

**Sent by Mail and by Email**

March 21, 2019

Mackenzie Valley Land and Water Board  
7th Floor – 4922 48th Street  
PO Box 2130  
Yellowknife, NT X1A 2P6

Attention: Ms. Cli-Michaud

Dear Ms. Cli-Michaud,

Please accept this letter as North American Tungsten Corporation Ltd. (NATC) request to defer submission of the Aquatic Effects Monitoring Program (AEMP) Design Plan for the mine site, as required under Part H Item 2 of Water License MV2015L2-0003 to a minimum of 3 months prior to the start of commercial operations.

On 29 January 2016, NATC previously requested a deferral of the AEMP Design Plan submission given that the mine entered into Care and Maintenance (C&M) and ceased effluent discharge shortly before the license was issued. Upon reviewing NATC's original request, the Mackenzie Valley Land and Water Board (MVLWB or 'the Board') granted an extension "to 31 March 2018, or within three months following the start of commercial operations, whichever comes first". As part of the decision the Board noted that:

"If NATCL wishes to apply for a further deferral of submission of this plan, the Board recommends including analysis of the existing sampling program, identifying any gaps in the program if applicable, and noting how the gaps will be addressed, with their submission."

NATC wishes to identify the following information for the Board to consider as part of this request. The Cantung mine continues to remain in Care and Maintenance. During C&M, NATC has taken the initiative to conduct another cycle of Environmental Effects Monitoring (EEM) under the Metal Mining and Effluent Regulations (MMER) during the summer of 2017. NATC expects that any future AEMP would closely align with MMER requirements, given that both are regulatory requirements and the purpose of both programs is to evaluate potential impacts to the aquatic environment in the area of the mine. As such, NATC suggests that the recent results of this monitoring, which also included a review of Surveillance Network Program (SNP) data for the Flat River sites, should provide sufficient evidence to support NATC's request to defer the need for an AEMP Design Plan at this time. A copy of the Executive Summary for the Fifth Cycle EEM Report is attached for the Board's reference.

On-going monitoring continues at the mine site and is captured as a part of the SNP that is required by the Water License. This currently includes a total of 5 monitoring sites along the Flat River, including sample sites upstream and downstream of the mine. The data obtained from the SNP is provided to the MVLWB as part of NATC's monthly reports.

Should the mine site instead move towards closure, NATC has initiated a Phase III Environmental Site Assessment (Phase III ESA) at the mine property that began in 2017 and is expected to be complete in 2019. This assessment will include an evaluation of potential issues in the Flat River that may require remediation.

Lastly, as you are aware, the Government of the Northwest Territories and the Government of Canada have announced that they will undertake a joint marketing process for the Cantung and Mactung properties with the intent of potentially transitioning the properties back to the private sector. It is NATC's opinion that it would be beneficial to defer the design and implementation of any new monitoring programs until such time.

In light of the above information, NATC believes that deferral of the requirement for an AEMP Design Plan for the Cantung mine is warranted and we suggest that the wording in the latter part of the Board's original directive (31 March 2016) remains applicable, i.e. "within three months following the start of commercial operations".

Please feel free to contact Callum Beveridge at 604.638.7447 or [cbeveridge@alvarezandmarsal.com](mailto:cbeveridge@alvarezandmarsal.com) should you have any questions.

Yours truly,  
**North American Tungsten Corporation**  
**by its Monitor, Alvarez & Marsal Canada Inc.**  
**acting in its capacity as Monitor of NATC and not**  
**in its personal capacity**



Todd M. Martin  
Senior Vice President

Cc: MVLWB – J. Morse, J. Potten, Permits  
INAC – M. Westlake, S. Kennedy  
NATC – B. Delaney, S. Laidlaw, S. O'Sullivan, Enviro Dept

## Executive Summary

North American Tungsten Corporation Ltd. (NATCL) owns the Cantung Mine in the Northwest Territories. In November 2016, NATCL provided written notice under Part 4 Section 32 (1) of the *Metal Mining Effluent Regulations (MMER)* (DFO 2002) of their intent to close the mine. Accordingly, NATCL is required to conduct a final biological monitoring study (the Final Study) under the Environmental Effects Monitoring (EEM) program prior to closing the mine to assess the effects of metal mining effluent on fish, fisheries resources, and fish habitat. Four EEM cycles have been completed for the Cantung Mine (2006, 2009, 2012, and 2015); the 2017 EEM program is the fifth and Final Study.

The first four EEM interpretive reports concluded that there was no evidence to suggest that recent (from 2006-2015) Cantung Mine practices or care and maintenance activities have resulted in any adverse effects to the aquatic environment. For fish, no significant statistical differences were observed in effects end points between reference areas and exposure areas during any of the studies. For benthic invertebrates, only one effect endpoint (Bray-Curtis Similarity Index) was significantly different in a direction that could indicate an adverse effect to exposure areas for more than the one study cycle. All other benthos effects endpoints either showed no significant difference between reference and exposure areas or showed a significant difference in a direction that would not be considered adverse in exposure areas.

The 2017 fifth cycle study maintained consistency with previous studies at this facility using a multiple control/impact study design approach. The program included studies on fish (non-lethal sampling of slimy sculpin), benthic invertebrates, water quality, and sediment quality. The same five study sites (2 reference and 4 exposure sites) as were used in the 2015 cycle 4 EEM study were also applied to 2017 cycle 5 EEM study.

Within the 2017 cycle 5 EEM study, there were no significant statistical differences observed in fish measurement end points or within trends observed for fish supporting endpoints between reference areas and exposure areas. For benthic invertebrates, there was one significant difference observed for the Bray-Curtis similarity effects endpoint between reference areas and exposure areas, which had also been observed in the cycles 3 and 4 EEM studies. Among the supporting endpoints, only the Ephemeroptera/Plecoptera/Trichoptera (EPT) index indicated a potential ecological impairment in exposure areas.

Consistent with the conclusions of the previous 4 EEM cycles, current mine effluent discharge, exfiltration, and surface runoff does not appear to be having an adverse effect on the aquatic environment. Historical tailings deposits in the 1960s in the Flat River flood plain is likely the potential cause of the different benthic community structure observed in the Bray-Curtis and EPT indices within exposure areas compared to reference areas. However, any negative effect to exposure areas resulting from higher metals in the sediments is likely small, as no other endpoints (fish or benthos) showed significant differences that would suggest negative effects in exposure areas.

An investigation of cause (desktop level) was conducted to investigate why the Bray-Curtis Similarity Index has shown a confirmed effect in the past two EEM studies (2012 and 2015) on the benthos community structure, which was observed again in 2017. Higher copper concentrations in sediments in exposure areas are causing some metals-sensitive benthos species (e.g. Heptageniidae and Chloroperlidae) to be less in number, which in turn causes exposure areas to have a statistically significant different community composition, as shown by the Bray-Curtis Similarity Index. Because many of the other benthos indicators (density, family richness, EPT richness, diversity, evenness) did not show significant differences between reference and exposure areas, and other Ephemeroptera (mayfly) families known to be moderately sensitive to metals in sediments were not statistically different in abundance between reference and exposure areas, the overall effect from high copper sediment concentrations on benthos appears to be relatively low.