



Nunavut Impact Review Board

April 2024 Site Visit Report

The Mary River Project

Baffinland Iron Mines Corporation

NIRB File No. 08MN053



April 2024

Report Title: April 2024 Site Visit Report for the Nunavut Impact Review Board's Monitoring of Baffinland Iron Mines Corporation's Mary River Project (NIRB File No. 08MN053).

Project: Mary River Project
Project Location: Qikiqtani (North Baffin) Region, Nunavut

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Site visit dates: April 23-24, 2024

Last Site Visit: October 3-5, 2023

Report prepared by: Cory Barker

Photos by: NIRB Staff

Cover Photos: Ore Haul Trucks along the Tote Road, Mine Haul Truck at Deposit No. 1, and Haul Truck being loaded at Deposit No. 1.

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1 INTRODUCTION

The Nunavut Impact Review Board (NIRB or Board) was established through Articles 10 and 12 of the *Agreement between the Inuit of the Nunavut Settlement Area and Her Majesty the Queen in right of Canada (Nunavut Agreement)* and is responsible for post impact assessment monitoring of a Project in accordance with Part 7 of Article 12 of the *Nunavut Agreement* and s. 135(4) of the *Nunavut Planning and Project Assessment Act*, S.C. 2013, c. 14 (NuPPAA).

This report provides the findings that resulted from the NIRB's April Site Visit to the Mary River Project (the Project) between April 23-24, 2024. This Site Visit was conducted in consideration of Project Certificate No. 005 Amendment No. 5.

1.1 Objectives & Purpose of Site Visit

The objective of the NIRB's Site Visit was to determine whether, and to what extent, the land or resource use in question is being carried out within the Terms and Conditions of amended NIRB Project Certificate No. 005 Amendment 5 for the Mary River Project, in accordance with Section 12.7.2(b) of the *Nunavut Agreement* and s. 135 of NuPPAA.

Observations resulting from this site visit shall, wherever possible, be incorporated into the measurement of the relevant effects of the Project, provide the information necessary for agencies to enforce terms and conditions of land or resource use approvals, and will be further used to assess the accuracy of the predictions contained in the project impact statements in accordance with Section 12.7.2 of the *Nunavut Agreement*, and s. 135(3) of the NuPPAA.

2 BACKGROUND OF THE MARY RIVER PROJECT AND AMENDMENTS

The Mary River Project

The original Mary River Project approximately 150 kilometers (km) from Pond Inlet was approved in December 2012 for development of an open pit iron ore mine on northern Baffin Island. It included the use of an existing Tote Road between Milne Inlet and the Mine Site and a railway connecting the Mine Site to the Steensby Port ([Figure 1](#)) to ship 12 MT/a of iron ore year-round. Several elements have not been constructed: the port at Steensby Inlet, the railway from the Mine Site to Steensby Inlet, and the fleet of purpose-built ore carriers.

For further information on the original Mary River Project, please refer to the Project Dashboard on the NIRB's Public Registry at www.nirb.ca/project/123910.

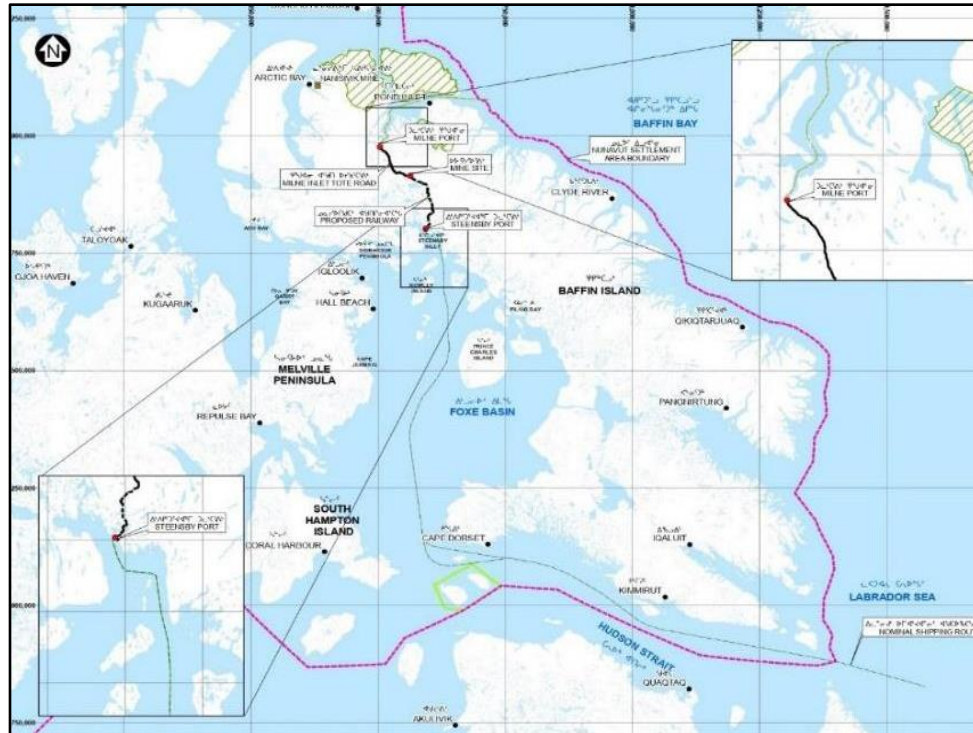


Figure 1: Project Location Map

Mary River Modifications

Title	Project Dashboard	Modification
Early Revenue Phase (2014-2018)	www.nirb.ca/project/124700	Transporting 4.2 Mtpa of ore for shipment (Figure 2) during open water through Eclipse Sound.
Production Increase Proposal (2018-2020)	www.nirb.ca/project/124702	Increase in the volume of ore from 4.2 Mtpa to 6 Mtpa.
Extension Request to the Production Increase Proposal (2020)	www.nirb.ca/project/124703	To extend the 6 Mtpa until the end of 2021. In 2022 all T&C are monitored but production required to stay at 4.2 Mtpa.
Production Increase Proposal Renewal (2022-Present)	www.nirb.ca/project/125710	To continue production at 6 Mtpa for 2022.
Sustaining Operations Proposal (2023)	www.nirb.ca/project/125767	To continue production at 6 Mtpa for 2023-2024 with operational flexibility to ship an additional 0.9Mtpa of ore that had been stranded on the ore pad from previous years.

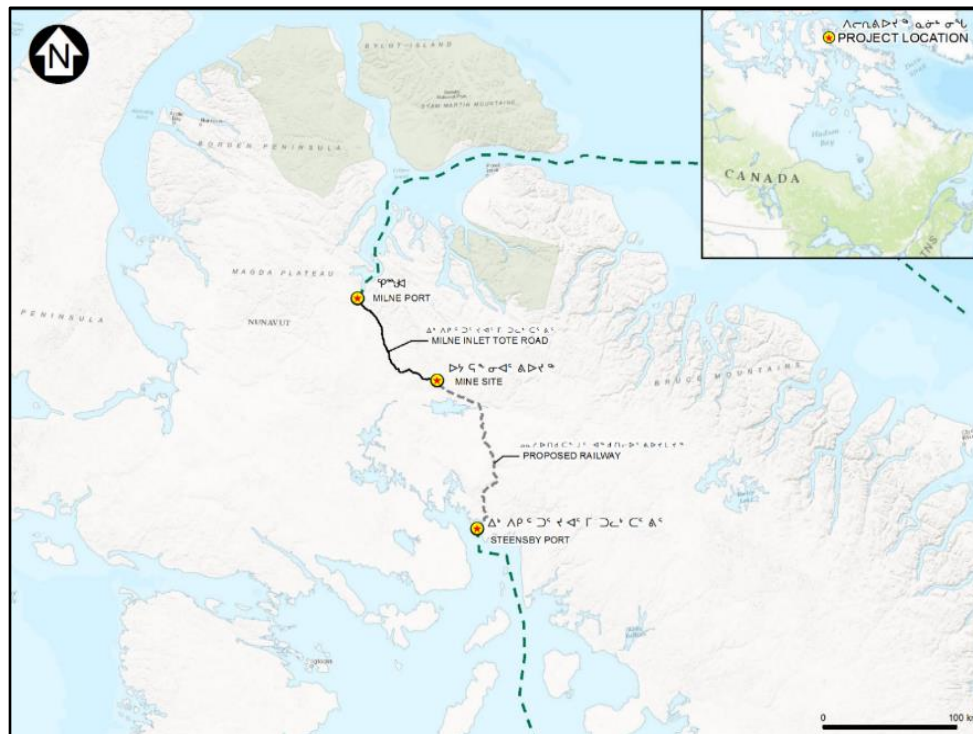


Figure 2: The Mary River Project Map.

3 SITE VISIT

In preparation for the site visit, Cory Barker (NIRB Staff) reviewed relevant monitoring materials including the Mary River Project Certificate No. 005 Amendment No. 5, previous NIRB 2022-2023-Site Visit Reports, Baffinland's 2022 Annual Report and the NIRB's 2022-2023 Monitoring Report.

On April 23, 2024, NIRB Staff flew from Montreal to the Mary River mine site on Baffinland's Company Charter and were met by Baffinland staff Connor Devereaux, Katie Babin and Cortney Oliver who guided NIRB Staff through the Mary River site. On April 24, 2024, NIRB staff visited various areas around the Mine Site and the Tote Road. The Key Site components that were visited are listed below:

- Mine Site Land fill and Land Farm
- The Crusher Facility
- The Mine Site Incinerator Facility
- Fuel Tank Farm
- Effluent Discharge Area
- Sailivik Camp Accommodations
- Visitor Communication Center at Mine Site
- Sedimentation Ponds
- Tote Road Snowmobile Crossing
- KM 106 Ore Stockpile
- Culverts along the Tote Road
- Dust Collectors along the Tote Road
- Various Laydown Areas and Maintenance Shops
- Mine Site Weather Station and Air Monitor
- Waste Rock Stockpile
- Deposit No. 1
- Deposit Haul Road

4 OBSERVATIONS BASED ON NIRB PROJECT CERTIFICATE NO. 005

The following table summarizes observations made during the Site Visit that pertain specifically to observable terms and conditions during a site visit of the Mary River Project.

T&C No.	Topic	Site Observation
Air Quality		
5	Weather data available to the community	Information is made available around site as well as online. Baffinland has several weather stations installed on site (Photo 48 & 49)
10	Dust Management and Monitoring	Dust fall monitoring stations were observed along the Airstrip at the Mine Site (Photos 46 & 47). Baffinland has also been trialing some active air monitors to collect real time data on data events. These samplers have been

T&C No.	Topic	Site Observation
		<p>installed across the site including at the crusher facility (Photo 16).</p> <p>Baffinland is also trialing liquid dust suppressant along the crusher conveyor system (Photos 19, 20 & 21) in an effort to coat the ore in dust suppressant earlier in the production chain. This is in addition to the hoods, shrouds and bellows along the crushing equipment as well as lowering the drop height (Photos 17). Collectively, all of these chemical and mechanical mitigations should help reduce the dust produces from the crusher facility.</p>
11	Incinerator	<p>All food waste is incinerated from the kitchen including cardboard that stored food. NIRB Staff visited the Incinerator facility at the Mine Site; it was clean and well organized (Photo 11 & 12).</p>
Hydrology and Hydrogeology		
17	Prevent impacts to water bodies from effluent	<p>Related to Terms and Conditions 24 and 46</p> <p>The KM 105 Dam, Settling Pond and Effluent Testing Station was constructed in 2022 to help manage effluent from the Mine Haul Road and Deposit (Photos 31, 32, 33, 34 & 35).</p>
19	Mitigate impacts to natural water flow	<p>Several culverts and ditches were observed along the Tote Road with riprap being installed in order to better control the flow of water during freshet. Some of the culverts observed were also being repaired in response to the Order from the Department of Fisheries and Oceans Canada in 2022 (Photos 40, 41 & 42).</p>
Landforms, Geology and Geomorphology, Soils and Permafrost		
26	Erosion Management	<p>Related to Term and Condition 43</p> <p>NIRB staff observed riprap along the tote road to control water and prevent erosion (Photo 41 & 42).</p>
28	Permafrost monitoring	<p>NIRB staff observed the monitoring that is occurring at site for various dam structures and other large site infrastructure.</p>
Freshwater Aquatic Environment including Biota and Habitat		
46	Freshwater Aquatic Environment – Drainage	<p>Baffinland has either appropriate drainage and/or lined berms for fuel storage and maintenance facility areas, sewage, wastewater, and/or other facilities responsible for site generated water or site contact water (Photos 31, 32, 33, 34 & 35).</p>

T&C No.	Topic	Site Observation
Terrestrial Wildlife Habitat and Waste Management		
52	Detering caribou from pits and other hazardous areas	No caribou deterrents were noted around the site or the Deposit; however, caribou have not been observed around site in recent years. It was confirmed at site that should caribou be observed the appropriate mitigation plans and protocols would be actioned. These plans define how site and operations would react depending on both the quantity of caribou and the distance to site infrastructure.
57	Wildlife reporting-incidentals	Wildlife observations are tracked at site and logs are located at various locations to fill in. Should wildlife be observed reports are made to the Environment Department as per the Terrestrial Environment Monitoring Plan.
64	Prevent human-carnivore interactions	<p>All food waste is incinerated from the kitchen including cardboard that stored food. Only clean cardboard and wood is burnt separately at both the Milne Port and Mine Site. The landfill is surrounded by metal fencing, and it is maintained to both limited windblown debris as well as animal interactions at site infrastructure.</p> <p>Camp accommodation and facilities are also maintained with skirting around the buildings to limit wildlife contact with the buildings.</p>
Socio-Economic		
143	Employee family contacts	Baffinland has phones in each of its rooms to allow everyone to stay in contact with their families as well as internet access for all personnel on site.
Culture, Resources and Land Use		
165	Emergency shelter	Emergency shelters were observed along the Tote Road.

5 SITE OBSERVATIONS FOR MARY RIVER PROJECT



Photo 1: Aerial View of Milne Port.



Photo 2: Aerial View of Mary River Mine Site.

5.1.1 Mary River Mine Site

On April 23, 2024, the following observations were made at the Mary River Mine Site

- Camp accommodations appear well organized and maintained;
- The tank farm is clean and organized with secondary containment both under the entire area as well as under specific drip points for fuel filling and storage;
- The landfill is operational with the fencing intact and ongoing management activities are in place with a gate to limit access;
- The crusher facility has storage containers for replacement parts and was actively trialing dust suppression along the conveyor system to further reduce dust at the crusher;
- The crusher facility also has active air monitors in place to measure dust production at the crusher in addition to the passive sample collectors;
- The incinerator facility is well organized and clean with appropriate labelling secondary containment around fluid dispensers;
- Hazardous Waste was stored outside the lined area outside the incinerator facility which was noted to Baffinland Staff; and
- Staff observed various orientation materials and cultural poster Boards around Sailivik camp to help staff be more familiar with Inuit culture and activities.

5.1.1.1 Landfill



Photo 3: Fence Surrounding the Landfill at Mine Site.



Photo 4: Landfill Entrance Gate.



Photo 5: Materials Piled in the Landfill.



Photo 6: Mine Site Landfarm Cell 1.



Photo 7: Mine Site Landfarm Cell 2.

5.1.1.2 Mary River Fuel Tank Farm



Photo 8: Mine Site Fuel Tank Farm.



Photo 9: Mine Site Fuel Tank Farm and Secondary Containment for oil storage.



Photo 10: Mine Site Fuel Tank Farm Fueling Station.

5.1.1.3 Waste Management Area



Photo 11: Secondary Containment for Fluid Dispensing Station inside the Incinerator Facility.



Photo 12: Storage and Waste Bins inside the Incinerator Facility.



Photo 13: Hazardous Waste Storage.



Photo 14: Hazardous Waste Storage Area at the Mine Site.



Photo 15: Hazardous Waste Storage Outside of the Lined Area¹.

¹ After discussing the storage of hazardous waste outside of a properly lined facility with Baffinland, they corrected the situation by moving the waste oil to the appropriate storage location prior to NIRB's departure from site.

5.1.1.4 Crusher Facility

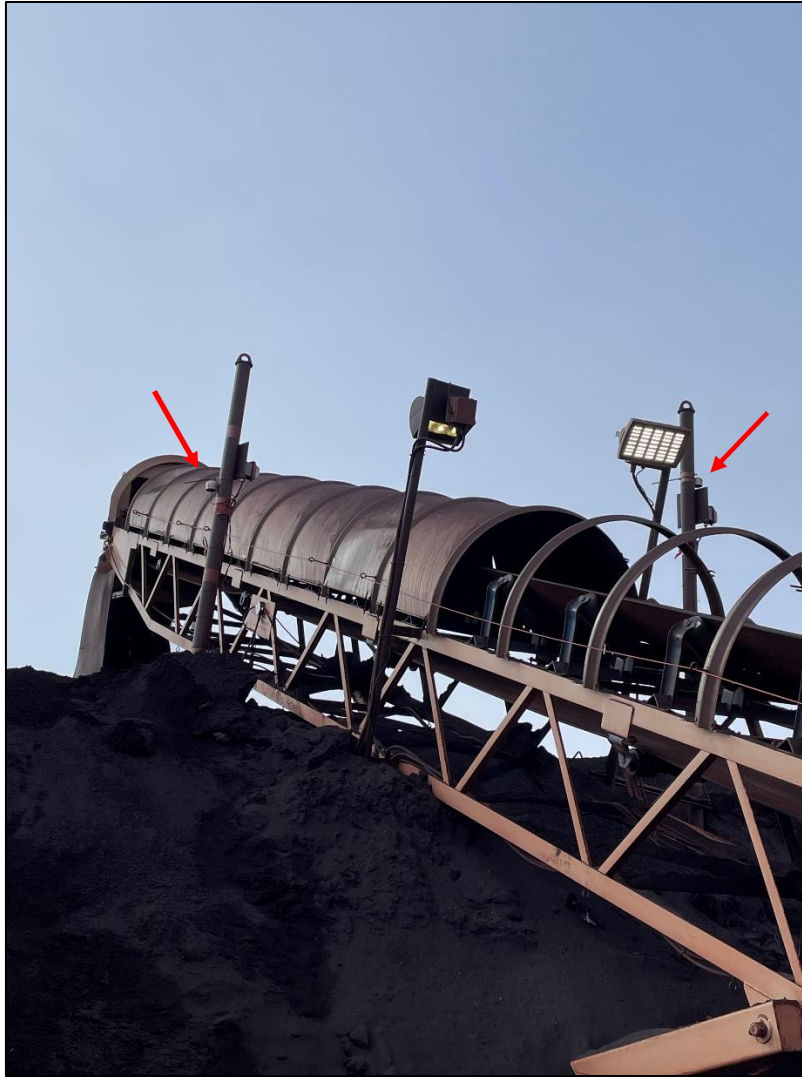


Photo 16: Hoods and Shrouds along the Crusher Conveyor with Active Air Sampler to Measure Dust Production (Arrows).



Photo 17: Bellows and Shrouds at the end of the Crusher Conveyor System (Arrows).



Photo 18: Cone Crusher along the Conveyor System at the Crusher Facility.



Photo 19: Liquid Dust Suppressant Application Trial Area (Arrow) at the Crusher Facility.



Photo 20: Heat Traced Pipe for Delivery of Dust Suppressant (Arrow).



Photo 21: Liquid Dust Suppressant Stored in a Heated Seacan next to the Crusher.



Photo 22: Crusher Facility Ore Stockpile.



Photo 23: Newly Completed Storage Location for Spare Crusher Parts.

5.1.1.5 Mine Haul Road



Photo 24: Snow Clearing along the Mine Haul Road in Preparation for Freshet.



Photo 25: Ore Hauling Activities Along the Mine Haul Road.



Photo 26: View of Deposit No. 01 from the Lower Mine Haul Road.

5.1.1.6 Deposit No. 1



Photo 27: Deposit No. 1 Pit Benches and Working Face.



Photo 28: North View of Active Mining Area for Deposit No. 1.



Photo 29: East View of Active Mining Area for Deposit No. 1.



Photo 30: KM 106 Ore Stockpile.

5.1.1.7 KM 105 Dam



Photo 31: KM 105 Dam Settling Pond where TSS is Tested Prior to Discharge.



Photo 32: Recirculation piping for Effluent that doesn't Meet Discharge Criteria



Photo 33: KM 105 Dam Pumping Station.



Photo 34: KM 105 Dam Flow Control Piping.



Photo 35: KM 105 Outflow Area below the Dam at the Base of Deposit No. 1.

5.1.1.8 Sailivik Accommodations and Mine Site Complex



Photo 36: Baffinland Values Posters Translated to Inuktitut

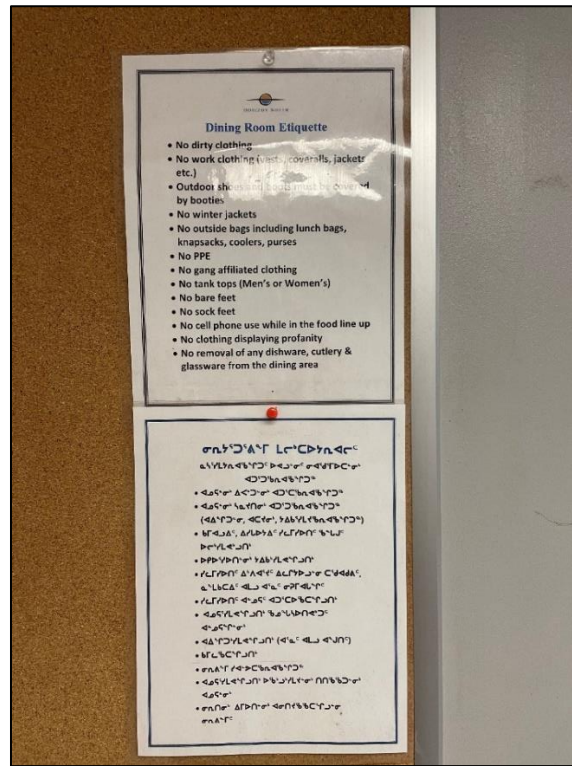


Photo 37: Translated Dining Room Information



Photo 38: Inuit Success Board at Mine Site



Photo 39: Air Quality Monitoring Station at Mine Site

5.1.2 Tote Road

On April 24, 2024, NIRB staff drove along the Southern end of the Tote Road, stopping at several culverts to observe remediation work being undertaken due to the DFO Order. Further Observations were:

- Dust monitoring was being completed along the Tote Road;
- Emergency Shelters and halfway stop are operational;
- Riprap continues to be installed to help control water flow along the road; and
- Snowmobile crossing at KM 90 was clear of obstruction but could be leveled off better to make for clear access.

5.1.2.1 Culvert Repair



Photo 40: Completed Culvert Repair on the West side of the Tote Road.



Photo 41: Installation of riprap in Completing Culvert Repair on the East Side of the Tote Road.



Photo 42: Culvert Snow Clearing in Preparation for Freshet.

5.1.2.2 Tote Road Condition and Snow Mobile Crossing



Photo 43: East Side of Snowmobile Crossing at KM 90.



Photo 44: West Side of Snowmobile Crossing at KM 90.



Photo 45: General Condition of Tote Road along the South End.

5.1.2.3 Dust Sampling & Weather Station



Photo 46: Passive Dust Sampler near the Airport.



Photo 47: Close-up of Passive Dust Sampler Container.



Photo 48: Weather Station near the Mine Site Airport.



Photo 49: Precipitation Collection Equipment.

6 CONCLUSION

During the April 2024 Site Visit, NIRB and Baffinland staff discussed how the Mary River Project is being operated through Project Certificate No. 005 Amendment No. 5. Baffinland appears to have a well-maintained site including adequate environmental protection measures and procedures in place as per the Project Certificate and their Management Plans. Baffinland is conducting trials to explore alternative options for dust suppression and mitigation. While on site, the NIRB noted concerns regarding hazardous waste being stored outside of secondary containment as well as additional clearing of snow around the snowmobile crossing. In discussion with Baffinland staff, these concerns were addressed and the NIRB expects these to be closely monitored and plans to be strictly adhered to in the future. The NIRB also looks forward to hearing further updates regarding the active air monitoring devices and the dust suppressant trail at the Crusher Facility.

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Date: May 24, 2024

Signature: 