tyhee's response to IR 1-1-4 provided general effluent treatment options. Please expand upon these options in relation to potential impacts to fish and fish habitat. For example, one passive option included the use of wetlands or evaporation ponds, however impacts to fish and fish habitat from the construction, operation, maintenance and closure was not assessed. Locations of ponds or wetlands were not provided. It was not clear how the discharge from these "treatment" facilities would be controlled prior to release to the downstream aquatic environment. More detailed information regarding the proposed effluent treatment options and an evaluation of potential impacts to fish and fish habitat is required.
5. Given the information provided in Tyhee's response to IR 1-1-1, it is unclear if a diffuser will still be used for the effluent discharge.
 - a. If a diffuser is part of the effluent discharge system, please provide the exact location of the diffuser;
 - b. If the diffuser is near or in a waterbody or watercourse, please provide the conceptual design of the diffuser including dimensions, discharge volumes and velocities expected to be released from the diffuser and mitigation measures to prevent sediment and erosion of the stream between Narrow Lake and Winter Lake

IR # : DFO_9 (new)

Subject: Nicholas Lake Deposit

Section: DAR 6.3.3; 6.3.3.3; March 28, 2012 Tyhee NWT Corporation's letter to MVEIRB; May 31st 2012 Tyhee NWT Corporation's IR Responses to MVEIRB; June 15th, 2012 Tyhee NWT Corporation's letter to YKDFN

Preamble/Rationale:

Tyhee is proposing to mine the Nicholas Lake deposit and will use the Ormsby facilities (including mill and TCA) for the processing of the ore and the management of the waste. In the 2011 DAR as well as all the supplemental information provided to date, Tyhee has not fully described all activities at Nicholas Lake or evaluated the potential impacts on fish and fish habitat.

Request:

1. Please describe, in detail, the mine plan for Nicholas Lake deposit, including
 - a. mine life projection;
 - b. water withdrawal quantities and sources, as well as locations and requirements for an intake (if required);
 - c. mine water storage, treatment and release;
 - d. potential effects to Eclipse lake, including the potential for increased sedimentation and erosion;
 - e. appropriate mitigation measures to be implemented (e.g. water treatment; sediment and erosion control along the drainage to Eclipse Lake);
 - f. A figure identifying all components and facilities associated with the Nicholas Lake Ore Body.

IR #: DFO_10 (new)
Subject: Waste Rock Piles
Section: Tyhee's Responses to IR1-1-5, May 31st, 2012

Preamble/Rationale

The updated mine plan in response to IR 1-1-5 included relocating one waste rock pile to cover Round Lake, and adding a second waste rock pile area between Winter and Narrow Lake. While the updated mine plan provided the new locations for the waste rock piles, it did not provide any information pertaining to the construction, operation, maintenance and closure of the waste rock piles.

Request:

1. The waste rock pile to be located between Narrow Lake and Winter Lake appears to cover a small waterbody.
 - a. DFO requires the bathymetry, surface area, depth, connectivity of these waterbodies with a discussion of whether the lakes can support fish and fish habitat;
 - b. Description of activities in and around the lake (including the riparian areas)If the lakes are potentially fish frequented, please provide the following:
 - c. Assessment of fish use and fish habitat;
 - d. Effects of proposed activities during construction, operations and closure.
 - e. Mitigation measures to be implemented that will reduce or eliminate the potential adverse impacts.

IR # : DFO_11 (new)
Subject: Water Balance and Hydrological Analysis
Section: Appendix P

Preamble/Rationale:

Confidence in the calculated water balance is essential for understanding the hydrology and climate of a watershed. The water balance forms the basis for determination of allowable discharge rates, refill times, water withdrawal rates and for making predictions of the required storage capacity within the Tailings Containment Area and the associated impacts on the downstream receiving environment. Stream Discharge is a key component of the water balance and was used by Tyhee to calculate runoff. In Appendix P of the DAR, it states that the Narrow Lake station was used to represent the runoff at the project site. Incomplete data was available during the spring freshets so discharge data from the Yellowknife River at Inlet to Prosperous Lake was used to estimate the spring freshet and the annual runoff at the project site. DFO notes that this station is located immediately downstream of the Bluefish Hydroelectric facility and Bluefish Lake dam. As this is a regulated system with the ability for water to be held back in storage within the Bluefish Lake reservoir, and released at later times within the year, and in future years, it is a poor station to use as a surrogate for estimating the spring discharge, especially since only looking at the May through September period.

Request:

1. Yellowknife River at Inlet to Prosperous Lake was used to estimate the spring freshet and the annual runoff at the project site. Please reconsider the use of this station for your hydrological analysis and provide:
 - a. Rationale for the use of the station including a statistical confidence assessment of predictions

- b. Runoff calculations (as presented in P5), using an alternative Water Survey of Canada hydrometric station, on an unregulated system for estimating the May and annual runoff.

IR #: DFO_12 (new)
Subject: Access Road – Culvert Installation
Section: 2.11.11; 6.3.1.3; 6.3.3.5

Preamble/Rationale:

Culverts have been proposed as part of the access road construction. Installation of culverts may cause a Harmful Alteration, Disruption and Destruction (HADD) of Fish Habitat and can require a Fisheries Act Authorization. Poorly installed culverts can create an impediment or barrier to fish passage. It is paramount that upstream and downstream fish passage be maintained so that fish species can continue to have access to conduct their various life stages. Other alternatives exist to standard round culverts which can avoid causing a HADD and which do not require a Fisheries Act Authorization. These include clear span bridges and clear span open bottomed arch culverts. DFO has Operational Statement for installation of Clear Span Bridges, including open bottomed arch culverts. Please note: the DFO Operational Statement for Culvert Maintenance does not cover the *installation* of culverts.

Some fish use information is provided, however sampling effort was insufficient to conclude that these streams are not fish-bearing. Many of the stream crossings identified within the mine site area drain into Giauque Lake, which is known to support multiple species of fish (Lake Trout, Round Whitefish, Northern Pike, Longnose Sucker). The Nicholas Lake access road must also be evaluated.

Request:

1. Identify **all** locations of proposed stream crossings and provide fish habitat and fish use for each location.
2. Details of proposed culverts – dimensions, type, and conceptual crossing designs
3. All site specific mitigation measures to be employed to ensure continued fish passage and minimized risk to fish habitat
4. A sediment and erosion control plan, including but not limited to the following:
 - a. All sediment and erosion control measures to be implemented at each site
 - b. Specific monitoring action that will be taken to ensure effectiveness of the above measures at each stream crossing
 - c. Contingencies should the above measures be ineffective in preventing sediment and erosion at any of the stream crossings.