



Water Resources Division
Resource Management Directorate
Nunavut Regional Office
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Your file - Votre référence
3AM-CHE2333
Our file - Notre référence
GCDOCS# 140153992

September 11, 2025

Robert Hunter
Licensing Administrator
Nunavut Water Board
P.O. Box 119
Gjoa Haven, NU, X0B 1J0
sent via e-mail: licensing@nwb-oen.ca

Re: Crown-Indigenous Relations and Northern Affairs Canada's Review of the Hamlet of Chesterfield Inlet's responses to CIRNAC's comments on the 2024 and 2023 Annual Reports for Water Licence 3AM-CHE2333 in the Kivalliq Region of Nunavut

Dear Mr. Hunter,

Thank you for the August 29, 2025 invitation to review the Hamlet's responses to Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC)'s comments on the 2024 and 2023 Annual Reports submitted by the Licensee. This review is for Chesterfield Inlet's Type A Water Licence No. 3AM-CHE2333.

CIRNAC examined the documents pursuant to its mandated responsibilities under the *Nunavut Waters and Nunavut Surface Rights Tribunal Act* and the *Department of Crown-Indigenous Relations and Northern Affairs Act*. **CIRNAC has 4 unresolved recommendations from the 2024 and 2023 Annual Reports, and 12 recommendations for the 2025 Annual Report.** Please find CIRNAC's comments and recommendations in the attached Technical Memorandum.

If there are any questions or concerns, please contact me at michelle.blade@rcaanc-cirnac.gc.ca or Andrew Keim at 305-501-4047 or Andrew.Keim@canada.ca.

Sincerely,

Michelle Blade
Regulatory and Science Advisor



Technical Review Memorandum

Date: September 11, 2025

To: Robert Hunter, Licensing Administrator, Nunavut Water Board

From: Michelle Blade, Regulatory and Science Advisor, CIRNAC

Subject: Crown-Indigenous Relations and Northern Affairs Canada's Review of the Hamlet of Chesterfield Inlet's responses to CIRNAC's comments on the 2024 and 2023 Annual Reports for Water Licence 3AM-CHE2333 in the Kivalliq Region of Nunavut

Region: ☐ Kitikmeot ☒ Kivalliq ☐ Qikiqtani

A. BACKGROUND

The Hamlet of Chesterfield Inlet is situated in Nunavut, approximately 91 km northeast of Rankin Inlet. It is located on the south shore of Chesterfield Inlet on the western side of Hudson Bay. The Hamlet of Chesterfield Inlet extracts potable water from First Lake (also known as Puiqsuk Lake), with the authorized quantity of water not to exceed 23,000 cubic metres (m³) annually. Water is pumped annually from First Lake during the months of August and September and transferred via overland pipeline to the rock-blasted reservoir located approximately 150 metres (m) west of the community. The solid waste disposal facility consists of a fenced disposal area for municipal solid waste (MSW), a separate bulk metal disposal area, and two drum storage areas. Sewage passively flows into a natural tundra wetland composed of four major ponds and several intermittent ponds, some small streams, and open, boggy, wet tundra areas (natural wetlands) between them.

On December 19, 2022, the Hamlet applied for an amendment to their Type B water licence 3BM-CHE1523 to a Type A water licence due to an increase in daily water use exceeding 299 m³/day to a total of 23,000 m³ during the annual resupply of the raw water reservoir. The Hamlet was issued a Type A water licence (Water Licence No. 3AM-CHE2333) on December 20, 2023, for a 10-year period, expiring December 19, 2033. Water Licence No. 3AM-CHE2333 authorizes the following activities, works, and undertakings by the Hamlet:

- a) Continued use of up to 23,000 m³ Water annually from First Lake and deposit of Waste associated with a Municipal Undertaking;
- b) Pumping of up to 2,000 cubic metres per day (m³/day) of Water from First Lake for the annual resupply of the storage reservoir, during the open water season;
- c) Continued operation and maintenance of the Water Supply Facility and Waste Disposal Facilities, and
- d) Roads management, watercourse crossings and culvert installations within Municipal boundaries.



A CIRNAC inspection was completed on July 17, 2024.

CIRNAC provides the following comments and recommendations pertaining to the 2024 and 2023 Annual Reports. A summary of the subjects of recommendations can be found in Table 1. Documents reviewed as part of this submission can be found in Table 2 of Section B. Detailed technical review comments for the 2024 and 2023 Annual Reports can be found in Sections C.

Table 1: Summary of Recommendations

Recommendation Number		Subject	Status
R-01	Sources of water and quantity used	a) Resolved b) Resolved* c) Resolved*	
R-02	Sludge removal reporting	Resolved	
R-03	Water quality reporting	a) Resolved b) Resolved c) Resolved* d) Resolved* e) Unresolved* f) Resolved* g) Resolved*	
R-04	Update of plans	a) Unresolved* b) Unresolved*	
R-05	Decommissioned landfill site	Resolved*	
R-06	Sludge management	a) Unresolved* b) Resolved*	

*includes CIRNAC follow-up recommendation for the 2025 Annual Report.



B. DOCUMENTS REVIEWED

The following table (Table 2) provides a summary of the documents reviewed under the submission.

Table 2: Documents Reviewed

Document Title	Author, File No., Rev., Date
3AM-CHE2233 - Response to 2023 and 2024 Municipality of Chesterfield Inlet Annual Report Comments	Hamlet of Chesterfield Inlet, 29 August 2025
Annual Report for the Municipality of Chesterfield Inlet, 2024	Author unknown, 8 Apr 2025
Annual Report for the Municipality of Chesterfield Inlet, 2023	Author unknown, 17 Jun 2025
Annual Report for the Municipality of Chesterfield Inlet, 2023	Author unknown, 24 Mar 2023
Water Licence Inspection Report	CIRNAC, 17 July 2024
Water Licence Inspection Report	CIRNAC, 21 September 2021
Operation & Maintenance Plan for Chesterfield Inlet Municipal Water Licence: Water Supply Facilities 2023	Hamlet of Chesterfield Inlet, 7 December 2022
Operation & Maintenance Plan for Chesterfield Inlet Municipal Water Licence: Solid Waste Disposal Facilities 2023	Hamlet of Chesterfield Inlet, 7 December 2022
Operation & Maintenance Plan for Chesterfield Inlet Municipal Water Licence: Sewage Disposal Facilities 2023	Hamlet of Chesterfield Inlet, 7 December 2022
Hamlet of Chesterfield Inlet Environmental Emergency Contingency Plan	Hamlet of Chesterfield Inlet, March 2023
Hamlet of Chesterfield Inlet Environmental Monitoring Program and Quality Assurance/Quality Control Plan	Hamlet of Chesterfield Inlet, December 2022
TYPE "A" WATER LICENCE NO: 3AM-CHE2333	Nunavut Water Board, 20 Dec 2023



C. RESULTS OF THE 2024 AND 2023 ANNUAL REPORTS REVIEW

R-01: Sources of water and quantity used

Comment:

The 2023 Annual Water Licence Report provides the monthly and annual quantities in litres (L) of water obtained from all sources; however, this is noted as the same volumes as CHE-1.

The 2024 Annual Water Licence Report provides the monthly and annual quantities of water obtained from all sources at (CHE-1a) in the correct units (m^3) and supplements this data with a note that *“pumping from First Lake began on September 4, 2024 and ended on September 08, 2024 over a period of 5.083 days (122 hours). An estimated total of 11,030 m^3 was pumped to the Reservoir in 2024, which corresponds to a daily average rate of 2170 m^3 . The municipality has ordered a new pump for next year’s reservoir refilling event. The pump will be throttled back to ensure that the daily water withdrawal limit is not exceeded.”* It is also noted in the 2024 Annual Water Licence Report that the monthly reported quantities are provided from the daily logs; however, the daily amount was not provided as backup to the Annual Report.

In both the 2023 and 2024 Annual Water Licence Reports, it is unclear if water withdrawn from the Water Supply Facility pump-house at Monitoring Station CHE-1a is monitored or tracked separately from water withdrawn from First Lake at Monitoring Station CHE-1. Water Licence No. 3AM-CHE2333 requires measurement by instrument and recording at Monitoring Program Station CHE-1 (in cubic metres), of the daily, monthly and annual quantities of water extracted from First Lake (Puiqsuk Lake) for all purposes; as well as water withdrawn from the Water Supply Facility (pump-house) at Monitoring Program Station CHE-1a.

Recommendation:

(R-01) CIRNAC recommends the Hamlet:

- a) Provide the name or origin of the undefined sources of water tabulated in the 2023 and 2024 Annual Water Licence Reports for CHE-1;
- b) Record and report the daily, monthly, and annual quantities in m^3 of water withdrawn from First Lake (Puiqsuk Lake) at Monitoring Station CHE-1, and specify in the 2023 and 2024 Annual Water Licence Reports if any daily rates exceeded 2,000 m^3 ; and
- c) Record and report in the 2023 and 2024 Annual Water Licence Reports, the daily, monthly, and annual quantities in m^3 of water withdrawn from the Water Supply Facility pump-house at Monitoring Station CHE-1a in the correct units.

Hamlet Response:

- a) The table in the 2023 and 2024 reports display the volume of water taken from the water reservoir (CHE-1a), where the water is resupplied from First Lake (Puiqsuk Lake).
- b) Water resupplied from First Lake (Puiqsuk Lake) in 2023 occurred in from August 26 - September 4. A total of 5245 m^3 of water was pumped over 192.75 hours giving a



daily average of 653.07 m³ of water. Water Resupplied from First Lake (Puiqsuk Lake) in 2024 occurred from September 4-8 over 122 hours, the volume extracted totalled 11,030 m³ of water giving a daily average of 2170 m³ of water. The pump will be turned down in the future to ensure the daily maximum of 2000 m³ is not exceeded.

- c) The values in the tables of the 2023 and 2024 report detail the monthly and yearly volume of water extracted from the reservoir of CHE-1a.

CIRNAC Response:

- a) The Hamlet provided the name of the water source. **Resolved.**
- b) The Hamlet provided a calculated average of the daily quantities of water withdrawn from First Lake, however the actual volumes extracted daily were not provided. **CIRNAC recommends the Hamlet update their water withdrawal procedures in 2025 to record daily water withdrawal from First Lake, in compliance with water licence 3AM-CHE2333, for the 2025 Annual Report. Resolved.**
- c) The Hamlet provided monthly and yearly quantities of water withdrawn; daily quantities in m³ were not provided for water withdrawn from the Water Supply Facility pump-house at Monitoring Station CHE-1a First Lake (Puiqsuk Lake) at Monitoring Station CHE-1. **CIRNAC recommends the Hamlet update their water withdrawal procedures in 2025 to record daily water withdrawal quantities in m³ at Monitoring Station CHE-1 and CHE1a, in compliance with water licence 3AM-CHE2333, for the 2025 Annual Report. Resolved.**

R-02: Sludge Removal Reporting

Comment:

Water licence 3AM-CHE2333 requires reporting of the monthly and annual quantities in m³ of sludge removed from the Sewage Disposal Facility. The 2023 Annual Water Licence Report noted that no sludge was removed. CIRNAC was unable to locate the sludge removal values within the 2024 Annual Water Licence Report.

Recommendation:

(R-02) CIRNAC recommends that the Hamlet specify whether sludge was removed in 2024 and that the associated sludge removal values are reported in the 2024 Annual Water Licence Report.

Hamlet Response:

No sludge was removed from the sewage disposal facility in 2024.

CIRNAC Response:

Hamlet response addresses CIRNAC's comment. **Resolved.**



R-03: Water quality reporting

Comment:

Water licence 3AM-CHE2333 requires the Monitoring Program to be conducted in accordance with Schedule I of the Water Licence. All effluent discharged from the Sewage Disposal Facility at Monitoring Program Station CHE-4 shall not exceed the effluent quality standards in Part E, Item 2, of the Water Licence. The 2023 Annual Water Licence Report notes that *“past information from past SAO not available, looking for information from the board,”* and *“that the sampling program to their knowledge was conducted with CGS and sample reports from previous year will follow.”* The sample labelled CH-3 + CH3a exceeded the CCME guideline for freshwater aquatic life for mercury.

The 2024 Annual Water Licence Report notes that *“this report also includes results for Monitoring Station CHE-1, as well as detailed chemical, physical and biological analysis required at CHE-2, CHE-3, CHE-3b, and CHE-4 monitoring stations.”* Appendix A (CHE-4 Effluent Quality Limits) of the 2024 Annual Water Licence Report tabulates the results for one sample (monitoring station CHE-4) collected on July 17, 2024, with a comparison to the effluent quality standards from Part E, Item 2, of the Water Licence. Appendix B (Certificate of Analysis – 17-July-2024) includes results for monitoring stations CHE-3, CHE-3a and CHE-4 from one sampling event (July 17, 2024). The sample from CH3a exceeded the CCME guideline for freshwater aquatic life for cadmium.

The Annual Water Licence Reports do not include the results of sampling or flow at monitoring station CHE-2; lacks analytical results for field conductivity and temperature associated with monitoring stations CHE-3, CHE-3a and CHE-4; total petroleum hydrocarbons, polycyclic aromatic hydrocarbons, and benzene, toluene, ethylbenzene, xylene (BTEX) in CH4; mercury for all samples in 2024 sampling; does not compare the analytical results to any regulatory criteria, other than CHE-4 to the effluent limits in Part E Section 2 of the Water Licence; and does not provide QA/QC data for the program.

Recommendation:

(R-03) CIRNAC recommends that the Hamlet:

- a) Provide the sample reports for the sample program conducted with CGS;
- b) Include the dates of discharge from the wetland treatment area entering Finger Bay;
- c) Include the 2024 flow data and analytical results for monitoring station CHE-2 in the 2024 Annual Water Licence Report to remain in compliance with the water licence terms and conditions or provide an explanation as to why it was not done;
- d) Include the 2024 field readings for pH, conductivity, and temperature for monitoring stations CHE-3, CHE-3a and CHE-4, as well as laboratory results for mercury and hydrocarbons (monitoring station CHE-4 only) in the 2024 Annual Water Licence Report to remain in compliance with the water licence terms and conditions or provide an explanation as to why it was not done;
- e) Include analytical results for all other sampling events at monitoring stations CHE-3, CHE-3a, and CHE-4 to remain in compliance with the terms and conditions (i.e.,



monthly sampling) of the water licence or provide an explanation as to why it was not done;

- f) Compile the analytical results in an Appendix table with comparison to the applicable guidelines or instruct the lab to include the guidelines in the lab report for easy reference and comparison; and
- g) Provide QA/QC data or provide an explanation as to why it was not done.

Hamlet Response:

- a) Please see the submitted lab reports WP2320341 for 2023 and WP2417729 for 2024.
- b) The lagoon naturally discharges from the holding cell in the summer months when the sewage thaws. The dates of discharge would occur in early-mid June until the lagoon refreezes in the winter.
- c) To measure waste generation in Chesterfield Inlet the GN has a waste generation rate per person. The monthly generation of non-hazardous waste in Chesterfield is 398.6 m³, with a yearly volume of 4783.9 m³. For hazardous waste the generation is 0.441 m³ monthly, and 5.292 m³ yearly. Sampling at CHE-2 did not occur as there was no flow when testing was done.
- d) WP2417729 gives the results of the of sampling done on July 17, 2024. Only one round of sampling was done in 2024, limited hamlet staff was the reason for only 1 sample activity in 2024
- e) One round of sampling was done for both the year 2023 and 2024. The hamlet has limited staffing capacity making it difficult to obtain samples.
- f) One round of sampling was done in 2024 with all results displayed in the ALS Certification of Analysis Part E, item 2, in the water license stipulates the maximum parameters for monitoring station CHE-4 which is the final point of treatment before discharge into the ocean. These results can be found in this document below.
- g) No QA/QC (replicate or field blank) samples were taken. They are done approximately at a rate of approximately 10% of total samples, and thus with the limited total number of samples taken in 2023 and 2024, there were no QA/QC samples taken.

CIRNAC Response:

- a) Sample reports provided. **Resolved.**
- b) Dates of discharge provided. **Resolved.**
- c) No flow reported at monitoring station CHE-2. **CIRNAC recommends an explanation as to why a water sample is not collected is documented in future annual reports. Resolved.**
- d) The 2024 field readings for pH, conductivity, and temperature for monitoring stations CHE-3, CHE-3a and CHE-4 were not provided due to limited Hamlet staff. **CIRNAC recommends Hamlet staff are trained in collecting field measurements prior to the next sampling event, and that these field measurements are reported in the 2025 Annual Report to ensure compliance with water licence 3AM-CHE2333. Resolved.**



- e) The Hamlet indicated limited staff as the reason for not conducting monthly water sampling. **CIRNAC recommends that within its 2025 Annual Report, the Hamlet describe the actions being taken to meet the monthly sampling requirements to ensure compliance with water licence 3AM-CHE2333. Unresolved.**
- f) The Hamlet provided a comparison table of maximum concentrations for monitoring station CHE-4. **CIRNAC recommends that within its 2025 Annual Report, the Hamlet instruct the lab to include the CCME guidelines for the protection of aquatic life on the lab reports for easy reference and comparison of exceedances. Resolved.**
- g) Trip blanks, field blanks, and duplicate samples are an integral part of QA/QC in water sampling. None were collected in 2023 and 2024. At the duplicate sample target rate of approximately 10% of total samples provided by the Hamlet, the Hamlet is overdue in duplicate sampling. **CIRNAC recommends that within its 2025 Annual Report, the Hamlet provide a trip blank, field blank, and duplicate water sample. Resolved.**

R-04: Update of Plans

Comment:

Water licence 3AM-CHE2333 requires in Part I, Item 9, that “*the Licensee shall update, and submit with the 2023 Annual Report, the Plan entitled “Hamlet of Chesterfield Inlet, Environmental Monitoring Program and Quality Assurance/Quality Control Plan” dated December 2022, to include new Monitoring Station CHE-1a and updated figures with locations.*” The 2023 Annual Water Licence Report did not include any revisions, in the form of addenda, to the Environmental Monitoring Program and Quality Assurance/Quality Control Plan.

Water licence 3AM-CHE2333 also requires in Part G that:

“4. The Licensee shall submit an updated Operation & Maintenance Plan for Sewage Disposal Facility, after the Inspector’s inspection during the 2024 field season, to take into consideration comments and recommendations made during the licensing process; and

5. The Licensee shall submit an updated Operation & Maintenance Plan for Solid Waste Disposal Facility, after the Inspector’s inspection during the 2024 field season, to take into consideration comments and recommendations made during the licensing process.”

The 2024 Inspection was conducted on July 17, 2024. The 2024 Annual Water Licence Report did not include any revisions, in the form of addenda, to either Operation & Maintenance Plan specified above.



Recommendation:

(R-04a) CIRNAC recommends that the Hamlet update the *“Hamlet update the Hamlet of Chesterfield Inlet, Environmental Monitoring Program and Quality Assurance/Quality Control Plan”* (2022) based on the requirements of Water licence 3AM-CHE2333 and submit the updated plan with the 2023 Annual Water Licence Report.

(R-04b) CIRNAC recommends that the Hamlet update the following plans based on the comments and recommendations made during the licensing process and submit the updated plans within the 2024 Annual Water Licence Report for review:

- i. *Operation & Maintenance Plan for Sewage Disposal Facility* (2023).
- ii. *Operation & Maintenance Plan for Solid Waste Disposal Facility* (2023).

Hamlet Response:

- a) Updates to the QA/QC document have been added to update the figures with coordinates, and include the new monitoring station CHE-1a
- b) Updates to O&M plans were done to the following documents in the form of an addenda.

CIRNAC Response:

- a) The Hamlet appended an addendum (August 26, 2025) to the Chesterfield Environmental Monitoring Program and Quality Assurance/Quality Control Plan (December 2022). **CIRNAC recommends the NWB circulate the updated Environmental Monitoring Program and Quality Assurance/Quality Control Plan to interested parties for review and comment. Unresolved.**
- b) The Hamlet appended an addendum (August 26, 2025) to the Operation & Maintenance Plan for Chesterfield Inlet Municipal Water Licence: Sewage Disposal Facilities (2022) and an addendum (August 26, 2025) to the Operation & Maintenance Plan for Chesterfield Inlet Municipal Water Licence: Solid Waste Disposal Facilities (2023). **CIRNAC recommends the NWB circulate the updated Environmental Monitoring Program and Quality Assurance/Quality Control Plan to interested parties for review and comment. Unresolved.**

R-05: Decommissioned landfill site

Comment:

Water licence 3AM-CHE2333 requires in Part E, Item 11, that *“the Licensee shall submit, within the 2023 Annual Report, a summary of restoration works completed and future use plans, for the decommissioned landfill site located between the fenced MSW area and the bulk metal disposal area.”* The 2023 Annual Water Licence Report noted there were none.



Recommendation:

(R-05) CIRNAC recommends that in order to remain in compliance with the water licence terms and conditions, the Hamlet provide an explanation in its 2023 Annual Report as to why there was no restoration work done or future use plans completed for the decommissioned landfill site and include an indication as to when this work will be completed by.

Hamlet Response:

Plans for completing the work will commence as part of a GN capital project once funding has been assigned in fiscal year 2025-2026 and physical works will follow successful tender in fiscal year 2026-2027.

CIRNAC Response:

CIRNAC recommends the Hamlet provide an update on plans for its decommissioned landfill site in the 2025 Annual Report. Resolved.

R-06: Sludge management

Comment:

CIRNAC's July 17, 2024, inspection identified that the Hamlet was to remove sludge from the sewage disposal facility from the discharge point closest to landfill.

In the 2024 Annual Water Licence Report, the Hamlet noted that *"the municipality has not removed the sludge from the second holding cell for the following reasons:*

- *The municipality is able to use the first holding cell only for all wastewater and the effluent quality at CHE-4 is meeting the effluent quality compliance limits.*
- *As per the O&M Plan for the Sewage Disposal Facility, a sludge management plan needs to be developed prior to removing the sludge.*
- *A planning study for a new Sewage Disposal Facility will commence in the Summer 2025.*
- *Once a new facility is commissioned the existing holding cells will be abandoned and restored."*

Recommendation:

(R-06) CIRNAC recommends that the Hamlet:

- a) provide a timeline for the submission of the sludge management plan;
- b) provide a timeline for the planning, construction and development of a new Sewage Disposal Facility; as well as a timeline for decommissioning the existing facility.



Hamlet Response:

The planning project for a new sewage lagoon in Chesterfield Inlet is currently in the RFP stage, once the plans are past the RFP stage the GN can provide a better timeline for the planning and construction of the new sewage lagoon, as well as the plans to decommission the existing facility and provide a sludge management plan. There is currently no design or construction being done at this stage.

CIRNAC Response:

- a) The Hamlet did not provide a timeline for the submission of the sludge management plan. **CIRNAC recommends that the Hamlet provide a timeline for the submission of the sludge management plan within its 2024 Annual Report.** Unresolved.
- b) **CIRNAC recommends that within its 2025 Annual Report, the Hamlet provide an updated timeline for the planning, construction and development of a new Sewage Disposal Facility, as well as an updated timeline for decommissioning the existing facility.** Resolved.