



Crown-Indigenous Relations
and Northern Affairs Canada

Relations Couronne-Autochtones
et Affaires du Nord Canada

Water Resources Division
Resource Management Directorate
Nunavut Regional Office
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December 7, 2020

Richard Dwyer
Manager of Licensing
Nunavut Water Board
P.O. Box 119
Gjoa Haven, NU, X0B 1J0
sent via email: licensing@nwb-oen.ca

Your file - Votre référence
3AM-GRA1624

Our file - Notre référence
CIDM#1291264

Re: Crown-Indigenous Relations and Northern Affairs Canada's technical review of Government of Nunavut Community and Government Service's amendment application for water licence #3AM-GRA1624 for municipal undertakings – Hamlet of Rankin Inlet

Dear Mr. Dwyer,

Thank you for your November 9, 2020 invitation for technical review comments on the above referenced application. The Water Resources Division of Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC) examined the application and the results of our review are provided in the enclosed memorandum for the Nunavut Water Board's consideration.

Comments have been provided pursuant to CIRNAC's mandated responsibilities under the *Nunavut Waters and Nunavut Surface Rights Tribunal Act* and the *Department of Crown-Indigenous Relations and Northern Affairs Act*. If there are any questions or concerns, please contact me at (867) 975-3876 or by e-mail at sarah.forte@canada.ca or Godwin Okonkwo at (867) 975-4550 and godwin.okonkwo@canada.ca.

Sincerely,

Sarah Forté
Water Management Specialist

Technical Review Memorandum

To: Richard Dwyer, Manager of Licensing, Nunavut Water Board

From: Sarah Forté, Water Management Specialist, Water Resources Division, Crown-Indigenous Relations and Northern Affairs Canada

Date: December 7, 2020

Re: Crown-Indigenous Relations and Northern Affairs Canada's technical review of Government of Nunavut Community and Government Service's amendment application for water licence #3AM-GRA1624 for municipal undertakings – Hamlet of Rankin Inlet

Region: ☐ Kitikmeot ☒ Kivalliq ☐ Qikiqtani

A. BACKGROUND

The Government of Nunavut Community and Government Services (GN-CGS) has applied to amend and renew their Type A water licence 3AM-GRA1624 for the use of water and deposit of wastewater in the Hamlet of Rankin Inlet.

A utilidor system in Rankin Inlet distributes water and collects wastewater throughout most of the community, with a few buildings serviced by trucked water and sewage. Potable water is drawn from Nipissar Lake, which is replenished with water pumped from Char River. Wastewater is discharged to Prairie Bay through a diffuser after undergoing primary treatment at a wastewater treatment plant.

The current licence amendment application is to move the pumping location for water to replenish Nipissar Lake from Char River to Lower Landing Lake. Lower Landing Lake is Char River's source and is approximately 200 m upstream from the currently authorized pumping location.

Four additional changes to the water licence were requested with the amendment:

1. extending the licence by 6 years, until 2031;
2. removing quarterly reporting requirements;
3. removing monitoring at compliance point GRA-6, the pumping location on Char River; and
4. discontinuing requirement to submit an adaptive management plan for pumping.

Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC) submitted an information request on October 16, 2020 as part of the completeness check. The applicant responded on October 26, 2020.

B. RESULTS OF REVIEW

On behalf of CIRNAC Water Resources, the following comments and recommendations are provided for the Board's consideration:

1. Water pumping rate

References

3AM-GRA1624 Application for Water Licence Amendment, Government of Nunavut – Community and Government Services, September 16, 2020.

Nipissar Lake and Lower Landing Lake Water Balance Assessment, Golder Associates Ltd., February 2016.

Water Pumping Adaptive Management Plan, Rankin Inlet, Nunavut, Government of Nunavut – Community and Government Services, June 2017.

Comment

Part C, Item 4 of the current water licence specifies “*Withdrawal of Water shall not exceed 10 % of the instantaneous flow of Char River.*” In the Pumping Adaptive Management Plan, 10 % of flow was estimated at 0.07 m³/s.

The proposed amendment is to change the intake location and increase the pumping rate from 3 876 m³/day to 10 000 m³/day (equivalent to 0.12 m³/s). The Water Balance Assessment specifies the information available tying flow in Char River to Lower Landing Lake levels is only sufficient to develop an annual perspective. Since the river system is dynamic throughout the open water season, considering the yearly balance might miss potential issues during low flow periods in July and August. CIRNAC is concerned there may be impacts on ecological flows in Char River.

Recommendation

- 1) CIRNAC recommends that the impacts of abstracting water from Lower Landing Lake at the proposed rates on flow in the Char River be discussed during the technical review. We defer to Fisheries and Oceans Canada's expertise on the subject.

2. Timing of pumping from Lower Landing Lake

References

3AM-GRA1624 Application for Water Licence Amendment, Government of Nunavut – Community and Government Services, September 16, 2020.

2015-2020 Annual & Quarterly Reports for the Hamlet of Rankin Inlet, Government of Nunavut – Community and Government Services, 2015-2020.

Nipissar Lake and Lower Landing Lake Water Balance Assessment, Golder Associates Ltd., February 2016.

Comment

The amendment application requests authorization to withdraw “10,000 m³/day pumped from Lower Landing Lake to Nipissar Lake between July and August”.

Water pumping from Char River/Lower Landing Lake has been reported in the annual and quarterly reports. Reports cover the onset of pumping for five of the last six years, and it always occurred in June. The end date of pumping is reported for three of the last six years and is more variable, ranging from August to October.

The Water Balance Assessment indicates highest flows are at freshet, which typically occurs in June. The median historic thaw date is June 8th, and is predicted to occur earlier as the climate changes. Pumping soon after thaw at freshet would have the least proportional impact on flows in Char River, although there is insufficient data to for a good understanding of the relationship between levels in Lower Landing Lake and flows in Char River.

It is not clear why the applicant wants to restrict their pumping from Lower Landing Lake to a period which is shorter than what they have used historically. Additionally, this restricted period is the open water months when there is the least flow in Char River and lowering water levels in Lower Landing Lake would have the most impact on flows in Char River.

Recommendation

- 2) CIRNAC recommends the applicant explain why they are requesting permission to pump only in July and August, when this pumping might have the most impact on flows in Char River.

3. Water pumping plan

References

3AM-GRA1624 Application for Water Licence Amendment, Government of Nunavut – Community and Government Services, September 16, 2020.

Diagram of Pipeline Extension to Lower Landing Lake, Government of Nunavut – Community and Government Services, September 16, 2020.

Comment

In their application, GN-CGS request “to discontinue to submit a water pumping adaptive management plan for the pumping of water to Nipissar Lake from Lower Landing Lake. Due to this occurring from the lake and not a seasonally flowing river, the means to omit this from the future licence is asked to be strongly considered.”

CIRNAC agrees that it may no longer be necessary to update the Water Pumping Adaptive Management Plan annually, as required by Part C, Item 6 of the current water licence. However, the plan should be amended to reflect the new pumping location on Lower Landing Lake.

Moving the re-supply pipeline intake from Char River to Lower Landing Lake involved an extension of approximately 200 m and a river crossing. The explanations provide with the Diagram state: *“The approximately 20 m span of pipe that will suspend across Char River will be installed seasonally. After seasonal pumping has been completed, the pipeline will be disconnected and pulled to the south side of the river for storage on the existing road.”*

Presumably the yearly installation and de-installation of the segment over the river will involve work on the banks and perhaps fording of the river. No details are provided on what measures are taken to protect sediment from entering water during seasonal pipeline work.

Recommendation

- 3) CIRNAC recommends the applicant provide an updated Water Pumping Plan. It may not need to be adaptive, but should reflect the proposed pumping location. The plan should include measures to be taken to prevent sediment from entering water during pipeline installation and de-installation over the river each year, as well as monitoring to confirm effectiveness of measures taken.

4. Modifications to monitoring program

References

3AM-GRA1624 Application for Water Licence Amendment, Government of Nunavut – Community and Government Services, September 16, 2020.

Diagram of Pipeline Extension to Lower Landing Lake, Government of Nunavut – Community and Government Services, September 16, 2020.

Nipissar Lake and Lower Landing Lake Water Balance Assessment, Golder Associates Ltd., February 2016.

Nunavut Water Board Water Licence No: 3AM-GRA1624, Nunavut Water Board, May 2, 2016.

Comment

The water licence monitoring program is adapted for pumping from Char River, and could benefit from changes should the pumping location be changed to Lower Landing Lake. The three water source monitoring program stations (MPS) are:

MPS #	Description	Frequency	Status
GRA-5	Water level gauge in Nipissar Lake	Monthly (during periods of open water)	Active (Water Level)
GRA-6	Char River Water pumped to Nipissar Lake	Daily, Monthly/Annually; Annually (spring freshet)	Active (Volume/Quality)
GRA-7	Lower Landing Lake	Annually (spring freshet)	New (Water Quality)

According to the Diagram, GRA-6 is just upstream from where the seasonal pipeline will be suspended across Char River and GRA-7 is next to the pipeline intake on Lower Landing Lake.

The applicant is requesting *“to remove compliance point GRA-6 (Char River) from the water licence as this is no longer where water is pumped from to Nipissar Lake via pipeline to assist in keeping lake levels high enough to support municipal consumption.”*

Though there would no longer be pumping from Char River following the proposed amendment, there is still the potential for impact on Char River that should be monitored. Specifically, water quality could be impacted during seasonal pipeline installation and de-installation activities, and water flow could be impacted from withdrawals to Lower Landing Lake, the river’s source.

The quantity of water abstracted from the Lower Landing Lake/Char River watershed is still of interest, even though the pumping location would change. Additionally, the Water Balance Assessment recommends the *“use level loggers and staff gauges within Nipissar Lake and Lower Landing Lake to provide information for water supply forecasting.”* The Assessment also recommends *“further flow and water level monitoring should continue to be pursued to build a more uninterrupted understanding of measured flows”*, when discussing the relationship between water levels in Lower Landing Lake and ensuing flows in Char River.

Recommendations

- 4.1) CIRNAC recommends any renewed water licence modify monitoring requirements at station GRA-6. Water quality monitoring could be reduced to those parameters typically measured during construction activities and limited to periods when work is occurring. The samples should be taken downstream of work and may require addition of a 6b station. Water quantity monitoring may also need to be modified, following discussions on abstraction rates.
- 4.2) CIRNAC recommends reviewing possible modifications to monitoring requirements at station GRA-7 after the technical discussion for recommendation 1, on potential impacts of Lower Landing Lake water withdrawal on Char River flow.

5. Reclamation plans for old intake

Reference

3AM-GRA1624 Application for Water Licence Amendment, Government of Nunavut – Community and Government Services, September 16, 2020.

Comment

Reclaiming old facilities is necessary when they are replaced by new ones. CIRNAC was unable to find any information on what would happen to the old water intake in Char River.

Recommendation

- 5) CIRNAC recommends the applicant describe what they plan to do with the old water intake on Char River. If appropriate, any renewed water licence should include the requirement to submit a reclamation plan within a specified period of time.

6. Quarterly reporting

Reference

3AM-GRA1624 Application for Water Licence Amendment, Government of Nunavut – Community and Government Services, September 16, 2020.

Comment

In their application, GN-CGS request “*to remove the current quarterly reports that must be submitted to the Nunavut Water Board 4 times/year as held within current water licence 3AM-GRA1624, and opt to only submit one annual report at the end of the calendar year (December).*”

CIRNAC has no concerns with this request.

Recommendation

- 6) CIRNAC supports the applicant’s request.

7. Term of amended licence

Reference

3AM-GRA1624 Application for Water Licence Amendment, Government of Nunavut – Community and Government Services, September 16, 2020.

Meeting Summary notes: Teleconference Meeting Details – Rankin Inlet SWWTP Teleconference Meeting, Curtis Didham, September 14, 2020.

Comment

In their application, GN-CGS request that the amendment be used to renew the licence for a 10 year term, until 2031.

CIRNAC supports longer licence terms for municipalities that are mostly in compliance with their licence terms. Since this water licence also covers wastewater and currently

there is only primary treatment with waste being discharged to the environment, we have reservations about extending the licence term.

In September 2020, we attended a meeting organized by Environment and Climate Change Canada discussing the fact the requirements of the 2016 *Fisheries Act* Direction to GN-CGS have been met. At the time, staff from GN-CGS said they were working towards secondary treatment for the Rankin Inlet sewage treatment plant and had applied to the funding avenues available to them. Staff specified that a geotechnical site assessment and other small studies would be necessary before going into design and construction, and they were looking to have these completed in the summer of 2021.

CIRNAC appreciates the time, effort and many connecting parts required to upgrade the Rankin Inlet wastewater treatment plant and would like to see continued work towards this goal.

Recommendation

- 7) CIRNAC recommends the applicant provide a tentative schedule for steps towards upgrading the wastewater treatment plant. Furthermore, should the Nunavut Water Board extend the term of a renewed licence, we recommend the addition of a condition to report on progress towards upgrading wastewater treatment, with explanations for deviations from the tentative schedule.