



Water Resources Division  
Resource Management Directorate  
Nunavut Regional Office  
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Your file - Votre référence  
(1AR-NAN2030)  
Our file - Notre référence  
GCDocs#99338732

November 29, 2021

Richard Dwyer  
Manager of Licensing  
Nunavut Water Board  
P.O. Box 119  
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E-mail: [licensing@nwb-oen.ca](mailto:licensing@nwb-oen.ca)

**Re: Crown-Indigenous Relations and Northern Affairs Canada's Review of Nyrstar's Response Regarding Canzinc Mines Annual Report for Nanisivik Mine Post-Closure Monitoring and Maintenance, Type A Water Licence No. 1AR-NAN2030**

## **1. R-01 Investigation of elevated sulphate concentration sources**

### **CIRNAC Comment:**

Concentrations of sulphate at Station NML-29 in 2019 and 2020 were consistently above Action Level values defined in the Contingency Plan for Surface Water Quality Exceedances. An investigation was carried out in 2020 with a handheld meter at 9 sites upstream and within the same drainage channel along which NML-29 is situated. This included measurements in an area with localized seepage approximately 150 m upstream of NML-29. Elevated sulphate concentrations are hypothesized to come from potentially thawing conditions from the north side of the drainage channel, or areas other than the Landfill that discharge to the drainage channel.

The 2020 Nyrstar Water Quality Monitoring report concludes "a secondary investigation is recommended for Station NML-29, which should include additional baseline points as well as more detailed mapping of any observed seepage where elevated conductivities (i.e., > 1,000  $\mu\text{S}/\text{cm}$ ) are observed, including investigation of evidence accounting for these values (e.g., erosion of mineralized outcrops, erosion, sources of turbidity). Similar to 2020, measurement of field parameters along the water course and at defined intervals upstream of NML-29 should be conducted in 2021, with collection of samples for chemical analysis."



**CIRNAC Recommendation:**

(R-01) CIRNAC recommends that the proponent conduct a secondary investigation with chemical analysis testing recommended in the Appendix B 2020 Nystar Water Quality Monitoring report done for the proponent, and that the investigation include stations along the drainage channel as far west as NML-30 to confirm the hypothesis that the landfill is not part of the source of high sulphate concentrations.

**Nyrstar's Response to Recommendation:**

Secondary surface water investigations at station NML-29 were completed as part of the site inspection undertaken in August 2021. In addition to the measurement of field parameters, four water quality samples were taken in the area and sent for laboratory analysis. A drone survey was also completed to assess potential surface water contributions from the landfill to station NML-29. The results of the investigations are under evaluation and will be discussed in the 2021 Annual Report.

**CIRNAC's Comments 2021-11-10:**

CIRNAC asks for further clarification on whether the proponent completed sampling and chemical analysis testing and collected samples at station NML-30. CIRNAC would like to confirm samples were collected from station NML-30 to support the hypothesis that the landfill is not part of the source of high sulphate concentrations.

**Nyrstar's Response:**

Dear Richard,

Thanks for the follow up.

With respect to comment R-01 from CIRNAC, we confirm station NML-30 was sampled in 2021 as mandated by Water Licence 1AR-NAN2030. The results were within the station-specific action level.

Kind regards,

[Quoted text hidden]

**CIRNAC Comments 2021-11-24:**

CIRNAC would like confirmation that sulphate testing was done at NML-30. If the sulphate levels from NML-30 were not above Action Level values defined in the Contingency Plan for Surface Water Quality Exceedances like the sulphate levels at NML-29 across and down stream of the landfill. The landfill might be the cause of the high sulphate levels. In that case we would recommend investigation into the possibility the landfill is leaking in the stream and measures be taken to mitigate this factor.



Sincerely,

A handwritten signature in black ink, reading "Miriame Giroux-Paniloo". The signature is written in a cursive, flowing style.

Miriame Giroux-Paniloo  
Water Resource Technician