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Building Nunavut Together
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Bâtir le Nunavut ensemble

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Government of Nunavut
Nunavut Kavamat
Gouvernement du Nunavut

June 30, 2022

Cory Barker
Technical Advisor ii
Nunavut Impact Review Board
P.O Box 1360
Cambridge Bay, NU X0B 0C0

Sent VIA Email: info@nirb.ca

RE: Comment Request for Baffinland Iron Mines Corp's Mary River Project 2021 Annual Report

Dear Cory Barker,

On behalf of the Government of Nunavut (GN), I would like to thank the Nunavut Impact Review Board (NIRB) for the opportunity to provide comments on Agnico Eagle Mine's Meadowbank and Whale Tail Project 2021 Annual Report.

The GN has reviewed the 2021 Annual Report for both the "Meadowbank and Whale Tail Project" and provide our assessment in comments to follow.

Should you have any concerns with our comments, please contact me by phone at 867-975-7828 or by email at asimonfalvy@gov.nu.ca .

Qujannamiik,

Agnes Simonfalvy

Avatiliriniq Coordinator
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GN AR # 01 – CARBIOU MONITORING	
Department	Environment
Organization	Government of Nunavut
Subject/Topic	Caribou Monitoring
Terms and Conditions	NIRB Project Certificate No. 005 (Amendment 3) Terms and Conditions 54(d)(ii), 58(f), 53(b), 54(b), and 58(b)
References	• Baffinland Iron Mines Corporation (BIMC). (2016). Terrestrial Environment Mitigation and Monitoring Plan. • Environmental Dynamics Inc (EDI). (2015). Mary River Project Terrestrial Environment 2014 Annual Monitoring Report. • Environmental Dynamics Inc (EDI). (2016). Mary River Project Terrestrial Environment 2015 Annual Monitoring Report. • Environmental Dynamics Inc (EDI). (2017). Mary River Project Terrestrial Environment 2016 Annual Monitoring Report. • Environmental Dynamics Inc (EDI). (2018). Mary River Project Terrestrial Environment 2017 Annual Monitoring Report. • Environmental Dynamics Inc (EDI). (2019). Mary River Project Terrestrial Environment 2018 Annual Monitoring Report. • Environmental Dynamics Inc (EDI). (2020). Mary River Project Terrestrial Environment 2019 Annual Monitoring Report. • Environmental Dynamics Inc (EDI). (2021). Mary River Project Terrestrial Environment 2020 Annual Monitoring Report. • Environmental Dynamics Inc (EDI). (2022a). Mary River Project Terrestrial Environment 2021 Annual Monitoring Report. • Environmental Dynamics Inc (EDI). (2022b). Mary River Project Caribou Monitoring: Triggers and Recommendations. • Government of Nunavut (GN). (2019a). Comments on Baffinland Iron Mines 2018 Annual Report to the Nunavut Impact Review Board. • Government of Nunavut (GN). (2019b). Technical Review Comments for Baffinland Iron Mines Corp.'s (BIMC) *"Phase 2 Development"* project proposal. • Government of Nunavut (GN). (2019c). Final Written Submissions for Baffinland's (BIMC) "Phase 2 Development" Project Proposal

	• Government of Nunavut (GN). (2020). Comments on Baffinland Iron Mines 2019 Annual Report to the Nunavut Impact Review Board. • Nunavut Impact Review Board (NIRB). (2022). Reconsideration Report and Recommendations for Baffinland's Phase 2 Development Proposal.

IDENTIFICATION OF ISSUE

For monitoring impacts on caribou, the Project currently relies on snow track and Height-of-Land (HOL) surveys, as well as the recent addition (in 2021) of a pilot remote camera program. It is the Proponent's view that:

> "… [H]eight-of-Land surveys, in conjunction with snow track surveys, snowbank surveys, and remote cameras, can provide reconnaissance and surveillance data on local caribou behaviours and interactions with the Project, and, when data is available, may provide an early indicator of relative changes in caribou populations." (EDI 2022a, Section 9).

Since 2014, these monitoring programs have recorded no caribou observations, thus leaving the Proponent unable to conclude whether impacts on caribou are occurring despite community concerns that they are witnessing impacts (EDI 2022a, Figures 9.4 and 9.5; NIRB 2022). Further, the Proponent has concluded that caribou numbers in the vicinity of the Project are too low to warrant either mitigation through adaptive management (e.g., through measures such as road or helicopter traffic management) or the implementation of more in-depth caribou monitoring at a more intensive or regional scale (e.g., EDI 2022b).

As reported in the 2021 Terrestrial Environment Monitoring Report (EDI 2022), the Proponent conducted 6 snow track surveys and 34 hours of HOL surveys in 2021. This yielded zero caribou observations leading the Proponent to conclude again that:

> "[B]ecause no caribou tracks were identified during snow track surveys in 2021, it cannot be determined whether Project infrastructure is impacting caribou movement."
>
> And
>
> "To date, insufficient caribou observations during HOL surveys have occurred to assess any Project-related effects on caribou behaviour or habitat use." (EDI 2022a)

In contrast, during 2021, incidental observations by Project personnel recorded 104 caribou. Additionally, the movements of a small number of caribou collared by the GN were found to overlap with Project activities during 2021.

As detailed in comments on five previous annual reports (e.g., GN 2019a, 2020) and during the NIRB's review of the Phase 2 Development Proposal (GN 2019b, 2019c), the Government of Nunavut (GN) has repeatedly expressed concern that these snow track and HOL surveys continue to fail in meeting the objective of detecting caribou for the purposes of mitigating and monitoring Project-related effects. The fact that no caribou were observed during the last 8 years of these surveys could be a result of the following:

1. Caribou were not detected because they are simply not present in the area during the survey, possibly owing to either low population density or low survey effort.
2. Caribou were not detected due to avoidance behaviour and/or deflection from Project infrastructure and activities.

The GN remains concerned that the current survey methods and level of survey effort do not offer the power to distinguish between these two possibilities. The snow track and HOL surveys have insufficient detection range and are conducted so infrequently (covering less than 0.4% of the time caribou could interact with the Project over the year) that they are very unlikely to detect caribou present near the Project. Contrary to the Proponent's view, the GN deems these monitoring methods inadequate as surveillance mechanisms for triggering mitigation of Project effects on caribou or for acting as an early warning mechanism triggering additional monitoring programs. As such, the GN deems BIM to be non-compliant with Project Terms and Conditions 53(b) and (c), and 58(b).

IMPORTANCE TO REVIEW AND SUPPORTING RATIONALE

In 2021, for the purposes of caribou monitoring, the Proponent conducted:

- Six snow track survey between February and November (EDI 2022b, Section 9.1.2).

And

- Thirty-four hours of Height-of-Land (HOL) survey across 24 sites in June (EDI 2022b, Section 9.3.2).

These surveys observed no caribou and provided surveillance coverage for less than 0.4% of the time that caribou could have interacted with the Project in 2021. Additionally, 19 of the 24 HOL survey sites were accessed by helicopter, thus requiring at least 76 helicopter flights that could have disturbed caribou. These observations of zero caribou are added to the previous 7 years without caribou observations during these surveys.

In contrast, 104 caribou were seen incidentally by Project personnel in 2021 (EDI 2022a, Section 9.5). All were outside the PDA, but some were within the Project's Regional Study Area (RSA). Over the period 2014 to 2021, while snow track and HOL surveys have observed no caribou, incidental observations by Project personnel have recorded 218 caribou; 32 within the Project Development Area (PDA) and 186 outside the PDA, some of which were in the RSA (EDI 2015, 2016, 2017, 2018, 2019, 2020, 2021).

Additionally, in 2021, a small sample of north Baffin caribou were collared by the GN. Although the collars were not deployed in the vicinity of the Project for the purpose of studying Project-related effects, it is apparent that the movements of some individuals overlapped significantly with the Project activities reported in the 2021 Annual Report, such as low-level helicopter flights during calving and post-calving periods in June, July, and August (Compare figures 1-3 below with Maps 5-2 to 5-4 in EDI 2022a).

Month	Caribou Movements	Helicopter Flights
June	*See Figure 1 (b) below*	*Map 5-2 (EDI 2022a)*

July	*See Figure 2 (b) below*	*Map 5-3 (EDI 2022a)*
August	*See Figure 3 (b) below*	*Map 5-4 (EDI 2022a)*

These data from collars and incidental observations show that interactions between caribou and the Project are occurring. However, these interactions are undetected, unstudied, and unmitigated under the Project's current monitoring regimen, which involves infrequent snow track and HOL surveys that are only capable of observing caribou over short distances close to the PDA. The Proponent claims that snow track and HOL surveys can:

> "[P]rovide reconnaissance and surveillance data on local caribou behaviours and interactions with the Project, and, when data is available, may provide an early indicator of relative changes in caribou populations." (EDI 2022, section 9).

The GN suggests that these surveys are only useful when and if caribou densities are high and there is a reasonable probability of seeing caribou from which data can be collected. Snow track and HOL surveys are therefore not effective surveillance mechanisms, nor can they provide early indicators of Project effects on caribou as is claimed by the Proponent.

The GN questions the cost effectiveness of these surveys that have yielded no data over 8 years and suggests that these resources could be better allocated to programs that have demonstrated the ability to generate caribou data. Specifically:

1. An enhanced incidental caribou observations program involving the collection and analysis of data from Project personnel and other land-users, including a caribou harvest study.
2. Investment in regional scale monitoring of caribou through collaboration with the GN in a collaring program.

The GN also questions the use of helicopters to access HOL sites which itself is a potential source of disturbance to caribou.

The GN maintains that regional scale monitoring is essential for assessing Project impacts on the north Baffin caribou herd. Even in its current low-density state, Project-related impacts on the herd could be occurring. Data from collars deployed in 2021 demonstrate that interactions between caribou and Project activities are occurring but are going undetected by current Project monitoring. The Proponent has not collaborated with the GN on a collaring program since the Project entered its operational phase; instead choosing to rely on local scale monitoring that has yielded zero data on caribou.

The Proponent has argued, through a recent analysis, that data from a collaring program would only be useful for detecting Project effects when the north Baffin caribou herd increases in abundance and reaches much higher densities in the Project's RSA than at present (EDI 2022b). As noted in a written review, the GN disagrees with the conclusions of this analysis (EDI 2022b, appendix B). For example, the GN commented that:

> "[W]hile the precision-sensitivity analysis is a useful one, the bootstrapping exercise is limited by the dataset. The report assumes that the source data are representative of caribou behavior under conditions existing when the Project is in its production phase. However, the 2008-2011 data used in the analysis do not satisfy this assumption. The analysis relies on collar data collected during a period of very low Project activity. For example, as indicated in Table 2, only 2 of the 68 collar years in the dataset used in the analyses covered a period when the Tote Road was being used for ore hauling. Even during this short period of hauling (in

2008) Project activity levels were well below those currently in effect and those expected for Phase 2.

Additionally, as indicated on Page A-6 of the report, the precision-sensitivity simulations were performed using the winter season dataset only. The power to detect Project effects such as ZOIs depends in part on the magnitude of the effect on caribou. Therefore, the estimated sample size requirements obtained from the analysis represent those needed to detect effects of low-moderate magnitude during periods of low activity. Samples sizes needed during periods of higher activity, will therefore be lower. This should be reflected in the conclusions of the report and consideration should be given to adopting lower trigger thresholds for initiation of a collaring study of Project effects."

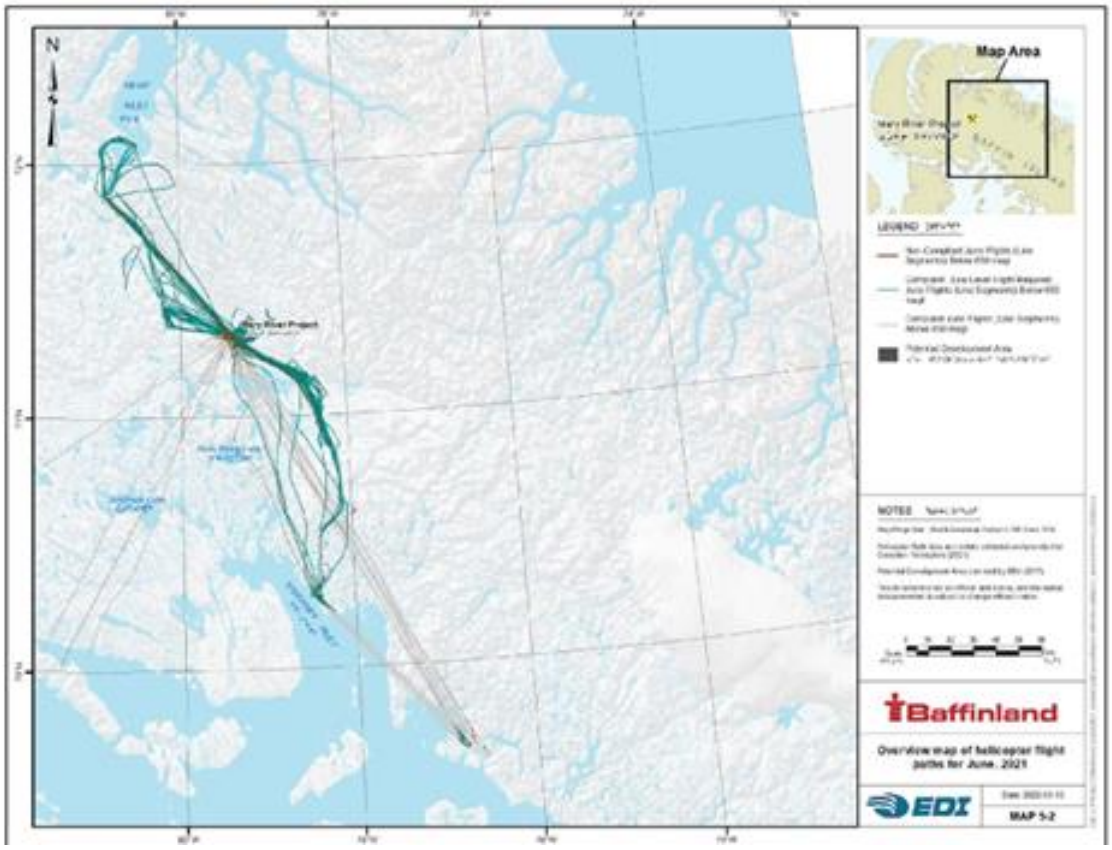
The Proponent responded to this comment as follows:

> "Of course, analytical results are influenced by and dependent on the availability of quality data. It should be recognized that the GN provided the data in question. If more fulsome or up-to-date information is available, we are keenly interested in evaluating movement and indirect habitat loss during production years." (Emphasis added by reviewer)

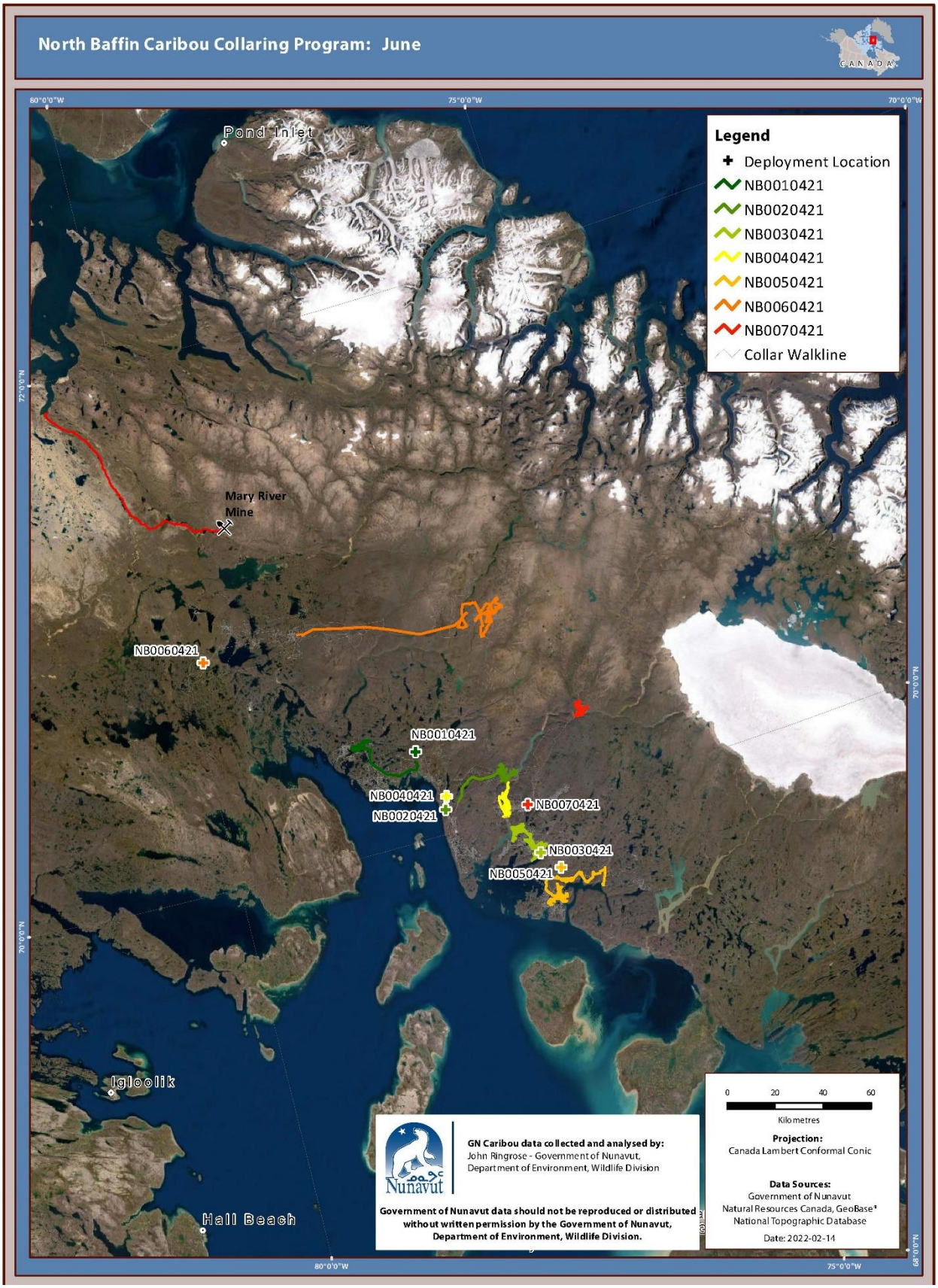
Here the Proponent acknowledges the GN's concerns about the limitations of the available collar data and expresses an interest in acquiring additional collar data. However, this contrasts with the Proponent's lack of investment in collaring data since the Project started ore production, despite repeated GN recommendations to do so over the last 8 years (e.g., GN 2019a, b, c; GN 2020). The GN continues to be willing to enter into Agreements with the Proponent to support regional caribou monitoring and data sharing.

Figure 1. Maps showing: (a) Helicopter flights made in June 2021, as reported in EDI (2022a) and (b) Movements of 7 collared caribou during the same month (Government of Nunavut, unpublished data).

(a)



(b) On following page


North Baffin Caribou Collaring Program: June
CANADA
80°0'0"W
75°0'0"W
70°0'0"W
72°0'0"N
70°0'0"N
68°0'0"N
Pond Inlet
Mary River Mine
Igloolik
Hall Beach
Legend
Deployment Location
NB0010421
NB0020421
NB0030421
NB0040421
NB0050421
NB0060421
NB0070421
Collar Walkline
NB0060421
NB0010421
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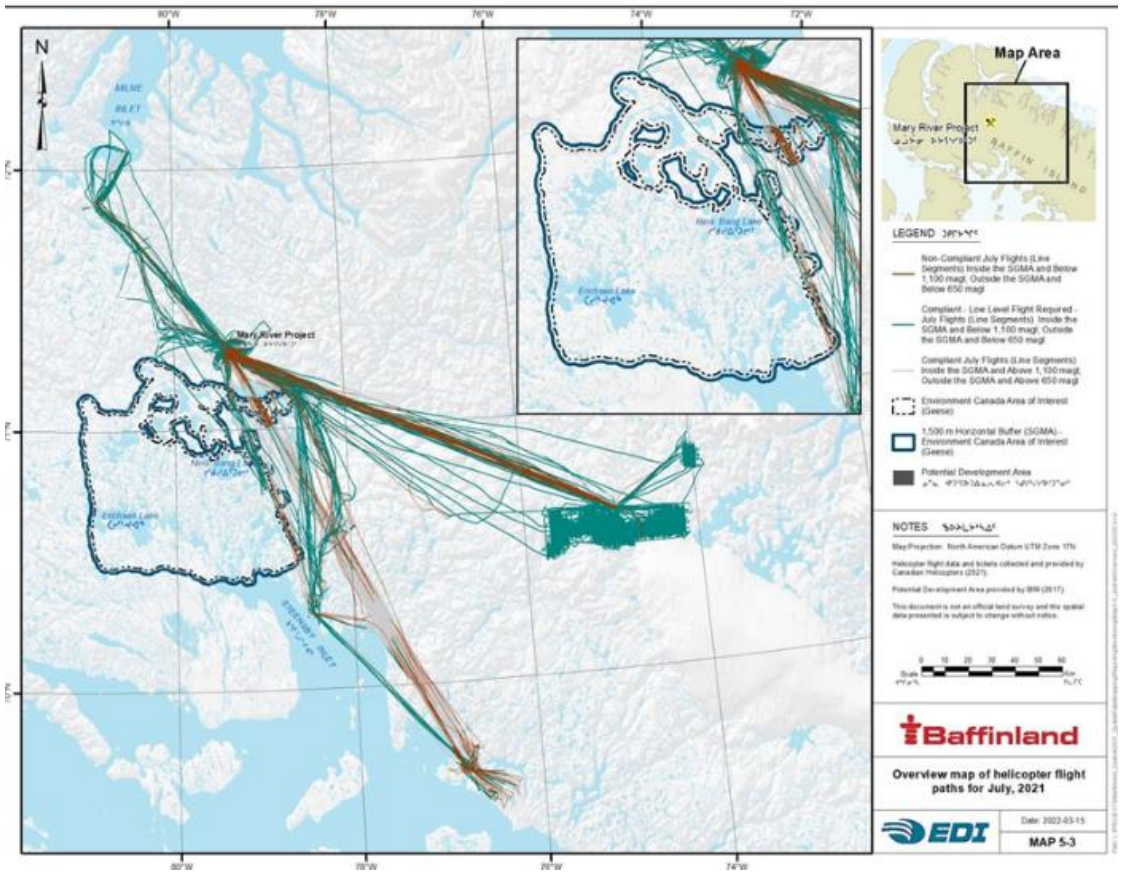
NB0050421
0 20 40 60
Kilometres
Projection:
Canada Lambert Conformal Conic
Data Sources:
Government of Nunavut
Natural Resources Canada, GeoBase®
National Topographic Database
Date: 2022-02-14
Nunavut
GN Caribou data collected and analysed by:
John Ringrose - Government of Nunavut,
Department of Environment, Wildlife Division
Government of Nunavut data should not be reproduced or distributed without written permission by the Government of Nunavut, Department of Environment, Wildlife Division.

Figure 2. Maps showing: (a) Helicopter flights made in July 2021, as reported in EDI (2022a) and (b) Movements of 7 collared caribou during the same month (Government of Nunavut, unpublished data).

(a)



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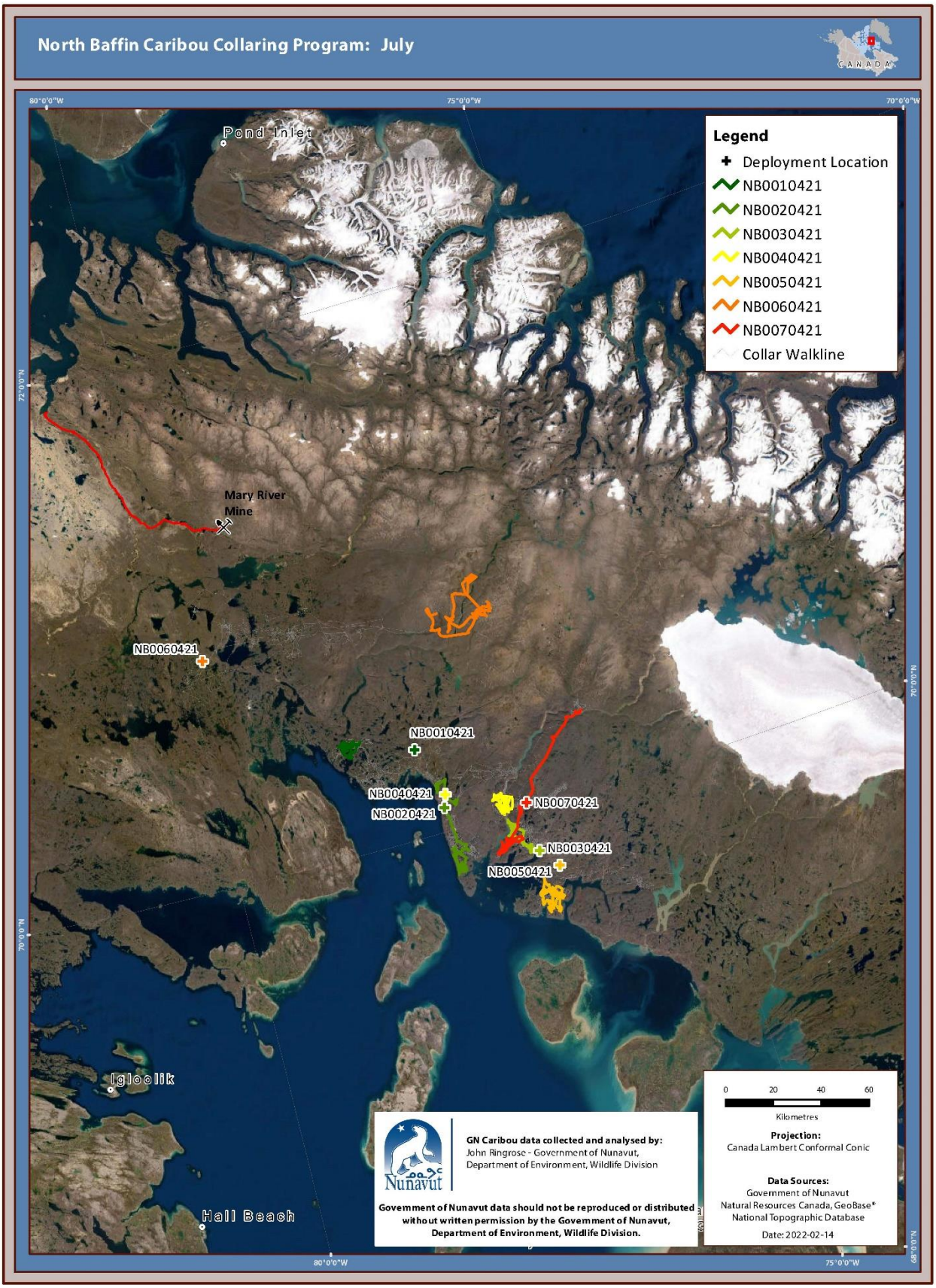
North Baffin Caribou Collaring Program: July
CANADA
80°0'0"W
75°0'0"W
70°0'0"W
72°0'0"N
70°0'0"N
68°0'0"N
Pond Inlet
Mary River Mine
Igloolik
Hall Beach
Legend
Deployment Location
NB0010421
NB0020421
NB0030421
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NB0060421
NB0070421
Collar Walkline
NB0060421
NB0010421
NB0040421
NB0020421
NB0070421
NB0030421
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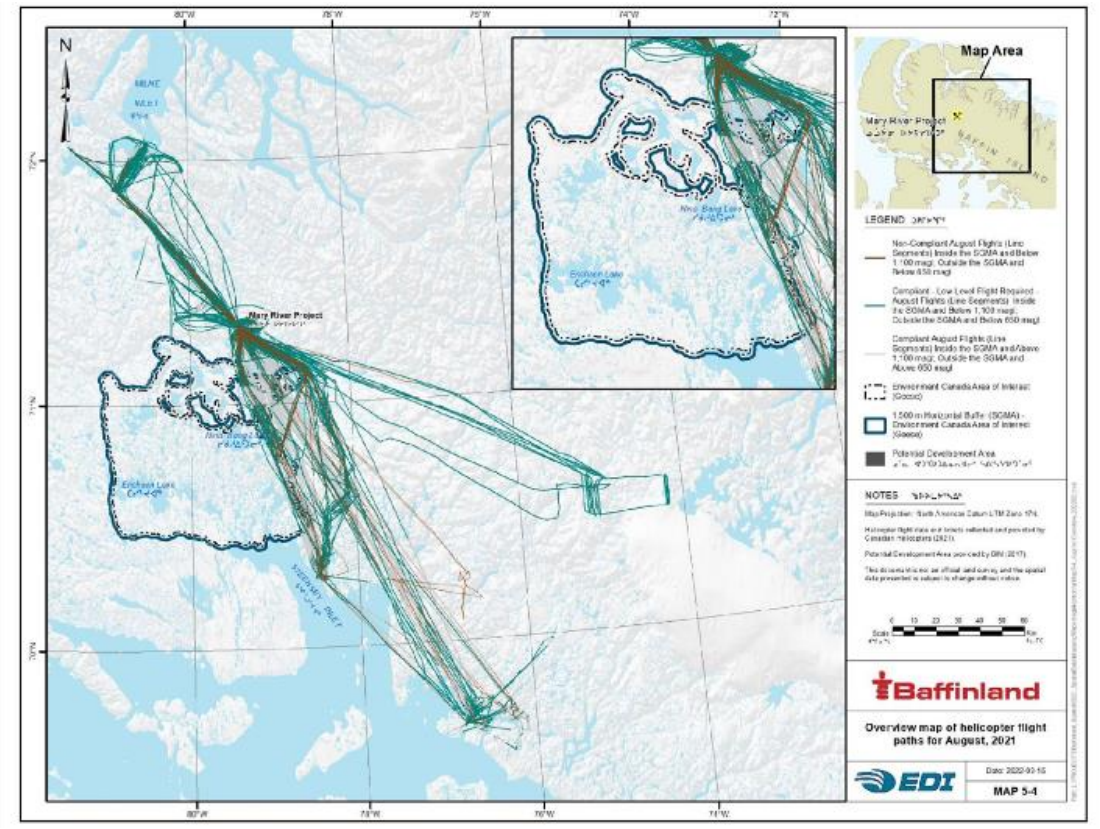
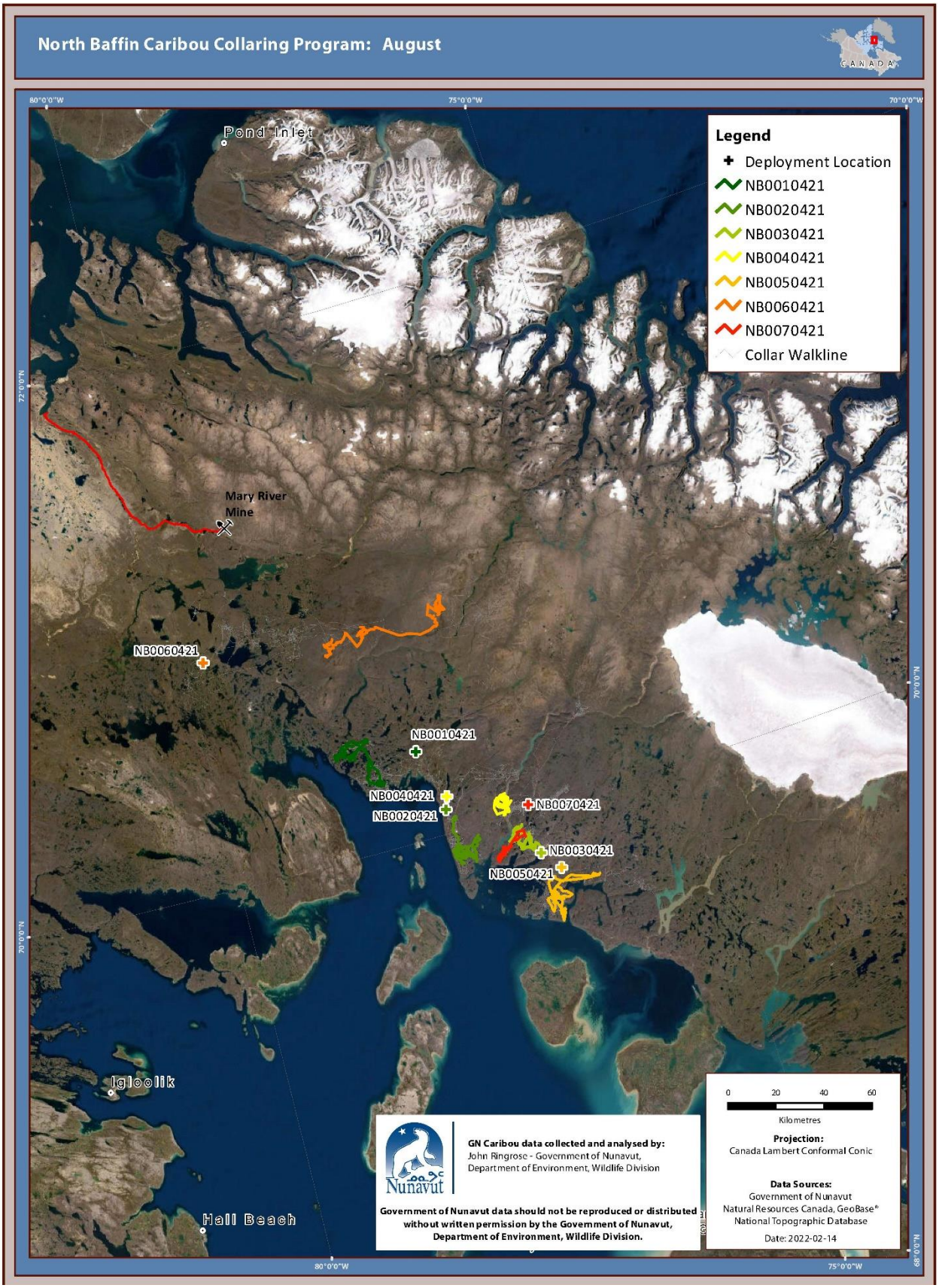
Nunavut
GN Caribou data collected and analysed by:
John Ringrose - Government of Nunavut,
Department of Environment, Wildlife Division
Government of Nunavut data should not be reproduced or distributed without written permission by the Government of Nunavut, Department of Environment, Wildlife Division.
0 20 40 60
Kilometres
Projection:
Canada Lambert Conformal Conic
Data Sources:
Government of Nunavut
Natural Resources Canada, GeoBase®
National Topographic Database
Date: 2022-02-14

Figure 3. Maps showing: (a) Helicopter flights made in August 2021, as reported in EDI (2022a) and (b) Movements of 7 collared caribou during the same month (Government of Nunavut, unpublished data).

(a)



(b) On following page


North Baffin Caribou Collaring Program: August
CANADA
80°0'0"W
75°0'0"W
70°0'0"W
72°0'0"N
70°0'0"N
68°0'0"N
Pond Inlet
Mary River Mine
Igloolik
Hall Beach
Legend
Deployment Location
NB0010421
NB0020421
NB0030421
NB0040421
NB0050421
NB0060421
NB0070421
Collar Walkline
NB0060421
NB0010421
NB0040421
NB0020421
NB0070421
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NB0050421
GN Caribou data collected and analysed by:
John Ringrose - Government of Nunavut,
Department of Environment, Wildlife Division
Government of Nunavut data should not be reproduced or distributed without written permission by the Government of Nunavut, Department of Environment, Wildlife Division.
0 20 40 60
Kilometres
Projection:
Canada Lambert Conformal Conic
Data Sources:
Government of Nunavut
Natural Resources Canada, GeoBase®
National Topographic Database
Date: 2022-02-14

RECOMMENDATION(S)
The GN recommends that the Proponent: 1. Provide information on the total financial cost of snow track and HOL surveys over the period 2014 to 2021. 2. Provide information on the number of helicopter flights that were conducted during the 2021 HOL surveys and how many of those flights were under the altitude thresholds specified in the Project Certificate. 3. Redirect investment in snow track surveys and HOL surveys to the following: a. An enhanced incidental caribou observations program involving the collection and analysis of data from Project personnel and other land-users, including a caribou harvest study. b. Regional scale monitoring of caribou through collaboration with the GN on a collaring program. This emphasis on regional studies should continue until caribou densities have increased to a point where snow track surveys and HOL surveys can provide data with statistical power sufficient to detect Project-related effects and support day-to-day mitigation actions.

GN AR # 02 – SOIL AND VEGETATION SAMPLING	
Department	Environment
Organization	Government of Nunavut
Subject/Topic	Soil and Vegetation Sampling
Terms and Conditions	NIRB Project Certificate No. 005 (Amendment 3) Terms and Conditions 34 and 36
References	• Baffinland Iron Mines Corporation (BIMC). (2016). Terrestrial Environment Mitigation and Monitoring Plan. • Environmental Dynamics Inc (EDI). (2022). Mary River Project Terrestrial Environment 2021 Annual Monitoring Report. • Wilson and Wilmshurst (2019) *Rangifer*, 39: 27-42. DOI 10.7557/2.39.1.4586 • Wolfe *et al*. (2000). *Polar Research* 19: 63-13.

IDENTIFICATION OF ISSUE

Soil and vegetation monitoring in 2021 was restricted to sites near Milne Port only. Sites near other Project components (e.g., the mine and Tote Road) were not sampled. Sites further from the Project and reference sites that are key part of the monitoring program's methodology were also not sampled in 2021. This provided limited available data on metal concentrations in soil and vegetation. The 2020 Annual Report conclusions on this topic are not well supported by this limited data set.

IMPORTANCE TO REVIEW AND SUPPORTING RATIONALE

Section 8.1.1.2 of the 2021 Annual Report (EDI 2022) states that:

> "[T]he study area was divided into three Project areas (Milne Port, Tote Road, Mine Site), and sampling was conducted at three distances from the PDA (Near: 0–100 m, Far: >100–1,000 m, and Reference: >1,000 m)."

However, as shown later in the report (table 8-1), this sampling regimen was not employed in 2021. Sampling only occurred at 12 of the 60+ monitoring sites that are part of the Project's Soil and Vegetation Monitoring Program (SVMP). Of these 12, 11 were in the 'Near Distance' category and 10 were at the Milne Port. No explanation is provided for the limited sampling that occurred in 2021.

On-going sampling at all monitoring sites, that are part of the program, is essential for detecting trends in metal concentrations or exceedances of thresholds that may pose a risk to the public and wildlife. The Report summarizes the 2021 monitoring results as follows:

> "Soil-metal concentrations at the Project predominantly indicated no net change (i.e., no significant increases) from the baseline values. Values were below or within an acceptable range for soil-metal concentrations. Lichen-metal concentrations had some discrete increases at the Project, but all sample locations were below or within an acceptable range for lichen-metal concentrations. As such, soil-metal and lichen-metal concentrations presently represent a low risk to environmental and human health." (EDI 2022, section 8.1.3)

These conclusions seemingly disregard some of the key findings of the 2021 SVMP and do not account for the limited sampling that occurred. For example, noting that sampling for this Program has so far only been undertaken for three years (2019-2021) during operation of the Project (i.e., effect years) and during baseline years. Also noting that, in 2021, the only sampling of sufficient intensity for statistical power occurred at the Milne Port, and at sites in the so-called "Near" distance category. Examining results for the Milne Port "Near distance category, there appear to be emerging trends of increases in soil concentrations of metals such as Arsenic and Lead (Figures 8-1 and 8-4). These emerging trends are also apparent in the metal concentrations in vegetation in "Near" distance category at Milne Port (Figures 8-7 and 8-11). If these trends continue over the life of the Project, soil concentrations of these metals could reach a point where they become a concern.

In reaching conclusions regarding soil and vegetation metal concentrations, the report fails to account for the limited sampling that occurred in 2021 and does not highlight these trends at Milne Port in the "Near" distance category; the only category for which sufficient data were collected in 2021. Trends for other project components (e.g., the mine and Tote Road) and distance categories may also be occurring but could not be detected because sampling did not take place. Finally, contrary to the report's conclusion that "Lichen-metal concentrations had some discrete increases at the Project", it should be noted that in the 2021 lichen metal concentrations at Milne Port (in the "Near" distance category) were above baseline for 3 of the 6 metals being monitored.

RECOMMENDATION(S)

The GN recommends that the Proponent:

1. Explain why, in 2021, soil and vegetation sampling for quantification of metal concentrations did not occur at all Program sites.
2. Confirm that sampling in 2022 will occur at all sites that are part of the Program.
3. Provide additional technical information explaining how trends of increasing metal concentrations at the Milne site will be monitored in order to differentiate between natural variation versus a Project-related effect.

GN AR # 03 – HELICOPTER TRAFFIC	
Department	Environment
Organization	Government of Nunavut
Subject/Topic	Helicopter Traffic
Terms and Conditions	NIRB Project Certificate 005 (Amendment 3) Terms and Conditions 59, 71, and 72
References	• Baffinland Iron Mines Corporation (BIMC). (2016). Terrestrial Environment Mitigation and Monitoring Plan. • Environmental Dynamics Inc (EDI). (2022). Mary River Project Terrestrial Environment 2021 Annual Monitoring Report. • Wilson and Wilmshurst (2019) *Rangifer*, 39: 27-42. DOI 10.7557/2.39.1.4586. • Wolfe *et al*. (2000). *Polar Research* 19: 63-13.

IDENTIFICATION OF ISSUE

In 2021, between May and September, 2 560 helicopter flights (totally 1 440 hours of flying) were made to support Project-related activities (EDI 2022, tables 5-2 and 5-7). Of these flights, 66% were below the minimum altitudes set by Project Certificate Terms and Conditions (TCs) for reducing disturbance of migratory birds and established in the Terrestrial Environment Mitigation and Monitoring Plan (TEMMP) to avoid disturbance of other wildlife (EDI 2022, table 5-4; BIMC 2016, section 3.3.2). Although most of these low-level flights had a rationale for flying below minimum altitude thresholds (and were therefore deemed compliant with PC TCs), low-level helicopter flights remain a potential source of disturbance to wildlife such as caribou (e.g., Wolfe et al. 2000; Wilson and Wilmshurst 2019).

In the 2021 Annual Report, the proponent provides a summary of the various rationales provided by pilots to justify flying below the minimum altitude thresholds. However, based on the information provided, it is unclear what specific constraints, such as regulations, safety, or ease of operations, were the basis for justifying low-level flying.

IMPORTANCE TO REVIEW AND SUPPORTING RATIONALE

Given the relatively high intensity of Project-related helicopter traffic, and the expectation that this will continue, it is important to understand the basis upon which low-level flying is being justified. In this regard the following comments are noted:

1. Table 5-6 (EDI 2022) indicates that 39% of Project-related helicopter hours were flown below altitude thresholds in 2021 with the justification that slinging operations were being

undertaken. It is unclear whether flying low during slinging operations is a regulatory requirement, or a decision made for other reasons. Table 5-5 (EDI 2022) states that slinging is performed at low-level for safety purposes, however, there do not appear to be regulations in this regard, and it is unclear what the specific safety concern is. With respect to aircraft safety, flying at a higher altitude would seem to provide greater safety to the crew given the ability to release a loaded sling and autorotate in the event of mechanical problems with the helicopter. Since the helicopters are flying over uninhabited areas, releasing a load at a higher altitude dose not pose a safety risk to persons on the ground.

2. Table 5-6 (EDI 2022) indicates that 2.3, 2.4 and 5.1% of flying occurred below altitude thresholds because they were “Short distance”, “Sampling” or “Drop-off/Pick-up” flights, respectively, that were of short time/distance and did do not allow enough time for flying above altitude thresholds. Noting that helicopters are capable of vertical take-off, it is unclear what constitutes a “short distance” or “short duration” as described in table 5-5 (EDI 2022).
3. Table 5-6 (EDI 2022) indicates that 6.7% of Project-related helicopter hours were flown below altitude thresholds in 2021 with the justification that flight altitude was restricted by weather conditions. It is unclear whether there are procedures in place to delay helicopter flights when weather does not permit flying above minimum flight altitudes. To what extent does the Proponent mitigate potential impacts of wildlife through flight delays?
4. Many of the flights displayed on maps 5-3, 5-4 and 5-5 (July, August, Sept) in the report (EDI 2022) are identified as having been flown below minimum altitude thresholds but were deemed compliant because of justification provided. These are shown as green flight lines. Many of these appear to be straight line point-to-point flights that vary in length from approximately 20 to 120km between sites. The GN disagrees that flights of this length are of short duration or distance. It is unclear how these low-level flights were deemed compliant, noting that Project Certificate TC #71 specifically refers to “point-to-point” helicopter traffic and the requirement to mitigate its impacts, subject to safety requirements. What specific safety requirements or regulations necessitated these low-level flights?

RECOMMENDATION(S)

The GN recommends that the Proponent:

1. Clarify what regulatory requirements or specific public/personnel safety concerns necessitate helicopters to fly below the minimum altitudes specified in Project Certificate Terms and Conditions when slinging loads. Please cite any regulatory sources being used in this justification.
2. Clarify what criteria (kilometers and/or minutes) are used to determine when a flight is of short enough distance or duration to justify (as per tables 5-5 and 5-6 of the report) flying below the minimum altitudes specified in Project Certificate.
3. Clarify whether the Project's management plans include procedures for delaying helicopter flights when weather conditions would not permit flying above the minimum altitudes specified in Project Certificate. Please provide information on the number of flights, if any, that were delayed for this reason in 2021.
4. Clarify how the point-to-point flights shown on maps 5-2 to 5-5 of the report were justified. These fights were below minimum altitudes specified in Project Certificate but considered compliant (shown in green). Please clarify what regulatory requirements or specific public/personnel safety concerns necessitated flying below the minimum altitudes.

AR # 04 – GROUND-LEVEL DUST MONITORING	
Department	Environment
Organization	Government of Nunavut
Subject/Topic	Ground-level Dustfall Monitoring
Terms and Conditions	NIRB Project Certificate No. 005 (Amendment 3) Terms and Conditions 36, 50, 54(d), and 58(c)
References	• Environmental Dynamics Inc (EDI). (2022). Mary River Project Terrestrial Environment 2021 Annual Monitoring Report.

IDENTIFICATION OF ISSUE

As part of a pilot program to address comments from the Project's Terrestrial Environment Working Group (TEWG) and annual report comments from the Qikiqtani Inuit Association (QIA), six dustfall monitors were deployed at 0.5 m above ground level in 2021. The purpose of these 'ground-level' monitors was to assess whether monitors deploy at the standard 2 m height were underestimating ground-level dustfall (EDI 2022). However, these 'ground-level' monitors may not accurately quantify dust distribution at true ground-level.

IMPORTANCE TO REVIEW AND SUPPORTING RATIONALE

The concern expressed by some TEWG members, including the QIA, was that collection cannisters deployed at 2 m above ground level would underestimate the spatial extent of dustfall. Dust deposited on the ground near the Project could be resuspended and redistributed further from the project over time via ground-level drifting from winds. This ground level drift of dust may not be captured by monitoring cannisters at a height of 2 m. To address this concern the Proponent deployed 6 collection cannisters in 2021 at a height of 0.5 m above ground-level (EDI 2022, section 7.3.1.3).

The report does not provide an explanation or rationale for selecting 0.5 m above ground-level as a height to deploy 'ground-level' monitors. Deployment at this height may not accurately quantify dustfall at true ground-level. Recognizing that cannisters deployed at lower heights have the potential be inundated with snow during some months, deployment of monitoring cannisters near or at true ground-level should still be considered, especially during snow free periods.

RECOMMENDATION(S)

The GN recommends that the Proponent:

1. Provide a rationale for selecting 0.5 m as the height to deploy 'ground-level' dustfall monitoring cannisters.
2. Consider deployment of cannisters at or nearer to true ground-level during snow-free months.