



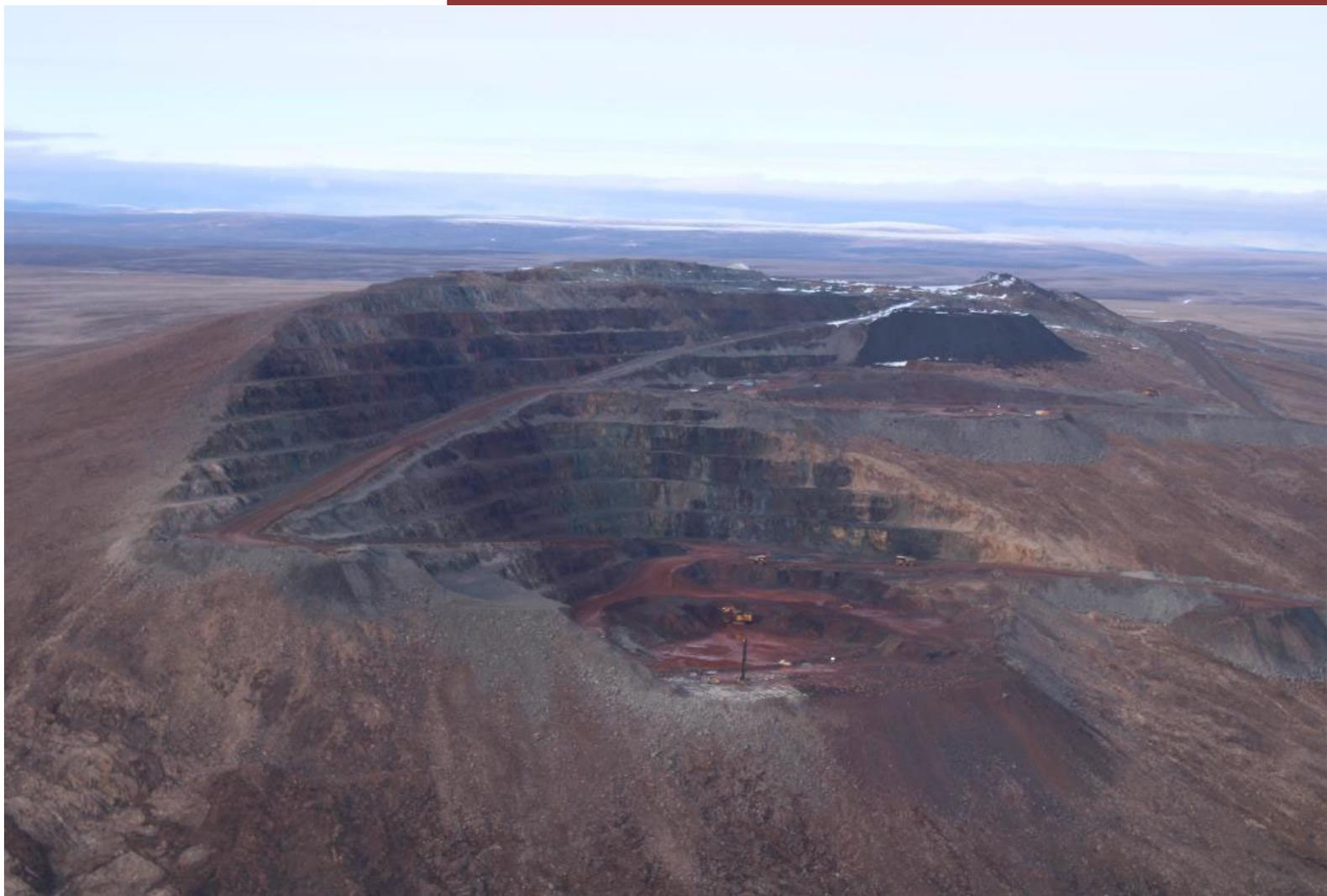
Nunavut Impact Review Board

2024 Site Visit Report for

Baffinland Iron Mines

Corporation's

Mary River Iron Ore Mine Project



Mary River Project (NIRB File No. 08MN053)

January 2025

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

Project: Mary River Project
Project Location: Qikiqtani Region, Nunavut
Land Tenure: Inuit Owned Land

Project Owner: Baffinland Iron Mines Corporation
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Site visit dates: September 17-20, 2024
Last Site Visit: April 23-24, 2024

Report prepared by: Cory Barker

Photos by: NIRB Staff

Cover Photos: Deposit No.1 – Mary River Mine Site

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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 a summary of observations from the NIRB's Site Visit of the Mary River Project that took place on September 17-20, 2024.

1.1 Objectives & Purpose of Site Visit

The objective of the NIRB's Site Visit was to make visual observations on the project activities being carried out in compliance with the Terms and Conditions of the Mary River Project Certificate No. 005 as required by Section 12.7.2(b) of the Nunavut Agreement and s. 135(3)(b) of the Nunavut Planning and Project Assessment Act. These observations will be incorporated into the NIRB's 2024 Monitoring Report.

The observations made in this site visit were completed under the Project Certificate No. 005 Amendment No. 005 and were based on Management Plan versions and Project operations as described in the 2023 Annual Report submitted to the NIRB in May 2024.

2 THE PROJECT

The Mary River Project was approved to proceed in December 2012 for the development of an open pit iron ore mine on northern Baffin Island, approximately 150 kilometers (km) south of Pond Inlet. The Mary River site was connected to the North and Milne Inlet by a Tote Road, as well as a railway leading south from the Mine Site to Steensby Port ([Figure 1](#)) to ship 12 MT/a of iron ore year-round. Several elements have not been constructed including the port at Steensby Inlet, the railway from the Mine Site to Steensby Inlet, and the fleet of purpose-built ore carriers. The Project is currently in the active operations phase utilizing the following main components:

- Active mining of Deposit No. 1;
- Outdoors Ore crushing facility;
- An all-weather air strip;
- A 100km Tote Road connecting the Mine Site North to Milne Port;
- Active trucking of crushed Ore from the Mine Site to Milne Port;
- Stock Piling of Ore at Milne Port;
- A fuel tank farm at the Mine Site and Milne Port;
- Camp accommodations and office facilities at the Mine Site and Milne Port; and
- Associated mining infrastructure and laydowns at the Mine Site and Milne Port.

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.

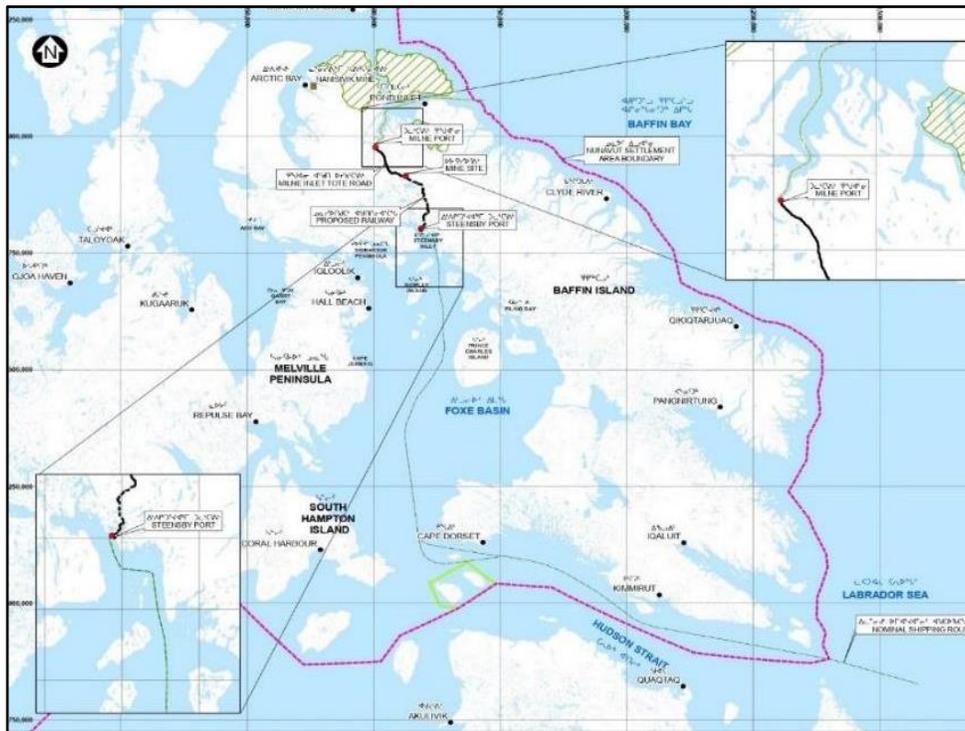


Figure 1: Project Location Map

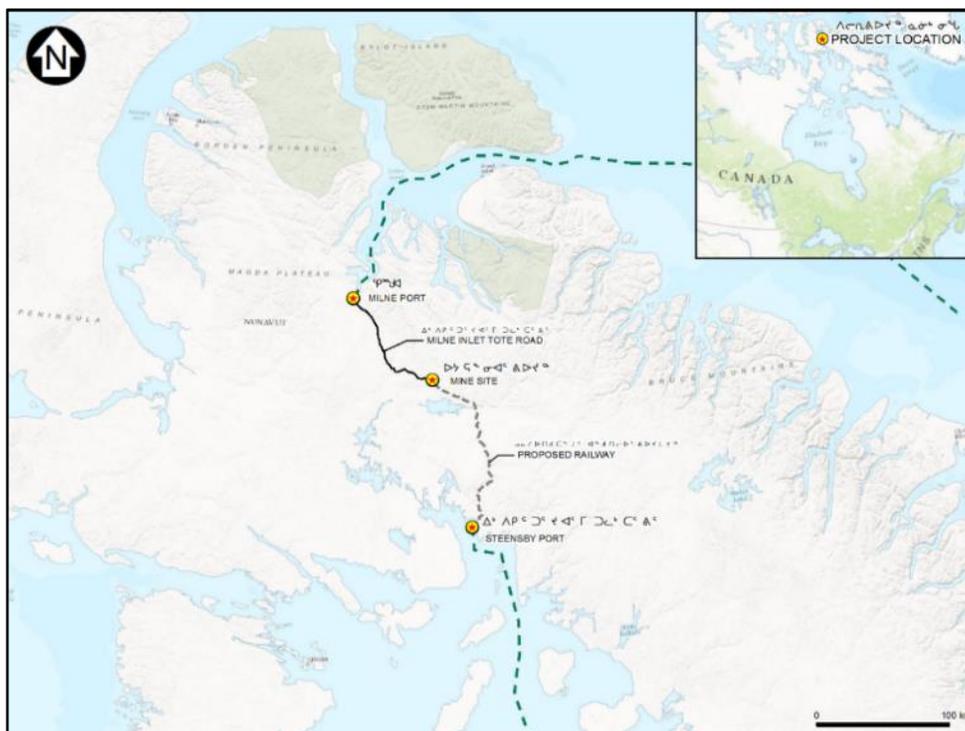


Figure 2: Mary River Project Map.



Photo 1: Aerial View of Milne Port.



Photo 2: Aerial View of Mary River Mine Site.

The following table summarizes the approved amendments to the Mary River Project that resulted in amendments to the Project Certificate.

Title	Project Dashboard	Modification
Early Revenue Phase (2014)	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)	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.
Production Increase Proposal Renewal (2022)	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.

3 OBSERVATIONS LINKED TO THE PROJECT CERTIFICATE

The following table summarizes observations made on-site concerning Project Certificate No. 005, Amendment 005.

T&C No.	Topic	Site Observation
Air Quality		
5	Weather data and conditions at site.	Information is available around site as well as online. Baffinland has several weather stations installed on site
10	Dust Management and Monitoring	Dust fall monitoring stations were observed along the Tote Road, the airstrip at the Mine Site and near the crusher facility. Baffinland has also been trialing active air monitors to collect real time data on dust production events. These samplers have been installed across the site including at the crusher facility and the ship loader. Baffinland is also trialing liquid dust suppressant along the crusher conveyor system 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 installed along the crushing equipment as well as lowering the drop heights. Collectively, all of these chemical and mechanical mitigations are aimed at reducing the dust produced from the crusher facility.

T&C No.	Topic	Site Observation
11	Incinerator	Food waste from the kitchen, including cardboard that stored food, is incinerated. NIRB Staff visited the Incinerator facility at the Mine Site; the area was observed to be clean and organized.
Hydrology and Hydrogeology		
17 Related to 24 and 46	Prevent impacts to water bodies from effluent	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. NIRB staff observed these structures in place.
19	Mitigate impacts to natural water flow	Several culverts and ditches were observed along the Tote Road with riprap being installed 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.
Landforms, Geology and Geomorphology, Soils and Permafrost		
26 Related to 43	Erosion Management	NIRB staff observed riprap along the tote road to control water and prevent erosion.
28	Permafrost monitoring	NIRB staff observed the monitoring that is occurring at site for various dams and other large site structures.
Freshwater Aquatic Environment including Biota and Habitat		
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.
Terrestrial Wildlife Habitat and Waste Management		
52	Deterring 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	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

T&C No.	Topic	Site Observation
		<p>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.

4 GENERAL OBSERVATIONS AT SITE

Cory Barker, NIRB’s Manager, Project Monitoring, flew from Montreal to the Mary River mine site and were met by Baffinland staff Todd Swenson and Cortney Oliver who guided the site visit on the following schedule:

- September 17, 2024: travel from Montreal to Mary River Mine site;
- September 18, 2024: Toured around Steensby Inlet and Milne Port; and
- September 19, 2024: Visited various areas around the Mary River Mine site and travelled along the Tote Road.

The following sections briefly describe the major facilities visited during the tour. Where applicable, NIRB Staff noted compliance with specific terms and conditions of the Project Certificate.

4.1 Mary River Mine Site

4.1.1 Deposit No. 1

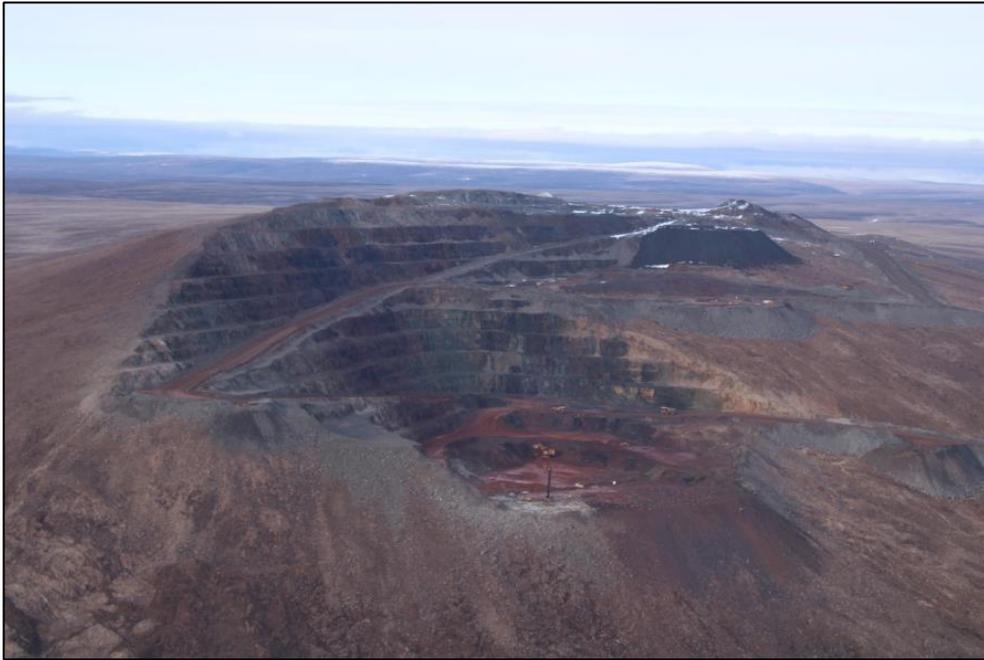


Photo 3: Deposit No. 1 Pit Benches and Working Face.



Photo 4: West View of Pit Benches for Deposit No. 1.



Photo 5: Weather Station at Deposit No. 1.

4.1.2 Sailivik Accommodations and Mine Site Complex

NIRB staff noted that signage boards were placed around camp accommodations to highlight wildlife sighting protocols, wildlife identification and maps of accommodations facilities for employees to reference



Photo 6: Environmental Notice Board



Photo 7: Dining Room Information Board



Photo 8: Air Quality Monitoring Station at Mine Site



Photo 9: Upgraded Starlink Internet at Site Facilities.

4.1.3 Crusher Facility

The crusher facility located at the Mine Site has organized storage containers for replacement parts and during the NIRB site visit, Baffinland was conducting liquid dust suppression trials along the conveyor system to further reduce fugitive dust at the crusher. These trials consisted of a dust suppressant storage and pumping station, as well as several dispensers placed along the conveyor system for application. The crusher facility also has active air monitors in place to measure dust production at the crusher to determine the effectiveness of dust suppression at various points along the material supply chain.



Photo 10: Hoods and Shrouds along the Crusher Conveyor with Active Air Sampler to Measure Dust Production (Arrows pointing to air samplers).



Photo 11: Cone Crusher along the Conveyor System at the Crusher Facility.



Photo 12: Liquid Dust Suppressant Application Trial Area (Arrow) at the Crusher Facility.



Photo 13: Liquid Dust Suppressant Stored in a Heated seacan next to the Crusher.



Photo 14: Pump System for Liquid Dust Suppressant.



Photo 15: Crusher Facility Ore Stockpile and Loaders.

4.1.4 KM 105 Dam and Water Treatment Facility



Photo 16: KM 105 Dam Water Test Site.



Photo 17: Deposit 1 Water run off Additive Station.



Photo 18: KM 105 Dam for Deposit 1 Water Run Off.



Photo 19: KM 105 Dam Water Treatment and Pumping Facility.



Photo 20: KM 105 Dam Downstream Geotube.



Photo 21: KM 105 Outflow Area below the Dam at the Base of Deposit No. 1.

4.1.5 Mary River Fuel Tank Farm

The Mary River Mine Site tank farm appeared clean and organized with adequate secondary containment under the entire facility as well as under potential drip points during fuel filling and storage.



Photo 22: Mine Site Fuel Tank Farm.



Photo 23: Mine Site Fuel Tank Farm and Secondary Containment for Windshield Wiper Fluid.



Photo 24: Mine Site Fuel Tank Farm Fueling Station.

4.1.6 Waste Rock Storage Facility



Photo 25: KM 106 Ore Stockpile Sedimentation Pond.



Photo 26: Waste Rock Storage Facility Sedimentation Pond.



Photo 27: Decommissioned Water Treatment Plant for Run off Water from the Waste Rock Facility.



Photo 28: Decommissioned Sedimentation Pond and Geotube from Water Treatment Plant for Run off Water from the Waste Rock Facility.

4.1.7 Landfill and Landfarm

Baffinland constructed the landfill fence in 2019 after discussion with NIRB during site visits and the Nunavut Water Board through updates to the Waste Management Plan. The fence was constructed while making use of excess waste tires that had accumulated from the Haul trucks along the Tote Road. During several site visits since 2019, NIRB has noted that the landfill had been well maintained and used according to the Waste Management Plan. However, during this visit, NIRB staff noted that there was debris piled outside of the landfill and that the gate had been damaged and was no longer controlling access to the landfill. This was discussed with Baffinland staff at the closeout meeting and it was noted that it would be rectified.



Photo 29: Fence Surrounding the Landfill at Mine Site.



Photo 30: Debris Waiting for Sorting Outside Landfill Facility.



Photo 31: Broken Landfill Entrance Gate.



Photo 32: Ground Water Monitoring Station in Landfill.



Photo 33: Ground Water Monitoring Well Cover.



Photo 34: Materials piled in the Landfill.



Photo 35: Mine Site Landfarm Cell 1.



Photo 36: Mine Site Landfarm Cell 2.

4.1.8 Waste Management Area

NIRB staff were toured around the waste management facilities at the Mine site and noted that the waste management practices appear to be operating in compliance with the Waste Management Plan and that there were adequate measures in place for waste separation and sorting. When observing the hazardous waste storage area, NIRB staff noted that there were several waste oil totes and fuel barrels stored outside of the secondary containment berm. NIRB staff discussed this with Baffinland along with the recurrence of it since the previous site visit in April 2024. Baffinland staff noted that there were approved plans to expand the berm size and sorting area for their hazardous waste at the Mine site and it was agreed that they would be prioritizing this in the coming months to ensure that all hazardous material is stored in secondary containment.



Photo 37: Secondary Containment for Fluid Dispensing Station inside the Incinerator Facility.



Photo 38: Incinerator Waste Storage Bins.



Photo 39: Hazardous Waste Storage.



Photo 40: Hazardous Waste Storage Area with Secondary Containment Incorrectly Installed.



Photo 41: Hazardous Waste Storage Outside of the Lined Area

4.2 Tote Road

On September 19, 2024, NIRB staff drove along the Tote Road, stopping at several culverts to observe remediation work that was underway due to the Fisheries and Ocean Canada order. Baffinland noted that seven (7) of the ten (10) culverts under Fisheries and Oceans Canada order had been replaced with three (3) of the repaired culverts needing to be re-evaluated and modified due to the culverts collapsing. NIRB staff also observed ongoing Dust Monitoring station as well as new dust fall monitoring stations installed as part of joint study being completed with Natural Resources Canada (NRCan) to evaluate the effectiveness of a new dust collector.

4.2.1 Tote Road Culverts



Photo 42: Culvert Repair at KM 80 that Failed.



Photo 43: Blocked Culvert at KM 80.



Photo 44: Culvert at KM 90 that was Successfully Replaced.



Photo 45: Silt Curtain Installed near the Culverts along the Tote Road.

4.2.2 Dust Sampling & Weather Station



Photo 46: Passive Dust Sampler along the Tote Road.



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



Photo 48: New "Disc Style" Passive Dust Sampler from NRCAN Study.

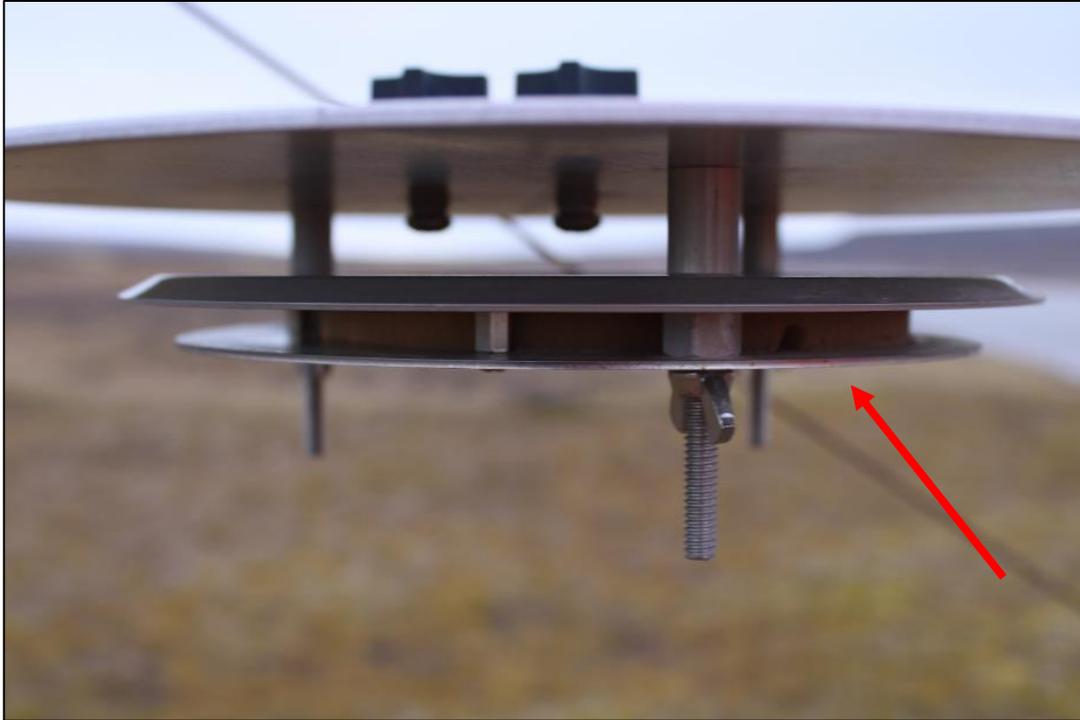


Photo 49: Close up of dust collection disc (Arrow) on the “Disc Style” Passive Dust Sampler with NRCan Study.

4.3 Milne Port



Photo 50: Milne Port Ore Pad and Ship Loader.



Photo 51: Ore Stockpile North Sedimentation Pond.



Photo 52: Ore Stockpile West Sedimentation Pond.



Photo 53: Milne Port Fuel Tank Farm.



Photo 54: Incinerator Facility Waste Sorting Guidelines.



Photo 55: Incinerator Facility Oil Dispensing Area.



Photo 56: Incinerator Facility.



Photo 57: Hazardous Waste Storage Facility.



Photo 58: Ore Stockpile during Active Ship loading.



Photo 59: Milne Port Landfarm.



Photo 60: Milne Port Landfarm Oily Water Storage Pond.



Photo 61: Milne Port Quarry in Limited Use.

4.4 Steensby Inlet

The NIRB staff were taken to Steensby Inlet via Helicopter and noted that the site had been in limited use during the 2024 season. However, NIRB staff noted some garbage accumulation around the infrastructure. It was discussed that it would be beneficial for Baffinland to place burn barrels and garbage disposal areas as well as advertise this to the communities in an effort to reduce waste being deposited at the site by land users. Additionally, there was a substantial amount of fuel stored at Steensby Inlet, although this fuel was in secondary containment, the containment was in poor condition and no longer served the intended purpose. Baffinland indicated that they would be prioritizing this fuel to be back hauled in 2025 as activities at Steensby begin to pick up.



Photo 62: Aerial View of Steensby Camp.



Photo 63: Fuel Storage and Damaged Secondary Containment.



Photo 64: Damaged Secondary Containment on camp Fuel Barrel.



Photo 65: Steensby Camp Accommodations to be Backhauled.



Photo 66: Garbage near the Shore at Steensby Inlet Camp.



Photo 67: Steensby Camp Accommodations.

5 CONCLUSION

During the September 2024 Site Visit, NIRB and Baffinland staff discussed how the Mary River Project is being operated in accordance with Project Certificate No. 005 Amendment 005. The Mary River Project sites are generally organized and incorporate the environmental protection measures and procedures required in both the Project Certificate and Management Plans. During a close out meeting, NIRB Staff identified some areas of improvement including:

- Hazardous waste stored outside of secondary containment;
- Clean up of Steensby Inlet area and some continued organization; and
- Clean up and infrastructure repairs needed at the Mine Site Landfill.

Baffinland staff noted that several of these issues would be addressed immediately; however, the clean up at Steensby Inlet would have to wait until summer of 2025 due to seasonal limitations of accessing the site. The NIRB expects to closely monitor these concerns in future visits and to follow-up on any ongoing areas of concern.

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Date: January 24, 2025

Signature:



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Title: Director, Operations

Date: January 24, 2025

Signature:

