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Prairie & Northern Region
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ECCC File: 6100 000 011/001
NIRB File: 08MN053

July 4, 2025

via email at: info@nirb.ca

Varun Nayak
Monitoring Officer
Nunavut Impact Review Board
29 Mitik Street
P.O. Box 1360
Cambridge Bay, NU X0B 0C0

Dear Varun Nayak:

**RE: 08MN053 – Baffinland Iron Mines Corporation – Mary River Project – 2024 Annual Monitoring Report**

Environment and Climate Change Canada (ECCC) has reviewed the information submitted to the Nunavut Impact Review Board (NIRB) by Baffinland Iron Mines Corporation ("the Proponent") regarding the above-mentioned annual report.

ECCC provides expert information and knowledge to project assessments on subjects within the department's mandate, including climate change, air quality, water quality, biodiversity, environmental emergencies preparedness and responses. This work includes reviewing proponent characterization of environmental effects and proposed mitigation measures. We provide advice to decision-makers regarding a proponent's characterization of environmental effects, the efficacy of their proposed mitigation activities, and may suggest additional mitigation measures. Any comments received from ECCC in this context does not relieve the proponent of its obligations to respect all applicable federal legislation.

The following comments are provided:

1. **Compliance Monitoring**

Reference(s)

- Comment Request for Baffinland Iron Mines Corporation's Mary River Project 2024 Annual Report (Email from NIRB, June 5, 2025)

Comment

NIRB requested Regulatory Authorities provide a summary of any compliance monitoring and/or site inspections undertaken in association with the Mary River Project. ECCC's summary related to compliance monitoring is provided below.

No authorizations from ECCC have been issued.

The Mary River Project is captured under the following pieces of ECCC legislation:

a. *Fisheries Act* (FA):
   - Pollution Prevention Provisions (i.e. subsection 36(3))
   - *Metal and Diamond Mining Effluent Regulations* (MDMER)
b. *Canadian Environmental Protection Act* (CEPA):
   - *Environmental Emergency Regulations*
   - *Cross-border Movement of Hazardous Waste and Hazardous Recyclable Material Regulations*
   - *Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations*
   - National Pollutant Release Inventory
   - *Sulphur in Diesel Fuel Regulations* (SIDFR) – The Proponent found a Canadian supplier for their fuels in 2024 and therefore, SIDFR did not apply to the 2024 reporting year.
   - *Fuels Information Regulations* (FIR) – The Proponent found a Canadian supplier for their fuels in 2024 and therefore, FIR No. 1 did not apply to the 2024 reporting year.
c. *Greenhouse Gas Pollution Pricing Act* (GGPPA):
   - *Output-Based Pricing System Regulations*

**On-Site Inspections**:

1. From August 13-15, 2024, a multi-regulation on-site inspection was conducted to verify compliance under the FA & CEPA. At the time of inspection, Final Discharge Point (FDP) MS-08 was sampled for the below parameters:
   a. Single-concentration Daphnia magna = Pass
   b. Suspended Solids = <3mg/l
   c. Total Metals/**MDMER Metals**:
      - Aluminum, Total Recoverable mg/L - - 0.010
      - Antimony, Total Recoverable mg/L - - <0.020
      - **Arsenic**, Total Recoverable mg/L - - <0.010
      - Barium, Total Recoverable mg/L - - 0.019
      - Beryllium, Total Recoverable mg/L - - <0.010
      - Boron, Total Recoverable mg/L - - 0.027
      - Cadmium, Total Recoverable mg/L - - <0.010
      - Calcium, Total Recoverable mg/L - - 35.8
      - Chromium, Total Recoverable mg/L - - <0.010
      - Cobalt, Total Recoverable mg/L - - 0.015
      - **Copper**, Total Recoverable mg/L - - <0.010

- Iron, Total Recoverable mg/L - - 0.131
- **Lead**, Total Recoverable mg/L - - 0.021
- Lithium, Total Recoverable mg/L - - 0.019
- Magnesium, Total Recoverable mg/L - - 99.7
- Manganese, Total Recoverable mg/L - - 1.33
- Molybdenum, Total Recoverable mg/L - - <0.010
- **Nickel**, Total Recoverable mg/L - - 0.012
- Phosphorus, Total Recoverable mg/L - - <0.010
- Potassium, Total Recoverable mg/L - - 5.63
- Selenium, Total Recoverable mg/L - - <0.020
- Sodium, Total Recoverable mg/L - - 2.68
- Strontium, Total Recoverable mg/L - - 0.060
- Thallium, Total Recoverable mg/L - - <0.020
- Thorium, Total Recoverable mg/L - - 0.050
- Titanium, Total Recoverable mg/L - - <0.010
- Uranium, Total Recoverable mg/L - - <0.010
- Vanadium, Total Recoverable mg/L - - 0.313
- **Zinc**, Total Recoverable mg/L - - <0.010

d. Radium-226 = No detection
e. Major Anions
   - Sulfate = 389mg/l
   - Chloride = 7.05mg/l
f. Field pH = 9.2
g. Field Temp = 6.2 degrees
h. Field Conductivity = 884

2. The Laboratory sample analysis concluded that the effluent discharged at MS-08 was within compliance of the criteria found under MDMER.
3. No other instances of non-compliance were noted.

**MDMER**:

The Project is subject to the MDMER. The purpose of the MDMER is to authorize a deposit of certain deleterious substance(s) into water frequented by fish while monitoring the environmental effects of those deposits to ensure that deleterious substances are not released in quantities or concentrations that could result in harmful effects on waters frequented by fish. To do this, certain effluent deposit conditions (concentrations, limits and parameters) apply so that regulatees are exempted and protected from the more stringent prohibition of subsection 36(3) under the FA. Samples of the effluent by the Proponent must be taken and tested at the identified FDP to ensure the above conditions are met on a scheduled basis and reported. The four current FDPs are as follows:

1. FDP MS-06 Crusher Stockpile Pad Sedimentation Pond intermittently pumped during open water season via pipeline to Mary River.

2. FDP MS-08 Waste Rock Sedimentation Pond intermittently pumped during open water season to Water Treatment Plant then on tundra land to flow naturally to Mary River Tributary then to Mary River.
3. FDP MS-07 KM106 Stockpile Surface Water Management Pond intermittently pumped during open water season on tundra land to flow naturally 250m to Mary River.
4. FDP MS-11 KM105 Surface Water Management Pond intermittently pumped during open water season on tundra land to flow naturally to Sheardown Lake Tributary one to West Basin of Sheardown Lake.

The MDMER required reports are to be submitted in ECCC's online database Mine Effluent Reporting System (MERS) which are reviewed by an assigned Enforcement Officer on a quarterly basis. The quarterly administrative regular report verifications are conducted to ensure that the sampling and testing has been conducted in accordance with the MDMER and ensuring the reports are submitted on time. Each Enforcement Activity includes a administrative report verification of each quarterly report which are due 45 days at the end of each quarter: 1st Quarter (due May 15), 2nd Quarter (due Aug 14), 3rd Quarter (due Nov 14) and 4th Quarter (due Feb 14), as well as an administrative report regular verification of the 2024 Annual Effluent Monitoring Summary Report (due March 31). Furthermore, an administrative report regular verification was completed on the Environmental Effects Monitoring (EEM) 2024 Annual Report (information related to effluent and water quality monitoring studies).

In 2024, the Proponent submitted all required MDMER reports:

1. First Quarter:
    - Report submitted on time.
    - FDP MS-06: Administrative verification not conducted as no effluent was discharged through this FDP during Q1; therefore, no compliance issues.
    - FDP-MS-08: Effluent was discharged in Q1; no non-compliance was determined.
    - FDP MS-07: Administrative verification not conducted as no effluent was discharged through this FDP during Q1; therefore, no compliance issues.
    - FDP MS-11: Administrative verification not conducted as no effluent was discharged through this FDP during Q1 (not active) due to KM 105 Dam seeping issues. The Proponent is however collecting chemistry and toxicity samples of effluent as per FA 36(3). The Proponent is currently working on moving, installing, and reconstructing the FDP MS-11 so that effluent will once again be deposited through an FDP as per MDMER. This work is said to be complete in Fall 2025.
2. Second Quarter:
    - Report submitted on time.
    - FDP MS-06: Administrative verification not conducted as no effluent was discharged through this FDP during Q2; therefore, no compliance issues.
    - FDP-MS-08: Effluent was discharged in Q2; no non-compliance was determined.
    - FDP MS-07: Administrative verification not conducted as no effluent was discharged through this FDP during Q2; therefore, no compliance issues.
    - FDP MS-11: Administrative verification not conducted as no effluent was discharged through this FDP during Q2 (not active) due to KM 105 Dam seeping issues. The

Proponent is however collecting chemistry and toxicity samples of effluent as per FA 36(3). The Proponent is currently working on moving, installing, and reconstructing the FDP MS-11 so that effluent will once again be deposited through an FDP as per MDMER. This work is said to be complete in Fall 2025.

3. Third Quarter:
    - Report submitted on time.
    - FDP MS-06: Effluent was discharged in Q3; no non-compliance was determined.
    - FDP-MS-08: Effluent was discharged in Q3; no non-compliance was determined.
    - FDP MS-07: Effluent was discharged in Q3; no non-compliance was determined.
    - FDP MS-11: Administrative verification not conducted as no effluent was discharged through this FDP during Q3 (not active) due to KM 105 Dam seeping issues. The Proponent is however collecting chemistry and toxicity samples of effluent as per FA 36(3). The Proponent is currently working on moving, installing, and reconstructing the FDP MS-11 so that effluent will once again be deposited through an FDP as per MDMER. This work is said to be complete in Fall 2025.
4. 2024 Fourth Quarter:
    - Report submitted on time.
    - FDP MS-06: Effluent was discharged in Q4; no non-compliance was determined.
    - FDP-MS-08: Effluent was discharged in Q4; no non-compliance was determined.
    - FDP MS-07: Effluent was discharged in Q4; no non-compliance was determined.
    - FDP MS-11: Administrative verification not conducted as no effluent was discharged through this FDP during Q4 (not active) due to KM 105 Dam seeping issues. The Proponent is however collecting chemistry and toxicity samples of effluent as per FA 36(3). The Proponent is currently working on moving, installing, and reconstructing the FDP MS-11 so that effluent will once again be deposited through an FDP as per MDMER. This work is said to be complete in Fall 2025.
5. Annual Effluent Monitoring Report:
    - Report was submitted on time and no compliance issues noted.
6. Annual EEM Report:
    - Report was submitted on time and no compliance issues noted.

**ECCC Files Regarding Reported 2024 Spills**:

1. 2024-180, 199, 366, & 367 – Lead agency Crown-Indigenous and Northern Affairs Canada (CIRNAC): Freshet/Heavy Rainfall Sediment Releases, File closed – No Enforcement Action Taken under FA 36(3)
2. 2024-239 – Lead Agency CIRNAC: Suspended Solids MS-08 pond 20,600$m^3$ controlled discharge overland to Camp Lake Watershed, File Closed - No Enforcement Action Taken under the MDMER or FA 36(3)
3. 2024-151 - Lead Agency CIRNAC: High pH Seepage near Dam Toe of KM 105 Surface Water Pond to Sheardown Lake Tributary, File Closed - No Enforcement Action Taken under the MDMER or FA 36(3)
4. 2023-193 – Lead Agency CIRNAC: Mary River MS-06 Iron Ore Stockpile ditch seepage to tundra, File closed – No Enforcement Action Taken under MDMER or FA 36(3)

ECCC Recommendation(s)

N/A – for information only.

## 2. Bird Incidents/Mortality Reporting

Reference(s)

- Main Document: 2024 NIRB Annual Report (Baffinland Iron Mines Corporation, May 30, 2025)
    - Table 4:23: Birds Impact Evaluation
- NIRB Appendix G.5.1: Terrestrial Environment 2024 Annual Monitoring Report (Baffinland Iron Mines Corporation, April 2025)
    - Section 11.1 Wildlife Interactions and Mortalities
    - Section 11.2 Wildlife Interactions and Mortality Prevention

Comment

Table 4:23 of the main document states that "*three (3) bird mortalities were observed in 2024: one loon and two ptarmigan all of which were associated with building or infrastructure collisions.*" However, in Section 11.1 of the Terrestrial Environment 2024 Annual Monitoring Report (TEAMR), the Proponent denotes that there were five (5) bird mortalities observed in 2024: one loon, two ptarmigans, one Snow Bunting, and one songbird. The Proponent does not provide the rationale behind this discrepancy.

In addition, the Proponent's 2024 Annual Report Main Document and TEAMR note that there were bird mortalities within the Project footprint. However, ECCC's Canadian Wildlife Service does not have a record of notification for these incidents which involve migratory birds.

Under the *Migratory Birds Convention Act* (MBCA), ECCC has management responsibilities for migratory birds. The list of migratory birds protected in Canada is available here: Birds protected in Canada - Canada.ca. ECCC Canadian Wildlife Service should be contacted in instances involving:

- Interactions and incidents involving the potential disturbance of individuals or nests and any mortality events of these species;
- Wildlife monitoring reports and annual reports that pertain to these species; and
- Updates to wildlife management and monitoring plans, or their equivalents, in relation to these species.

ECCC Recommendation(s)

ECCC recommends that the Proponent provide justification for the reporting discrepancy between the Annual Report Main Document and the TEAMR.

Additionally, ECCC recommends the Proponent notify ECCC's Canadian Wildlife Service (cwsnorth-scfnord@ec.gc.ca) for instances involving migratory birds, specifically:

a. Interactions and incidents involving the potential disturbance of individuals or nests and any mortality events of these species;
b. Wildlife monitoring reports and annual reports that pertain to these species; and
c. Updates to wildlife management and monitoring plans, or their equivalents, in relation to these species.

### 3. Species at Risk Missing and/or Effects and Measures Missing

Reference(s)

- Main Document: 2024 NIRB Annual Report (Baffinland Iron Mines Corporation, May 30, 2025)
- NIRB Appendix G.5.1: Terrestrial Environment 2024 Annual Monitoring Report (Baffinland Iron Mines Corporation, April 2025)

Comment

The Proponent has not identified all species at risk that are likely to be present in the Project area.

The Project may have adverse effects on Species at Risk including direct habitat loss, impacts due to noise, dust or other sensory disturbances, wildlife injury or mortality and wildlife attraction.

ECCC Recommendation(s)

ECCC recommends that the Proponent include an updated Species at Risk table in the updated Terrestrial Environmental Monitoring and Management Plan (TEMMP) and that ECCC be notified upon its release.

### 4. Missing Inspection Date

Reference(s)

- Main Document: 2024 NIRB Annual Report (Baffinland Iron Mines Corporation, May 30, 2025)
    - Section 4.5.1.3 ECCC Inspections

Comment

The date of the ECCC inspection was not listed.

ECCC Recommendation(s)

ECCC recommends the date of the ECCC inspection be added.

## 5. Non-reported Spills and Discharges

Reference(s)

- Main Document: 2024 NIRB Annual Report (Baffinland Iron Mines Corporation, May 30, 2025)
    - Section 4.5.2 Unauthorized Discharges and Spills

Comment

Section 4.5.2 of the Main Document provides the number and details only of spills that were reported to the NT-NU Spill Report Line, CIRNAC, and Qikiqtani Inuit Association (QIA). Annual reports frequently also contain details about spills that occurred but did not meet criteria for reporting. To improve consistency with other annual reports to the NIRB, it is recommended that spills not meeting reporting criteria also be listed to provide a better overall indication of the nature and types of spills occurring as part of the Project.

ECCC Recommendation(s)

ECCC recommends the Proponent include details (e.g., type and quantity of substance spilled, cause of spill, date, time) of spills that occurred during 2024 that did not meet criteria for reporting.

## 6. Sources of Ignition

Reference(s)

- NIRB Appendix G.8.1: Oil Pollution Emergency Plan (Baffinland Iron Mines Corporation, May 1, 2025)
    - Section 8.0 General Spill Procedures

Comment

A best practice frequently noted as an initial step in spill response is to remove any sources of heat or ignition (until the spilled substance has been identified and it is determined that sources of heat or ignition are safe in their vicinity). This is an important safety measure, as spills may release flammable or explosive vapours.

ECCC Recommendation(s)

ECCC recommends that a statement be added to the general spill procedures section specifying that sources of heat or ignition should be removed until the spilled substance has been identified (and it is confirmed that sources of heat or ignition do not pose a fire / explosion hazard in the vicinity of the spilled substance).

## 7. Types of Spills

Reference(s)

- Spill Contingency Plan, Revision 6 (Baffinland Iron Mines Corporation, February 28, 2021)
    - Section 8.0 Potential Spill Analysis

Comment

Section 8.0 of the Spill Contingency Plan does not fully explore leaks spills from equipment or vehicles due to accidents or malfunctions. It is noted that the possibilities of spills due to tanker truck accidents and equipment rollover were considered for bulk transportation of fuels and lubricants; however, leaks from vehicles and equipment themselves (i.e., leaking engine oil, hydraulic lines, fuel, antifreeze) were not considered. Given the likely widespread use of vehicles and equipment to carry out the project, they can represent an important potential source of fuel leaks and spills to the environment.

ECCC Recommendation(s)

ECCC recommends that the Proponent include further analysis on potential spills from vehicles and equipment, specifically exploring loss of hazardous substances from vehicles and equipment such as fuels, engine oil, antifreeze, and hydraulic oil due to vehicle accidents or malfunctions. Mitigation measures that could be considered (as appropriate to the situation) to help reduce the likelihood of spills entering the environment include:

- Conduct regular maintenance and inspections on all vehicles and equipment
- Use of secondary containment for any equipment with a built-in fuel tank
- Use of biodegradable hydraulic oil (when appropriate) for equipment that is working near or in water
- Park vehicles and equipment at a location that is at least 31 m from the normal high-water mark of any water body
- Use a drip tray under vehicles or equipment that is not being used for an extended period (e.g., overnight)

## 8. Additional Measures for Fueling of Equipment or Vehicles

Reference(s)

- Environmental Protection Plan, Revision 2 (Baffinland Iron Mines Corporation, April 30, 2021)
    - Section 4.7.1.1 Environmental Protection Measures

Comment

Section 4.7.1.1 of the Environmental Protection Plan lists the measures that will be implemented to reduce the likelihood of spills or leaks associated with fuel storage and handling. There are several additional measures, often implemented as best practices for

projects, that could be included here to help to further mitigate any risk of spills and leaks of fuel.

ECCC Recommendation(s)

ECCC recommends that the Proponent include (as appropriate to the situation) the following additional environmental protection measures for refueling of equipment and vehicles:

- Fuel nozzles equipped with automatic shutoffs
- Operators stationed at both ends of hoses during refueling operations, unless both ends of the hose are visible and accessible by one operator
- Fuel remaining in hoses is discharged into equipment or returned to the storage container
- Use of drip trays or absorbent mats to prevent drips when refueling vehicles or equipment in an area that does not have secondary containment
- Provide adequate lighting at refueling areas

## 9. Storage of hazardous wastes

Reference(s)

- Environmental Protection Plan, Revision 2 (Baffinland Iron Mines Corporation, April 30, 2021)
    - Section 4.16.2 Environmental Protection Measures

Comment

Section 4.16.2 of the Environmental Protection Plan lists the measures that will be implemented to reduce the likelihood of spills or leaks of hazardous substances. While one measure specifies that "*Lubricating oils and antifreeze will be dispensed from drums or cubes using either fitted taps or pumps. Spill trays will be placed in locations where there is potential for drips and leaks to occur during the transfer of substances.*", it is instead recommended that secondary containment be used for storage of these materials at all times (not only when there is potential for drips and leaks to occur during the transfer of substances), to reduce the likelihood of spills or leaks in the event of container malfunction.

Given the Project's remote location (limiting the ability to quickly source additional response equipment) and the harsh climatic conditions in place (potentially slowing spill response or making it more difficult), response actions may be made more challenging when spills occur. To this end, the use of secondary containment at all times would help to mitigate the potential for hazardous substances to enter the environment and would help to ease the cleanup efforts in the event of a leak or spill.

ECCC Recommendation(s)

ECCC recommends the Proponent consider storing hazardous materials (e.g., lubricating oils, gasoline, hydraulic fluid, etc.) in facilities with secondary containment in place at all times to capture any potential leaks or spills (not only when there is potential for drips and leaks to occur during the transfer of substances).

## 10. Air Quality Assessment at Milne Port

Reference(s)

- NIRB Appendix G.2.1: 2024 Annual Air Quality, Dustfall, and Meteorology Report (Baffinland Iron Mines Corporation, May 9, 2025)
    - Section 1.1 Background and Objectives
    - Figure 1.2 Milne Port Air Quality and MET Stations

Comment

Section 1.1 of the 2024 Annual Air Quality, Dustfall, and Meteorology Report states that the Canadian Ambient Air Quality Standards (CAAQS) were established for the management of the larger air zones and are not intended for use at a specific facility Project Development Area (PDA) boundary. Section 1.1 also states that the air quality inside of the PDA boundary is considered from an occupational workplace perspective and is assessed using thresholds or standards that are different from the ambient air quality standards, hence the employment of the Nunavut Ambient Air Quality Standards (NAAQS) to assess air quality impacts. All of the facilities are clearly within the PDA. However, unlike a mine site where workers commute to, the worker camp is located within the PDA. Thus, worker exposures to project-related emissions occur 24 hours a day / 7 days a week. Figure 1.2 reveals that the worker camp is located in close proximity to a helicopter pad with associated NOx emissions as well as dust lofted by the helicopter downwash. Finally, the use of larger ore carriers (Babycape and Capsize) at the nearby berth and anchorages introduces the prospect of higher air impacts for short time intervals depending on wind direction. Thus, it is not apparent whether the air quality impacts are adequately assessed.

ECCC Recommendation(s)

ECCC recommends the Proponent:

a. consider longer exposure times when assessing aggregate air quality impacts for receptors at the Milne Port facility;
b. provide an assessment of possible impacts from helicopter operations in the vicinity of the helicopter pad to receptors at the nearby worker camp; and
c. provide an assessment of any correlations between air contaminant concentrations and ship emissions that factor in ship size, location (berth vs. anchorage) and wind direction.

## 11. Extreme Rainfall Event for September 20-21, 2024

Reference(s)

- NIRB Appendix G.2.1: 2024 Annual Air Quality, Dustfall, and Meteorology Report (Baffinland Iron Mines Corporation, May 9, 2025)
    - Section 3.2.4 Rainfall Precipitation
    - Table 3.10 Summary of 2024 Total Rainfall at the Baffinland Meteorology Stations and the Pond Inlet Airport Climate Station

    - Photo 1.1 The Mary River Meteorology Station looking towards the north
    - Photo 1.7 Milne Port Meteorology Station (September 9, 2021)
- Daily Data Report for September 2024 at Pond Inlet (Government of Canada), available at https://climate.weather.gc.ca/climate_data/daily_data_e.html?hlyRange=2013-01-10%7C2025-07-01&dlyRange=2013-01-11%7C2025-07-01&mlyRange=%7C&StationID=51080&Prov=NU&urlExtension=_e.html&searchType=stnName&optLimit=specDate&StartYear=1840&EndYear=2025&selRowPerPage=25&Line=0&searchMethod=contains&Month=9&Day=20&txtStationName=pond+inlet&timeframe=2&Year=2024&time=LST

Comment

Section 3.2.4 of the Air Quality, Dustfall, and Meteorology Report states that the maximum 24-hour extreme rainfall event recorded at the Mary River meteorology station during September 20 to 21, 2024, was 82.2 mm, with a preliminary analysis by Nunami-Stantec that this event exceeded the expected 1:1000-year event. Table 3.10 shows that the September rainfall total was 155.2 mm for the Mary River Meteorology Station but 54.8 mm at the Milne Port Meteorology Station. At Pond Inlet, the 2-day total was measured at 52.5 mm. It is clear a major rainfall event occurred, and challenges can occur with rain splash possibly enhancing recorded values. It is not evident from Photos 1.1 and 1.7 what the heights above ground of the precipitation sensors were. Having reasonably accurate measurements of precipitation enhances the assessment of the local hydrological impacts as well as drying times until dust generation resumes.

ECCC Recommendation(s)

ECCC recommends evaluation of the precipitation amount accuracy for the meteorology stations for this event with consideration of precipitation sensor height above ground and possible effects of rain splash from the water-saturated ground surfaces.

## 12. Total Suspended Solids Freshet Exceedances at Camp Lake Settling Ponds Outfall

Reference(s)

- Main Document: 2024 QIA-NWB Annual Report (Baffinland Iron Mines Corporation, March 31, 2025)
    - Section 7.3.1.0 Freshet Monitoring
    - Table 7.6.3: Water Quality Results for Water Licence Monitoring Location - CLSP-OUT
    - Table 7.6.4: Water Quality Results for Water Licence Monitoring Location - CLT-OUT
    - Table 7.6.5: Water Quality Results for Water Licence Monitoring Location - LDFG-OUT
    - Table 7.6.6: Water Quality Results for Water Licence Monitoring Location - SDLT-OUT **incorrectly labelled as LDFG-OUT**

Comment

Freshet sampling allows to evaluate the effectiveness of sediment and erosion control measures in place to reduce total suspended sediment (TSS) loads contributed by snowmelt from the Project's infrastructure. Results are presented for four sites: "*The Camp Lake Settling Ponds Outfall (CLSP-OUT), the Camp Lake Tributary 1 Outfall (CLT-OUT), Sheardown Lake Landfill Gate Tributary Outfall (LDFG-OUT), and Sheardown Lake Tributary 1 Outfall (SDLT-OUT)*." Measured TSS concentrations at CLSP-OUT range from 206 to 433 mg/L, above the water licence criteria of 30 mg/L for grab samples and 15 mg/L for average concentrations. Concentrations are consistently higher at CLSP-OUT than at the other three sites. The Annual Report states "*pro-active measures were taken prior to freshet to ensure unimpeded flow through water conveyance structures*" and reports on remedial works to the drainage feeding into culvert CV-187 and SDLT-OUT.

Measures employed at CLSP-OUT were not sufficient to prevent high TSS loads, which can negatively impact the aquatic environment. Further measures should be considered.

ECCC Recommendation(s)

ECCC recommends the Proponent discuss what further measures at CLSP-OUT could help reduce TSS loads at freshet.

## 13. Recommendations in Core Receiving Environment Monitoring Plan Report

Reference(s)

- NWB Appendix E.9.1/NIRB Appendix G.4.1: 2024 Core Receiving Environment Monitoring Program Report (Minnow Environmental Inc., March 2025)

Comment

The Core Receiving Environment Monitoring Program (CREMP) Report contains recommendations at the end of each sub-section discussing a creek, river or lake. Further monitoring, temporal trend analysis and the development of an Aquatic Effects Monitoring Program (AEMP) benchmark for uranium are recurring recommendations. It is not clear if the Proponent intends to action some or all of the consultant's recommendations.

ECCC Recommendation(s)

ECCC recommends the Proponent confirm which recommendations they plan to implement and provide a timeline for implementation. A discussion and justification should be provided for those recommendations which they do not plan to action.

## 14. Biological Effects of Elevated Iron and Aluminium Concentrations

Reference(s)

- NWB Appendix E.9.1/NIRB Appendix G.4.1: 2024 Core Receiving Environment Monitoring Program Report (Minnow Environmental Inc., March 2025)

    - Section 3.1.5.2: CLT1 Main Stem
- Federal Environmental Quality Guidelines, Aluminium (Environment and Climate Change Canada, August 2022)
- Federal Environmental Quality Guidelines, Iron (Environment and Climate Change Canada, May 2024)

Comment

The CREMP found elevated concentrations of iron, aluminium and uranium and the CREMP Report recommends "*an analysis of total compared to dissolved aqueous concentrations of aluminum, iron, and uranium will be completed to investigate biological availability and further determine potential for effects on aquatic biota.*" Toxicity studies have indicated that "*because of chemical speciation and solubility characteristics at different pH values*", colloidal and precipitated forms of aluminium can cause toxic effects on aquatic biota. Particulate iron can also "*cause ecological effects via physical effects, such as smothering.*"

ECCC Recommendation(s)

ECCC recommends the Proponent consider effects from particulate metals in addition to biological uptake activity when determining potential for effects from elevated iron and aluminium concentrations on aquatic biota.

**15. Charr Health and Condition in the Mary River**

Reference(s)

- NWB Appendix E.9.1/NIRB Appendix G.4.1: 2024 Core Receiving Environment Monitoring Program Report (Minnow Environmental Inc., March 2025)
    - Section 5.1 Mary River

Comment

Data collected at stations along the Mary River are presented in Section 5.1 of the CREMP Report and cover water quality, phytoplankton and benthic invertebrate community. The effects assessment at the end of the section includes the conclusion: "*arctic charr health and condition at Mary River in 2024 conformed with predictions made in the Baffinland FEIS*". It is not clear how this conclusion was reached since no data on fish health or condition was presented for stations on the Mary River.

ECCC Recommendation(s)

ECCC recommends the Proponent clarify what studies were conducted on arctic charr in the Mary River and how the conclusion on their health and condition was reached.

### 16. Waste Rock Facility Thermal Model

Reference(s)

- NWB Appendix E.10: Assessment of Active Zone Depth Considering SSP1-2.6 Climate Change Projections at Mary River Mine (WSP, October 4, 2024)
- RE: 2AM-MRY1325 – Baffinland – Mary River Water Licence – ICRP Ver 6 and Thermal Model Reviewed (ECCC to NWB, February 27, 2025)

Comment

Appendix E.10 (Reclamation and Research) – is the WSP Technical Memorandum *"Assessment of Active Zone Depth Considering SSP1-2.6 Climate Change Projections At Mary River Mine*" (*October 4, 2024).* ECCC reviewed and provided comments to the NWB on this Technical Memorandum on February 27, 2024. ECCC notes that the comments and recommendations by ECCC on the technical memorandum, now presented as Appendix E.10 (Reclamation and Research) of the 2024 Annual Report, have not been addressed.

ECCC Recommendation(s)

ECCC recommends the Proponent update Appendix E10 (Reclamation and Research) to include ECCC's comments and recommendations as outlined in the February 27, 2024 letter to the NWB "*RE: 2AM-MRY1325 – Baffinland – Mary River Water Licence – ICRP Ver 6 and Thermal Model Reviewed*".

If you need more information, please contact Melissa Pinto at (867) 445-5384 or Melissa.Pinto@ec.gc.ca.

Sincerely,

Pinto, Melissa

Digitally signed by Pinto, Melissa
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Melissa Pinto
Senior Environmental Assessment Officer

cc: Eva Walker, Head, Environmental Assessment North (NT and NU)
Robert Hunter, Licensing Administrator, Nunavut Water Board