Environment Canada | Environnement Canada

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MV2015L2-0003

Jen Potten
Regulatory Officer
Mackenzie Valley Land and Water Board
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Yellowknife, NWT X1A 2P6

Via: online submission

Attention: Ms. Potten

RE: Environment Canada's Round #2 IR Response Submission
North American Tungsten Corporation Ltd., Cantung Mine
Type A Water Licence Renewal Application (MV2015L2-0003)

Please find attached Environment Canada's (EC) Round #2 Information Request response submission to the Mackenzie Valley Land and Water Board with respect to North American Tungsten Corporation Ltd.'s Type A Water Licence Renewal Application.

Should you require further information, please do not hesitate to contact Ms. Lisa Lowman at 204-984-0668 or via email at lisa.lowman@ec.gc.ca.

Sincerely,

Margaret Fairbairn
A/Regional Director

Cc: Lisa Lowman (Senior EA Coordinator, Environmental Assessment – EA South, EC)
Lorna Hendrickson (A/Manager, Environmental Assessment, EC)
EC Internal Distribution

Information Request Number	Information Request Description and Response from Environment Canada
1	**Background**
	As required under Water Licence MV2002L2-0019, North American Tungsten Corporation Ltd. (NATCL) submitted a *Qualitative Risk Assessment* for the Flat River Tailings to the MVLWB in 2009, and NATCL suggested that this submission also satisfied the requirement for a *Quantitative Risk Assessment*. This submission was circulated for review, but was not considered by the Board. Although closure options for the Flat River Tailings have been included in subsequent closure planning submissions and discussions, closure options for the Flat River Tailings have not been finalized. During the January 17, 2015 Technical Session, NATCL suggested that the existing Water Licence requirements for *Qualitative and Quantitative Ecological Risk Assessments* for the Flat River Tailings could be incorporated into the *Integrated Geochemical Load Balance and Risk Assessment Report* for the site. The information gathered through this assessment would be used to develop and present closure options for the Flat River Tailings in the *Interim Closure and Reclamation Plan* (ICRP). NATCL proposed to conduct any additional research needed to support closure option decisions for the Flat River Tailings as reclamation research under the ICRP. ***<u>All Parties:</u> Please indicate whether your organization supports NATCL's proposed approach to risk assessment and closure planning for the Flat River Tailings. Include rationale for your organization's position.***
	Response from Environment Canada
	Environment Canada (EC) supports the integration of the *Qualitative <u>and</u> Quantitative Ecological Risk Assessments (*QERAs*)* for the Flat River Tailings into the *Integrated Geochemical Load Balance and Risk Assessment Report* with the understanding that the QERAs will be consistent with the Canadian Council of Ministers of the Environment's *Framework for Ecological Risk Assessment: General Guidance.*
2	**Background**
	Toxicity testing of site effluent or Flat River sampling stations is not currently included in the Surveillance Network Program (SNP). In its July 14, 2015 intervention, EC recommended that the SNP include sub-lethal toxicity testing at the Stinky Pond culvert (SNP Station 4-20). In its July 23, 2015 response to interventions, NATCL disagreed with including this testing in the SNP, stating that it completes sub-lethal toxicity testing in the Flat River above and below SNP 4-20 under the *Metal Mining Effluent Regulations* (MMER). ***<u>All Parties:</u> Please indicate whether toxicity testing should be required at this site. If recommending that it be required, specify whether it should form part of the Surveillance Network Program (SNP) or be incorporated into the Aquatic***

	Effects Monitoring Program. If toxicity testing requirements should be set out in the SNP, describe what specific toxicity testing should be required for this site, what the sampling location should be, and how often this testing should be conducted. Include rationale for your organization's position.
	Response from Environment Canada
	This request originated in the request to update the *Combined Water Management Plan*: *EC notes that parts of the plan should be updated to align with current MMER requirements. Specifically, Table 6 of Section 4.7.4 should identify station 4-20 / 402-2 (Stinky Pond culvert) as a Final Discharge Point (*FDP*) and monitoring requirements should reflect this. For example, sublethal toxicity testing at this discharge site would be more environmentally relevant and appropriate than continuing to test at the groundwater FDP 4-28-1.* NATCL has historically conducted sublethal toxicity testing on samples from groundwater station S4-28-1, a groundwater well designated a FDP under the *MMER*. The sublethal tests include fathead minnow, the water flea *Ceriodaphnia dubia*, *Lemna minor* duckweed, and the green algae Pseudokirchneriella supcapitata. Since 2013, with commissioning of the treatment plant, sublethal bioassay tests were conducted for both S4-28-1 and also for the new FDP at the outflow culvert from Stinky Pond, i.e. S4-27-2. As noted in the original comments on the *Combined Water Management Plan*, EC sought consistency between the plan (which falls under the Water Licence) and the requirements of the MMER. These are separate regulatory instruments, and it would be efficient to make the monitoring consistent where possible. EC has no objection to the inclusion of sublethal toxicity testing of effluent in the SNP (as it is end-of-pipe) and suggests it would fit there rather than in the *Aquatic Effects Monitoring Program* (AEMP) which is focused on the receiving environment. This would <u>not</u> include additional testing beyond what is required under the MMER, and would facilitate reporting of this information to the Board so that test results are available on the public registry. EC recommends that testing captured under the Water Licence align with the requirements of the MMER, specifically: • Twice each calendar year for the first three years (i.e. 2013, 2014, and 2015) and once per year thereafter; this would mean annually for a renewal licence SNP requirement starting in 2016; and • Bioassay tests should include include: fathead minnow larval growth and survival, *Ceriodaphnia dubia* growth and reproduction, and growth inhibition tests for *Lemna minor* and *Pseudokirchneriella subcapitata*.

	For the purposes of the Water Licence, test results for location S4-27-2 would be relevant to the AEMP, although at this time NATCL is still doing both S4-28-1 and S4-27-2. Accordingly, EC recommends that S4-27-2 be included in the SNP.
3	**Background**
	NATCL has requested a Water Licence term of 10 years. In its July 14, 2015 intervention, GNWT-ENR supported this proposal. Please make a recommendation regarding the term of the Water Licence.
	Response from Environment Canada
	Environment Canada has no concerns with a Water Licence term of 10 years.
4	**Background**
	In its July 14, 2015 intervention, EC recommended that the Effluent Quality Criteria (EQC) for nickel be lowered based on achievability. Please specify what values EC recommends for the maximum average and maximum grab concentrations for nickel. Include rationale for the recommended values.
	Response from Environment Canada
	The recommendation to change the *Effluent Quality Criteria* (EQC) for nickel arose from the review of the draft Water Licence, as outlined in EC's intervention: *Part E.16: Table E-1 Effluent Discharge Criteria – Nickel: Nickel in treated effluent is three (3) orders of magnitude lower than the current Environmental Quality Criteria (EQC) of 1.0 mg/L maximum grab concentration and one to two orders of magnitude lower than limits coming out of the mill. EC recommends a revision of the nickel criteria downward, which would be reasonable and achievable.* A review of water quality data for 2013 to mid-2015 shows that nickel levels are very low in both process and effluent samples. Untreated inflow to the treatment plant at Site S4-6 has a range of nickel concentrations of 0.0014 mg/L to 0.0354 mg/L (mean 0.0118 mg/L). The Wastewater Treatment Facility (WTF) Site 4-43 discharge has nickel concentrations ranging from 0.0005 to 0.005 mg/L, with a mean of 0.00063 mg/L. In effluent at 4-20, the culvert outflow from Stinky Pond, nickel concentrations ranged from 0.0005 mg/L to 0.013 mg/L, with a mean of 0.00092 mg/L. Setting the EQC at 0.05 mg/L Maximum Average and 0.1 mg/L Maximum Grab would be expected to be achievable under all circumstances, as this is above levels in the untreated effluent, and one to two orders of magnitude above treated effluent and that being discharged from Stinky Pond. EC notes that this is also in line with limits set in other licences in the NWT.