



Nunavut Impact Review Board

October 2023 Site Visit Report

The Mary River Project

Baffinland Iron Mines Corporation

NIRB File No. 08MN053



October 2023

Report Title: October 2023 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: October 3-5, 2023

Last Site Visit: April 17-19, 2023

Report prepared by: Cory Barker

Photos by: NIRB Staff

Cover Photos: Top Row – Ice Management Vessel and the Ship Loader at Milne Inlet
Bottom Row – Truck Loading and Ore Stockpile shaping at Milne Port

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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 environmental 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 October Site Visit to the Mary River Project (the Project) between October 3-5, 2023. This Site Visit was conducted in consideration of Project Certificate No. 005 Amendment No. 4 issued November 2022, noting that the rates of production reverted to 4.2 MT/a December 31, 2022.

1.1 Objective & Purpose of a Public Information Session

Pursuant to the *Nunavut Agreement*, the NuPPAA, the Mary River Project Certificate No. 005 Amendment 4, the NIRB provides periodic updates regarding its Monitoring Program for the communities most affected by Baffinland Iron Ore Mines (Baffinland). These meetings ensure ongoing awareness of Project-specific Terms and Conditions and encourage effective participation throughout the Board's monitoring process. The Board held a Community Information Session to discuss updates to the Board's monitoring of the Mary River project and to collect community comments, questions, and concerns to form an important part of the NIRB's monitoring program. A summary of the Community Information Session is provided in [Section Error! Reference source not found.](#)

1.2 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 4 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 kilometres (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.

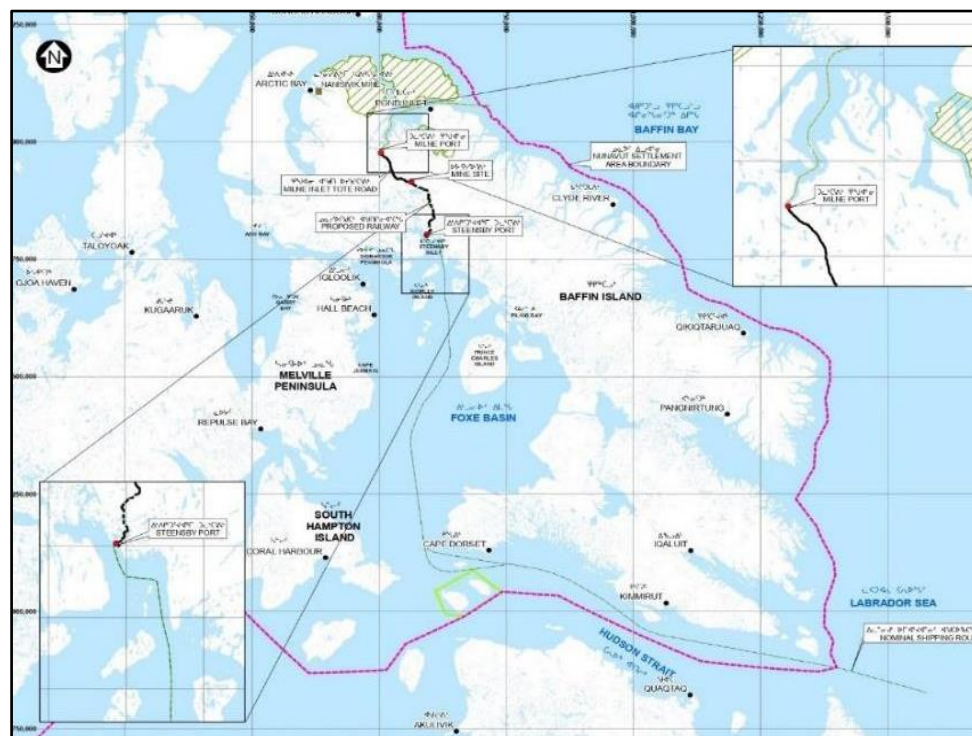


Figure 1: Project Location Map

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) ¹	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.

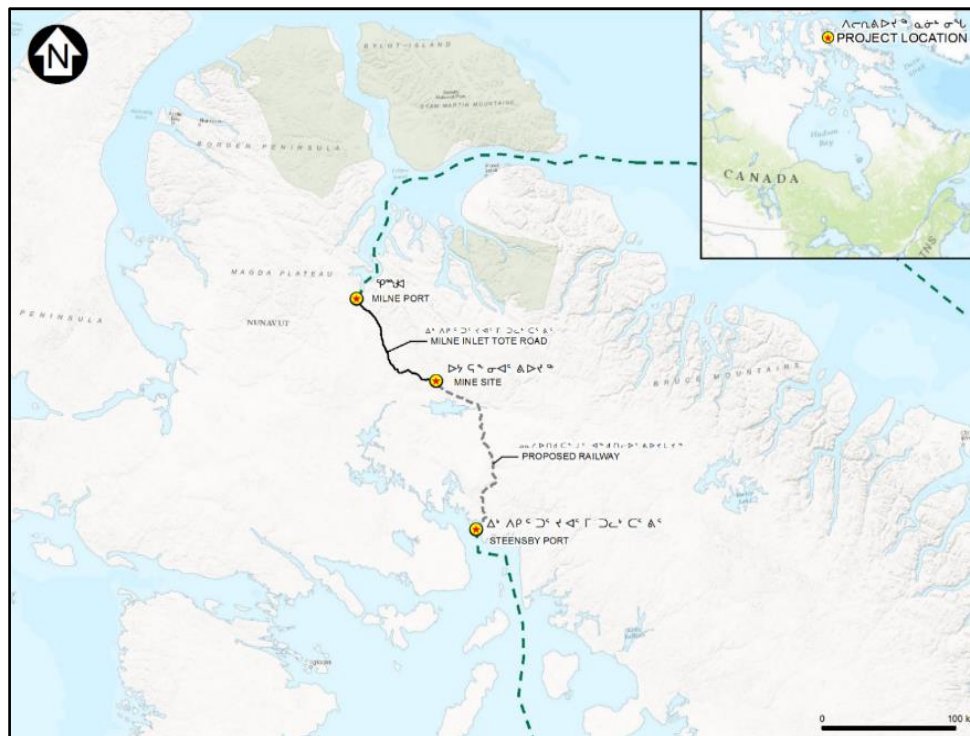


Figure 2: Early Revenue Phase of the Mary River Project

¹ On September 15, 2023, the Board provided their Reconsideration Report and Recommendation to the Responsible Ministers and currently awaits their Decision on the Proposal.

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. 4, previous NIRB 2021-2022- Site Visit/Update Reports, Baffinland's 2022 Annual Report and NIRB 2021-2022 Monitoring Report.

On October 3 17, 2023, NIRB Staff flew from Montreal to the Mary River mine site on Baffinland's Company Charter and were met by Connor Devereaux, Environmental Manager who guided NIRB Staff through the Mary River site. On October 4, 2023, NIRB staff visited various areas around the Mine Site, the Tote Road and Milne Port. 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
- Groundwater Wells
- Fuel Tank Farm
- Effluent Discharge Area
- Crusher Plant
- Sailavik Camp Accommodations
- Visitor Communication Center at Mine Site
- Spill Response Equipment at Milne Port
- Ore Stockpile
- Ore dock and ship loader facility
- Various Laydown Areas
- Milne Port Land Farm
- Several Culverts along the Tote Road
- Dust Collectors along the Tote 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 winter site visit of Project Certificate No. 005, Amendment 4 relevant to the construction and operation phase 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.
10	Dust Management and Monitoring	Dust fall monitoring stations were observed along the Tote Road (Photos 49 & 50). Baffinland has also been trialing some active air monitors to get real time data on data events (Photos 26 & 43). Baffinland is also exploring alternative liquid dust suppression options at the crusher to apply dust suppressant along the conveyors (Photos 16 & 17) in addition to the hoods, shrouds and bellows along the crushing equipment (Photos 14

T&C No.	Topic	Site Observation
		& 15).
11	Incinerator	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 9 & 10).
Hydrology and Hydrogeology		
17	Prevent impacts to water bodies from effluent	Related to Terms and Conditions 24 and 46 Sedimentation ponds were observed at the Ore Stockpile (Photos 35 & 36).
19	Mitigate impacts to natural water flow	Several culverts and ditches were observed along the Tote Road with Rip Rap being stall at many in order to better control the flow of water during freshet (Photos 44-48).
Landforms, Geology and Geomorphology, Soils and Permafrost		
26	Erosion Management	Related to Term and Condition 43 NIRB staff observed Rip Rap along the tote road to control water and prevent erosion (Photos 44 & 48).
28	Permafrost monitoring	NIRB staff observed the monitoring that is occurring at site for various dam structures and other large site infrastructure.
Freshwater Aquatic Environment including Biota and Habitat		
41 and 42	Vegetated Buffers and setbacks	NIRB staff observed the quarries at site in passing and noted that there was a 100-metre buffer between high-water mark for any fish-bearing water bodies.
46	Freshwater Aquatic Environment – Drainage	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 8 & 9). Observations of frozen facilities were made where possible and the NIRB will view the others in the summer site visit.
Terrestrial Wildlife Habitat and Waste Management		
52	Deterring caribou from pits and other hazardous areas	While no caribou deterrents were noted around the site or the Deposit, caribou have not been observed around site. It was confirmed at site that should caribou be observed there are protocols in place that define how site and operations would reaction depending on both the quantity of caribou and the distance to site.
57	Wildlife reporting-incidentals	Wildlife observations are tracked at site and logs are located at various locations to fill in. Should wildlife be observed on the Tote Road reports are made to the Environment Department as

T&C No.	Topic	Site Observation
		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 that is separated from other materials at both the Milne Port and Mine Site. Fencing at the landfill is maintained for the Mine Site.</p> <p>The NIRB viewed the landfill and confirmed fencing is intact around the landfill.</p> <p>Facilities are maintained to have skirting around the buildings to limit wildlife contact with the buildings.</p>
Marine Environment, Marine Water/Ice and Sediment Quality		
92	Spill response equipment at Milne Port	The NIRB confirmed that Baffinland has marine spill equipment ready in case of an emergency in a seacan on the shore of Milne Inlet Photos 23 , 24 , & 25).
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, August 2019.



Photo 2: Aerial View of Mary River Mine Site, August 2019.

5.1.1 Mary River Mine Site

On October 4, 2023, the following observations were made at the Mary River Mine Site

- Camp accommodations appear well 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;
- Rip-Rap and gravel traps were in place near the water intake lines to aid in controlling the flow of water in the spring freshet;
- The landfill is operational with the fencing intact and ongoing management activities are in place with a gate to limit access;
- The visitor Information Center was heated, with radios and translated instructions for community visitors;
- The crusher facility has built storage containers for replacement parts and was in the process of installing additional dust suppression designs in addition to the hoods, shrouds and bellows that have been in place for several years. The new system was designed to overhang the conveyor system and apply liquid dust suppressant to the ore after it is crushed.
- The Lay down areas are generally well organized; and

- The incinerator facility is well organized and clean with appropriate labelling of bins for waste and secondary containment around fluid dispensers;
- Staff also observed various orientation materials and several cultural poster Boards around Sailavik camp to help staff be more familiar with Inuit culture and activities including building of kamotiks and other group activities. and
- Unfortunately, due to inclement weather conditions, NIRB staff were unable to travel along the Mine Haul Road and visit the Deposit No. 1, Waste Rock Storage area, wastewater treatment facility and other locations along the road.

5.1.1.1 Landfill



Photo 3: Fence Surrounding the Landfill at Mine Site.



Photo 4: Landfill Contents.



Photo 5: Materials Piled in the Landfill.



Photo 6: Groundwater Monitoring Station near the Landfill.

5.1.1.2 Mary River Fuel Tank Farm



Photo 7: Fuel Tank Farm Fueling Station.



Photo 8: Mine Site Fuel Tank Farm and Secondary Containment.

5.1.1.3 Waste Management Area



Photo 9: Secondary Containment for Fluid Dispensing Station inside the incinerator facility.



Photo 10: Storage and Waste Bins inside the Incinerator Facility.



Photo 11: Mobile Oily Water Treatment System stored outside the Incinerator Facility.

5.1.1.4 Mine Site Visit Information Center



Photo 12: Inside of Visitor Information Center at Mine Site.



Photo 13: Radio and Translated Instructions at the Mine Site Visitor Information Center.

5.1.1.5 Crusher Facility



Photo 14: Hoods and Shrouds along the Crusher Conveyor.



Photo 15: Conveyor System at the Crusher Facility.



Photo 16: New Location for Dust suppressant application trial at the Crusher.



Photo 17: Liquid Dust Suppressant stored in a heated Seacan next to the crusher in preparation for the trial.



Photo 18: Newly Completed Storage Location for Space Crusher Parts.

5.1.1.6 Sallivik Camp

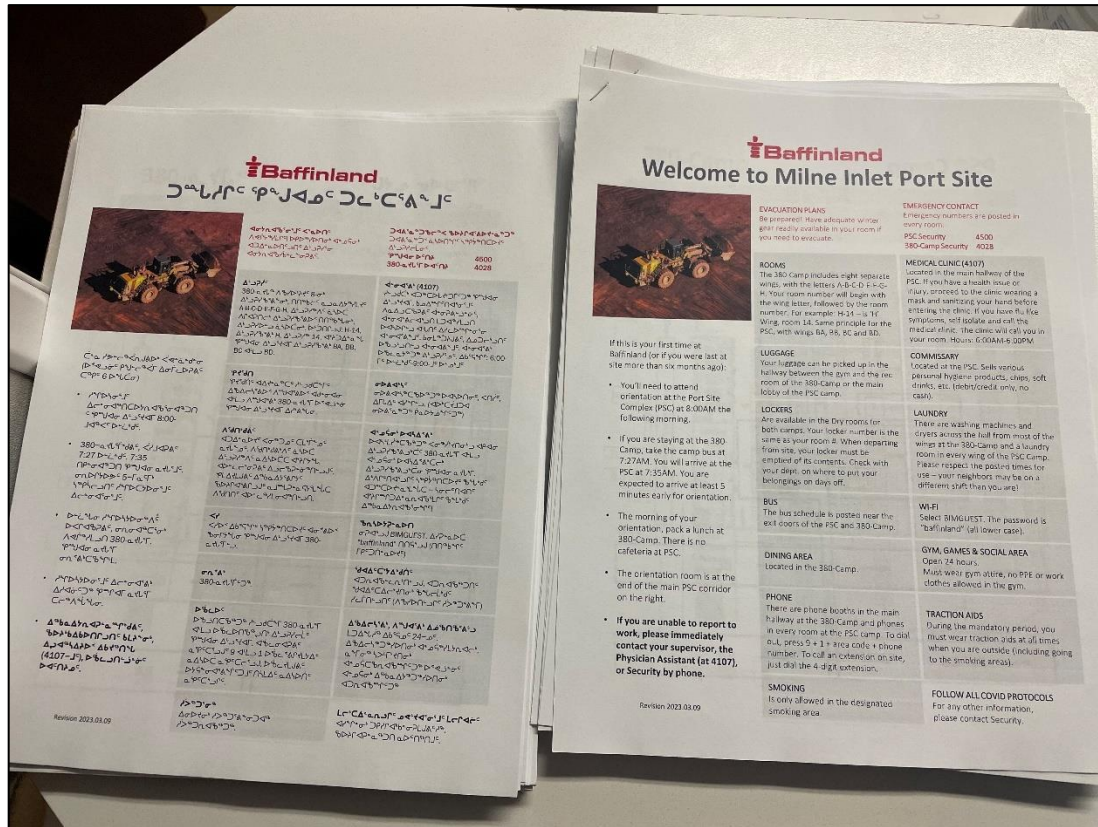


Photo 19: Orientation Posters for New Employees.

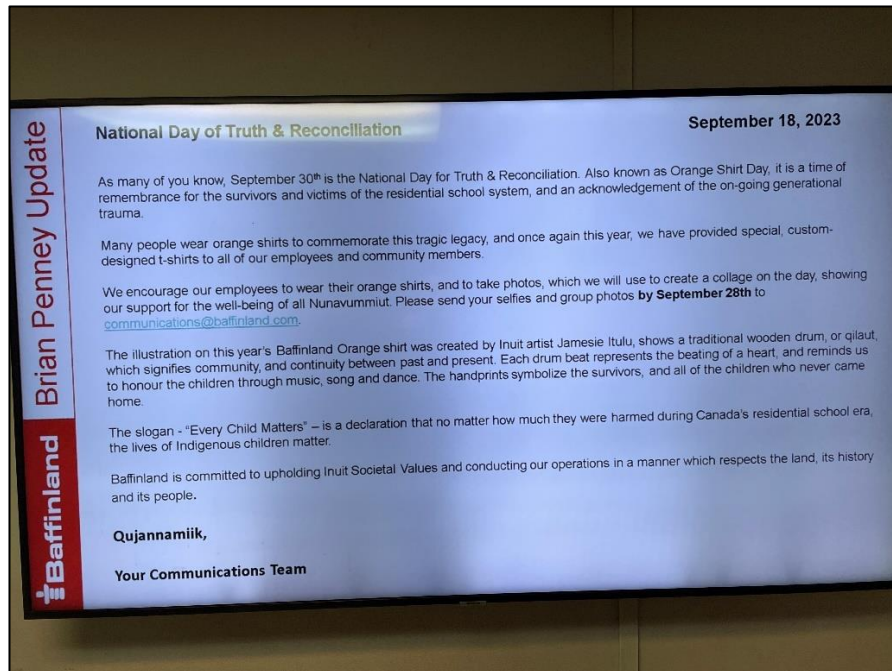


Photo 20: Employee Information for National Truth and Reconciliation Day.

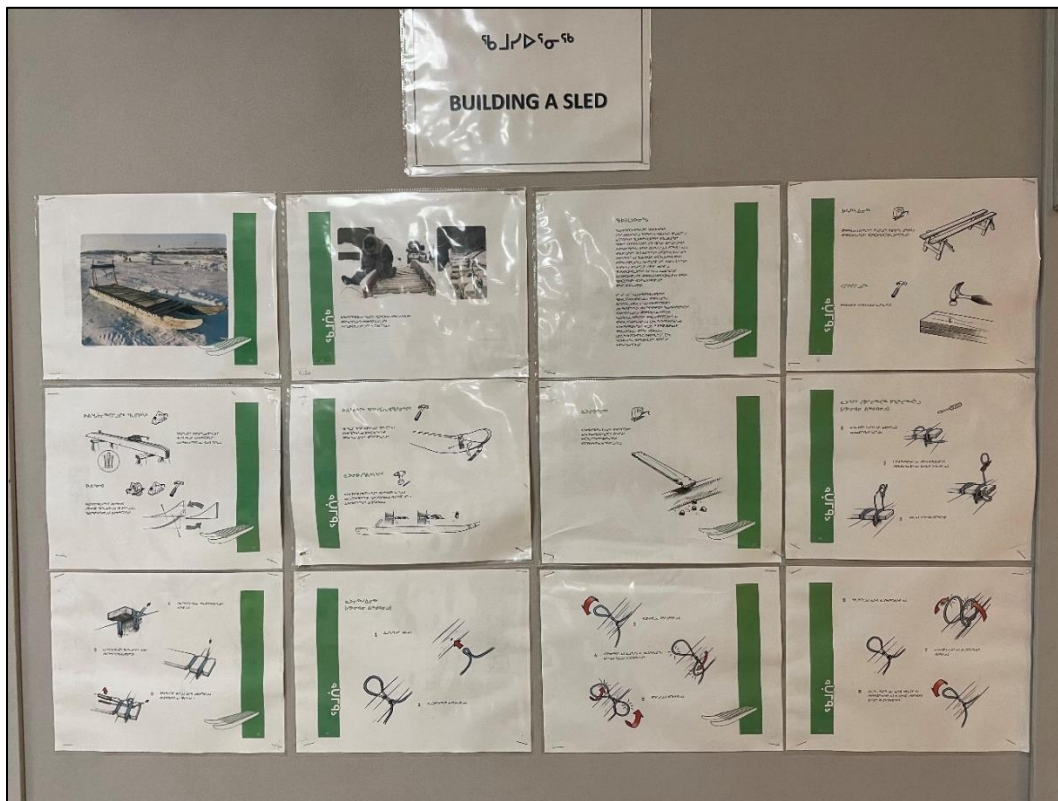


Photo 21: Kamotik Building Posters.



Photo 22: Skirting around Sailavik Accommodations Complex

5.1.2 Milne Port

On October 4, 2023, NIRB staff toured Milne Port and made the following observations:

- Tote Road is in operation and ore is being trucked to Milne Port
- The Ore Stockpile area was in operation with active stacking and ship loading ongoing;
- Ore that was not transported in 2022 was actively being loaded onto vessels;
- The laydown areas were well organized;
- The visitor Communication Centre was operational;
- Spill at Sea response equipment was on shore and ready for use as needed;
- Preparations were being made for winter and sedimentation ponds being pumped out;
- The Equipment that was initially intended for the Phase 2 Development remains in storage at Milne Port and Baffinland is actively exploring options for moving the indoor crusher, conveyors and other equipment to the Mine site for future installation, but does not have any anticipated dates for that;
- While on site, Baffinland staff noted that they had berthed the first cape size ore carrier at Milne Port several weeks prior and provided an overlay photo comparison the Panamax vessels that are most often used and the Cape size; and
- Mobile, active air monitors have been installed at various locations around site to monitor air quality and dust particulate in real time. This is currently under trial at site but has the potential to allow Environment staff to see live, timing data of where dust events occur and allow staff to react in real time to employ mitigations.

5.1.2.1 Spill At Sea Response Equipment



Photo 23: Pumps, Hosing and Equipment for Spill at Sea Response, stored at the Beach at Milne Port.



Photo 24: Wildlife Recovery Kits stored with Spill at Sea Response Equipment.



Photo 25: Empty Totes ready on shore for contaminated water to be pumped into if needed.



Photo 26: Active Air quality sampling to aid in Dust Mitigation.

5.1.2.2 Ore Stockpile



Photo 27: Loaders Moving Ore from the Stockpile to the Shiploader Conveyor.



Photo 28: Heavy Equipment shaping the stockpile and moving ore to the Shiploader.

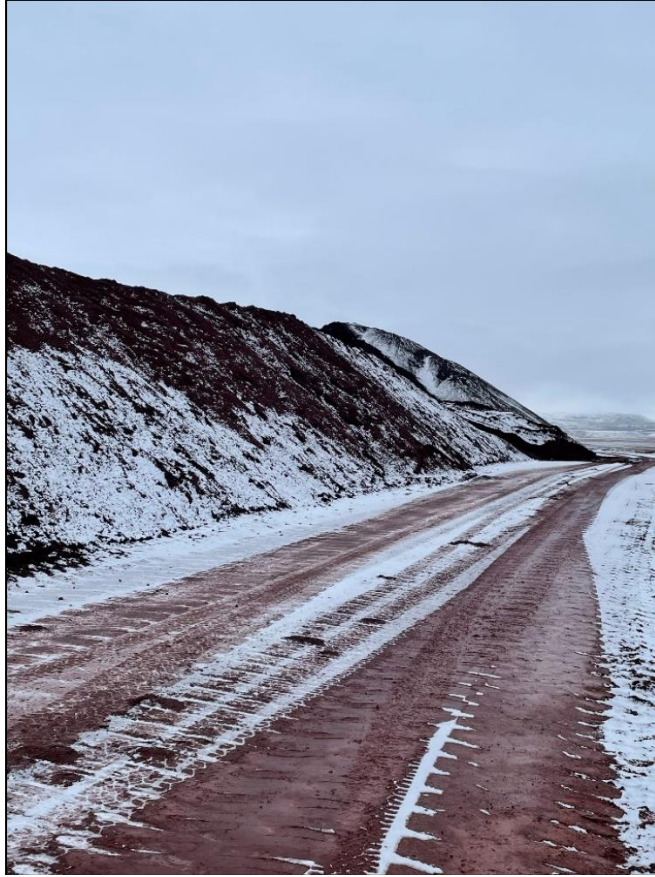


Photo 29: Edge of the Lump Stockpile along the East Side Access Road.



Photo 30: Heavy Equipment Shaping the Stockpile.



Photo 31: Close up view of the Lump Ore stock Pile.

5.1.2.3 Shiploader Area



Photo 32: View of Shiploading facility from the West Side.



Photo 33: Close of ore Ore ship being loaded from the East.

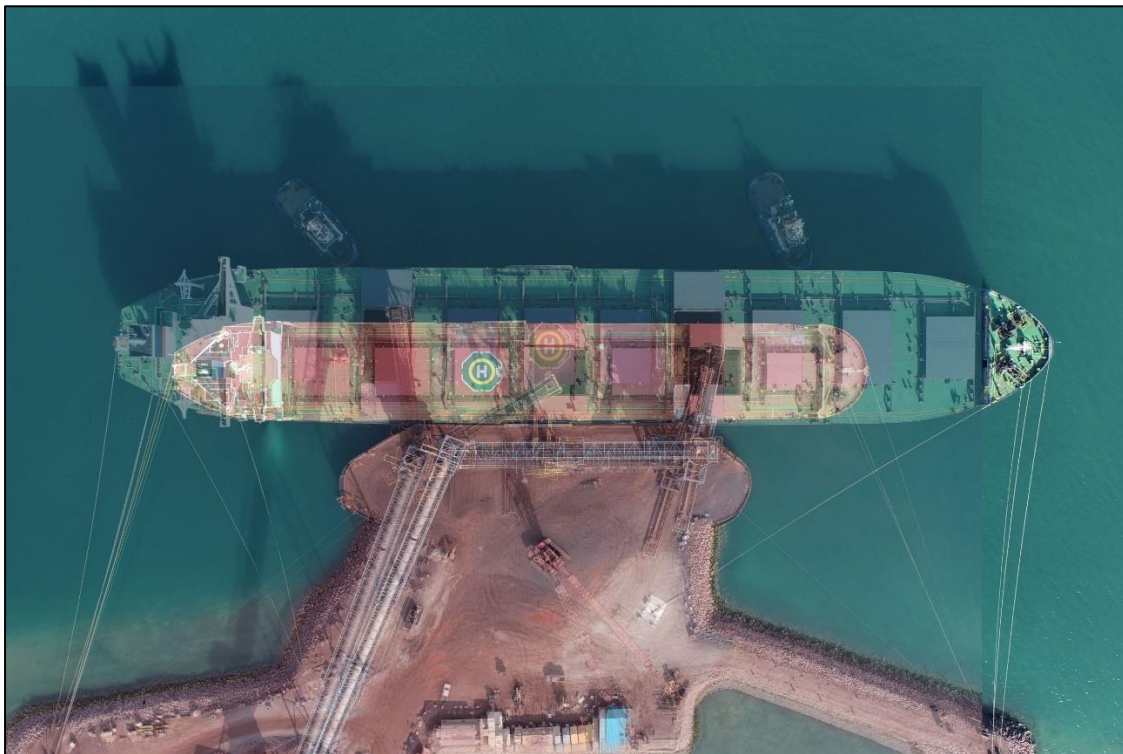


Photo 34: Comparison of the Panamax and Cape size Vessels at Port in 2023²

² Photo 34 was provided by Baffinland on October 4, 2023.

5.1.2.4 Sedimentation Ponds



Photo 35: Sedimentation Pond on the North East side of the Stockpile.



Photo 36: Sedimentation Pond on the East Side of the Stockpile.

5.1.2.5 Phase 2 Laydown Area



Photo 37: Enclosed Conveyor System Originally Procured for the Phase 2 Development Proposal.



Photo 38: Enclosed Ore Handling Buildings originally intended for the Phase 2 Development Proposal.



Photo 39: Open air conveyors originally intended for the Phase 2 Development Proposal.

5.1.2.6 Landfarm



Photo 40: Mobile Oily Water Treatment System located at the Landfarm for Water Treatment.



Photo 41: West Cell of the Landfarm.



Photo 42: East Cell of Landfarm.



Photo 43: Additional Active Air Sampling device at the Landfarm.

5.1.3 Tote Road

On October 4, 2023, NIRB staff drove the Tote Road, stopping at various culverts and dust monitoring stations, the following observations were made:

- The Road was closed to Ore Haul Trucks due to weather conditions;
- Dust monitoring was being completed along the Tote Road;
- Emergency Shelters and halfway stop are operational;
- Rip Rap continues to be installed to help control water flow along the road; and
- Snowmobile crossing at KM 90 was clear of obstruction.

5.1.3.1 Water Crossings



Photo 44: Rip Rap installed to aid in controlling water flow at Culvert CV-079.



Photo 45: West side of Culvert CV-079.



Photo 46: East side of Culvert CV-079.



Photo 47: East side of Culvert CV-215.



Photo 48: Rip Rap and Check Dam Installed at Culvert CV-215.

5.1.3.2 Dust Sampling



Photo 49: Passive Dust Sampler along the Tote Road



Photo 50: Close-up of Data Label on Passive Dust Sampler.

5.1.3.3 Road Crossing



Photo 51: East side of Tote Road Crossing for Snowmobiles and ATVs at KM 90³.



Photo 52: West side of Tote Road Crossing for Snowmobiles and ATVs at KM 90.

³ Photo 51 and 52 were Provided by Baffinland on October 7, 2023.

6 CONCLUSION

During the October 2023 Site Visit, NIRB and Baffinland staff discussed how the Mary River Project is being operated through Project Certificate No. 005 Amendment No. 4. Baffinland appears to have a well-managed and well-maintained site including adequate environmental protection measures and procedures in place as per the Project Certificate and their Management Plans. Including some additional trials ongoing to explore alternative options for dust suppression. The NIRB looks forward to hearing further updates regarding the active air monitoring devices, dust suppressant at the Crusher Facility as well as plans for moving the Phase 2 Development Project Equipment to Mine Site to be repurposed. NIRB looks forward to completing the next site visit in the Winter of 2024.

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Date: October 27, 2023
Signature:

