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December 12th, 2024

File: W2020L8-0003 and W2020X0005

Dr. Anneli Jokela
Regulatory Manager
Wek'èezhii Land and Water Board
#1-4905 48th St., Yellowknife, NT X1A 3S3

Dear Dr. Jokela,

**Re: Rayrock Remediation Project
Response to Information Request – Dated December 10th, 2024**

Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC) Contaminants and Remediation Division (CARD) submitted a complete Water Licence amendment application to the Wek'èezhii Land and Water Board (WLWB) for the Type A Water Licence (W2020L8-0003) on September 12th, 2024. Reviewers of the application and associated documents participated in a Technical Session on October 29th, 2024, to identify and clarify issues raised by Parties in the review of the Applications and to contribute to a better understanding of the information presented in support of the amendment. An Intervention for the Rayrock Remediation Project was received from the Government of the Northwest Territories, Department of Environment and Climate Change (GNWT-ECC) on November 27th, 2024, to which CIRNAC-CARD provided a response on December 3rd, 2024.

The WLWB submitted an Information Request on December 10th, 2024, seeking clarification on the CIRNAC-CARD response to the Intervention. Three questions were posed to CIRNAC-CARD, which will be provided below with their associated response.

- a. Clarification if CIRNAC-CARD intended the use of “MAC” in relation to the composite sample to reflect the MDMER (i.e., applied as a maximum authorized concentration applied to a composite sample). If this is the case, can CIRNAC-CARD explain how the composite sample will be collected?**

CIRNAC-CARD would like to restate our conclusion to the Intervention: CIRNAC-CARD would like to reiterate that we believe that a Total Suspended Solids (TSS) Maximum Grab Concentration (MGC) of 25 mg/L TSS is protective of the receiving environment and that a Maximum Average Concentration (MAC) does not provide additional benefit.

It has been CIRNAC-CARD's position from the initial Water Licence application and through the amendment process that a MGC of 25 mg/L is conservative for a short term remedial project and that a MAC is not needed for a remedial project with an anticipated maximum project volume of discharge of 112,000 m³ to 150,000 m³ (depending on precipitation volumes during remediation) anticipated over the three years of the project.

CIRNAC-CARD would also like to reiterate that a Detailed Human Health and Ecological Risk Assessment (HHERA) performed on the receiving water body (Sherman Lake) did not indicate



risks from sediment or water concentrations of contaminants that required remediation, and that the intent of the water sampling programs for Sherman Lake (Surveillance Network Program (SNP) and Aquatic Effects Monitoring Program (AEMP)) is to show that there will be no statistical difference in parameter concentrations in the Lake before and after remediation with the 25 mg/L Effluent Quality Criteria (EQC). Within this Amendment Request, modelling and information provided for the AEMP and SNP, and all other documentation provided to support the program being executed to remediate an identified risk to the environment posed by Mill Lake, CIRNAC-CARD has demonstrated that all proposed activities (including the discharge of treated Mill Lake water at an EQC of 25 mg/L TSS) will not pose a risk to the greater environment. Moreover, CIRNAC-CARD has agreed to complete a post-remediation HHERA to show that post remediation conditions (including TSS in the receiving waterbody) do not represent an environment risk that requires action. CIRNAC-CARD has also committed to sharing discharge quality data with the Tłı̨chǫ within our established Regulatory Working Group, to increase confidence in the treatment and monitoring processes.

Based on this rationale, CIRNAC-CARD reiterates its request for a MGC for TSS of 25 mg/L with no MAC.

In the intervention response to GNWT-ECC, CIRNAC-CARD referenced the Metals and Diamond Mining Effluent Regulations (MDMER) July 2024 amendment (a MAC in a composite sample of 22.50 mg/L TSS and a MGC of 30 mg/L TSS) as comparable and approved effluent concentrations in current federal legislation. Our intent was to demonstrate that the requested MGC that CIRNAC-CARD is requesting is more stringent than the MDMER MGC of 30 mg/L TSS.

Note that CIRNAC-CARD considers a composite sample as an average since it represents aliquots at different intervals; a composite is a physical averaging (combining the matrix) where the MAC from several analyses is a numerical averaging.

- b. Alternatively, was it CIRNAC-CARD's intention to apply this value as a maximum average concentration, calculated as a rolling average from four consecutive samples (i.e., to apply this as a maximum average value to a non-composite sample)? If so, please explain the appropriateness of applying it this way.**

CIRNAC-CARD would like to reiterate that we believe that a TSS MGC of 25 mg/L is protective of the receiving environment and that a MAC is not necessary. CIRNAC-CARD does not support the use of the MDMER values.

It would have been CIRNAC-CARD's intention to use a composite sample collection process as described in previous technical documents. The samples would have represented averages over the compositive collection period only. CIRNAC-CARD had not separately calculated the appropriateness of this approach; however, calculations provided in the original application show that 25 mg/L TSS as an EQC for the project does not represent a risk to Sherman Lake. Therefore, any concentration less than 25 mg/L (while being more expensive to achieve) would also not represent a risk.

- c. Can CIRNAC-CARD confirm what differences, if any, would result in the receiving environment from the increase of the MGC from the originally proposed 25 mg/L to 30 mg/L?**

CIRNAC-CARD would like to restate that we believe that a TSS MGC of 25 mg/L is appropriate.

While we are not suggesting it's use, CIRNAC-CARD is confident that a combination of composite samples at 22.5 mg/L and grab samples at 30 mg/L would produce no measurable difference in Sherman Lake from the use of 25 mg/L as a maximum grab, given the size of the receiving waterbody, the limited volumes to be discharged and the minimal difference between the concentrations. Nevertheless, a TSS MGC of 25 mg/L is more appropriate.

In conclusion, while CIRNAC-CARD referenced MDMER as a comparison to approved effluent concentrations in current federal legislation, we would like to reiterate our original request in the amendment for use of a 25 mg/L MGC for TSS.

In the intervention from GNWT-ECC, the ultimate reason for the suggested use of the MAC was "A 15 mg/L MAC for TSS should reduce localized adverse effects to aquatic invertebrates and flora." CIRNAC-CARD has modelled the potential impact of 25 mg/L TSS in the discharge to Sherman Lake and calculated that an environmental risk that requires action is very unlikely. CIRNAC-CARD recognizes that completion of any remediation project intended to address an identified environmental risk may have local adverse effects on various ecological components. Expansion and use of roads affect local plant and wildlife; construction, operations, site mobilization and site access increases our carbon footprint, etc. Efforts have been made to reduce these impacts, but localized, reversible adverse effects will occur in the process of any environmental remediation. CIRNAC-CARD firmly believes that the information provided to date shows that any localized adverse effects to aquatic invertebrates and flora will be short term and reversible. Therefore, CIRNAC-CARD reaffirms its position that a MAC is not required.

If you require any additional information, please do not hesitate to contact us.

Yours truly,



Ron Breadmore
Project Leader, CIRNAC-CARD

cc:

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