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Application # ~~11~~ N3L2-0004  
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Environment Canada  
Environmental Protection Branch  
Suite 301, 5204 50<sup>th</sup> Ave.  
Yellowknife, NT  
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May 13, 2002

**RE: Water licence Application, North American Tungsten Corporation N3L2 - 0004  
Renewal of Mining and milling Operation - CANTUNG Minesite**

Environment Canada has reviewed the information that was provided by North American Tungsten Corporation in support of its application for a NWT Water Licence renewal. This included the following documents:

1. Application for water licence, Amendment of Licence, or renewal of Licence. N3L2 - 0004 (Renewal)
2. Mackenzie Valley land and Water Board Mining Industry Questionnaire for Water Licence Application. (January 2002)
3. North American Tungsten Corporation Ltd. Community Consultations & Archaeological Site Research.

Environment Canada would like to offer the following comments for your consideration:

**Cantung Water Withdrawals**

The proposed rate of water withdrawal from the Flat River ( 45,000 m<sup>3</sup> /wk or 0.075 m<sup>3</sup>/s) is similar to that in the 1983 Water licence. The 1983 water stated that streamflow in the Flat River immediately below the intake point was never to drop below 0.127m<sup>3</sup> /s, presumably for the protection of fish habitat. In this case a minimum flow of 0.202m<sup>3</sup> is needed to mine both mine and fish habitat requirements.

The record from the Water Survey of Canada Flat River at Cantung Camp Hydrometric station shows a mean 1973 - 1987 April streamflow of 0.31 +/- 0.07 m<sup>3</sup> /s and a record low of 0.17 m<sup>3</sup>/s on March 29, 1975. A low flow frequency analysis of the same dataset reveals that streamflows less than 0.202 m<sup>3</sup>/s occur at a 1 in 5 year rate.

From Environment Canada understanding, the mine is to operate only for the next three years, so the statistics say there may be no concern. However, since there is no present streamflow monitoring at the mine, it is impossible to say if fish habitat is currently being jeopardized. As well, provided the recent warming in the region and the glacial source of Flat River, it is plausible that its hydrological regime has changed since 1987, but there no data to determine if this is the case.

**Waste Rock, Tailings Solids, and Historical Tailings on the Flood Plain of the Flat River.**

In the supporting information it is noted that "exposed Tailings along the Flat River were acidic with characteristic iron staining evident in some areas" and "It was also determined that oxidation and net acid generation processes have been well established in the tailings and is expected to continue as alkalinity is consumed." The E zone scheelite ( calcium tungstate) ore is associated with sulphides including 30% to 40% pyrrhotite, an iron sulphide containing as much sulphur as iron (or more) Pyrrhotite is well-known as the most commonly-occurring ARD generating sulphide mineral known and could be responsible for the above iron staining in the exposed tailings long Flat River. Environment Canada would like to review the various reports that were not provided with this material to better understand the information relating to the evaluation of ARD at this location. Further comments would be provided following that review.

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Have they been provided? When will they be?

### **Mine/Mill Water:**

EC understands that all mine water will be placed into the mill circuit (Page 15 SEC 3.17) and recycled as much as possible. Final effluent to the primary Tailings Impoundment will include both mine and mill waters. The chemical assessment of this effluent quality (Pg 18) has several chemical parameters not showing (N/A) values. This water quality information both for dissolved and total values should be available thus allowing for some understanding of input water quality to the tailings containment area. It is recognized that the existing water licence allows for exfiltration of the tailings effluent into the alluvial soils and the groundwater regime for the area, however a complete understanding of the effluent quality is essential so that the appropriate parameters for the downstream groundwater wells are being evaluated.

Environment Canada recommends that the water quality monitoring variables for the monitoring wells should include but not be limited to pH, TSS, Total Ammonia, Nitrate + Nitrite, sulphate, and total/dissolved metals (full metal scan with ICP MS).

There is no information provided in this package as to a contingency plan that would be put into effect if the ground water exceeds licence limits. This information may exist in others documents and should have been provided along with this application.

It should be pointed out that this mine will be captured by the new Metal Mining Effluent Regulations, which will likely come into force second or third quarter 2002. Environment Canada is presently communicating information on compliance and promotion for this regulation and will be ensuring that the company is aware of these new requirements. A component to this new regulation will be an Environmental Effects Monitoring program.

Since the initial water licence was issued, Environment Canada, Parks Canada Agency and their predecessor agencies have carried out water and suspended sediment quality studies and monitoring at Flat River near the Park Boundary, above the Caribou River and near the river mouth since 1988 (1972, at Flat River mouth site). Site specific water quality objectives have been set for the Flat River Mouth and Park oundary sites by Environment Canada and Parks Canada (Inland Waters Directorate and Canada Parks Service 1991, and Halliwell and Catto 1998). Environment Canada recommends that future water quality monitoring results be evaluated against the water quality objectives at both Flat River sites, especially the Flat River near the Park Boundary site.

If you have any questions please contact me at 669-4733 oe email [Stephen.Harbicht@ec.gc.ca](mailto:Stephen.Harbicht@ec.gc.ca)

Sincerely

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