TO / A: Stephen Mathyk
Regulatory Officer
MVLWB

Mackenzie Valley Land & Water Board
File
MAY 10 2002
Application # N3L2-0004
Copied To KL/PM/LC/Sm/Reg

FROM / DE: Wayne Starling
Water Resource Officer
Fort Smith Sub-District

SECURITY - CLASSIFICATION - DE SÉCURITÉ

OUR FILE – N / RÉFÉRENCE
N3L2-0004

YOUR FILE – V / RÉFÉRENCE

DATE
April 24, 2002

SUBJECT / OBJET

North American Tungsten Corp. - Licence Renewal Comments

I have reviewed the Water Licence Renewal Application and supporting information submitted by North American Tungsten Corporation Ltd., and would like to offer the following comments.

Having the benefit of many years of observation and monitoring at the mine, both while in full operation and also during the recent shutdown, the company has been able to draw on past information to help predict their future impacts. I found this was very useful in assessing the application.

The Flat River provides an excellent source of fresh water for both industrial and domestic purposes. It is of high quality and ample quantity. I found the water use numbers presented in the Mining Questionnaire to be a bit confusing, and possibly inaccurate. In section 1.9 (page 6), where asked about expected draw down and recharge impacts on the river or lake it is stated that the estimated water usage would be 4,440 m^3/d. The accompanying Water Balance flow sheet shows 160 m^3/h (or 3840 m^3/d) fresh water and 35 m^3/h (840 m^3/d) mine water will be used. These figures do not add to 4,440 individually or collectively. The table in section 3.10 (page 16) outlining all water usage in the mine again indicates a total of 4,440 m^3 fresh water being used in the mine, mill, and for domestic purposes, but also shows 840 m/d mine water used in the mine and 600 m/d mine water used in the mill. I'm guessing that some of this is being counted twice as it is noted right below in 3.11 that the total mine water is 840 m/d, but when I subtract the 600 m/d which is pumped to the mill (assuming the other 240 is used in the mine as all mine water is used somewhere in the mining process), I still come out with 5280 m^3/d. This table also shows a total mill use of 3,840 fresh and 600 mine water for a total of 4,440 m^3/d, but when I go to section 4.8 (page 20) all the itemized mill uses **plus Domestic Water at 72 m^3/d** add up to 4,440. This probably isn't a big deal as the water source can supply the demand at any of the numbers noted, but I thought I should point out that I just can't seem to make them add up consistently.

The data show a relatively benign waste stream discharged to the tailings pond, and an even more impressive insignificant impact on the local ground and surface water regime. Can't argue with success, and what is of most comfort to me is the negligible measured impact on water quality over the long term. The mining questionnaire prepared by EBA Engineering Consultants clearly shows that most of the tailings and the waste rock is acid consuming, but there are small pockets of potentially acid generating tailings at depth which have not been clearly defined to date. With abandonment on the horizon it should be a requirement of this licence to firm up the details on acid generation describing long term mitigation if necessary. Section 5 notes that the present Tailings Containment Area (TCA) has enough capacity to hold the projected tailings volume for the expected life of the mine which is 3 - 5 years, **depending on exploration and economics**. It is worth noting that many mines with 3 - 5 years of ore reserves stay in production for decades, and this should be kept in mind when drafting a new licence. Respecting the fact that the mine may be reaching the end of its active life, abandonment and restoration provisions have to be given serious considerations. As much work as possible on A&R issues should be encouraged prior to an actual shutdown. One area which should be looked at closely is the long term protection of the base of the tailings dams from infringement by the Flat River. Given the mountain valley setting, of highest priority in the abandonment process has to be the long term stabilization and protection of the tailings ponds.

From the information presented it appears that the Surveillance Network Program is quite extensive, and should provide adequate coverage to detect and assess any water quality issues which might arise. Having said that, there may be other individuals who could lend recent first hand observation as to possible overlap, station maintenance, nested piezometers, parameter selection, etc.

I do not have a copy of the previous water licence so cannot comment on the conditions it contained, but in reviewing the past few inspection reports there is no mention of new areas needing specific attention or others which may be redundant. There is not much more I have to add, but if there are any questions about these comments or if I can be of any further assistance in the renewal process please contact me at any time.

Yours truly,

Wayne B. Starling CET

c: Water Resources Div.
YK District