



October 13, 2020

Solomon Amuno
Technical Advisor II
Nunavut Impact Review Board
29 Mitik Street, PO Box 1360
Cambridge Bay, NU, X0B 0C0
Sent via email: info@nirb.ca

**Re: Baffinland Response to MHTO Comments on the 2019 NIRB Annual Report
Mary River Project, Project Certificate No. 005**

Dear Solomon,

Baffinland Iron Mines Corporation (Baffinland) is pleased to provide responses to comments provide to the Nunavut Impact Review Board (NIRB) on the 2019 Annual Report for the Mary River Project by the Mittimatalik Hunters and Trappers Organization (MHTO) on September 10, 2020.

Responses to comments received from the MHTO can be found in Attachment 1.

Baffinland appreciates the comments submitted by the MHTO on the 2019 Annual Report to NIRB and wishes to thank them for their ongoing engagement in the success of the Mary River Project.

Should you have any questions, please do not hesitate to contact the undersigned.

Regards,

A handwritten signature in blue ink that reads "Genevieve Morinville".

Genevieve Morinville
Manager Environmental, Social and Governance

Cc: Kelli Gillard, Cory Barker (NIRB)
Megan Lord-Hoyle, Lou Kamermans, Christopher Murray, Amanda McKenzie, Emma Malcolm,
Timothy Sewell (Baffinland)

Attachments

Attachment 1 - Baffinland Response to MHTO Comments

Attachment 2 – Excerpt from EDI (2018)

Attachment 3 – Terrestrial Environment Working Group February 2020 Meeting Minutes

Attachment 1

Baffinland Response to MHTO Comments



Table 1 - Response to MHTO's Comments on Baffinland's 2019 Annual Report to the NIRB

Cmt. #	Reviewer's Detailed Comment	MHTO Recommendations	Baffinland's Response
General Comments			
1	<p>The 2019 Annual Report submitted by Baffinland, overall, seems to lack a comprehensive assessment of impacts at a level of depth to be expected for a project of this scope and scale. The report provides information in a format that reflects "Performance on Project Certificate Condition", and for each ecosystemic component (i.e. Vegetation, Marine Environment, etc.) provides a table with the considered components, effects, monitoring programs, and finally the resulting assessment, most often the finding of "impacts within FEIS predictions". This does not easily allow for the integration of monitoring results or a discussion of monitoring program results except through the discussion of individual Project Certificate Conditions. It would be helpful to have an overview of monitoring program results, and reference there, where applicable, which terms and conditions are relevant to the program and/or results.</p> <p>In addition, the 25 supporting reports and studies appended to the Annual Report include information od 2020 terrestrial environment monitoring programs (as well as freshwater and marine environment) and permit applications to the MHTO in order to obtain a letter of support for 2020 programs. A letter of support from the MHTO to complete 2020 monitoring programs was subsequently provided to Baffinland on June 22, 2020.</p> <p>Baffinland welcomes input for consideration and accordingly requests that the MHTO specify what improvements they would like that are relevant to existing Mary River operations.</p> <p>Baffinland also notes that it has previously considered and integrated Elder and MHTO feedback into the study design for caribou Height of Land (HOL) survey</p>	<p>The MHTO requests that Baffinland consider compiling information in a manner that provides a comprehensive discussion and which integrates monitoring results across programs for various components of interest.</p>	<p>Baffinland's comprehensive monitoring program includes indicators for all of the VECs and VSECs that were identified in consultation with Project stakeholders throughout the Environmental Assessment process. Annual reporting includes several reports, not limited to: The Terrestrial Environment Annual Monitoring Report; the Marine Environmental Effects Monitoring Program and Aquatic Invasive Species Monitoring Report; the Ore Dock Construction Monitoring Report; the Nunavut Water Board/Qikiqtani Inuit Association Annual Report; the NIRB Annual Report; marine mammal monitoring reports (e.g. Bruce Head Shore-based Monitoring Report).</p> <p>This approach is consistent with the draft Post-Environmental Assessment Monitoring Plan put forth by the NIRB.</p> <p>Baffinland disagrees with the MHTO’s perspective that the current approach to reporting and summaries provided within its Annual Reports to the NIRB do not provide a comprehensive and integrated discussion of results. Baffinland therefore requests specific examples from the MHTO on how the reporting structure is not considered comprehensive as currently completed.</p> <p>Note that in January 2020, Baffinland requested feedback from the NIRB on Baffinland’s annual report structure for year 2019, including how best to present data in support of demonstrating compliance with all of the various terms and conditions associated with Project Certificate no. 005. It is Baffinland’s understanding that the NIRB is reviewing all existing reporting structures across all projects in Nunavut with the objective of making annual reporting to the NIRB structure consistent for all proponents. Baffinland awaits for further instructions for the structure of the 2020 reporting year, and thus remains open to suggestions by the NIRB on how best to further streamline the report structure.</p>
2	<p>The MHTO notes with concern, that the report lacks comprehensive integration of monitoring results, reporting, and findings from monitoring programs and data collection. Specific reporting on single conditions provides references to various reports, but this does not provide an adequate overview of the monitoring program related to say, narwhal, or dust, or the freshwater environment.</p> <p>Baffinland has not incorporated IQ adequately into its ongoing monitoring of the project effects, nor has it incorporated input from Inuit to inform its monitoring or mitigation measures in an acceptable manner.</p>	<p>(a) We request that going forward, for any meetings or discussions being logged as contributing to the collection of IQ or incorporation of IQ and community input into its programs, Baffinland keep minutes of all discussions with the MHTO or its members, and that these be submitted to the MHTO for confirmation, and to the NIRB as a part of future annual reporting.</p> <p>(b) We request Baffinland be required to develop a separate and distinct IQ collection and monitoring program, whereby it is continually checking in with not only the MHTO, but the community at large, to identify and incorporate Inuit knowledge and IQ to its programs.</p> <p>(c) The MHTO requests that Baffinland provide details around the existing community- based monitoring programs or initiatives it has emphasized, and how it has "put a strong emphasis" on it, and also that it confirm the "more diverse community- based monitoring initiatives" it has emphasized the development of, and how it has done so. Specific references and dates of meetings held, people involved, and programs discussed are requested.</p>	<p>(a) Baffinland commits to recording and sharing meeting minutes with the MHTO or its members being logged as contributing to the collection of IQ or incorporation of IQ and community input into its programs. It will be the MHTO’s responsibility to identify any disagreements with the meeting records to Baffinland. Baffinland will subsequently include these minutes as part of annual reporting efforts.</p> <p>(b) While the term ‘IQ’ is often used by Baffinland, it is typically used in a broad and inclusive manner akin to the NIRB’s definition of Inuit Qaujimajatuqangit. Baffinland seeks to gather ‘IQ’ through frequent and ongoing community engagement, where community members have the opportunity to share their unique knowledge and values in relation to the Project.</p> <p>Baffinland currently engages with the community of Pond Inlet through various forums throughout each year, as outlined in Section 2 of the 2019 Annual Report to the NIRB. Through community engagement and research, residents have often used their knowledge to share observations about the land, wildlife, and their communities; describe insights and concerns related to Inuit livelihood effects; and suggest ways these issues might be addressed.</p> <p>While Baffinland will remain open to further discussing this request, it is unclear how what the MHTO is proposing is any different than what is currently being conducted by Baffinland. Baffinland also notes that the Mary River Inuit Impact and Benefit Agreement (IIBA) prescribes the objectives for how IQ will be incorporated into the Project (Article 16.2) and provides guidance on the collection and use of IQ (Article 16.3), and ownership of IQ (Article 16.4). Baffinland therefore suggests that future discussions with the MHTO on this topic should include the QIA.</p> <p>(c) Baffinland is committed to maintaining and increasing Inuit participation in its environmental monitoring programs through time. Accordingly, as described in the 2019 Annual Report to the NIRB, Baffinland was able to realize a four-fold increase in the participation (Training and employment hours) of community members from North Baffin communities in marine monitoring programs from 2018 to 2019.</p> <p>Baffinland is also committed to supporting community-based monitoring initiatives. Accordingly, as described in Article 17.8 ‘Wildlife Monitoring Program’ of the most recently amended IIBA (October 22, 2018), Baffinland, recognizing the importance of involving communities in project monitoring, and the importance of wildlife to Inuit, has committed to providing \$200,000 annually towards monitoring activities developed in consideration of the research interests of Pond Inlet for a period of 10 years. Baffinland first provided funding to the MHTO in 2019 towards the Wildlife Monitoring Program. Baffinland is yet to see any results from the MHTO’s 2019 community-based monitoring program activities and subsequently has not been able to integrate any relevant learnings into its programs or potential considerations of Project-related effects on relevant Valued Ecosystem Components (VECs).</p> <p>Baffinland requests from the MHTO that a list be provided to Baffinland of all community-based monitoring projects based in Pond Inlet and associated results that may be relevant to Baffinland for consideration.</p>

Table 1 - Response to MHTO's Comments on Baffinland's 2019 Annual Report to the NIRB

Cmt. #	Reviewer's Detailed Comment	MHTO Recommendations	Baffinland's Response
		Inadequate Caribou Monitoring	
3	<p>The MHTO is concerned that if the information Baffinland uses to inform its understanding of project impacts is limited to results from its weak monitoring programs and incidental observations, we will not see any useful information from project-related monitoring and impact evaluation. If Baffinland is reliant upon data from the Government of Nunavut's regional surveying efforts to inform on Project level impacts, we request the GN confirm that approach is adequate for detecting those impacts. It is our understanding the last GN survey of Baffin Island caribou took place in or around 2014. The MHTO suggests Baffinland increase its effort, and develop and undertake a/an additional method(s) of monitoring to detect the presence of caribou and that it expand its survey area if caribou have not been detected at its few height of land stations over the past six years of effort. The presence of caribou is important to Inuit, and should be of high importance to the Project as well. Knowing where caribou are in relation to the Project is important, and where Baffinland's studies are not finding caribou to analyze whether activities are having an impact, we suggest they must look harder.</p>	<p>The MHTO requests that the NIRB require Baffinland to make immediate improvements to its terrestrial monitoring programs for the collection of caribou-specific data. The MHTO also requests that the NIRB require Baffinland to meet with us to discuss how it plans to update its monitoring, and further request that the Government of Nunavut make its regional biologist (or another equally qualified individual) and members of its staff responsible for designing its surveys, available for these discussions.</p>	<p>Baffinland notes that this comment is directed to the NIRB, but also offers the following for its consideration:</p> <p>Baffinland would like to highlight that it remains available to discussing any aspects of the current terrestrial monitoring programs along with the MHTO and particularly for the collection of caribou-specific data. Baffinland also remains open to discussing such aspects in a meeting with representatives from both the MHTO and the Government of Nunavut (GN).</p> <p>Baffinland notes that opportunities for discussing caribou monitoring program design are made available to several parties, including the Government of Nunavut and MHTO through the Terrestrial Environment Working Group (TEWG). Draft annual reports are sent for comment to TEWG members, including the GN and the MHTO. Reports are finalized based on input received, and requests for potential changes to existing programs are considered for the planning of future monitoring years.</p> <p>In 2020, Baffinland sent on May 15 via email an overview of planned 2020 terrestrial environment monitoring programs (as well as freshwater and marine environment) and permit applications to the MHTO in order to obtain a letter of support for 2020 programs. A letter of support from the MHTO to complete 2020 monitoring programs was subsequently provided to Baffinland on June 22, 2020.</p> <p>Baffinland welcomes input for consideration and accordingly requests that the MHTO specify what improvements they would like that are relevant to existing Mary River operations.</p> <p>Baffinland also notes that it has previously considered and integrated Elder and MHTO feedback into the study design for caribou Height of Land (HOL) surveys, as reported in EDI (2018). Feedback on caribou behaviour and guidance on how to look for caribou on the North Baffin landscape were provided in 2017 and subsequently incorporated during program implementation and reporting (EDI 2018). For additional context see Attachment 2 Excerpt from EDI (2018).</p> <p>Baffinland remains committed to supporting regional caribou monitoring initiatives. Accordingly, as part of the approved Northern Contaminants Program (NCP) project funding for the 2020-2021 Caribou Contaminant Monitoring Program, of which Baffinland Iron Mines Corporation is a collaborator, tissue samples of caribou harvested by hunters will be analyzed for metals, in addition to other potential contaminants. NCP project co-leads are currently working with the GN and hunters from Pond Inlet to secure tissue samples for analysis.</p> <p><u>Reference:</u> EDI Environmental Dynamics Inc. 2018. 2017 Terrestrial Environment Annual Monitoring Report. Prepared for Baffinland Iron Mines Corporation, Oakville, Ontario. 114 pp.</p>

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Cmt. #	Reviewer's Detailed Comment	MHTO Recommendations	Baffinland's Response
Dust Monitoring Program and Inuit Concerns			
4	<p>While Baffinland's 2019 Annual Report acknowledges that it has recorded "several years of exceedances of the predicted threshold levels for dustfall presented in the FEIS", and that it plans to reinstate vegetation and soils sampling programs, as well as utilizing a new dust suppressant, Baffinland has not indicated if or how it will improve its dust monitoring program and introduce additional mitigation measures. MHTO members have been impacted by dust many miles away from the mine site, in both terrestrial and marine settings. The MHTO has not seen where Baffinland has integrated Inuit reports and experiences of significant amounts of dust on snow and ice, into its ongoing monitoring and mitigation strategies. MHTO recommends Baffinland be required to consult with air quality experts at ECCC and with the MHTO to revise its monitoring and mitigation strategies to address the MHTO concerns around dust dispersion outside of the local project area, given the impacts to Inuit travelling many miles from the Project but being impacted by ore dust.</p> <p>The MHTO is also concerned that Table 4.6 Air Quality Impact Evaluation does not provide adequate impact evaluation for the components listed. For example, where the table lists "Earthworks, mining, hauling, stockpiling and transfer of ore", in the Impact Evaluation column, the Report states "Monitoring showed that although dustfall exceeded FEIS predictions at select locations, in general total annual dustfall across the Project area decreased in 2019." It is the same statement for "Haulage of ore and other traffic on the Tote Road", i.e. that "Monitoring showed that although dustfall exceeded FEIS predictions at select locations, exceedances decreased in 2019 as compared to 2018."</p> <p>This is telling us that for the first component, total dustfall decreased in 2019, and that for the second component, the instances of dustfall exceedances were less in 2019 than the previous year. This provides no information about the impacts of exceedances. It is clear, stated in fact, that dustfall exceeded FEIS predictions for both activities. In columns for other components, it states "within FEIS predictions", however this table does not even acknowledge in plain statements, "exceeds FEIS predictions", it provides ancillary information about comparison to last years' results - which were also above FEIS predictions. This is not helpful, or useful.</p> <p>Where is a discussion of the trends which may be resulting from Baffnland's reporting on "several years of exceedances"? Why has Baffinland put its vegetation and soils monitoring programs on hold until 2020? The MHTO finds this deeply concerning - first, that there is no discussion around trends, or an analysis of impact, and secondly, though no less serious, that Baffinland was allowed to suspend monitoring programs, on a component that has experienced exceedances against FEIS predictions for many years. What is the point of this monitoring program?</p>	<p>The MHTO requests the NIRB provide immediate direction to Baffinland, and that it undertake its own, or a third party analysis of data and results, and require Baffinland to work with ECCC and the MHTO on a path moving forward.</p>	<p>Baffinland notes that this comment is directed to the NIRB, but also offers the following for its consideration:</p> <p>Baffinland remains open to further discussing any aspects of the current terrestrial monitoring programs with the MHTO and Environment and Climate Change Canada (ECCC), including any concerns the MHTO may have related to dustfall.</p> <p>Third-party reviews are undertaken on an annual basis through the TEWG of which ECCC is a part of and during review of the Annual Report to the NIRB. The draft version of the 2019 Terrestrial Environment Annual Monitoring Report (TEAMR) was provided for comment to members of the TEWG on April 15, 2020. ECCC provided one editorial comment related to dustfall on the TEAMR but had no further comment on the overall program design or quality of results presented in the report.</p> <p>Baffinland also presented 2019 monitoring program results (including dustfall) as part of the Terrestrial Environment Working Group (TEWG) meeting held in February 2020 (see Attachment 3 for meeting minutes) which included attendance by ECCC and the MHTO. During this meeting, MHTO representatives indicated that they had no input on the dust monitoring program being implemented by Baffinland, stating the results of monitoring would not provide mitigation to the extent of dustfall they were seeing.</p> <p>Baffinland also notes that it has engaged with Natural Resources Canada to discuss details of its existing monitoring programs, including the potential use of satellite imagery to monitor dustfall extent. Progress on these discussions will be shared with the TEWG when relevant updates become available.</p> <p>Baffinland takes dust-related concerns seriously and accordingly has implemented new mitigation measures over the years to minimize dust emissions. Most recently, Baffinland has found and purchased a new dust suppressant that will be trialed in the coming months on the ore piles. A summary of all measures taken to date to reduce Project-related dust is available in Baffinland's recent submission to the NIRB on Aug 21, 2020 (200821-08MN053-BIMC Follow up Re NIRB Feb 2020 Site Visit). Baffinland will continue to provide additional information when relevant updates become available.</p>
Inadequate Ballast Water Monitoring and Sampling Protocol			
5	<p>Baffinland's 2019 Annual report indicated it identified a potentially invasive species "Marenzelleria viridis" (a mudflat worm found normally in southern Canada and overseas) in Milne Port and that further analysis was required. Given that these results were from 2019, the MHTO requests that analysis be completed and provided to our office immediately, along with an adaptive strategy which incorporates biota screening/sampling of ballast water and better monitors ballast release in Milne Port.</p> <p>unsatisfactory. It stated that biological monitoring of ballast water was not being considered for 2019, and that Baffinland's current ballast water sampling remains a voluntary measure that exceeds federal and international guidelines for ballast water management.</p> <p>The MHTO submits that these measures, while voluntary, are still not enough to protect our hunting grounds from potential introduction of invasive species which have the potential to seriously disrupt the food chain on which we depend. Given the identification of Marenzelleria viridis in 2019, and the possibility of this being a Project-related introduction of an invasive species,</p>	<p>The MHTO requests that Baffinland amend its monitoring program and sampling protocol to include "biota" in ballast water that may be introduced via releases in the RSA.</p> <p>The MHTO requests that Baffinland be required to immediately develop a program and commence biological sampling of ballast water to protect our marine environment from its shipping activities.</p>	<p>Baffinland had previously committed to implementing a biological ballast water sampling program based on guidance from Fisheries and Oceans Canada (DFO) and this was intended to be executed in 2020. Due to logistical limitations associated with COVID-19 (i.e., boarding restrictions on vessels), Baffinland was unable to complete this program in 2020.</p> <p>Baffinland and DFO have come to a resolution on this matter where the initially proposed biological monitoring pilot program has been replaced by a DFO-led field program in support of the development of a risk-based approach to future compliance monitoring to prevent the introduction of aquatic invasive species. The program, intended to be executed in 2021, involves DFO's expert ballast water team undertaking the work at Milne Port (Project-specific ballast tank biological sampling conducted on a subset of vessels calling to Milne Port). The sampling to be conducted will support building a body of knowledge for D-2 treatment systems. Understanding that the rationale for this program is tied to a learning curve associated with the use of ballast water treatment systems, the compliance sampling program and risk-based methodology will be adapted as deemed necessary based on the results of DFO's ballast water sampling program. Further updates on the program will be made available to the MHTO as relevant.</p> <p>Baffinland notes for the MHTO's reference that there are no Terms and Conditions or Federal regulations which require the implementation of biological sampling of ballast water prior to discharge in Milne Port. This commitment, along with ongoing salinity and temperature testing of ballast water conducted for the Project exceeds requirements. It is Baffinland's understanding that it is the only Port operator in Canada that requires this testing. These measures put in place by Baffinland are to be considered an additive best practice management measure for the protection of the marine environment.</p>

Table 1 - Response to MHTO's Comments on Baffinland's 2019 Annual Report to the NIRB

Cmt. #	Reviewer's Detailed Comment	MHTO Recommendations	Baffinland's Response
		Inadequate Marine Mammal Monitoring	
6	<p>Baffinland's marine mammal monitoring programs are inadequate to measure impacts, especially considering its continued and inadequately assessed use of icebreakers to support shoulder season shipping. Baffinland has not undertaken adequate monitoring of locally important seal populations and how the Mary River project may be affecting these species, given their value to Inuit and the ecosystem, nor for narwhal in the area.</p> <p>We would like to highlight QIA's comments to the 2018 Annual Report, specifically QIA 7 and 8, which noted that Baffinland had provided its approach to stakeholder engagement as a feedback loop, but it had not provided examples of how "Consideration of Feedback, Concerns and Local Knowledge" have been used to develop adaptive management. Where the objective is to "[f]ocus priorities so that potential adverse effects are mitigated and Project benefits are enhanced," QIA noted that local Inuit had reported impacts to ringed seals but little to no monitoring was being conducted, and that this appears contrary to the Proponent's stated objectives.</p> <p>Baffinland's response indicated "Marine mammal aerial surveys are planned for July and August 2019. This will include surveying for all marine mammal species in the RSA, including ringed seal, bearded seal, bowhead whale, narwhal, beluga, walrus and polar bear. Monitoring for ringed seal will also be conducted during the 2019 Ship-Based Observer monitoring program off of the MSV Botnica."</p> <p>We also note that the Ship Based Observer Report submitted with the 2019 Annual Report provides relative abundance numbers for seals, based on observer counts from the vessel. We are not convinced that opportunistic sightings can be relied upon for abundance counts. Furthermore, the MHTO does not agree that documenting observations of seals during Ship-Based Observer and aerial surveys can be substituted for a comprehensive and systematic seal monitoring program in the Regional Study Area.</p> <p>As is the case with narwhal, the presence of seals does not tell us whether or to what extent project shipping or other activities, or secondary impacts such as those to food chain dynamics, may have on the marine mammal populations that our subsistence harvest depends upon. It also does not address issues around body condition, overall health, demographic changes in population level, etc. It does not say anything about use of habitat, and without implementing proper systematic surveying techniques, we suggest it will not be possible to utilize the data in comparative analysis or identification of trends. These are the questions and issues we ask be considered in the context of the Mary River project activities and impacts to narwhal and seal.</p>	<p>The MHTO requests that Baffinland and DFO comment on whether aerial surveys are the most useful method for collecting information about seal abundance and distribution, and what else these types of surveys can tell us. We further request that Baffinland clarify its plan for the 2020 season and confirm what types of information it will learn from its monitoring planned for seal.</p> <p>We request that Baffinland be immediately required to develop and implement a comprehensive seal monitoring program, and that its narwhal monitoring program be revised to incorporate additional effects for consideration.</p>	<p>(a) Infrared and photographic aerial surveys are considered a reliable and accurate method for surveying ringed seal density during periods of ice-cover (see Yurkowski et al. 2019). Overall, disturbance effects on seals from shipping are expected to be limited to localized, temporary effects with no abandonment or long-term displacement behaviour effects anticipated, and no effects at the population level. Monitoring for potential changes in ringed seal densities in the Regional Study Area (RSA) during the spring period, before shipping commences are sufficient to evaluate the accuracy of this predicted effect.</p> <p>Marine mammal aerial surveys undertaken during the open-water period in August 2020 are not reliable tools for conducting seal density surveys since ringed seals are generally observed as single animals at this time of the year, which makes them difficult to spot due to their small size. Subsequently, ringed seal observations recorded during an open-water aerial survey may provide relative distribution information, but cannot be used to assess effects of Project shipping or provide reliable abundance estimates.</p> <p>Note that as part of Phase 2, Baffinland has committed to developing a ringed seal monitoring plan that incorporates Inuit perspectives into the design, planning and implementation phases. Development of the plan will take into consideration the most relevant methods for collecting information on seal abundance and distribution. Additional details on seal monitoring is provided in subsequent response below.</p> <p>Reference: Yurkowski, D.J., B.G. Young, J.B. Dunn and S.H. Ferguson. 2019. Spring distribution of ringed seals (<i>Pusa hispida</i>) in Eclipse Sound and Milne Inlet, Nunavut: implications for potential ice-breaking activities. Arctic Science 5: 54-61</p> <p>(b) Baffinland acknowledges comments it has heard from the MHTO regarding the need for dedicated ringed seal monitoring programs. As was most recently described in the Early Warning Indicator (EWI) technical memo submitted to the NIRB in August 2020 (200821-08MN053-Early Warning Indicator Technical Memo), ringed seals have not been prioritized for Project-effects monitoring give that the impact assessment identified a Level I magnitude for the effect of vessel noise on ringed seal with a high level of confidence (see Section 2.3; Baffinland 2013). As such, monitoring resources and effort for marine mammals has been focused on validating impact predictions on narwhal, where a greater level of uncertainty in the impact predictions existed.</p> <p>Baffinland also notes that the timing of the Project shipping does not overlap with any critical life cycle periods for seals (i.e. denning, pupping, nursing or mating periods), while it does overlap with the calving and nursing period for the Eclipse Sound narwhal stock. Again, this is why narwhal have been prioritized for Project effects monitoring. However, we would like to clarify that several of the ongoing monitoring programs (e.g. Aerial Survey Program and Ship-Board Observer Program) involve monitoring for ringed seal as well as all other marine mammal species occurring in the RSA.</p> <p>Following approval of Phase 2, Baffinland has committed to developing a ringed seal monitoring plan for Phase 2 that incorporates Inuit perspectives and effect pathways of concern into the design, planning and implementation phases. Baffinland would aim to complete the first year of monitoring in the first or second spring following approval of Phase 2, and this would be expected to be undertaken in collaboration with representatives of the MHTO.</p> <p>Baffinland will nonetheless consider the development of a targeted seal monitoring program should Phase 2 not be approved, however exact timing to develop such a program remains to be determined.</p> <p>Reference: Baffinland. 2013. Mary River Project-Addendum to the Final Environment Impact Statement.</p>

Table 1 - Response to MHTO's Comments on Baffinland's 2019 Annual Report to the NIRB

Cmt. #	Reviewer's Detailed Comment	MHTO Recommendations	Baffinland's Response
Icebreaking			
7	<p>Ice Breaking has not been properly scoped into the NIRB's assessment to date, and the MHTO requests that the Proponent cease use of ice breakers immediately, and until such time as the NIRB has undertaken appropriate assessment of this activity.</p> <p>Baffinland's 2019 Annual Report does not provide specific information around the use of icebreakers, the monitoring of impacts of this activity, except in terms of compliance to relevant Project Certificate conditions, referencing the use of its icebreaker to undertake the Ship Board Observer program, and the deployment of hydrophones to measure ship sounds and where possible, marine mammal vocalizations during early shoulder season shipping.</p> <p>The MHTO submits that Baffinland's use of icebreaking vessels has not undergone adequate assessment by the NIRB, nor has this activity been subject to the rigour of impact assessment by agencies with expertise that should occur before such a major activity occurs on an ongoing basis, as has been the case since 2018.</p> <p>We do not agree that Baffinland's use of icebreakers within the RSA can be permitted without the necessary assessment steps having occurred. During the Marine Environment Working Group teleconference held in June 2020, the MHTO raised this as a concern. Baffinland provided via email, a listing of references to various documents and meetings which purportedly would address this concern, and suggested it would not entertain further discussion of icebreaking during the subsequent MEWG call.</p> <p>We do not agree that the use of icebreakers to support ship movements from Eclipse Sound to Milne Port was included within the FEIS for the Early Revenue Phase, and request that Baffinland provide clear references to where the use of icebreakers has been included within the scope of either the ERP or Production Increase Proposal.</p> <p>We submit that Baffinland's identifying the shipping season dates (July 15 to October 15) per its response to QIA's annual report comment above, does not suggest that the use of icebreakers has been included or is implicit within the project's scope. We also submit that with the exception of the current consideration of Phase 2 activities, impact assessment, monitoring and specific mitigation around the use of icebreakers has not been included within the FEIS or FEIS Addendum documents filed with the NIRB. Annual Reporting documents are not a substitute for impact assessment which occurs prior to project approval.</p> <p>We submit that neither the prior assessments undertaken, nor the current ongoing monitoring programs provide adequate information on baseline conditions or consider impacts to: sea ice (as habitat, and a VEC), seals, marine mammals, or Inuit use of the marine environment, and/or harvest of country food as each of these relate to the use of icebreakers in the Regional Study Area.</p> <p>The MHTO is concerned that aside from limited comment on Baffinland's annual reporting, and recent comment on the Production Increase Proposal earlier this year, we have not had fulsome discussions of this issue before the NIRB. We are deeply concerned that Baffinland was not more transparent in the scope of its activities with the NIRB, and that other intervenors have not commented on the use of ice breakers nor the glaring fact that this activity has not been properly assessed. It is our understanding that the use of icebreakers is currently undergoing assessment and being considered within the Phase 2 proposal before the NIRB. This activity has not been appropriately considered or allowed to proceed in the systematic way that is required for major industrial development projects in Nunavut.</p>	<p>The MHTO requests that DFO confirm whether Term and Condition 183 provides a sufficient mechanism for ensuring the protection of marine mammals and the marine environment considering Baffinland's current ice breaking activities.</p> <p>The MHTO requests that if applicable, the NIRB provide an indication of where its Hearing Decision Reports or Project Certificates and Amendments specifically address the use of icebreakers within the Northern shipping route (Eclipse Sound - Pond Inlet - Milne Inlet). Additionally, if possible, the MHTO requests that the NIRB provide references to how ice breaking has been specifically included within the scope of its assessment for project effects associated with shipping via Milne Port.</p> <p>The MHTO remains opposed to winter shipping, including the use of icebreakers during shoulder seasons. We have not participated in impact assessment in respect of this activity, and request a meaningful opportunity to do so, prior to further use of icebreakers within the Northern shipping route.</p>	<p>Baffinland acknowledges the comments made by the MHTO and would like to reiterate that current operations approved under Project Certificate No. 005, including the recently approved Production Increase Proposal Extension Request, do not include any shipping activities through the Northern Shipping Route during the winter season.</p> <p>In practice, in order for Baffinland to ensure that the approved 6 million tonnes per annum ore production is exported over the limited shipping window (July 15 to approximately mid- to late October, dependent on prevailing ice conditions), Baffinland requires the use of an icebreaker at the beginning and the end of the shipping season to safely escort vessels to and from Milne Port along the Northern Shipping Route.</p> <p>Baffinland also notes the statement from the MHTO indicating that it has not been provided an opportunity to meaningfully participate in any impact assessment process with respect to the use of icebreakers is inaccurate. Rather, it is noted that most recently (January - February 2020) during NIRB's review of the Production Increase Proposal Extension Request, which included the use of icebreakers at the beginning and end of the shipping season, the MHTO participated in the technical comment review process, and indicated in their February 3 2020 letter, 'Mittimatalik Hunters and Trappers Organization Comments on Baffinland's Proposed Extension to Mary River Production' (200203-08MN053-MHTO Comments Re PI) addressed to the NIRB, the MHTO did not oppose the extension of the 6 million tonnes per annum project. The MHTO's current submission is not consistent with previous participation in relevant NIRB review processes.</p>

Attachment 2

Excerpt from EDI (2018)

Section 4.3.2.1 Inuit Qaujimagatuqangit (EDI 2018)

Recent and historical caribou use in the area

- Caribou have historically crossed through the valley where the Tote Road is located and are often found in adjacent valleys in the Milne area (historic crossings at km 26, 60, 63 and 83).
- Popular summer and winter areas for caribou exist in adjacent valleys on the east side of the Tote Road. Also, caribou have been seen calving on the slopes in June and tend to hide in other nearby valleys during windy periods.
- Caribou have historically been seen (50 years ago) in spring around a lake adjacent to the Tote Road near km 51–52 and there are some places with open water all year around km 51 of the Tote Road, where caribou have historically been known to frequent.
- Greater numbers of caribou will move back into north Baffin over the next 10 years or so.

Caribou behaviour

- When windy, male caribou sometimes go down into valleys to hide from wind, but pregnant females usually stay on top of hills because they don't want to walk up and down as much.
- In the morning caribou are more active and can be seen walking around and feeding, whereas around noon time they are often seen sitting and resting.
- Caribou are more active around 2:30/3:00 AM, because there are less bugs and it's easier to see when they are walking around.
- Caribou tend to dislike loud sudden sounds such as blasting; however, quieter, more constant sounds such as trucks driving on the road don't seem to bother them as much.

How to look for caribou on the North Baffin landscape

- From a distance, caribou look white like snow geese at this time of year with a bit of brown on top. When seen against the snow, they look light brown, and when seen against the land they tend to look whiter.
- Calves are born brown and can be seen running around. In spring, caribou split apart into individuals or small groups, and in fall/winter they tend to group together in groups of 30–40.
- Suggest to look for caribou on gentler rolling slopes as opposed to steeper rockier slopes. Look on top of slopes with more vegetation and less rocks, as they contain more food resources.

Feedback from MHTO Elder on Study Design

- Indication that 20 minutes or more at each HOL survey site was sufficient.
- Preference to survey for longer than 20 minutes as HOL stations with viewsheds that contain prime caribou habitat such as gentler rolling slopes where caribou are known to historically frequent, as opposed to steeper rockier slopes where caribou would more likely just be passing through
- Coverage of the area is more important than the amount of time spent at each station.

Reference:

EDI Environmental Dynamics Inc. 2018. 2017 Terrestrial Environment Annual Monitoring Report. Prepared for Baffinland Iron Mines Corporation, Oakville, Ontario. 114 pp.

Attachment 3

Terrestrial Environment Working Group February 2020 Meeting
Minutes

Terrestrial Environment Working Group (TEWG) Final Meeting Minutes

Date: February 26, 2020

9:00 am – 5:00 pm (EST)

Location: Lord Elgin Hotel - 100 Elgin St, Ottawa, ON

Call-In Number: +1-416-814-2855 **Meeting ID:** 064701805

Member Organization	Participants		Member Organization	Participants	
Baffinland Iron Mines Corporation (Baffinland)	Lou Kamermans (LK)	I	Qikiqtani Inuit Association (QIA) and Consultants	Jeff Higdon (JH)	I
	Genevieve Morinville (GM)	I		Jared Ottenhof (JO)	N
	Emma Malcolm (EM)	I		Bruce Stewart (BS)	I
	Kendra Button (KB)	I		Susan Leech (SL)	I
Mittimatalik Hunters and Trappers Organization (MHTO)	Phanuel Enooagak (PE)	I	Observer Organization	Participants	
	Enookie Inuarak (EI)	I	Canadian Northern Economic Development Agency (CANNOR)	Arusa Shafi (ASh)	I
	Amanda Hanson-Main (AHM)	P		Adrian Paradis (AP)	N
			Natural Resources Canada (NRCan)	Camille Ouellet-Dallaire (COD)	I
Environment and Climate Change Canada (ECCC)	JF Dufour (JD)	N	World Wildlife Fund – Canada (WWF)	Andrew Dumbrille (AD)	N
	Paul Smith (PS)	I		Brandon Laforest (BL)	N
Government of Nunavut (GN) and Consultants	Brad Pirie (BP)	I	Nunavut Impact Review Board (NIRB)	Solomon Amuno (SA1)	N
	John Ringrose (JR)	N		Cory Barker (CB)	N
	Natalie O’Grady (NO)	I			
	Stephen Atkinson (SA)	I			
			Baffinland Consultants	Participants	
			Environmental Dynamics Inc. (EDI)	Mike Setterington (MS)	I
				Lyndsay Doetzel (LD)	I
				Brett Pacagz (BP)	I

P - phone in participation, **I** – In person, **N** - Not attending

****Updated to reflect comments provided by QIA on draft meeting minutes****

Discussion and Comments
Baffinland Update
<p><i>Baffinland (LK) welcomes all participants from member and observer organizations, and provides a safety share on incoming bad weather, slips, trips and fall and associated caution when traveling.</i></p>
<p><i>LK also shares Baffinland's recent adoption of Inuit Societal Values into its corporate value system. Many of these apply specifically to the functions of the Working Group and should be considered in discussions throughout the day.</i></p>
<p>LK: Once a summary of Baffinland's operations is discussed, the focus of the morning's discussion will be on the Terrestrial Environment Working Group (TEWG) Terms of Reference (ToR) in order to allow adequate time for suitable discussions.</p>
<p><i>Baffinland (LK) presents an update on Baffinland 2019 activities, as described below.</i></p> <p><u>2019 Production Overview:</u></p> <p>LK: We had a target of 6 million tonnes for year 2019. We were able to ship 5,861,277 tonnes during the shipping season out of Milne Port. To provide some context on trucking activities on the Tote Road, there were on average, 238 ore transits per day, 43 other Project-related transits (i.e. personnel transfers, etc), which brings the total to a daily average of all Project vehicles to 281.</p> <p><u>Response to 2018-2019 NIRB Recommendations</u></p> <p>LK: One of the Nunavut Impact Review Board (NIRB) recommendations in their 2018-2019 Annual Report was specific to dust management and the need to provide the design of the Dust Stop® trials which were initiated in September 2019. Improved dust suppression was visually observed over a three-day period throughout the application zones. Additional applications are planned for 2020.</p> <p>LK: Another NIRB recommendation was with regards to studying baseline metal levels in foraging caribou with a request for Baffinland to develop a timeline in conjunction with the GN, MHTO to complete development of a sampling protocol and study methodology to monitor metals in organ tissue from caribou or other wildlife harvested in the Regional Study Area (RSA). Baffinland is seeking to work with Mary Gamberg from Gamberg Consulting who has implemented numerous caribou tissue sampling programs throughout Canada's Northern regions through funding received by Northern Contaminants Program. An application has been submitted to obtain funding through this same Program, which is currently under review. Next steps will be planned based on outcome of application, and this will include engagement with the MHTO.</p> <p>JH: The GN has closed caribou hunting for 2020, so I do not think you will be able to actually complete that sampling this year.</p> <p>BP: Actually it is only closed until June 2019.</p> <p>SL: For tissue sampling, would you only run this program if you get funding?</p> <p>EM: This is the first mechanism that we have pursued for trying to implement this program. BIM has also provided a portion of funding for the application. If we are not successful in getting funding, then we would look at other means for meeting this term and condition.</p> <p>SA: Can we be provided a copy of the study design?</p> <p>LK: Yes, if the study goes ahead we could have Mary come in to give a presentation to the TEWG.</p> <p>SA: The program is Baffinland's responsibility to complete though, correct?</p>

SL: Yes – you should show that you have a back-up plan in place to meet the term and condition if funding is not approved.

LK: We believe the current course of action proposed will most effectively integrate all relevant parties (e.g. the GN and MHTO) into the monitoring programs. We will consider alternatives as needed.

SA: The spatial component of where caribou are harvested will be important. I also wonder whether it will be important to sample rumen as well, because it will give you a sense of what caribou have eaten in the past 24 hours or so.

TEWG Terms of Reference (ToR)

LK: Baffinland submitted an updated ToR on October 15 2019 as part of our response to Final Written Submissions (FWS) for Phase 2. We discussed this yesterday in the MEWG meeting and a path forward was agreed upon. It was decided with that group that the GN would provide an updated draft that takes into consideration the version submitted by BIM in October, and then will circulate for comment to the TEWG with the expectation that all parties provide feedback by April 3. Once all comments are received, BIM will release a final draft, recognizing that ultimately responsibility for the governance of these Working Groups sits with Baffinland.

SL: Do you have a summary of the areas of alignment versus areas that are still outstanding?

LK: We are going to work with the GN to better characterize where there is agreement or disagreement regarding the ToR. They will include a preamble as part of that submission. **(ACTION)**

Government of Nunavut Regional Monitoring MoU Update

LK: We are continuing to make progress on finalizing the Memorandum of Understanding with the GN for regional caribou monitoring. We will be offering in-kind support to GN for the Spring 2020 composition surveys, and a collaring program if it receives support from the Hunters and Trappers Organizations (HTOs).

Inuit Participation in 2019 Monitoring

LK: We continue to improve Inuit participation in our monitoring programs in 2019. Improvements in this area is a continuous goal for us to get our numbers up and we will continue to share updates about this.

2019 Draft Terrestrial Environment Annual Monitoring Report

Draft Report will be provided to the TEWG in the near-term for review and comment. And we will provide responses to all comments. Review of all the changes that have occurred to the programs as a result of TEWG feedback is considered and is captured in the updates to the Terrestrial Environment Mitigation and Monitoring Plan (TEMMP) and/or the most recent terrestrial annual report. We track what changes are being made to the programs and why, so that we have a historical record of feedback received and rationale to support any changes that have been made.

*****ACTIONS*****

1. **GN** to distribute to all TEWG members the latest draft of ToR submitted by Baffinland in October 2019 as part of P2 Final Written Responses package to the NIRB, along with their newest recommended changes, and all previous track changes made. Date of distribution to MEWG and TEWG members proposed is by March 6, 2020, with the expectation that all parties will provide feedback by April 3, 2020 for Baffinland to consider.

2019 Terrestrial Monitoring Program Overview

Bird Monitoring

Red knot Monitoring

MS: Baffinland contributed to regional red knot monitoring with Environment and Climate Change Canada (ECCC) in 2019. There are three NIRB Project Certificate No. 005 Terms and Conditions that govern the red knot and SAR monitoring: 67, 73 and 74. These will continue to be relevant as new Species at Risk (SAR) are identified throughout the life of the Project. These programs are designed as detection surveys. There are two subspecies of red knot on Baffin Island, one of which is endangered and one of which is listed as special concern. Baffinland supported deployment of continuous red knot recorders in 2019 to identify whether or not there are any red knot within the Project area.

Pre-clearing Active Migratory Bird Nest Surveys

MS: Baffinland also conducts pre-clearance surveys before any construction is undertaken within the Project Development Area (PDA) throughout the summer. This is done in accordance with Project Conditions (PC) 66 and 70. If nests are found, we are required to set up species-specific buffer zones and cannot proceed with construction until migratory birds have fled their nests. Site team uses rope drags to be able to identify any nests. If construction does not occur within 5 days of the clearance surveys, the survey will be rerun before any construction can start.

ECCC also recently also asked to start reporting on how much clearing work is done outside of the breeding bird window acknowledging that the best mitigation is to just avoid this period altogether. In 2019, 77% of clearance work occurred outside of the breeding bird window.

Raptor Occupancy and Productivity

MS: The other monitoring that is done for birds is the running of raptor occupancy and productivity surveys to meet objectives of PC 74 and 75. Peregrine falcon are a good indicator because they have been nesting in the area for thousands of years. Cliff-nesting raptors may move from time to time, we have about 300 nests mapped from Steensby Inlet to Milne Port. The objective of this monitoring program is to distinguish Project effects on raptor occupancy and productivity from natural variation.

There are 165 nesting sites that are surveyed in and near the Project. The gyrfalcon is no longer a good indicator species because we have only seen six gyrfalcon's since the start of the project, and this also falls outside of our monitoring season. One collared lemming was caught during 2,880 trap nights of small mammal monitoring. We continue to see a cycle where some years we are seeing a lot of lemmings and the next year the population drops quite significantly.

Results are showing that we are not seeing any Project effects in terms of distance from the Project. In other words, occupancy levels are consistent with reference sites, so changes in population levels do not seem to be related to the Project. We have also seen that rough-legged hawks might be a good indicator species as well. There is a lot of research being gathered through this program that go beyond Project effects monitoring needs. We also monitor for reproductive success by looking at the number of eggs in each nest.

JH: Have you seen any caribou while doing raptor surveys?

MS: No.

SL: Do you look at variation in reproductive success and occupancy proximity to the mine site itself, including variation relative to heavily active areas versus areas that are further away?

MS: Yes. That is one of the key aspects of the program design to understand how varying distances affect these variables.

SL: Can you point us to where we can find that type of information in the report. I am curious to know if you are picking up that kind of information

MS: The study design has been set up with enough power to detect that if changes are occurring we would definitely pick up those changes.

PE: We used to have a lot of snow geese around the Port. Do you still see those at Milne Port? Is it still like that? Are the snow geese nesting there?

MS: We do not monitor specifically for snow geese. We see most of the molting geese near the lakes south of the mine site.

KB: Most of the snow geese you will see at Phillips Creek near the Milne Port. We also see them around KM 20 along the Tote Road. We also see snow geese at the airport where there is pooling water near the airport. We will see them during the open-water season. We have not seen any nesting that I know of within visual observation range. They are usually just resting.

MS: When we started doing the baseline work we looked specifically for nesting snow geese, we did find some individual nests at Milne Port, but not significant numbers; more so down at Steenby Inlet. We would also see them on the lake south of the Mine Site molting.

ECCC and Baffinland Collaboration on Red Knot

PS provides an update on the recent ECCC and Baffinland collaboration on red knot.

PS: ECCC also just launched the Inuit Field training program that I will touch on briefly.

BS: Do you have a PDF you can share of this presentation?

PS: Yes, we can share a copy of this. **(ACTION)**

PS: The red knot population have declined over the last 40 years. There is an area of overlap between the subspecies in the North Baffin area. We do know that red knot can go as far north as the Mine Site, however we do not know if it is a regular habitat for them, or if detections have been more of anomalies. In response, we deployed nine Automatic recording units in the summer of 2019. This allowed for continuous recording from end of May to early October.

PE: Which species are you referring to? Sandpipers usually appear in the fall when it is getting colder and they appear along the shoreline. What are the sandpipers that you are studying by the shore? They are never on mainland.

PS: It could be a translation issue. There are few different types of sandpipers. The names used are sometimes different in different communities.

PE: You will see those red sandpipers along swamps and lakes and rivers. They are a smaller species. There are two other species, which are similar but smaller than the sandpiper but they only appear in the fall. We do not know where they nest because they only appear in the fall.

PS: That's what we have observed as well. They will nest inland away from other birds, and then they will fly to wetlands like in the areas you have suggested to feed. We have been using technology to help better track this.

PS: So we put the recorders in different habitat areas. Recorders were analyzed with an automatic recognizer that was conservative to ensure we were able to manually analyze any sounds that may be red knots. This was a very significant effort, and in these recordings, we never heard once a red knot. It is therefore the opinion of ECCC, that this level of effort was appropriate for determining that there are no red knots in the RSA.

PS: One of the good things about this dataset is that, we will be able to go back to it in order to identify if the species that are listed as SAR throughout the life of the Project to check if those species are present in the RSA.

PS: BIM has also contributed to the Program for Regional and International Shorebird Monitoring (PRISM) surveys across the Arctic, and that program is now complete. We are now able to assess densities for these populations. We are also able to better characterize Project effects, by pooling data across mine sites so that we can examine whether or not there are trends occurring in terms of how mining activities are affecting bird populations. Basically using pooled data, we are looking to see how densities change as you get farther and farther away from the mine. Preliminary findings suggest that birds are continuing to use habitats even in areas near mine sites.

PS: The other thing I want to discuss is the Inuit Field Training Program that ECCC has started up. Our hope over time is that this will increase capacity for Inuit environmental monitors within Nunavut communities. Baffinland has contributed to both terrestrial and shorebird surveys which has allowed us to increase overall funding. We now have multiple Natural Sciences and Engineering Research Council of Canada (NSERC) funding and we now might be able to use funding to investigate additional research questions.

SL: I'm curious to know what the scope of the funding activities are? I'm wondering if some of this funding could be used to further assess the recordings we have already collected.

PS: Potentially. For example, we were thinking of having a graduate student assess which times bird recordings are most present and then you could improve future monitoring efforts to have them focused on times when there is a temporal overlap. The scope of the programs is pretty broad, with a focus on areas within our expertise.

SL: So if we have ideas we can bring them to the group. Because it would be worthwhile figuring out what we think are priorities.

BS: Have you considered deploying the continuous receivers at Steensby Inlet so that you have baseline?

PS: Yes, that is something that might be worthwhile to consider. We are interested in that but it would not be a requirement in my view.

BS: My understanding is that Baffinland is planning to have Steensby Port running by 2024, so it would be helpful to get that baseline now.

JH: As far as Steensby Port goes, there is a need in the Project certificate where baseline is required, but it not specific to red knots.

PS: With regards to baseline. We did establish a camp of Charles island so we do have the ability to support with some baseline data collection.

LK: We are turning our eyes more towards the Steensby Port. Our plan is to first develop Phase 2 and then transition those construction crews to Steensby area. Once we have a firm timeline we will bring those plans to collect additional baseline.

COD: I am wondering if you could use the recorders to look at incidental observations for other species?

PS: I am not sure if there is enough vocalization from caribou to be able to detect this.

JH: Were any wolf howls picked up on the recorder?

PS: We haven't looked at that, but that is a good idea.

SL: We talked about the potential for using monitoring stations for looking at carnivore abundance.

Because of the timing between these meetings it would be helpful to meet and find out what the effects are of the mine.

PS: I am open to whatever framework people prefer. Obviously the mine would also need to be part of those conversations.

Dustfall

LD: Relevant PC Conditions: 54, 36, 50 and 58c require Baffinland to undertake dustfall monitoring and outline the reporting requirements. This program is strictly based on passive dustfall samplers. One of the biggest contributors to dustfall is the trucking operation. So we track all the truck transits both the ore

haul trucks and other vehicles (i.e. trucks, buses, freight, etc.). The total average number of transits per day was 238. This was quite similar to the predicted amount of transits for 2019, which was 236. When you see the final report, you will note also note we have included the number of transits anticipated and then the actual average.

2019 Dustfall Expansion Sites

LD: At the request of the MHTO and QIA we added 6 new additional dustfall stations - at 30m, 100m, 1000m and 5000m.

2019 Dustfall Mitigation

LD: Some of the mitigations employed in 2019 included continuous installation of the shrouding at crusher circuit transfer (which began in 2018). Baffinland is also monitoring drop heights to reduce the size of the dust plume generated during loading. Baffinland is also continued to update the ore pad design to ensure that fines are kept within the centre of the stockpile to the extent possible. There are also efforts to minimize truck transits to the extent possible. There was also the dust stop trial in 2019; the product was shown to reduce dust kick up from truck tires.

Dustfall Magnitude and Extent

Various slides showing results on magnitude and extent of dustfall at Mine Site, along Tote Road and Milne Port, dustfall sites 1 km from PDA, Seasonal Dustfall and Annual Dustfall Trends are presented by LD.

LD: There were questions from the MHTO/GN last year on whether it would be better to have ground level dust fall monitoring, instead of 2m high. If you are on ground level, you can end up with dustfall that is actually a result of other disturbances (i.e. animals). Keeping it at 2m high allows you to better discriminate for Project effects. And you would also have to standardize your sites to account for varying types of vegetation. Essentially having dustfall stations at ground level would introduce a lot more uncertainty into the study design.

LD: Three sample locations, near, far and reference at Mine site. No distance categories at Milne Port. 30, 100, 1000 and 5000 from Tote Road. We also spent additional effort in 2019 analyzing 1-km distance sites from the Tote Road.

LD: The primary dustfall sources at the Mine Site are the airstrip, crusher and traffic on the mine haul road. At Milne Port the greatest sources are the ore pad, quarry, Tote Road, sealift traffic, equipment pad. Dust along the Tote Road continues to be higher at the south crossing than north crossing.

PS: Is the dotted line the detection limit.

LD: Yes – it is 0.1 mg/dm (decimeter) per day.

PS: Has anyone ever tried to establish what would be considered a threshold for dustfall. In other words to establish what would be considered an environmentally significant level of dustfall?

LD: There is not a level of dustfall specifically that is a concern, instead this is monitored through the receiving environment to see whether or not dustfall is affecting the environment.

LD: In all sites at the Port we are seeing higher levels of dustfall in the summer, which is primarily attributed to ship loading. Similarly, sites were higher at the Tote Road in the summer. What we see along the road is that winter dustfall is consistent year-over-year. Dustfall along the road seems to be fairly influenced by weather. For example, in 2018, it was a cool and rainy summer and it kept the dustfall levels down.

SL: This is a lot of data to take in. There seems to be two main sources of dust, dust from the ore and dust from truck traffic. Yes, there may be some sources of noise if you reduced the height of the dustfall

samplers. We really need to understand what the effect on the quality of the vegetation is further than 1 km outside the road.

LD: As far as teasing apart ore dust and vehicle dust, we do that as best we can, by the placement of the dustfall samplers (i.e., we know that one is along the road are associated with vehicular traffic). If we were to investigate varying heights of where dustfall samplers would be, that wouldn't necessarily be relevant to Project-effects monitoring.

BP: We are going to be looking at a relationship between metals in dustfall versus what is in the vegetation. So this will help us better understand the effect.

SA: If you think about how dust is generated and falls, it seems like if you are monitoring at 2 m. You're going to be missing a lot of information, because dust redistributes when it falls. So you may be missing out on the extent. Why not put different height stations at the same site which may allow you to compare if your results are the same at 1 m vs 2 m height samplers.

LD: Realistically 2m is a standardized height that all jurisdictions use, so by leaving them at 2m we are able to compare to other projects, etc. Doing what you propose is really just establishing a research project. It does not mean we cannot do it, but it will run the risk of creating additional uncertainty in the 1-m dataset.

SA: It is important to better understand the spatial scale of dust from the Project to be able to see how dustfall deposition and dispersion is affecting caribou forage.

PS: ECCC's position on another mine site was to use the standardized approach (i.e., setting dust samplers at 2 m) and not a non-standardized method (i.e., 1 m; though ECCC did not explicitly indicate that both could not be done).

LD: There is vegetation monitoring that partners with this dataset, so we could expand the dustfall monitoring program, but we are doing vegetation monitoring that goes hand in hand with this.

SL: Ok, should we get the Working Group's perspective on whether or not we should do this?

LD: Why do we not wait until we hear the vegetation presentation this afternoon so we are working with a complete set of information before we further evaluate the need.

BS: Inconsistent y-axis scales on the figures are obscuring data differences among the mine, port, and tote road sites by preventing direct comparisons (e.g., Master presentation slide 34 of 127). This problem was identified in comments on the 2018 Terrestrial Environment Monitoring Report. Where figures are provided for comparison the y-scales should be consistent to facilitate comparisons.

LD: Ok, we can think about this. **(ACTION)**

LD: Consistent trend year-over-year is that dustfall is higher in the summer than the winter, particularly at Tote Road and Milne Port. All dustfall stations at the Mine site were predicted to experience high levels of deposition.

LD: Dustfall was generally higher this year near the ore haul road than at the airstrip at the Mine Site, dustfall was higher in general at Milne Port in 2019. Dustfall at 1 km was measured at 12 sites in 2019; low at all sites. In 2020 we are looking to expand geographic distance of the program to better assess spatial extent and investigate ways to better mitigate historically dustier areas.

SA: You mentioned plans for future monitoring – I was wondering if you have given any thought to baseline monitoring for dustfall along the railway.

LD: As we look at where to deploy additional dust fall monitors at Milne Port, we have been looking to design these to account for potential infrastructure associated with Phase 2 (e.g. the rail yard). We have not planned specifically for doing baseline along the railway at this point.

Vegetation

Various slides showing methods and results on various vegetation monitoring efforts undertaken in 2019 are presented by BP.

Vegetation Abundance

BP: There are three vegetation monitoring programs for vegetation: abundance, vegetation and soil base metals and exotic invasive. PCs 36, 38 and 50 govern the vegetation abundance monitoring program. The objective of the program is to monitor percent cover and group composition of available caribou forage within the RSA to track potential changes at varying distances along the edge of the PDA. Nine new reference sites were added for the vegetation abundance monitoring to minimize confidence intervals and reduce variability among reference sites. This was done based on a previous recommendation made by the GN.

BP: We also conducted a soil moisture study in 2019 in response to ECCC comments on the 2018 draft monitoring report. To assess soil moisture, we dug soil pits. Within each soil pit we looked at several variables to characterize 7 moistures within the drainage pits. There were a total of 15 reference sites. And 75 monitoring sites. This design was chosen based on the hypothesis that vegetation near the project site would be more affected than areas away from the PDA. We looked at 30 m, 100 m, 750 m, and 1200 m. We are looking at Moist to Dry Non-Tussock Graminoid/Dwarf Shrub. This habitat type was selected based on relative abundance and use as caribou forage. In 2019 we monitored a total of 179 plots; with 100 measurements in the ground layer and 100 measurements in the canopy layer.

PS: How do you know what is canopy and what is ground layer?

BP: In the tundra it is fairly easy to visually distinguish this. The canopy layer is the first plants – what we constitute as the ground layer is anything below the canopy, but also using understanding of what are considered ground layer plants (i.e., moss).

BP: In 2019 we conducted a five-year trend analysis.

COD: When you say that you put in a cage, is it installed at the time of sampling?

BP: No, the closed plots are permanent. They are designed to ensure there are as few confounding variables as possible. At each plot there is a closed site and an open site.

BP: What we found is that in the last five years, there is no significant difference in ground covers. Where changes were seen, they were happening as well as at reference sites; indicating that there is not a Project effect. We would say there is a Project effect if we saw differences across the different distance classes. Differences were small and consistent across difference classes.

PS: Can you clarify what you mean by ground cover?

BP: The percent total ground cover includes any vegetation that is hit within that ground cover. We exclude rocks, algae, etc. They were considered a targeted forage input.

BP: We saw a difference in total percent canopy cover. There were changes over the five-year period among the years, and at different distance classes; however, there was no consistency or no obvious trends at this point that would indicate a Project-related effect. We also assessed our open versus closed plots. Overall no differences were found in the data between open and closed plots. We did find some suggestive evidence of higher cover in the open plots than the closed plots. In the ground layer, we focused our assessment on evergreen shrubs, lichen and moss and ground litter. We did see differences in cover across years, but the general trend was that these were consistent across all distance categories. Based on this we do not think this is representative of a Project effect, but rather natural variation. There was also evidence of a year effect on both lichen and moss when comparing 2014 relative to the other years. I suspect the difference is due to higher variability in the data, because we had less than half the sample size in 2014.

COD: Is the mixed linear model appropriate for assessing this data? I would suggest to look at different types of analysis that you do not have to normalize.

BP: I am not the biostatistician who designed this, so I would need to look into this more.

PS: A mixed model has a random effect. Do you know what that is? I am struggling to understand where that would not be considered significantly higher. This is why I suggested you look at moisture, because I think there might be differences in habitat type between the Tote Road and the Reference sites.

BP: Results of the soil moisture study shows that we did not find any difference in moisture across distance classes. The majority of the sites had average to above average soil moisture. Only about 7-9% were considered wet.

PS: How was the soil moisture class established?

BP: It is based on standards from across Canada (BC, Yukon, Ontario and NWT).

SL: Does your list of reference sites include the new reference sites? If you take out the reference sites, do you have a different percentage of wet sites?

BP: Our statistician ran an ANOVA to see if the new reference sites would bias those results. But she verified that we did not have a bias there.

PS: When I look at this table, you should be using a different way for assessing averages. This really could be the reason you are seeing the differences between the distance classes. Even if the mean is the same, the distribution is different. You could relate moisture category as a predictor in your model. I will follow up with the biostatistician about this. **(ACTION)**

BP: Based on the summary of results, we are proposing delaying vegetation monitoring until 2021.

SL: Can we discuss resuming vegetation abundance monitoring further.

PS: Is there any way to put your vegetation bands into dustfall distance classes?

BP: With the vegetation abundance monitoring program, when we designed it we were using all available information (e.g. dust isopleth modelling) and literature to select the distance categories.

PS: I am wondering if you have the ability to measure the veg plots that are near the dustfall samplers as possible.

BP: They are as close as possible, but we do have plots in near distance categories close to the 30 m samplers in areas that are historically dustier.

PS: It would be helpful to actually have results that compare vegetation abundance to dust.

SA: I agree, it would be good to use dust as a categorical variable, instead of distance.

BP: I think KM 80 is where that gap is that we could fill that.

SL: Could you pull out sites that are near higher dust areas?

BP: We did pull this for the metals monitoring, but for vegetation abundance, we were limited. We would have a limited number of plots to do this with. It's probably best to start with by doing this near the road. I will make a note of that. **(ACTION)**

Vegetation and Soil Base Metals

Various slides showing methods and results on vegetation and soil base metals are presented by BP.

BP: PC Conditions 34, 36, 38 and 50 dictate requirement for soil and vegetation metal monitoring. Baseline sampling was conducted from 2012-2016. In 2015, we did a power analysis to determine the minimum number of sites required to assess project effects. We focused on 6 metals. We determined these based on baseline metals, what metals were present in the ore, literature review, etc. 2019 marks the first post-baseline monitoring year. All samples were divided in half to assess both washed and unwashed samples. This was important for understanding whether lichen as an indicator species was absorbing metals in the dust. The species of lichen we selected were from 2 genus types. This was needed because of varying conditions between the Mine and Milne Port sites (where *Cladonia* does not exist). In 2019 we sampled 57 sites. The power analysis determined that a minimum of 50 sample sites was required. They were sampled in 3 distance categories (Near within 100 m, Far = between 100 to 1000 m, and Reference = over 1,000 m away).

BP: We used CCME guidelines to evaluate metals of soils in the PDA as well as a consideration of baseline, and potential ingestion rates and consistency with the risk assessment conducted by Intrinsik for the Project. Where thresholds were not defined we established indicator values, which are a metal concentration that was developed based on scientific research that may signal a change in vegetation health. The values are predictive and we do not have certainty if they are going to affect vegetation health.

Results - Metals in Soil

BP: Samples were below available CCME and the majority of samples were below detection limit, with the exception of one site near the mine where they saw exceedance of CCME guidelines for copper. The sites nearby did not have an exceedance, and we also assessed the dustfall sample near the site, so we suspect it is likely a sampling error, rather than a true exceedance. We saw an increase in arsenic near the Port site; the greatest increases were near Port infrastructure. Although we are seeing an increase relative to baseline, all of these samples remain 7.8 times below the CCME guideline.

Results - Metals in Lichen

BP: All samples for metals in lichen were below indicator values with the exception of lead. We did see increases in metals in lichen from baseline near the PDA. For all Project areas, metal concentrations increased from 1.5 – 2 times the baseline value across the Project area for all the metals listed there. We are investigating at which distance the increases are occurring.

SL: Is this is the washed lichen samples?

BP: Yes, I will speak more to this shortly.

BP: There is a range in the indicator value for lead in lichen. There is a range because we do not know within this species specific area what the target number is. One sample of lead in the lichen was at the upper value of the indicator range, while most of them were at the bottom. We think it is reasonable to suggest that the increases in lead in lichen could be a result of increased vehicle traffic.

SL: But you are not seeing lead in the soil?

BP: Lichen is unique because it has a greater absorption of atmospheric contributions. That is also one of the reasons why lichen is considered a sensitive indicator.

EI: Have you tried considered testing for asbestos?

BP: No we have not.

LK: We did look into asbestos as part of the Phase 2 review. We were investigating whether or not this would be a concern in the rock. We can look into this and get back to you. **(ACTION)**

BP: Analysis found there was no difference in metal concentrations between unwashed and washed lichen.

PS: Recommend to include screening for mercury and iron as part of the monitoring program. **(ACTION)**

Exotic Invasive Vegetation

BP: PC Condition No 32, 37, 28 and 50 address risks of exotic invasive vegetation. Prior to 2019, it had been five years since exotic invasive vegetation had been conducted. We have provided two definitions: one for what is considered “exotic”, and one for what is considered “invasive”. The objective was to determine if “exotic invasives” were present. Surveys were conducted along the entirety of the Tote Road. The survey at Mine and Port primarily focused on previously disturbed areas. There were 53 survey hours of effort. Incidental observations if they occurred were also being tracked. We did find 20 garden tomato plants growing near the sewage effluent discharge area. These were determined to not be acting “invasive”. None of the plants appeared to have the capacity / moisture to produce flower or fruit. As

they moved away from the effluent pipe, the plants appeared in worsened condition in areas where less nutrients (e.g. away from effluent/sewage pipe) were present.

Other opportunistic findings included horned dandelion, which are no longer considered a species of concern and have been found in past years. For future years, we are recommending doing additional monitoring near the sewage / effluent pipe and to remove the tomato plants.

PS: You say you determined the indicators/metals based on expertise, but you did not mention mercury.

BP: We do actually screen for a full suite of metals. We are not picking up mercury in lichen right now, but it is something that we will continue to examine.

PS: The more likely pathway for lead is emissions.

BP: Actually that did not make sense because lead levels are so minimal in diesel, but it is relevant for dust.

PS: You should also be monitoring for iron in the marine environment. Methylmercury is the one that you should be looking at.

LD: This is something that is on our radar. We do collect that data, but it is not even hitting detection levels.

BS: Are you doing anything to connect dustfall effects on freshwater?

KB: There are 40 different sampling sites along the Tote Road. We will be including this information in our QIA/Nunavut Water Board (NWB) monitoring report.

BS: Some of the sites shows there has been a significant amount of dustfall, and I think with the elevated levels you should be looking at the freshwater biota.

LK: This is something that has been flagged through our Phase 2 so we are looking into this further.

SA: I just want to review some of the recommendations coming out of today: Follow up for incorporating soil moisture into modelling. The second one was looking at a variable that expresses the extent of dustfall as an alternate to using distance from site in the vegetation cover analyses. We also talked about adding dustfall samplers at other heights.

SL: We were also going to talk about whether or not we push out vegetation sampling to 2021.

EM: In accordance with our Working Group schedule, BIM will give some consideration to request to run vegetation abundance monitoring again in 2020, and we will discuss with TEWG at next meeting where 2020 monitoring program designs are reviewed with the group.

Question to the group regarding installation of dustfall samplers at 1m height.

No comments from MHTO, CANNOR, NRCAN, ECCC doesn't support based on precedent with other Projects – QIA and GN support.

LD: I just want to make sure we are only requesting this is only for seasonal samplers because we would not be able to do this in winter.

MS: After the June 2019 TEWG meeting, I was also supposed to follow up with NRCAN to talk about dustfall sampling. It may be helpful to have NRCAN to participate in these discussions with one of their dustfall experts.

COD: We can check and see if this is possible. I will have to come back to you on that. I will look into that.

(ACTION)

Terrestrial Mammals

MS: Program consists of three types of surveys, all long-term annual programs.

Snow Track Surveys 2019

MS: Snow track surveys are aimed at tracking animals that cross the Tote Road. The Tote Road has always been there. These are associated with Project Conditions (PC) 54 and 58. The latter PC comes from other areas that have caribou where this type of work can be undertaken. We did see two caribou crossing the Tote Road in 2020, but that is not included in the 2019 report. The surveys are being run monthly, when there is fresh snow, from about November onwards, and when there are suitable daylight hours to complete the survey over the entire length of road. We observed lots of Arctic fox tracks and examples are shown here (slide 95). We record weather conditions prior to snow track surveys. It is ideal to do the survey within 24-48 hours after snowfall. In April, lots of Arctic fox and ptarmigan tracks. In May, Arctic fox and Arctic hare. There were no caribou tracks in 2019.

Snow Bank Height Monitoring 2019

MS: Snow bank height monitoring falls under PC 53, and this includes maintaining snow bank heights at a maximum of 1 m. During our last TEWG meeting in June 2019, SA recommended randomized snow bank height measurements. We implemented this input and it was randomized this year. It was split up in multiple sections and random points were analyzed monthly. The big thing about snow or wind events, is that they need to manage snow banks constantly. There will be large clearing areas. The figures shown indicate sampling every km, but it is not the randomized sampling points from November 2018 to April 2019 because the changes to random sampling were introduced later (i.e., starting later in 2019). Inter-annual snow bank height compliance reached 97% in 2019. These snow banks have to be managed on an ongoing basis because doing otherwise would result in operational problems, this will also support caribou crossing when regional numbers become higher.

Height of Land

MS: Height of Land surveys (HOL) are completed to monitor caribou during peak calving periods. Objectives are to observe caribou near PDA, and determine if work stoppage is required. We run this during calving season such that if we see more caribou, it may trigger more caribou monitoring. The stations are located throughout hilly areas. It takes a lot of time to get to these various sites. We have had elders support the survey methods, we have had elders train younger folks to identify caribou and we do this during key calving periods. It takes approximately 20-30 minutes to complete observations at each station. We do a full circle survey and these occur from end of May to early June. No caribou were observed during HOL observations but we saw incidental observations in 2019; mostly through Baffinland exploration folks. One sighting was during a site tour. We were trying to do at least two visits per station in 2019. It may seem like a low level of effort, but it is a focused survey during calving season. Some of the sites get accessed only by helicopter. The HOL training material was supported by MHTO in 2017. The long term trend shows a lot of zeroes since the last HOL survey-based sighting in 2013. Based on traditional knowledge, we should see caribou population levels increase over time.

2019 Mammal Summary and Future Work

MS: To summarize, no caribou, wolf or other large mammal tracks in snow were observed in 2019. We did see a wolf track in dirt though, but not in snow. We intend on continuing snow track and HOL surveys, snow bank monitoring, and incidental observation reporting. Fecal pellets will be collected when available when caribou are observed.

SL: One thing that I wanted to bring up is that you use wildlife logs for staff working at the mine site to track when they see things along the road. We had a lengthy observation of what we saw along the Tote Road, and then what was being reported in the logs. It seems like it is a good system for flagging when you are seeing more caribou, or carnivores, wolves or other animal sightings. Is there a better way to get an increased reporting rate?

KB: These wildlife logs are posted in accommodations and targeted areas such as lunch rooms. Also in the helicopter. We also have specific wildlife sightings that get reported directly to Site Environment. There is complacency with certain species such as a fox, but anything out of the ordinary, we get contacted. For example, the January 2020 caribou sightings.

PS: I would add that logs are very powerful for tracking and including observer hours. For example, the HOL surveys may help to at least track general trends.

KB: I will clarify snow tracks. It requires us to drive very slowly along the Tote Road, and the passenger will look for tracks. We do not do surveys during certain winter months because there are not enough daylight hours, and then there is the need for fresh snow fall or windstorm events, we need that alignment to do snow track surveys.

PS: Are the surveyors both looking at the same area? If they are not talking to each other about caribou observed, then this is like a mark-recapture study.

MS: That would be great, when we have caribou.

SL: I recommend that survey effort be introduced, to get more people to use the wildlife logs.

KB: As a department, we have a wildlife log that we track. If you wrote the number of staff and number in the field. E.g., 2 foxes observed in x hours of work, that could possibly be tracked for by Site Environment.

****Additional recommendations include completing independent observations in addition to current (2) observers. Track survey effort in relation to incidental wildlife sightings being recorded by Baffinland staff****

Helicopter Flight Height

MS: Various conditions associated with the helicopter flight height. With regards to compliance and of relevance to PE who had asked about snow geese, we have restrictions specific to the molting season and track compliance. In the figures that will be included in the report, you can see the helicopter arriving to site. The Ege Bay exploration site is being accessed mostly in June. You can also see where the snow goose area is. Some skirting of edges may occur. The compliance flights, in blue are shown separately from non-compliance flights, in red. This Project is tracking all of this helicopter activity. Other mines are not doing this level of tracking. Compliance is based on flight height and pilot's discretion. There is low-level flight rationale that is being recorded by pilot and if no rationale is provided, it would be noted as non-compliant. After incorporating pilot's rationale, most low level flights are compliant. There are many reasons for low level flights. It is unknown whether these low-level flight resulted in disturbance to birds or other animals. Pilots will adapt their altitude if they see there is a need to do so.

SA: Can you provide a figure that shows annual/monthly number of flights over the last 6-7 years in your 2019 report? For example, back to slide 119. For those flights below 650 m, what was the reason for those? Regarding NIRB recommendation to Baffinland. NIRB had requested that you provided the rationale for any low level flight. I want to confirm that this is coming in the report. Not only the percent of low level, but the justification. And also the year to year changes. I thought they were asking for an appendix with a rationale for every flight.

MS: We do develop a long list but it is a long list. You would want all of entries?

KB: There are other categories such as water sampling. We could list program requirements for every flight.

SA: I was not suggesting we get a complete record from all flights. I would just like to see a figure summarizing number of flights over the years.

KB: We had 2 helicopters, and had lots of programs associated with Phase 2, and Bruce Head.

PS: We are interested in altitudinal exposure. For me, seeing 93% compliance, I am not worried at the percent of compliance, but how many low level flights are actually occurring. We should see number over time being tracked over time to assess wildlife disturbance and the resulting effects to wildlife?

SL: To track the actual number of flights below the 650 m over time, would be a better way to figure out if there is a threshold of impact being realized. So a combination of what SA and PS are saying would be really interesting. I think the other issue we had last year again is not with high compliance, but what does this mean for wildlife exposure? Are there any changes that can be made below that level? Or do you think you can do anything to minimize this? Or if you start seeing caribou around, what can we do?

KB: There is no way to reduce the low level flights because of all of the monitoring programs that are being completed daily.

SA: Based on this discussion, there are a number of things to be added (**ACTION**):

1. Reporting total number of helicopter flights per year
2. Total number of flights below altitude thresholds
3. Show a version of those maps with where low level flights are occurring. And possibly then reporting on why they are low level. What is causing some of these low level flights? Can any mitigation be introduced? If some of the monitoring constitutes those low level flights, perhaps we should start considering that the level of environmental monitoring for the Project has an impact.
4. Total hours below altitude thresholds.
5. Location of compliance in relation to caribou calving areas.

PS: Is there a number that should be lower than the suggested threshold? Asking pilots to ask flying over 650 m may not make sense.

MS: We have the heights that the low level flights are at. We could look at it. Every time we show something we are asked for something more. This group knows how helicopters fly.

JH: Do we know the disturbance flight height and the potential altitude?

MS: Yes, the 600 and 300 m comes from other studies. Is it achievable? We recognize it is an issue, are we disturbing wildlife? Can we get beyond this since we know it is an ongoing issue? In summary, most level flights were justified due to safety or due to program and operational requirements. Most long-distance flights met elevation requirements. We will continue to inform pilots. It is part of the contract.

KB: We also hold an onboarding session with the pilots that we use to advise the flight height commitments.

2019 Terrestrial Monitoring Summary

MS: To summarize, we are pursuing multiple programs. Arctic Raptors will also be working towards a publication. Dustfall is limited within 1 km of PDA. Variation in vegetation abundance is likely not a Project-related effect. Natural revegetation is occurring. A partner program is the reclamation program. No caribou but we are getting incidental observations. We are suggesting to take a pause with vegetation abundance. We can discuss further at a later date.

MS: PS you had indicated possibly missing green-up, so this is something we are adding to the program. We are recommending to pause the abundance sampling.

COD: If you are doing remote sensing analysis, then you could combine the data correlation with dust deposition.

PS: Is this something you have capacity for internally? We have folks within ECCC that have this capacity.

MS: We are not looking at amount of dust and rate of snowmelt. We are focusing on what we need right now.

MS: We are also developing a noise monitoring program in 2020 to address PC No. 14.

PS: We have an expert within our department that can quantify noise, natural and anthropogenic noises.

*****ACTIONS*****

3. **ECCC (PS)** to share with MEWG slide deck describing update of red knot detection monitoring study completed in summer 2019 in collaboration with Baffinland.
4. **EDI/Baffinland** to consider presenting dustfall data in a way that better facilitates comparison among sites (e.g., use of log scales for y-axis).
5. **EDI/Baffinland** to further explore with support of biostatistician the type of statistical models available to assess potential Project effects on vegetation (e.g., parametric versus non-parametric) and incorporation of moisture category into modelling. Further consideration of additional types of visual or statistical comparisons to better integrate dustfall exposure with vegetation results (e.g., variable that expresses extent of dustfall as an alternate to distance in the vegetation cover analyses).
6. **Baffinland** to provide follow-up on concern from MHTO on asbestos.
7. **NRCAN** to follow up with their dustfall expert with regards to the appropriateness of installing dustfall samplers at 1 m (non-standardized method) versus 2 m (approved standardized across jurisdictions).
8. **Baffinland** to consider installing dustfall samplers at an alternative height (e.g., 0.5 m or 1 m) for a subset of locations once TEWG members provide scientific support (weight of evidence) for doing so.
9. **EDI/Baffinland** to consider as part of 2019 reporting the total number of helicopter flights per year, the number of low level flights occurring over time (whether compliant or not), whether there is avoidance of the snow goose area, and any improvements over time, in addition to providing a summary on the reasoning for each low-level flight (e.g., specific to monitoring programs).

*****MOTIONS AND/OR RECOMMENDATIONS*****

Roundtable and Action Items - No formal motions or recommendations were put forward by any TEWG member. Refer to Table 1 for actions tracker.

Close-out Comments and Next Steps

LK: In conclusion, we have things to consider as we move forward with our next year's proposal. If you want to make sure that we incorporate actions, please send your comments on draft meeting minutes. With regards to the ToR discussion, please provide comments back on what was circulated in October 15, and including what was incorporated by them. We will then be looking for comments by April 3. We will then look forward to flushing that out.

El: I want to put in on the record. Coming from harvesters in Pond Inlet and dustfall. When we are trying to go hunting in the area of Mary River, before we get to Bruce Head. Right now we have to get ice in order to have water for travel or to cook. The area we go through has dust. I do not know if monitoring will help at all. We saw a lot of charts earlier today. Traveling through that area is very different. Our snowmobiles and clothes get dusty. I want to recommend immediate adaptive management. That is what I want to recommend.

LK: Where is the route you are referring to, and then we can try to relate our ongoing mitigation and get back to you?

El: It reaches up to Bruce Head and from there, it goes all the way to Mary River. You cannot use snow to cook. Earlier this year, this was also reported by hunters.

EM: This is consistent with what we have heard before and specifically with concerns for preparing tea, and for drinking. Our approach was to look at the snow imagery, and that is the take home for us to look at this further and see what we can do with regards to mitigation. That is noted and appreciate you sharing this.

EI: Looking at all the charts today, I do not know if people realize the reality.

EM: The only thing to add is that you should expect to see terrestrial report draft by the end of March. I sent out meeting minutes from previous meetings, please provide comments back on what we sent out for review as we are including this in our annual report.

LK: We will follow up with email. Thank you for coming today.

Baffinland will provide date and location at a later time for the next TEWG in-person meeting. (ACTION)

No additional questions from, TEWG participants Meeting is adjourned at 5pm.

*****ACTIONS*****

10. **Baffinland** to further consider concerns raised by MHTO regarding extent of red dust on snow during the winter.
11. **Baffinland** to schedule next TEWG in-person meeting prior to start of 2020 field season.

Tables that follow provide summary of i) action items from current, ii) status update on action items from previous October 7, 2019, (iii) June 20, 2019, and iv) April 24, 2019 meetings.

Table 1. Summary of action items from February 26, 2020 TEWG Meeting:

#	Action	Action By	Status Update
1	GN to distribute to TEWG members the latest draft of ToR showing track changes.	GN/All	In progress. GN distributed latest draft version to MEWG members for comment on March 9, 2020. Specific period over which comments will be received was not specified by GN.
5	Baffinland to provide follow-up on concern from MHTO on asbestos.	Baffinland	Not yet started.
6	NRCAN to follow up with their dustfall expert with regards to the appropriateness of installing dustfall samplers at 1 m (non-standardized method) versus 2 m (approved standardized across jurisdictions).	NRCAN	In progress. Initial call to discuss options with NRCAN held in June 2020 to assess feasibility of using satellite imagery to assess extent of dustfall. Updates will be provided following further engagement.
7	Baffinland to consider installing dustfall samplers at an alternative height (e.g., 0.5 m or 1 m) for a subset of locations once TEWG members provide scientific support (weight of evidence) for doing so.	Baffinland	Not yet started. Action requires additional information for consideration by Baffinland before proceeding.
8	EDI/Baffinland to consider reporting additional details regarding no. helicopter flights per year, no. low	EDI/Baffinland	In progress. Baffinland will provide an update on additional analysis on helicopter overflight data during the June 24 2020 TEWG meeting.

	level flights and associated compliance including reasoning.		
9	Baffinland to further consider concerns raised by MHTO regarding extent of red dust on snow during the winter.	Baffinland	In progress. Initial call to discuss options with NRCan held in June 2020 to assess feasibility of using satellite imagery to assess extent of dustfall. Updates will be provided following further engagement.
10	Baffinland to schedule next TEWG in-person meeting prior to start of 2020 field season.	Baffinland	Completed. In-person meeting was replaced by teleconference format and set for June 24 2020.

Table 2. Summary of action items from June 20, 2019 TEWG Meeting:

#	Action	Action By	Status Update
3	Baffinland to include a section in future monitoring reports on the "Use of Community Input and IQ (or Inuit Perspectives) in the monitoring program.	Baffinland	In progress. Baffinland will summarize information available for each program in subsequent reports.
4	Baffinland may consider completing fox den surveys as part of the Arctic Raptor monitoring program for 2019.	Baffinland	Not completed. Terrestrial program was already expanded in 2019 to include avian distance surveys, raptor productivity and occupancy, winter nest counts and small mammal trapping for rough legged hawk survey. Could be further discussed with TEWG as part of 2020 program design.
6	EDI to discuss with NRCan other dustfall monitoring programs occurring in the region and use of alternative tools for conducting dustfall sampling.	EDI/Baffinland	In progress. Initial call to discuss options with NRCan held in June 2020. Updates will be provided following further engagement.
9	BIM Site Environment team to revise hunter/site access protocol to ask hunters who come to site if they are amenable to participate in mapping caribou migration routes and travel paths to develop a more comprehensive database of this information.	Baffinland	In progress. Updates to the protocol are currently being made by Baffinland.

Table 4. Summary of action items update from April 24, 2019 TEWG Meeting

	Outstanding Action Item from April 2019 TEWG Meeting	Action By	Update
1	GN to provide a copy of summary report on caribou composition surveys throughout Baffinland Island	GN	No update. GN to provide update during their review of meeting minutes and accordingly change status.

	from 2015 to 2018 at the request of QIA.		
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