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August 5th, 2021

File: W2020L8-0003 and W2020X0005

Mr. Ryan Fequet
Executive Director
Wek'èezhii Land and Water Board
#1-4905 48th St., Yellowknife, NT X1A 3S3

Dear Mr. Fequet,

**Re: KWETIIᑭĀÀ (RAYROCK) REMEDIATION PROJECT
TYPE A WATER LICENCE(W2020L8-0002)
PROPONENT'S RESPONSE TO ADDITIONAL INFORMATION REQUEST**

Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC) – Contaminants and Remediation Division (CARD) provided [comments](#) to the Wek'èezhii Land and Water Board (WLWB) on the draft Type A Water Licence (W2020L8-0003) and Type A Land Use Permit (W2020X0005), as posted on July 23rd, 2021. The WLWB review of these comments and closing arguments identified activities that the WLWB considered to have not been subject to Part 5 of the Mackenzie Valley Resource Management Act. WLWB contacted CIRNAC with an [Information Request Resulting from Kwetijᑭāà \(Rayrock\) Proceeding](#), which identified the use of Sherman Lake water as a diluent in sediment remediation (CIRNAC general Water Licence comment 3 and 4) and the use of structural bridges rather than ice bridges (CIRNAC general Water Licence comment 5) as new activities.

Specifically, WLWB noted that the use of water from Sherman Lake for remediation activities was not identified in the Applications or previously discussed during the proceeding; however, it was acknowledged that the scope of the preliminary screening did include the use of Sherman Lake water for camp operations, washing, and dust control. WLWB also noted that the use of “structural” bridges was not identified in the initial Application or included in the January 14, 2021 and April 15, 2021 preliminary screenings. The proposed Water Licence conditions provided by CIRNAC in the initial application noted “ice bridges”. The WLWB requested CIRNAC-CARD to confirm whether we are requesting the use of Sherman Lake water as a sediment diluent for the current proceeding and whether we are requesting the use of structural (i.e., non-ice) bridges at various river crossings. If water was to be used as diluent, WLWB requested a comprehensive description for the use of water from Sherman Lake and any potential impacts and mitigations for the proposed use of water. If a structural bridge were proposed, WLWB requested details regarding the proposed construction and a description of any potential impacts and mitigations for construction of the structural bridge at potential locations.



Use of Sherman Lake Water as Diluent

The reason and description of the potential use of Sherman Lake water as diluent is provided in Section 8 of the [CIRNAC Closing Arguments](#). CIRNAC would like to emphasize that the Rayrock Remediation Project is being executed for the sole reason of the remediation of the former mine, and all ancillary activities (such as camp operation and equipment use) are in support of the remedial works. As such, all water use is directly or indirectly for remediation activities.

As noted by WLWB and as described in Section 7 of the Water Licence Application, washing and dust control were identified as a Sherman Lake water use. Section 8 of the application also states “Spray washing the bedrock surface. Water would collect in low-lying areas of the bedrock surface in Mill Lake and this water would be treated by the water treatment system. Initial water supply for this purpose might be from the precipitation accumulation, with additional water acquired, as needed, from Sherman Lake.” Therefore, while the direct dilution of Mill Lake sediments has not been previously described, washing activities (which would be collected in Mill Lake if the washing was for removal of metal contamination) and Mill Lake bedrock washing would both be means of adding diluent for the sediments. CIRNAC’s comments on Part A 1 a) and b) of the Draft Water Licence were intended to more accurately describe the scope of the Water Licence and do not represent a change in project scope. It is also important to note that in Section 8.0 of the CIRNAC-CARD Closing Arguments it was stated “Diluent water sourced from Sherman Lake would be used without change to the proposed annual withdrawal volumes presented in the Type A Water Licence Application”; therefore, it is understood that the WLWB concerns are associated with the end use and not the sourcing of the water.

CIRNAC-CARD wants to make certain the scope of the project is properly reflected in the Licence. Part A 1. b) of the draft Licence states “Withdrawal of Water for use in camp operations, dust control, washing, and winter road construction”. The application for the Water Licence, the Remedial Action Plan and all supporting plans for the Licence provided a much more robust description of the use of water in support of activities for the Rayrock Remediation Project, and included details for water use associated with remedial activities. As per CIRNAC’s comment on Part A 1a) of the Draft Water Licence, “The scope of licence should include all activities outlined in the applications and Remedial Action Plan...” and “CIRNAC requests that scope item (b) be revised as follows: ‘Withdrawal of Water for use in camp operations, dust control, washing, winter road construction and other remediation activities’. This would encompass the water uses described in the Remedial Action Plan (RAP), supporting documents and Water Licence application and would also remove the confusion caused by introducing the term “diluent”. In consideration of this explanation, CIRNAC-CARD would like to revise the comment on Part A 1b) regarding the addition of “water treatment diluent” to the scope definition and change that to “other remediation activities”.

Water management is a critical part of the remediation process and considerable detail has been provided on this subject in the application, plans and submissions to date.



Although the direct use of Sherman Lake water as a “diluent” wasn’t previously mentioned, this water use falls within the scope of activities whose potential impacts and mitigations have previously been described and within the suggested scope of “other remediation activities”.

Sections 5.3.1 and 5.3.2 of the Remedial Action Plan provide descriptions of the treatment process for Mill Lake Sediment and Mill Lake Water. As work at Mill Lake comprises the majority of activity for the remediation project, additional detail was provided in all submissions to date. This process, which has been described in detail through previous documents, can be summarized as follows:

- Since Mill Lake is within a drainage basin with only one outlet, control of all water and sediment can be achieved by preventing outflow of water from the outlet and dewatering and containing the sediment within the Mill Lake drainage basin;
- Mill Lake water levels will be lowered to prevent outflow and blocked to contain all water and sediment within the basin;
- Water from Mill Lake will be pumped from Mill Lake, treated in a water treatment facility, then discharged to Sherman Lake;
- Once water levels have been reduced to an appropriate level above the sediments, and after the base of the Confined Disposal Facility (CDF) is prepared, a slurry of sediments mixed with water will be pumped to tubes to separate sediment from water (details on this process are provided in the RAP, and presentations during the Technical Session and Public Hearing provided both details and photos of what the process would look like);
- Sediments will remain in the CDF while water will be collected for either treatment and discharge to Sherman Lake or use as diluent for the sediments in Mill Lake that still need to be pumped to the CDF;
- Potential impacts and mitigations of this process are detailed in the RAP and plans submitted as part of this Water Licence Application;
- Sediment adhering to bedrock surfaces around the lake will be spray washed (potentially with Sherman Lake water) to be removed and collected (See Section 8 of the application);
- Sherman Lake water may be used for dust suppressions or washing in the Mill Lake area, and this water will drain to Mill Lake and be captured in the Mill Lake water and sediment treatment process; and
- As noted above, water needs to be mixed with the sediments to provide a slurry suitable for pumping (i.e. as a diluent) and, since Sherman lake water was directly stated as potentially being used for bedrock washing at Mill Lake and since washing and dust suppression of the Mill Lake area using Sherman Lake water might occur with the water subsequently captured in Mill Lake, the direct addition of Sherman Lake water to act as “diluent” was not considered to be outside of the scope of remedial actions described to date.

CIRNAC-CARD understood that the use of Sherman Lake water for other remediation activities would result in it acting as diluent for sediments. Thus, if dry weather or water balances in Mill Lake made sub-optimal sediment mixing conditions, the direct addition of Sherman Lake water was clearly within the scope of water uses previously described.



The potential impacts of this water addition to Mill Lake water is negligible, as Mill Lake water is more impacted and all water from Mill Lake will undergo water treatment, while mitigation of Mill Lake water (and sediment) are the principle processes described for the remediation.

Within this context, there are many potential water uses for which “other remediation activities” would cover (e.g. watering of revegetation areas, etc.), that are not specifically detailed but that are captured within the various plans and documents for potential impacts and mitigation (i.e. impacts and mitigation associated with watering of vegetation areas are captured within the Sediment and Erosion Control Plan). The proposed water volume use indicated for Sherman Lake in the original application is not changed, so the location, frequency, timing of withdrawal, and maximum volume are the same. Based on this analysis and the detailed remedial information presented to date, addition of “other remediation activities” to Part A 1. B) of the Draft Water Licence is suggested.

Use of Structural Bridges for Water Crossing

CIRNAC-CARD has identified the use of an ice bridge for a water crossing in documentation up to the comments on the Draft Water Licence. In the comments from CIRNAC on Part A 1e) of the Draft Water Licence it was asked “Can the word ice be removed? This would leave just bridges and would allow for structural bridges to be used if that is preferred by the road builder”. This question arose from the low risk that regional warming could make an ice bridge not constructible. Given the concern raised by WLWB with this change, CIRNAC-CARD would like to withdraw the comment on the bridges.

This means that if the Remediation Contractor determines an ice bridge cannot be built, and a structural bridge were required, a Water Licence amendment will be needed. The Remediation Contractor would have to provide CIRNAC with details regarding the proposed construction of the structural bridge, including location and design, and describe any potential impacts and mitigations for the construction of the structural bridges in that location. This would be submitted to the Board as an amendment request. CIRNAC-CARD considers the likelihood of requiring a structural bridge to be very unlikely, so it is not necessary to include in the scope of the Water Licence at this time.

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

Respectfully submitted,

Rasel Hossain
Senior Manager, CIRNAC-CARD

cc: Ron Breadmore, Project Manager, CIRNAC-CARD
Andrew Richardson, Project Officer, CIRNAC-CARD