

## MVLWB Registry

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**Subject:** MV20105L2-0003 - NATCL - Interventions recieved  
**Attachments:** ENR Intervention - NATCL CanTung 2015 Water Licence Renewal v.2 - Adobe Version.pdf; MV2015L2-0003 - NATCL - EC Intervention - July 14-15.pdf; NDDB intervention letter to MVLWB July 14 2015.pdf; DpA3s Intervention DFN Letter Water License Renewal .pdf

Hello All –

Written interventions have been received from the GNWT-ENR, Environment Canada, Dehcho First Nation and Naha Dehe Dene Band for the NATCL water licencing process MV2015L2-0004. They have been posted to the public registry and are attached to this email.

Please let me know if you have questions or concerns.

Cheers,

Jen

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Please note: All correspondence to the Board, including emails, letters, faxes and attachments are public documents and may be posted to the public registry.



**GOVERNMENT OF THE NORTHWEST TERRITORIES  
ENVIRONMENT AND NATURAL RESOURCES**

**INTERVENTION**

FOR

**NORTH AMERICAN TUNGSTEN CORPORATION LIMITED –  
CANTUNG MINE  
WATER LICENCE RENEWAL APPLICATION  
MV2015L2-0003**

Submitted to:

Mackenzie Valley Land and Water Board  
4922 – 48<sup>th</sup> Street  
Yellowknife, NT X1A 2P6

July 14, 2015

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## **LIST OF ACRONYMS**

Aboriginal Affairs and Northern Development Canada	AANDC
Aquatic Effects Monitoring Program	AEMP
Canadian Council of Ministers of the Environment	CCME
Committee on the Status of Endangered Wildlife in Canada	COSEWIC
Companies' Creditors Arrangement Act	CCAA
Inhibiting Concentration	IC <sub>x</sub>
Interim Closure and Reclamation Plan	ICRP
Effects Concentration	EC <sub>x</sub>
Effluent Quality Criteria	EQC
Environment and Natural Resources	ENR
Environmental Effects Monitoring	EEM
Government of the Northwest Territories	GNWT
Mackenzie Valley Land and Water Board	Board
North American Tungsten Corporation Limited	NATCL
Site Specific Water Quality Objectives	SSWQO
Species Sensitivity Distribution	SSD
Water Quality Guideline	WQG

## **SUMMARY OF RECOMMENDATIONS**

1. *ENR supports a licence term of 10 years for the Cantung mine.*
2. *ENR recommends that a SSWQO for fluoride of 1.03 mg/L be applied to the Flat River. The EQC for fluoride should be assessed as appropriate to ensure the SSWQO is maintained at the edge of the mixing zone (180 m downstream).*
3. *ENR recommends that a low action level for fluoride of 0.52 mg/L be incorporated into the AEMP and/or water licence as appropriate.*
4. *ENR recommends that the AEMP Study Design be submitted within sixty (60) days of issuance of the water licence.*
5. *ENR recommends that the ICRP be submitted within sixty (60) days of issuance of the water licence.*

## 1. INTRODUCTION

The following concerns and issues have resulted from the Government of the Northwest Territories - Department of Environment and Natural Resources (GNWT-ENR) review of plans, proposed schedules and submissions as part of North American Tungsten Corporation Limited's (NATCL) water licence renewal application MV2015L2-0003 for the Cantung mine. This technical intervention explains the Department of Environment and Natural Resources' (ENR) concerns and provides recommendations for the Mackenzie Valley Land and Water Board's (Board) consideration. This submission takes into consideration all of the documents provided with the renewal application up to and including the June 25, 2015 responses to information requests, as well as relevant submissions provided under the existing water licence.

ENR appreciates the opportunity to express its concerns and provide recommendations and suggestions to the Board for this water licence renewal. The Department is of the opinion that given the very recent amendment process associated with the construction of Dry Stack Tailings Facilities, and the fact that significant changes to the licence are not currently proposed, a written process would be sufficient moving forward. To this end, a Public Hearing would not be required.

## 2. WATER LICENCE TERM

NATCL has requested a term of 10 years for the renewal of their water licence.

ENR is not opposed to a term of 10 years for the renewed water licence. Should NATCL propose any substantive changes to the renewed water licence prior to its expiry, an amendment process would be required. Further, the Board has the authority to amend the water licence on its own merit or at the request of an intervener, should changes be warranted. Through these processes, opportunities for external parties to provide input to the Board would be available.

### RECOMMENDATION:

***ENR supports a licence term of 10 years for the Cantung mine.***

## 3. SITE SPECIFIC WATER QUALITY OBJECTIVE - FLUORIDE

As noted in ENR comments dated May 26, 2015, NATCL has provided an evaluation report for SNP Station S4-44 (180m downstream of the effluent discharge from Stinky Pond). Within that report, NATCL outlined that they are of the opinion that the current SSWQO for fluoride of 0.12 mg/L is too conservative and unachievable, given naturally occurring fluoride levels in the Flat River.

NATCL has provided additional information, in their responses to review comments, which provide additional detail into the various fluoride sources into the Flat River and additional rationale for the development of a new SSWQO based on conditions at the mine site. Of note, the existing fluoride SSWQO of 0.12 mg/L is based on an interim water quality guideline developed by CCME based on the application of a safety factor to the most sensitive median lethal concentration (LC<sub>50</sub>) from the results of acute exposure tests (specifically, the reported 144-h LC<sub>50</sub> estimate for the caddisfly, *Hydropsyche bronta*, from Camargo et al. of 11.5 mg/L was divided by a safety factor of 100) which resulted in an interim WQG of 0.12 mg/L (Sinclair and MacDonald, 2015).

ENR agrees with NATCL that any amended SSWQO for fluoride must appropriately reflect naturally occurring water quality in the area. During the technical session held on June 17, 2015, ENR outlined to the proponent that the preferred method for the derivation of SSWQOs involves the development of a Type A Guideline which establishes a Species Sensitivity Distribution (SSD) curve.

A SSD is described in CCME (2007) and, in general, is a model of the continuous distribution of the variability across species to a contaminant, contaminant mixture, or stressor. Typically, the HC<sub>5</sub> concentration of an SSD is determined, which is the effects concentration which corresponds to the modeled 5th percentile of the distribution. The values within the SSD should consist of the same endpoint estimated (e.g., EC<sub>10</sub>, EC<sub>20</sub>), but can be generated for any endpoint group (e.g., EC<sub>10</sub>, IC<sub>10</sub>, IC<sub>20</sub>, EC<sub>50</sub>). To clarify, the HC<sub>5</sub> provided is the value at which 5% of the species in a receiving body would experience an effect equivalent to the effects endpoint being assessed (EC<sub>x</sub>).



To provide additional context, the EC<sub>x</sub> is the effective concentration for x% of the individuals in a toxicity test. This endpoint describes binomial responses to individual organisms (e.g., mortality, hatching, etc.) (Environment Canada, 2007). That is to say, for example, an EC<sub>20</sub> describes the concentration at which 20% of the individuals in a toxicity test show effect, and so on. The IC<sub>x</sub> is the inhibitory concentration, causing an x% reduction relative to the negative control. This endpoint is used to describe reductions (i.e., continuous responses) in growth, reproduction, etc.

Recent work has been done by De Beers Canada Incorporated in deriving a SSWQO for fluoride which they estimated to be 1.94 mg/L for Snap Lake (McPherson et al., 2014). However, additional work done by Sinclair and MacDonald (2015) questioned some of the methodology and conclusions reached by McPherson et al. and proceeded to complete a revised SSD curve based on the literature available, ultimately recommending a SSWQO for fluoride of 1.03 mg/L. Based upon the work completed by Sinclair and MacDonald, ENR is of the opinion that a fluoride SSWQO of 1.03 mg/L for the Flat River would be appropriately protective of the downstream aquatic environment.

However, it should also be noted that when deriving SSWQOs, the resident species of the receiving water body must also be considered. Bull Trout are present within the Flat River and their current status is at risk which warrants additional consideration (*Federal Species at Risk Act*: Under Consideration; COSEWIC Assessment: Special Concern, NWT General Status Rank: May Be At Risk) (<http://www.nwtspeciesatrisk.ca/en/content/bull-trout>).

The literature review provided in McPherson et al. (2014) indicates that Rainbow Trout appear to be most sensitive species to fluoride based on lethal toxicity testing (LC<sub>10</sub>s of 4.1, 2.2, and 1.8 mg/L; and, LC<sub>50</sub>s of 6.6, 3.9, and 4.8 mg/L at 7.5, 13, and 18°C, respectively). Rainbow Trout are potential surrogates for other salmonids such as Bull Trout as well as Arctic Grayling. As such, additional attention should be taken regarding fluoride levels in the Flat River given the apparent sensitivity of Rainbow Trout to fluoride.

To this end, ENR proposes that an action level of approximately 50% of the suggested SSWQO (1.03 mg/L \* .50 = 0.52 mg/L) be implemented as a low action level within the upcoming Aquatic Effects Monitoring Program (AEMP), to ensure any increase in fluoride levels would be identified and addressed in time to prevent levels from exceeding the SSWQO within the Flat River. Based on water quality data provided by NATCL, it does not appear that fluoride levels in the Flat River have exceeded 0.52 mg/L to date.

## **RECOMMENDATIONS:**

***ENR recommends that a SSWQO for fluoride of 1.03 mg/L be applied to the Flat River. The EQC for fluoride should be assessed as appropriate to ensure the SSWQO is maintained at the edge of the mixing zone (180 m downstream).***

***ENR recommends that a low action level for fluoride of 0.52 mg/L be incorporated into the AEMP and/or water licence as appropriate.***

#### 4. AQUATIC EFFECTS MONITORING PLAN

While there are Environmental Effects Monitoring (EEM) requirements under the *Metal Mining Effluent Regulations* to which NATCL currently adheres, there has been no formal AEMP established for the Cantung mine. This is a unique situation, as AEMPs have been implemented and required for other active mining projects in the NWT.

NATCL has initiated steps to developing and implementing an AEMP for the Cantung site. Within the renewal application, NATCL has included a schedule outlining the completion dates for various activities related to the development of the AEMP study design. This schedule includes the submission of several drafts to allow input from the AEMP working group prior to the issuance of the final report in January 2016. This would coincide with the issuance of the water licence and ensure that the AEMP can be implemented during the 2016 field season. ENR suggests that the water licence include a condition outlining a specific timeline, ensuring that the AEMP Design Report is finalized prior to any required field studies during the 2016 field season. ENR notes that a recent AEMP workshop (July 10, 2015) was postponed by NATCL and no revised date has been proposed for the workshop at this time.

#### **RECOMMENDATION:**

***ENR recommends that the AEMP Study Design be submitted within sixty (60) days of issuance of the water licence.***

#### 5. INTERIM CLOSURE AND RECLAMATION PLAN

Overall, ENR supports the development of an Interim Closure and Reclamation Plan as outlined in the *Guidelines for the Closure and Reclamation of Advanced Mineral Exploration and Mine Sites* (MVLWB/AANDC, 2013). To date, the Board has approved the closure objectives for the Cantung mine site and it is anticipated that specific closure options and criteria will be provided in subsequent versions of the plan.

Within the renewal application, NATCL has included an Interim Closure and Reclamation Plan (ICRP) Development Schedule outlining the completion dates for various activities related to the ICRP. Similar to the AEMP schedule, this schedule includes the submission of several drafts to allow input from the closure working group prior to the issuance of the final report in February 2016. This would occur shortly after the issuance of the water licence. ENR would suggest that the water licence include a condition outlining a specific timeline to ensure that the ICRP is submitted and finalized within an acceptable timeframe. The Cantung ICRP should be submitted in a timely manner to allow sufficient time to conduct any reclamation research (e.g. cover designs, vegetation studies, etc.) that may be necessary for selecting final closure options and criteria.

ENR has been an active participant in the preliminary meetings of the closure working group and will continue to do so as the closure process progresses and the ICRP becomes more refined.

## **RECOMMENDATION:**

***ENR recommends that the ICRP be submitted within sixty (60) days of issuance of the water licence.***

### **6. FINANCIAL CAPACITY**

During the technical session held on June 17, 2015 and again during the pre-hearing conference held on July 7, 2015, the Board requested that the GNWT, within its intervention, address the financial responsibility of the proponent as it relates to Paragraph 26 (5) (d) of the *Waters Act*. This was requested in order to assist the Board in satisfying its requirements in this regard prior to issuing a renewed water licence.

Paragraph 26 (5) (d) of the *Waters Act* states:

**26. (5)** *If an application for a licence is made, the Board shall not issue a licence unless the applicant satisfies the Board that:*

*(d) the financial responsibility of the applicant, taking into account the applicant's past performance, is adequate for*

*(i) the completion of the appurtenant undertaking,*

*(ii) such mitigative measures as may be required, and*

*(iii) the satisfactory maintenance and restoration of the site in the event of any future closing or abandonment of that undertaking.*

As the Board is likely aware, on June 9, 2015, NATCL commenced financial restructuring proceedings under the *Companies' Creditors Arrangement Act* ("CCAA"). The CCAA proceedings and outcome will provide information with respect to NATCL's financial capacity.

At this time, the GNWT is unable to say what the outcome of these proceedings will be, but NATCL continues to operate the Cantung Mine. The GNWT is not in a position to make submissions on NATCL's financial capacity at the present time, but may be able to do so at a later date, as the CCAA proceedings continue.

## 7. REFERENCES

CCME. 2007. A protocol for the derivation of water quality guidelines for the protection of aquatic life. In Canadian environmental quality guidelines, 1999. CCME, Winnipeg.

Environment Canada. 2007. Guidance Document on Statistical Methods. EPS 1/R/46 – March 2005 (with June 2007 Amendments) Method Development and Applications Section, Environmental Technology Centre.

Guidelines for the Closure and Reclamation of Advanced Mineral Exploration and Mine Sites in the Northwest Territories. 2013. Mackenzie Valley Land and Water Board/Aboriginal Affairs and Northern Development Canada.

Mcperson, C., D. Lee, P. Chapman. 2014. Development of a fluoride chronic effects benchmark for aquatic life in freshwater. Environ Toxicol Chem.

Sinclair, JA, MacDonald DD. In Press. Letter to the editor. Environ Toxicol Chem.



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July 14<sup>th</sup>, 2015

EC file: 5100 000 017  
MV2015L2-0003

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Via: online submission

Attention: Ms. Potten

**RE: Environment Canada's Technical Submission  
North American Tungsten Corporation Ltd., Cantung Mine  
Type A Water Licence Renewal Application (MV2015L2-0003)**

Please find attached Environment Canada's (EC) technical intervention submission to the Mackenzie Valley Land and Water Board with respect to North American Tungsten Corporation Ltd.'s Type A Water Licence (WL) Renewal Application.

In addition, please note that EC will not be appearing in person before the Board at the Public Hearing scheduled on August 26<sup>th</sup> and 27<sup>th</sup>, 2015 given that the Department is satisfied that the issues raised can be addressed through a written proceeding for this WL 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](mailto:lisa.lowman@ec.gc.ca).

Sincerely,

Susanne Forbrich  
Regional Director

Cc: Lisa Lowman (A/Section Head, Environmental Assessment – EA South, EC)  
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# ENVIRONMENT CANADA'S INTERVENTION TO THE MACKENZIE VALLEY LAND AND WATER BOARD

RESPECTING  
THE CANTUNG MINE TYPE A WATER  
LICENCE RENEWAL PROPOSED BY  
NORTH AMERICAN TUNGSTEN  
CORPORATION LIMITED

JULY 14, 2015

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## 2.0 List of Acronyms

AEMP – Aquatic Effects Monitoring Program  
BATEA - Best Available Technology Economically Achievable  
CCME – Canadian Council of Ministers of the Environment  
CEPA 1999 – *Canadian Environmental Protection Act 1999*  
COESWIC – Committee on the Status of Endangered Wildlife in Canada  
EC – Environment Canada  
EEM – *Environmental Effects Monitoring Program*  
EQC - Environmental Quality Criteria  
FDP – Final discharge point  
GNWT – Government of the Northwest Territories  
MMER – *Metal Mining Effluent Regulations*  
MVLWB – Mackenzie Valley Land and Water Board  
MVRMA – *Mackenzie Valley Resources Management Act*  
NATCL – North American Tungsten Corporation Limited  
NWT - Northwest Territories  
TP – Tailings pond  
WL – Water licence



### 3.0 Plain Language Summary

North American Tungsten Corporation Limited (the Proponent) operates the Cantung Mine (the project) and has submitted an application for Water Licence (WL) MV2015L2-0003 to the Mackenzie Valley Land and Water Board (MVLWB) on April 21 2015 to renew their existing WL MV2002L2-0019, which expires January 16 2016. The purpose of the application is to renew the term and update and modernize the existing WL to allow the Proponent to continue mining and milling. The project is currently undergoing regulatory review by the MVLWB.

While several of Environment Canada's (EC's) concerns regarding the project have been addressed during the technical meetings and discussions, leading up to the hearing a number of minor issues remain outstanding. We note that the Proponent was responsive with providing information throughout the process. EC has reviewed the WL renewal application noting areas where a renewal WL could be strengthened, and has provided comments for the MVLWB to consider.

The scope of EC's review includes the WL renewal application and supporting documentation as submitted by the Proponent.

The recommendations presented in this submission for consideration by the MVLWB are designed to address outstanding issues related to EC's mandate including:

1. Protection of water quality through a collaborative, science-based approach to monitoring the aquatic ecosystem through the *Aquatic Effects Monitoring Program* (AEMP) and *Environmental Effects Monitoring Program* (EEM);
2. The development of a comprehensive combined *Water Management Erosion and Sediment Control Plan* for surface water runoff, including collection, drainage management and treatment if necessary, to ensure water quality in the area is maintained; and
3. Monitoring and mitigating nitrite concentrations in Tailings Pond 5 (TP5) effluent discharge for the protection of the aquatic receiving environment.

EC is of the opinion that the WL renewal application submitted by the Proponent with respect to Cantung Mine provides a good basis to ensure industry best practices are utilized, provided that management and monitoring plans are developed.

During the next licence term EC will continue to work with the Proponent, the MVLWB, and other concerned parties to ensure that issues within the departmental mandate are addressed accordingly.

## **4.0 Introduction**

### **4.1 EC's Responsibility**

EC is responsible for leading the implementation of the Government of Canada's environmental agenda and is committed to contributing to the realization of sustainable development in Canada's North. EC's mandate covers the preservation and enhancement of the quality of the natural environment, including water, air, soil, flora and fauna, as well as species at risk and migratory birds. Science plays a fundamental role in enabling EC to deliver on the Department's mandate by contributing to informed decisions, creating environmental regulations and by supporting the delivery of services to Canadians. In the Northwest Territories (NWT), EC provides specialist expertise, information, and knowledge to the MVLWB, in accordance with the expertise that the Department has available, as required under the *Mackenzie Valley Resources Management Act* (MVRMA).

In addition to EC's mandate to conserve and enhance the quality of the natural environment, the Department administers the pollution prevention provisions of the *Fisheries Act*, which prohibits the deposit of any deleterious substance into fish-bearing waters. EC also participates in the regulation of toxic chemicals and the development and implementation of environmental quality guidelines pursuant to the *Canadian Environmental Protection Act, 1999* (CEPA 1999).

### **4.2 EC's Intervention**

This intervention summarizes the results of EC's review of the WL Renewal Application and supporting information provided by the Proponent throughout the review process. The intervention identifies outstanding concerns related to issues the Department has identified, and makes recommendations for consideration by the MVLWB. Should new or additional relevant information be brought forward by the Proponent or be identified during the final public hearings, this submission may need to be re-examined. Within the context of the additional information, any changes in EC's recommendations and position will be brought to the attention of the MVLWB and the Proponent.

A brief summary of some of the legislation from which EC's mandate is derived is provided in Section 5.0. EC's comments related to these topics are found in Section 6.0 of this intervention and finally, a summary of EC's recommendations can be found in Section 7.0. Appendix 1 provides additional context on this legislation as well as other federal guidelines that helped support the content and recommendations found in this intervention.

EC based its analyses on the principle that the WL renewal, if approved, should be permitted in a manner that ensures the highest level of environmental protection so that the well-being of Canadians is enhanced and the natural environment is conserved. To that end, EC has undertaken a science-based review of the various issues of interest to the Department with the aim of assessing if the conclusions and predictions presented by the Proponent are realistic, if the data and analyses upon which they were based are credible, and to provide recommendations to mitigate any potential environmental impacts.

In the completion of its review, the Department was guided by a number of overriding principles or concepts, including:

- The precautionary principle, which recognizes that the absence of full scientific certainty shall not be used as a reason to postpone decisions in the face of the threat of serious or irreversible harm;
- An ecosystem approach to environmental management, which is a method of environmental stewardship that focuses understanding, decision making, and program action on maintaining the capacity of a whole system to produce ecological goods and services by concentrating on the long-term health of ecosystem structure, processes and interactions. The intent is to proactively integrate environmental, economic, and social objectives within ecological scales and timeframes in order to achieve environmental sustainability; and
- The use of Best Available Technology Economically Achievable (BATEA) and best management practices to prevent, reduce or eliminate the direct or indirect release of effluents and substances into aquatic, atmospheric and terrestrial ecosystems.

## 5.0 EC's Mandate, Roles and Responsibilities

### 5.1 Introduction

EC's mandate is determined by the statutes and regulations under the responsibility of the assigned Minister of the Environment. In delivering this mandate, the Department is responsible for the development and implementation of policies, guidelines, codes of practice, inter-jurisdictional and international agreements, and related programs.

EC is participating in the review of the WL renewal application in order to provide specialist expertise, information and knowledge to both the MVLWB under the MVRMA and to regulators.

The scope of EC's intervention to the MVLWB is dictated by the Departmental mandate as defined by the *Department of Environment Act* (DOE Act) and through other legislation under which the Minister of the Environment is authorized. Additional information on EC's mandate is found in Appendix 1.

EC's comments and recommendations in this intervention are intended to provide expert advice to the Proponent and decision-makers, in accordance with its program-related responsibilities and associated guidelines and policies. These comments are in no way to be interpreted as any type of acknowledgement, compliance, permission, approval, authorization, or release of liability related to any requirements to comply with federal or territorial statutes and regulations. Responsibility for achieving regulatory compliance and cost-effective risk and liability reduction lies solely with the Proponent.

### 5.2 *Fisheries Act* – Pollution Prevention Provisions

Subsection 36(3) of the *Fisheries Act* specifies that, unless authorized by federal regulation, no person shall deposit or permit the deposit of deleterious substances of any type in water frequented by fish, or in any place under any conditions where the deleterious substance, or any other deleterious substance that results from the deposit of the deleterious substance, may enter any such water. Subsection 34(1) of the *Fisheries Act* defines a deleterious substance to include “*any water that contains a substance in such quantity or concentration, or that has been so treated, processed or changed, by heat or other means, from a natural state that it would, if added to any other water, degrade or alter or form part of a process of degradation or alteration of the quality of that water so that it is rendered or is likely to be rendered deleterious to fish or fish habitat or to the use by man of fish that frequent that water*”. Subsection 36(3) makes no allowance for a mixing or dilution zone at the point of deposit.

In the absence of a regulation authorizing the release of a substance, and to the extent that the substance is a prescribed substance or that it can be demonstrated that it is a "*deleterious substance*" as defined in Subsection 34(1) of the *Fisheries Act*, any release from the construction, operation, reclamation or decommissioning stages of the project to any waters frequented by fish, or in any other circumstance set out in Subsection 36(3), may constitute a violation of the *Fisheries Act*.

Compliance with the terms and conditions of any licence or permit does not absolve the Proponent from responsibility for compliance with the requirements of the *Fisheries Act* or other federal legislation. Further, this submission does not constitute an authorization pursuant to Subsection 36(4) of the *Fisheries Act*, and any deposit of a deleterious substance contrary to Subsection 36(3) of the *Fisheries Act* is prohibited and may warrant enforcement action.

- ***Metal Mining Effluent Regulations (MMER)***

The *Metal Mining Effluent Regulations* (MMER) authorizes the proponents of metal mines to discharge deleterious substances into waters frequented by fish provided the discharges do not exceed prescribed limits. The MMER, administered by EC, imposes limits on releases of arsenic, copper, cyanide, lead, nickel, zinc, radium-226 and total suspended solids, and prohibits the discharge of effluent that is acutely lethal to fish. All other substances not regulated under the MMER are subject to the general prohibition contained in Subsection 36(3) of the *Fisheries Act*.

The MMER includes provisions for the monitoring and reporting of effluent quality and quantity, environmental effects monitoring and reporting, and allows the use of natural, fish-frequented waterbodies for mine waste disposal. At some sites, the disposal of mine waste in such waterbodies may be the preferred disposal option for pollution prevention and reduction of long-term environmental risk. A natural, fish-frequented waterbody can only be used for mine waste disposal if the MMER is amended to add that waterbody to the Regulations.

### **5.3 *Canadian Environmental Protection Act, 1999***

In Canada, the federal government, as well as provincial, territorial and Aboriginal governments, share responsibility for protecting the environment, which demands close collaboration as governments work to support the well-being of Canadians. As a cornerstone of the Government of Canada's environmental legislation, the *Canadian Environmental Protection Act* (CEPA) is aimed at preventing pollution and protecting the environment and human health.

One of CEPA's major thrusts is the prevention and management of risks posed by harmful substances. CEPA also provides for the assessment and/or

management of the environmental and human health impacts of new and existing substances. CEPA manages environmental and human health impacts of products of biotechnology, marine pollution, disposal at sea, vehicle engines and equipment emissions, fuels, hazardous wastes, environmental emergencies, and other sources of pollution.

## 6.0 EC's Technical Review Comments

### **Issue 1: Aquatic Effects Monitoring Program (AEMP)**

#### **References:**

- Water Licence Renewal Application Submission, Appendices E and F

#### **Proponent's Conclusions:**

The Proponent has initiated the AEMP study design development with the formation of a Working Group and issuance of an approximate schedule. The next steps involve circulating the AEMP study design Draft 1 for review and commenting by the Working Group.

#### **EC's Conclusions:**

EC supports the collaborative approach proposed and notes that there will be overlap between the AEMP and monitoring done under the MMER's EEM program. EC notes that the EEM program provides a strong, science-based approach to monitoring the aquatic ecosystem, and expects that the AEMP will build on the monitoring done to date. An AEMP program can strengthen the use of monitoring data through the inclusion of a management response plan linking monitoring results to appropriate action.

#### **EC's Recommendation EC-1:**

EC recommends that the renewal WL include terms and conditions for the AEMP development, with incorporation of a management response component to link monitoring results to threshold-based actions.

### **Issue 2: Water Management Plans**

#### **References:**

- *Combined Water Management Plan and Erosion and Sediment Control Plan*, Cantung Mine, Tungsten, NT Dec. 2013. Section 4.7.4
- Water Licence MV2002L2-0019 Part F Items F.1. and F.14.

#### **Proponent's Conclusions:**

The amended WL requires submission of a *Combined Water Management and Erosion and Sediment Control Plan* prior to construction of any dry stack tailings facilities.

The previous combined plan was issued December 2013. Section 4.7.4 outlines the stations that are sampled for water quality and the various parameters at each.

**EC's Conclusions:**

Given the change in scope of the amended WL since 2013, the Water Management Plan should be updated to reflect the installation of the wastewater treatment plant, and the upcoming change in tailings management. Use of a site-wide consolidated plan is supported.

An important focus of the management plan will be the collection and monitoring of any runoff from the dry stack tailings facilities. This may utilize a combined approach of drainage ditches, to collect any surface runoff from the stack, and groundwater monitoring wells, to monitor seepage and infiltration.

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.

**EC's Recommendation EC-2:**

EC recommends that the renewal WL terms and conditions include the requirement to submit an update to the *Combined Water Management Plan and Erosion and Sediment Control Plan* to the Board for approval.

**Issue 3: Nitrite Mitigation**

**References:**

- Water Licence MV2002L2-0019 – Circulated June 16, 2015
- Water Licence Renewal Application Attachment 2 – Nitrite Investigation

**Proponent's Conclusions:**

Under WL MV2002L2-0019, the Proponent is required to evaluate the water quality objectives for nitrite after the high discharge period. The Proponent has identified contributing sources to the higher-than-expected nitrite levels, and links this to reducing conditions in the effluent stream during the under-ice period. The proposed solution is to increase oxygen levels.

**EC's Conclusions:**

Nitrite is not a regulated parameter; however, water quality objectives have been set in the Flat River of 0.06 mg N/L. These objectives have not been met during the ice-cover period in 2015 (January – early May) with receiving environment concentrations of -0.097 to 0.250 over that period. EC supports the implementation of mitigation to increase oxygen levels in TP5 and effluent discharge, and ongoing analysis of data.



**EC's Recommendation EC-3:**

EC recommends that there be a condition in the renewal WL with respect to monitoring and mitigating nitrite concentrations in effluent, to ensure receiving environment water quality objectives are met.

**Issue 4: Comments on a Draft Renewal WL**

**References:**

- Water Licence MV2002L2-0019 – Circulated June 16, 2015

**Proponent's Conclusions:**

N/A

**EC's Conclusions:**

EC has reviewed the plans provided by the Proponent and the recently amended WL and has recommendations on several sections of the WL.

**Recommendations EC-4:**

**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.

**Part F 9:** An *Integrated Geochemical Load Balance and Risk Assessment Report* of the site is due January 31, 2016. EC recommends that this include an analysis and quantification of the consequences of failure in the risk analysis of the dry stack facility.

**SNP B.8:** EC is unclear as to why analysis of CN is included.

**Errata in amended WL:** EC recommends correction of the reference in F15 to requirements specified in Part E, Item 19; this should be Item 22.

**Annex B: Water Quality Objectives:** Total iron has a receiving environment objective of 1.3 mg/L; this is substantially above the other objectives which are based on Canadian Council of Ministers of the Environment (CCME) Guidelines, and the rationale for this is not clear.

**SNP - Renewal WL:** EC recommends that the renewal of the WL Surveillance Network Program (SNP) include sublethal toxicity testing at the second FDP at 4-27-2 (Stinky Pond culvert).

## 7.0 Summary of Recommendations

The specifics of EC's outstanding issues have been discussed in this intervention; however, for convenience EC's recommendations are listed below:

### **Issue 1: Aquatic Effects Monitoring Plan (AEMP)**

EC recommends that the renewal WL include terms and conditions for the AEMP development, with incorporation of a management response component to link data to threshold-based actions.

### **Issue 2: Water Management Plans**

EC recommends that the renewal WL terms and conditions include the requirement to submit an update to the *Combined Water Management Plan and Erosion and Sediment Control Plan* to the MVLWB for approval.

### **Issue 3: Nitrite Mitigation**

EC recommends that there be a condition in the renewal WL with respect to monitoring and mitigating nitrite concentrations in effluent to maintain receiving environment water quality objectives.

### **Issue 4: Comments on a Draft Renewal WL**

EC recommends a revision of the nickel criteria downward, which would be reasonable and achievable.

EC recommends that the *Integrated Geochemical Load and Balance and Risk Assessment Report* include an analysis and quantification of the consequences of failure in the risk analysis of the dry stack facility.

EC recommends that the renewal WL SNP include sublethal toxicity testing at the second FDP at 4-27-2 (Stinky Pond culvert).

EC recommends errata correction; where F15 refers to requirements specified in Part E, Item 19; this be corrected to Item 22.

## APPENDIX 1: Relevant Legislation, Regulations and Guidelines

### Introduction

The mandate of Environment Canada (EC) is determined by the statutes and regulations assigned to the federal Minister of Environment by Parliament or by the Government of Canada. Delivering this mandate requires EC, among other things, to develop and implement policies, guidelines, codes of practice, inter-jurisdictional and international agreements and related programs. The following lists specific legislation and national environmental policies and programs administered by EC that influence the content of environmental assessment submissions.

*For purposes of reliability and accuracy, and for interpreting and applying regulations or policy, it is recommended that the reader refer to the original document. Official versions of legislation can be found on the Department of Justice website (<http://laws.justice.gc.ca/eng/>).*

In environmental assessments (EA), EC generally carries out its responsibilities by providing recommendations, advice and information within its mandate. This is provided to both the proponent and decision-makers and may be used in the development of potential conditions that may accompany an EA approval. This appendix is intended to summarize EC's mandate.

### **Department of the Environment Act**

General responsibility for environmental management and protection is attributed to EC, through the Minister, under the *Department of the Environment Act* (DOE Act). This responsibility extends to and includes all matters over which Parliament has jurisdiction, which matters have not, by law, been assigned to any other department, board, or agency of the Government of Canada relating to:

- the preservation and enhancement of the quality of the natural environment (e.g., water, air, and soil);
- renewable resources including migratory birds and other non-domestic flora and fauna;
- water;
- meteorology; and
- co-ordination of policies and programs respecting preservation and enhancement of the quality of the natural environment.

The DOE Act requires EC/the Minister to advise heads of federal departments, boards and agencies on matters pertaining to the preservation and enhancement of the quality of the natural environment.

### **Canadian Environmental Protection Act (1999)**

The *Canadian Environmental Protection Act* (CEPA) is an important part of Canada's federal environmental legislation aimed at preventing pollution and protecting the environment and human health. The goal of the Act is to contribute to sustainable development. CEPA shifts the focus away from managing pollution (after it has been created) to preventing pollution. CEPA provides the federal government with tools to protect the environment and human health, establishes strict deadlines for controlling certain toxic substances, and requires the virtual elimination of toxic substances which are bioaccumulative, persistent and result primarily from human activity.

When a substance is declared “toxic” under CEPA and is added to the List of (toxic) Substances set out in Schedule 1, tools are proposed to establish preventive or control actions for managing the substance and to thereby reduce or eliminate its release into the environment. These tools may be used to control any aspect of the substance’s life cycle, from the design and development stage to its manufacture, use, storage, transport and ultimate disposal.

Examples of preventive and control instruments include:

- regulations;
  - pollution prevention plans;
  - environmental emergency plans;
  - environmental codes of practice;
  - environmental release guidelines; and
  - pre-notification and assessment of new substances (chemicals, bio-chemicals, polymers, biopolymers, and animate products of biotechnology).
- 
- **Environmental Emergencies**  
Part 8 of CEPA 1999 on environmental emergencies (sections 193 to 205) provides various authorities to address the prevention of, preparedness for, response to and recovery from environmental emergencies caused by uncontrolled, unplanned or accidental releases and to reduce any foreseeable likelihood of releases of toxic or other hazardous substances listed in Schedule 1 of the *Environmental Emergency (E2) Regulations*. EC provides advice regarding emergency plans for projects it reviews to ensure they are consistent with the requirements of CEPA 1999.
- 
- **National Pollutant Release Inventory Reporting Requirements**  
Under the authority of Section 46 of CEPA, the National Pollutant Release Inventory (NPRI) collects information on the quantities of certain substances that are released, disposed of or transferred off-site for recycling by industrial facilities in Canada. Facilities must report quantities of NPRI substances that are released to air, water or land; that are disposed of on- or off-site, including substances in tailings and waste rock, and that are transferred off-site for treatment prior to final disposal or for recycling. NPRI reporting requirements

are published in the Canada Gazette, Part I every two years. Facility reports must be submitted annually by June 1st. Information submitted to the NPRI is published on the NPRI website. EC can provide advice and guidance on NPRI substances and on monitoring and reporting.

### **Fisheries Act - Pollution Prevention Provisions**

EC administers Section 36 of the *Fisheries Act*, the purpose of which is to prevent pollution by prohibiting the deposit of harmful substances into waters frequented by fish, unless authorized by regulations under the Act or other federal legislation. The “general prohibition” in this section states, in part, that *no person shall deposit or permit the deposit of a deleterious substance of any type in water frequented by fish, unless authorized by, and deposited in accordance with, regulations under the Fisheries Act or other federal legislation.*

Meeting the requirements of the *Fisheries Act* is mandatory, irrespective of any provincial regulatory or permitting system. The release of substances with the potential to be deleterious, as identified in Subsection 34(1) of the *Fisheries Act*, from the construction, operation, reclamation or decommissioning stages of the project in any waters frequented by fish, may constitute violations of the *Fisheries Act*.

- **Metal Mining Effluent Regulations (MMER)**

The *Metal Mining Effluent Regulations* (MMER) authorizes the proponents of metal mines to discharge deleterious substances into waters frequented by fish provided the discharges do not exceed prescribed limits. The MMER, administered by EC, imposes limits on releases of arsenic, copper, cyanide, lead, nickel, zinc, radium-226 and total suspended solids, and prohibits the discharge of effluent that is acutely lethal to fish. All other substances not regulated under the MMER are subject to the general prohibition contained in Subsection 36(3) of the *Fisheries Act*.

The MMER includes provisions for the monitoring and reporting of effluent quality and quantity, environmental effects monitoring and reporting, and allows the use of natural, fish-frequented waterbodies for mine waste disposal. At some sites, the disposal of mine waste in such waterbodies may be the preferred disposal option for pollution prevention and reduction of long-term environmental risk. A natural, fish-frequented waterbody can only be used for mine waste disposal if the MMER is amended to add that waterbody to the Regulations.

- **Environmental Code of Practice for Metal Mines (2009)**

The primary purpose of EC's *Environmental Code of Practice for Metal Mine* is to support the MMER; however, it also includes other subjects not dealt with via the MMER that may influence the environmental impact of mining operations. The Code identifies and promotes recommended best practices to

facilitate and encourage continual improvement in environmental performance of mining facilities throughout all phases of the mine life cycle. EC uses the code to guide standard advice on EAs for metal mines.

- **Guidelines for the Assessment of Alternatives for Mine Waste Disposal**  
These guidelines describe the process that must be undertaken when a proponent is considering using a natural water body frequented by fish as a tailings impoundment area (TIA) such that a regulatory amendment to the *Metal Mining Effluent Regulations* (MMER) would be required. In the context of these guidelines, the term TIA refers to a natural water body frequented by fish into which deleterious substances (such as tailings, waste rock, low-grade ore, overburden, and any effluent that contains any concentration of the deleterious substances specified in the MMER and of any pH) are disposed.

# ***Nahæâ Dehé Dene Band***

GENERAL DELIVERY, NAHANNI BUTTE, NT, X0E 0N0

•Phone (867) 602-2900 •Fax (867) 602-2910 •Email: manager@nahadehe.org

July 14th, 2015

Jen Potten, Regulatory Officer  
Mackenzie Valley Land and Water Board  
PO Box 2130, Yellowknife, NT, X1A 2P6

## **Written intervention regarding application for water license MV2015L2-0003 (renewal)**

Dear Ms. Potten,

The Nahꞵ Dehé Dene Band (NDDB) has reviewed the water licence renewal application submitted by North American Tungsten Corporation Ltd. (NATCL). The proponent seeks to renew MV2002L2-0019, which will expire on January 29, 2016.

During pre-hearing discussions among the Parties, NATCL staff have communicated that they anticipate entering the mine into *care and maintenance* in the fall of 2015 but that the company's environmental department will remain fully funded and existing commitments will be met. It is a priority for NDDB that completion of the commitments made within the water license amendment remain requirements of the renewal. Specifically, these include: an Interim Closure and Reclamation Plan and a geochemical risk assessment and load balance. While an Aquatic Effects Monitoring Program was not a condition of the amendment, it was contemplated within the amendment that an AEMP would be required for the license renewal and this has been proposed by NATCL in its submission, an approach that is supported by NDDB.

Step-wise timelines have been proposed by NATCL for completion of the three plans / studies mentioned. These are:

**Geochemical Load Balance and Risk Assessment Reports** – The June 12, 2015 amendment to MV2002L2-0019 requires submission of an Integrated Geochemical Load Balance and Risk Assessment Report, due January 31, 2016 (section F.9).

**Aquatic Effects Monitoring Program** – NATCL's proposed process for collaborative development of the AEMP included the following tentative deadlines: AEMP study design draft #1 (June 9, 2015), AEMP study design draft 2 (July 17, 2015), AEMP draft 3 (October 14, 2015) and AEMP final draft (November 23, 2015) with a final compete submission by January 30, 2016. The proposed schedule would ensure collaborative development of the AEMP among all Parties in time for the water license renewal.

**Interim Closure and Reclamation Plan** – the first draft of the ICRP, which included background information and component descriptions of the Cantung mine site with a single closure option was submitted on April 21, 2015. The tentative date for submission of draft 2 which will include more information on options considered but not chosen and which will review engineering and environmental studies previously completed is September 30, 2015. NATCL has proposed a tentative information and workshop date of November 9, 2015 with submission of the third draft tentatively planned for December 21, 2015. These dates as proposed would ensure that the step-wise process continues prior to the issuance of a WL renewal.

Nahᓃą Dehé Dene Band notes that the AEMP has fallen behind schedule and acknowledges that the proponent has committed to submitting a revised schedule. NDDDB would like the proponent to ensure AEMP completion prior to license renewal. In addition, NDDDB requests affirmed commitment to complete the geotechnical risk assessment and load balance and the ICRP according to the originally proposed timelines.

In addition, the Metal Mining Effluent Regulations include requirements with timelines for environmental effects monitoring including biological effects monitoring. NATCL conducted studies and submitted reports in 2009 and 2012, with a fourth cycle required for 2015. NDDDB understands that NATCL has submitted the study design for this year's monitoring to Environment Canada. NDDDB would like to emphasize the importance of biological monitoring in understanding environmental impacts and trusts that the 2015 EEM will proceed on time and regardless of whether underground work is proceeding at the mine site.

Finally, NDDDB understands that Dehcho First Nations and other interveners are in discussions with NATCL about recommendations relating to the S4-44 Water Quality Assessment Report and, in particular, an appropriate revised water quality threshold for fluoride. NDDDB respects DFN's intervention.

Nahᓃą Dehé Dene Band looks forward to continued collaboration with NATCL on the development of the AEMP and ICRC and looks forward to reviewing the geochemical load balance and risk assessment reports and the environmental effects monitoring program results but does not feel that outstanding issues warrant NDDDB appearance at a public hearing at this time.

Respectfully,

A handwritten signature in black ink, appearing to read 'Christine Wenman', is written over a faint, light blue circular stamp. The stamp contains some illegible text, possibly a date or reference number.

Christine Wenman, NDDDB Regulatory Advisor





# DEHCHO FIRST NATIONS

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Mr. Julian Morse  
Mackenzie Valley Land and Water Board  
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VIA Email: [jmorse@mvlwb.com](mailto:jmorse@mvlwb.com)

July 13, 2015

RE: Intervention North American Tungsten Corporation Ltd's (NATCL) Water License Renewal Application

Dehcho First Nations (DFN) has reviewed NATCL's Water License Renewal Application (MV2015L2-0003) to replace their existing Water License (MV2002L2-0019), which expires January 29, 2016.

We support the inclusion of an Aquatic Effects Monitoring Program (AEMP) and Interim Closure and Reclamation Plan (ICRP) as part of the Water License Renewal with consultation from DFN, Liidlii Kue First Nation and Naha Dehe Dene Band. DFN will fully participate in the AEMP and ICRP processes and looks forward on providing comments in the future. We request that the Mackenzie Valley Land and Water Board put conditions into NATCL's Water License Renewal to address both the inclusion of the ICRP and the AEMP. We also request that adequate timelines are put as conditions into the Water License Renewal to allow for the timely completion of these plans.

DFN's primary concern when developing the AEMP is to ensure that it provides an effective basis for determining if the Flat River is being protected from the effects associated with the construction, operation, and closure and reclamation of the Cantung Minesite. DFN also aims to develop adaptive management protocols within the AEMP process to ensure that if there are found to be negative impacts to the Flat River that there are processes to address these issues. A key component of AEMP is to address the effects of the tailings facilities including the effects of the Flat River Tailings. DFN also acknowledges that the development of the AEMP includes a traditional knowledge component with input from LKFN and NDDB.

DFN's primary concern when considering and developing closure and reclamation options is the overall health of the Flat River. Our overarching goal is to ensure that the water quality of the Flat River is maintained, fish and other aquatic species that reside in the river or depend on the Flat River for food remain healthy and there are no downstream effects resulting from the Cantung mine.

For DFN, the two most significant aspects of reclamation and closure planning is the chemical and physical stability of the project components of the Cantung Mine site. Specifically, DFN wants to ensure

that the tailing facilities (including historic Flat River Tailings) and waste rock are chemically stable post closure and that NATCL addresses acid rock drainage and metal leaching potential from the waste rock and tailings facilities. DFN also wants to ensure that the tailings facilities and other aspects of the Cantung Mine are constructed to be physically stable and that NATCL addresses the presence of liquefiable soils underlying areas of the mine site and erosion potential given the close proximity of the Cantung Mine to the Flat River.

As part of the Water License Renewal, DFN has also reviewed NATCL's S4-44 Water Quality Assessment Report. We have some outstanding concerns regarding the change in the water quality objective for fluoride that were outlined in our information requests.

It is the opinion of DFN that typically the purpose of a hearing is to debate different points of view regarding an application for a proposed development project. In the case of NATCL's water license renewal application, there is a general consensus among the reviewers surrounding the technical aspects of the water license renewal. Therefore, DFN is requesting a written component rather than a formal technical hearing for NATCL's Water License Renewal but does not object to other party's requests for a hearing.

Given the financial uncertainty surrounding the future of the Cantung mine; DFN has questions and concerns regarding environmental monitoring and the future of the ICRP and AEMP processes, the 2015 Environmental Effects Monitoring and the Geochemical Risk Assessment. For DFN, the ICRP and the AEMP are key components of modernizing the environmental monitoring and planning at the Cantung mine. DFN notes that there has been a delay in the first draft of the AEMP by NATCL. It is a key priority for DFN that the ICRP and AEMP are continued regardless of the future of the Cantung minesite and that both are completed on schedule.

If you have any questions regarding DFN's intervention, please contact Dahti Tsetso at 867-695-2355 or [dahti\\_tsetso@dehcho.org](mailto:dahti_tsetso@dehcho.org).

Mahsi cho,



Dahti Tsetso  
Resource Management Coordinator  
Dehcho First Nations  
[Dahti\\_Tsetso@dehcho.org](mailto:Dahti_Tsetso@dehcho.org)

## Intervention

### 1. Care and maintenance at the Cantung Minesite

It is DFN's understanding that during care and maintenance phase, production is stopped but the site is managed to ensure it remains in a safe and stable condition.

#### Recommendation:

- Request NATCL outline what will occur during care and maintenance at the minesite. Including who will be responsible for care and maintenance and what the reporting requirements will be.
- Request the GNWT to outline the frequency of inspections and what will occur during the inspections.

### 2. EEM 2015

It is DFN's understanding that during the summer of 2015, the Environmental Effects Monitoring study will be completed.

#### Recommendation:

- Request NATCL to confirm that EEM activities will be taking place this summer.
- Request NATCL provide an outline of the 2015 EEM Study Design.

### 3. Delays to the AEMP, ICRP or Geochemical Risk Assessment Schedule

#### Recommendation:

- DFN requests that NATCL outline and update the AEMP, ICRP and Geochemical Risk Assessment schedule.