

**GOVERNMENT OF THE NORTHWEST TERRITORIES
ENVIRONMENT AND CLIMATE CHANGE
INTERVENTION**

FOR

**RAYROCK (KWETII?AÀ) REMEDIATION PROJECT
TYPE A WATER LICENCE AMENDMENT
W2020L8-0003**

SUBMITTED TO:

**WEK'ÈEZHÌ LAND AND WATER BOARD
#1-4905 48TH STREET
YELLOWKNIFE, NT X1A 3S3**

NOVEMBER 26, 2024

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LIST OF ACRONYMS & ABBREVIATIONS

Canadian Council of Ministers of the Environment	CCME
Contaminants and Remediation Division	CARD
Crown-Indigenous Relations and Northern Affairs Canada	CIRNAC
Environment and Climate Change Canada	ECCC
Effluent Quality Criteria	EQC
Government of the Northwest Territories	GNWT
Information Request	IR
Maximum Average Concentration	MAC
Maximum Grab Concentration	MGC
Total Suspended Solids	TSS
Wek'èezhìi Land and Water Board	WLWB or Board

SUMMARY OF RECOMMENDATIONS

1. **GNWT-ECC recommends that the Water Licence include a MAC of 15 mg/L and a MGC of 25 mg/L for TSS EQC.**

1. Introduction

The following concerns and issues have resulted from the Government of the Northwest Territories, Department of Environment and Climate Change's (GNWT-ECC) review of submissions and responses related to Crown-Indigenous Relations and Northern Affairs Canada Contaminants and Remediation Division's (CIRNAC-CARD) Water Licence Amendment Application (W2020L8-0003) to change the effluent quality criteria (EQC) for total suspended solids (TSS), to add winter road construction as a water use for Sherman Lake, and to add contingencies for camp wastewater treatment. This Technical Intervention details GNWT-ECC's concerns and provides recommendations for the Wek'èezhìi Land and Water Board's (the WLWB or the Board) consideration. This submission takes into consideration the documents provided throughout the application process to date including items from the Water Licence Application and Information Request (IR) responses. GNWT-ECC appreciates the opportunity to express its concerns and provide recommendations and suggestions to assist the WLWB in making a decision related to the proposed Water Licence Amendment Application.

1.1. Application Background

On October 10, 2024, GNWT-ECC and other parties submitted comments on the Amendment Application. CIRNAC-CARD provided their response to the public review comments on October 17, 2024. On October 29, 2024, the WLWB hosted a Technical Session to discuss and clarify issues raised by Parties in the review of the Application. Following the Technical Session, the WLWB requested additional information from CIRNAC-CARD. Responses to the IRs were provided to the WLWB on November 5, 2024.

GNWT-ECC's review in its entirety is conducted pursuant to the *Waters Act* and *Waters Regulations*, which are Territorial legislation that cover the use of water and deposit of waste in the Northwest Territories. This legislation mirrored the previous federal legislation without any substantive changes and came into force on April 1, 2014. GNWT-ECC conducted this review in part to ensure that the Water Licence Amendment Application is in accordance with s. 34 of the *Waters Act*, which identifies that an application for a licence shall be in a form and contain the information prescribed by the regulations, as set out in s. 5 and Schedule C of the *Waters Regulations*.

2. Effluent Quality Criteria – Total Suspended Solids

Water Licence W2020L8-0003 currently has an EQC maximum grab concentration (MGC) of 15 mg/L for TSS. CIRNAC-CARD has applied to change the EQC to a MGC of 25 mg/L for TSS. GNWT-ECC has remaining concerns with the use of only a 25 mg/L MGC for TSS. Considering that discharge could occur for up to 23 hours per day, over a period of up to four and a half months, GNWT-ECC believes the longer-term exposure scenario under the Canadian Council of Ministers of the Environment (CCME) guidelines is more appropriate for considering this discharge. The short-term exposure limit is described as applying to inputs of approximately 24 hours, while the long-term guideline considers an exposure

timeframe of 24 hours up to 30 days. The EQC document provided by CIRNAC-CARD as part of the application indicates that the background TSS level in Sherman Lake is 3 mg/L. With the long-term CCME limit of an average increase of 5 mg/L from background, this would give a limit of 8 mg/L. In the 250 m radius of discharge scenario, discharge at 15 mg/L TSS is anticipated to result in a concentration of 7 mg/L at 250 m, while 25 mg/L TSS in discharge would give a 10 mg/L concentration at 250 m. Therefore, the concentration at 250 m from the point of discharge would be expected to meet the CCME long-term guideline if the discharge TSS concentration was 15 mg/L but not if it was 25 mg/L. Including a maximum average concentration (MAC) of 15 mg/L for TSS in addition to the MGC of 25 mg/L would better reflect CCME guidance.

Additionally, a 15 mg/L MAC for TSS would provide additional protection compared to only the 25 mg/L MGC. Tables 4a and 4b of the EQC document indicates that adverse effects would likely be greater with 25 mg/L TSS in discharge compared to 15 mg/L. GNWT-ECC acknowledges that fish would likely avoid the area near the diffuser. However, aquatic invertebrates and flora do not have the same ability to avoid the area and would be subject to more severe effects compared to fish species. A 15 mg/L MAC for TSS should reduce localized adverse effects to aquatic invertebrates and flora.

Finally, while CIRNAC-CARD has indicated that inclusion of a 15 mg/L MAC for TSS may require additional financial investment to upgrade the treatment system, it is unclear whether this change would actually be necessary. At the Technical Session, CIRNAC-CARD stated that the existing 15 mg/L MGC for TSS was achieved during the treatment that occurred in 2024. GNWT-ECC acknowledges that TSS treatment will likely become more difficult as water levels in Mill Lake become lower and the quantity of sediment in water entering the treatment system increases. However, a MAC of 15 mg/L and a MGC of 25 mg/L does provide additional flexibility compared to the existing MGC of 15 mg/L. A TSS concentration of 15 mg/L could be exceeded in individual samples as long as the average stays below 15 mg/L. Additionally, it may be possible to manage TSS as water levels in Mill lake get lower without treatment system upgrades by lowering the withdrawal rate to limit the disturbance and uptake of sediments.

Recommendation:

- 1. GNWT-ECC recommends that the Water Licence include a MAC of 15 mg/L and a MGC of 25 mg/L for TSS EQC.**

3. Closing

GNWT-ECC would like to thank the WLWB for providing the opportunity to submit this Intervention for the Water Licence Amendment Application process for the Rayrock (Kwetj̄zàà) Remediation Project. GNWT-ECC does not intend to appear and make representations or see the need for a public hearing in any form. However, if one or more

other Parties request a public hearing, GNWT-ECC is prepared to participate in that public hearing at the Board's request.