



502-100 Gloucester Street
Ottawa, Ontario
K2P 0A4

February 6, 2020

Ryan Barry
Executive Director
Nunavut Impact Review Board
(NIRB) By Email: info@nirb.ca

Re: Supplemental Materials in relation to the Phase 2 Proposal Reconsideration Process

Dear Mr. Barry,

Oceans North has reviewed the supplemental materials filed by the Proponent Baffinland in the context of the ongoing Phase 2 assessment process. None of these materials has resulted in any significant change in our position regarding what we believe to be fundamental deficiencies in the Proponent's project proposal. The following comments are limited to our focus areas. We also note that significant information requested by Oceans North and other parties remains outstanding and will be the subject of additional correspondence.

Monitoring and adaptive management

Oceans North maintains that any decision on an output increase must be conditioned on reliable evidence of current and anticipated impacts. This evidence does not currently exist due to a lack of integrated and adequate monitoring programs.

Pursuant to the terms and conditions of Project Certificate No. 05, the Proponent is expected to determine early warning indicators that will ensure "rapid identification of negative impacts" (110). Early warning indicators, tracking overall species health, are central to adequate monitoring programs. Baffinland has failed to determine and define early-warning indicators (5 years into operational shipping). The proponent points to visual observations (e.g. 5.3.3 in PIP Extension Application) as proof that long term displacement and abandonment of the area will not occur as a result of project operations. These visual observations are not comparable year to year and do not provide a satisfactory measure of population health.

Without early warning indicators there is no way to know if animals are in distress from cumulative impacts before the potential for irreversible damage occurs. If indicator data is being

tracked (as noted by Baffinland in section 5.3.2.1 of PIP Extension Application) this data should be shared and assessed for the purposes of assessing the Phase 2 proposal.

We remain concerned that no operational contingencies are provided for in the Phase 2 proposal for the scenario where increased shipping is determined to cause significant population-level effects on marine mammals as a result of project-related activities.

Cumulative impacts of shipping on narwhal behavior and disturbance

That a project of this size in an area of high biological productivity will have significant impacts on habitat and species is obvious. It is therefore perplexing that the Proponent persists with a general narrative of “non-significant” impacts. All parties in this process as well as the general public would benefit from a more honest discussion with a starting point that there are “significant impacts” to, inter alia, marine mammals from present shipping intensity (and that there will be additional “significant impacts” to the doubling and tripling of shipping volume through the region). This may in the end be a trade-off that a regulator determines to be in the public interest if the public benefits are found to outweigh the adverse impacts. To pretend, however, that no such trade-offs exist in the context of unprecedented industrial shipping through densely populated marine mammal habitat suggests a lack of transparency.

Under the Phase 2 proposal, narwhals across a large area of the northern shipping route would be disturbed six to 24 hours per day by project-related shipping. The Proponent has concluded without scientific basis that because each individual disturbance is ‘short-term’ the overall disturbance is ‘non-significant’ (TSD 24). There is insufficient evidence to draw this conclusion. Rather, the results of research by the Proponent suggest that narwhals across much of the northern shipping route will be disrupted from their natural behavior for a substantial proportion of the day during the majority of days in the shipping season, which spans the full duration of time each year in which narwhals inhabit this region. In fact, observations reported by Baffinland include visual observations at Bruce Head noting that female narwhals stopped nursing their calves when ships passed, yet the potential impacts of reduced communication space on cow-calf pairs is not discussed. This failure to engage with the implications of their own data is significant.

The Proponent concludes without scientific justification that daily repeated reductions in communication space lasting substantial proportions of the day will have no significant effect on narwhals or other marine mammals. Oceans North does not consider Baffinland’s evaluation of impacts to be an accurate reflection of the full impacts to an individual and or the population of narwhal as a whole. Baffinland has yet to provide evidence to support the claim that no significant effect is predicted from the substantial reduction in listening space.

Foreseeable Development: the Proponent’s Plan to Ship 18 mtpa from Milne Inlet

We are disappointed that the Proponent has taken no steps to remedy critical inconsistencies in their filed materials and that the Proponent in its supplemental materials continues to present a development plan to the public within the NIRB process that is contradicted by the development plan it is still sharing with investors: namely, that Baffinland’s stated intention is to increase the tonnage shipped out of Milne Inlet from 12 million tonnes per annum (assuming approval of

Phase 2) to 18 million tonnes per year as the immediate next development step. These inconsistencies jeopardize public confidence in the Phase 2 assessment process.

Oceans North respectfully requests that the Board revisit its decision at the November hearings to refuse to enter into evidence Baffinland's Preliminary Offering Circular. In this regard, Oceans North relies upon the legal memorandum filed with the Board from Mr. John Myers of Taylor McCaffrey LLP. While we appreciate that the Board needed to make a quick decision with limited access to third party advice, we suggest that the Board consult with legal experts on the merits of Baffinland, Oceans North and other parties' respective positions on this issue. Oceans North takes exception to the Proponent's arguments at the hearing that this Circular was improperly obtained and that it is not relevant to the present process. We are happy to disclose all correspondence related to our acquisition of this document.

Finally, we would like to reiterate that we appreciate and support the legitimate economic aspirations of Nunavummiut and recognize the importance of this incredible resource. We do not wish to stand in the way of the responsible development of this mine.

Sincerely,

A handwritten signature in dark ink, appearing to read 'Christopher Debicki', with a long horizontal flourish extending to the right.

Christopher Debicki
Vice-President Policy and Development and Counsel
Oceans North



Oceans North Final Review Comments
Baffinland Iron Mines Corporation's Phase 2 Development

Submitted to the Nunavut Impact Review Board
September 23, 2019

Executive Summary

Oceans North is a Non-Governmental Organization (NGO) focused on marine conservation in Canada's northern oceans and supporting the well-being of communities that rely on the marine environment. We emphasize made-in-the-Arctic solutions through partnerships with Indigenous organizations and northern communities to foster Arctic ecological resilience and abundance.

Oceans North has been active in research and community initiatives in Eclipse Sound and Mittimatalik for the past ten years including leading and participating in numerous research projects in Eclipse Sound related to the emergence of industrial shipping in this region during the Proponent Baffinland's "Early Revenue Phase".

In this final review, we divide our focus in three directions:

1. We assess the Proponent's submission in relation to anticipated ecosystem impacts of the project proposal with a focus on anthropogenic disturbances in the marine environment and, in particular, potential risks to narwhal as a result of industrial shipping;
2. We assess the Proponent's submission in relation to anticipated socio-economic impacts of the project proposal;
3. We assess the level of uncertainty in the Proponent's submission, previous precedents, and the subsequent lack of confidence in the Propoent's position through this environmental impact assessment process.

The data presented by the Proponent, as well as data gathered through Oceans North's long-term acoustic monitoring in the region, point to the need to halt further increases in shipping and take time to understand the effects of increased volumes from 2018 and 2019 on narwhal and the environment as a whole. Due to overall duration of narwhal disturbance, avoidance and masking predicted by the Proponent under a Phase 2 scenario, it is reasonable to expect long-term impacts on narwhal that could affect their ability to carry out vital life functions like foraging and maintaining social bonds.

In addition to environmental impacts, the Proponent's assertion of positive socio-economic impacts are inconsistent with the current economic benefits flowing to Nunavut beneficiaries and Nunavut citizens. Forward benefit projections linked to this expansion are not supported by facts and the rapid pace of development instead threatens to undermine or at best diminish the benefit potential of this resource.

Overall, there is too much uncertainty within this process to justify the NIRB recommending to the Minister that this project proceed as proposed. The barriers to information, the uncertainty of the information provided, the unwillingness of the Proponent to incorporate Inuit Qaujimajatuqangit, the lack of evidence regarding positive social and economic outcomes for Inuit, and the low levels of certainty that monitoring will be able to show impacts prior to any significant and potentially irreversible impacts occurring - these factors all lead to uncertainty in how the NIRB can assess the project and fulfill its mandate under the Nunavut Agreement. Based on our lengthy involvement in this process, existing precedents, expectations of a fair impact assessment, and the information provided to stakeholders,

Oceans North believes the project should not be approved as it is proposed and that the NIRB does not have enough information to recommend this project proceed as proposed.

Table of Contents

Executive Summary.....	3
English.....	3
French.....	4
Inuktitut.....	5
1. Introduction.....	5
2. Comments.....	6
2.1 Marine Environment.....	7
2.2 Socio-Economic.....	9
2.3 Overall uncertainty, precedents, and confidence	12
3. Summary.....	14
References.....	20

1.0 Introduction

Oceans North is a science and community-based marine conservation organization that advocates for scientifically-sound policies consistent with Indigenous land claims and traditional practices. Over the past decade, Oceans North has supported regional voices in their desire to ensure adequate protection for the Lancaster Sound marine region. In particular, Oceans North supports the efforts of the Qikiqtani Inuit Association and Parks Canada in their establishment of the Tallurutiup Imanga National Marine Conservation Area.

Oceans North has both led and participated in numerous research projects since 2014 in Eclipse Sound related to the emergence of industrial shipping in this region during Baffinland's "Early Revenue Phase". Examples of this include a study of the structural dynamics and resiliency of the floe edge at the eastern entrance to Eclipse Sound, a study of potential seal mortality associated with hypothetical spring icebreaking in Eclipse Sound, and ongoing acoustic monitoring to assess impacts of shipping on narwhal distribution and behaviour. Using passive acoustic monitoring devices, our research goals are to record and measure underwater noise from ships, observe the seasonal presence of marine mammal sounds and their vocal behaviour, and investigate the effects of vessel traffic on narwhal. As we begin our sixth year of monitoring, this project is increasingly important given the substantial increase in shipping in the region associated with the Baffinland mine and the proposed Phase 2 increase. We have also recently completed an assessment of regional economic benefits as they are linked to specific industrial outputs (at existing and proposed volumes) at the Mary River mine.

Although we have a number of outstanding technical questions and comments that have not been addressed by the Proponent in this environmental review process, with the technical review periods completed, we have focused our submission on the overall project and major issues regarding Baffinland Iron Mines Phase 2 Development Project Proposal. Our comments focus on the potential effects of this proposal on the marine and socio-economic environments in the Qikiqtani region, the inadequate justification for the Proponent's conclusions drawn from its own research undertaken for this environmental assessment, previous precedents, and the resulting

lack of confidence in our collective ability to fairly assess impacts and benefits through this environmental impact assessment process.

2.0 Comments

2.1 Marine Environment

An estimated 140,000 narwhal migrate into High Arctic Canadian waters seasonally, with the largest proportion, the largest summering population in the world, migrating to the Lancaster Sound region each year (IUCN, 2017). These animals are of great importance both culturally and for subsistence hunting. Until recently, these waters have been generally free of large vessels and industrial disturbances. This important summer habitat for narwhal now overlaps with Baffinland port activities in Milne Inlet and project-related ship traffic throughout the habitat. High concentrations of marine mammals congregate in relatively narrow waterways in this area, which they now must share with large commercial vessels that have restricted travel routes. This presents unique problems that require unique approaches to monitoring and stewardship.

It is clear based on the available information from the Proponent, our own research and observations from harvesters and impacted communities that narwhals in this population are disturbed by the presence and underwater noise of vessels. If narwhal remain in the area, at current levels of shipping, they are at risk of vessel noise masking their social communication and navigation, causing behavioral disturbance that can affect their ability to carry out vital life functions, and the possibility of repeated temporary loss of hearing creating a potential for hearing injury. The effects of vessel traffic at current volumes has the potential to harm individual narwhal or change patterns of local abundance and distribution, patterns that have been long recognized by regional Inuit and which Inuit have reported are changing in response to the increased presence of project-related ships (QIA Tusaqtavut Study; June 14, 2019).

The Proponent has identified many of the risks its current project and project proposal present to marine mammals, and has conducted research demonstrating that each of these effects occurs in

narwhals at current shipping levels, but concludes without scientific basis that in the aggregate, these risks pose no significant threat to marine mammals. Results presented in their research, however, suggest a precautionary approach. In particular, the significance of the cumulative effects of repeated daily impacts from project-related vessel traffic risks is not statistically established. Much information is available from research programs conducted by the Proponent, but thorough analyses are missing that could assist in evaluation of project-related shipping impacts to marine mammals at currently-approved levels of vessel traffic. This inability to draw reliable conclusions from shipping at present volumes greatly impedes our ability to appropriately evaluate and assess risk of the doubling of shipping in the Phase 2 proposal under consideration. The data presented by the Proponent, as well as data gathered through Oceans North's long-term acoustic monitoring in the region, point to the need to halt further increases in shipping and take time to understand the effects of increased volumes for 2019 on narwhal and the environment as a whole. Unprecedented vessel traffic associated with the Baffinland Phase 2 Proposal is putting the narwhal at too great a risk, without a clear understanding of the consequences.

2.1.1. Monitoring and adaptive management

Under the terms and conditions of Project Certificate No. 05, the Proponent is expected to determine early warning indicators that will ensure “rapid identification of negative impacts.” Multiple marine mammal research projects have been undertaken by the Proponent since 2014 to establish baseline information on the natural behavior, abundance, and distribution of narwhals and other marine mammal species in the project areas. Both baseline knowledge and ongoing monitoring are necessary to detect negative ecological impacts resulting from project-related activities. Research undertaken by the Proponent has demonstrated that behavioral, social, and hearing effects on narwhals result from the passage of large project-related commercial ships, that these are likely to occur with each ship passage, and that the effects from each exposure may last for minutes to hours during and following each ship passage (e.g. TSD-24 Sect. 4.1.2.1.2). The Proponent acknowledges yet dismisses all of these observed and predicted effects as “not significant” (TSD-24 Sect. 2; Effects Assessment) without scientific justification for that determination. The Proponent has enacted one mitigation measure, a reduction in transiting

vessel speed to 9 knots (a speed reduction which in fact had been discussed in the first phases of this project), to reduce the underwater noise from the ships and the risk of hearing injury to narwhals. The Proponent, however, proposes a single impact threshold that must be met to necessitate any further change in shipping operations proposed under the Phase 2 plan. This threshold is the abandonment or long-term displacement of marine mammals from the region. At the 2019 technical hearings in Iqaluit, Baffinland confirmed that only a population-level reduction in marine mammal abundance would lead to a change in operations. None of the other monitoring efforts undertaken by the Proponent (e.g. acoustic monitoring, tagging of narwhals, shore-based survey and behavioral study) would connect to a change in project-related shipping operations under the Phase 2 proposal. Further, it was noted that two consecutive years of declining population estimates would be required to make the determination that a significant long-term displacement of narwhals had occurred. These estimates would be made from annual aerial surveys that require substantial time for analysis, creating a three-year lag between potential significant shipping-related displacement of marine mammals and any potential adaptive management.

The Proponent acknowledges in the technical supporting documents that none of the aerial surveys prior to 2017 were undertaken with experimental design sufficient to determine both abundance and whether narwhal are displaced by ships. However, a draft report from Baffinland consultants dated March 2016 (LGL report FA0059-2) showed change in distribution of narwhals in the regional study area (RSA). After this report, and a revised final report that was not released to the MEWG or the public despite numerous requests, the Proponent terminated its contract with the consulting company that authored the report and notes in TSD 24-Section 8.3.10 that “There was no significant change in overall narwhal abundance and distribution observed in the area from 2014-2017.” Baffinland also did not undertake an aerial survey in 2018 despite repeated calls from within the Marine Environment Working Group (of which Oceans North is a member) that it was essential. With no 2018 data the soonest any determination of significant displacement of marine mammals from the Eclipse Sound and Milne Inlet area could be made would be 2021. Furthermore, no specific operational contingencies are provided for in the Phase 2 proposal for the scenario where increased shipping is determined to cause significant population-level effects on marine mammals as a result of project-related activities.

The Proponent has also conducted community workshops seeking Inuit observations of shipping-related impacts on marine mammals. Summaries of Inuit knowledge from those Baffinland community workshops suggest that there are no significant negative impacts on narwhals resulting from project vessels (TSD-24 Sect. 4.1, 4.2). These conclusions differ substantially from the QIA Tusaqtavut Study (June, 2019) in which multiple knowledge holders shared observations that ships negatively affect narwhals, displacing them and changing their behavior. 2018 observations shared by Inuit in the QIA Tusaqtavut Study describe a dramatic decrease in narwhal numbers in 2018. However, there is no expressed connection between Inuit observations or reports of project-related impacts of shipping on narwhals and any adaptive management plan or monitoring for impacts on narwhals that would result in a change in shipping operations. Again, at the 2019 technical hearings in Iqaluit, Baffinland confirmed that Inuit Qaujimagatuqangit would not be incorporated into any assessment of population-level reductions in abundance or other significant negative impacts on marine mammals that would lead to a change in proposed Phase 2 operations.

2.1.2 Cumulative impacts of shipping on narwhal behavior and disturbance

Concerns have been expressed by Inuit (e.g. QIA Tusaqtavut Study, 2019) and other stakeholders about negative impacts on marine mammals resulting from marine shipping. These impacts include behavioral disturbance during which animals change from their natural behaviors due to the presence of or noise from ships, auditory masking reducing effective space in which animals can communicate with one another, and temporary and permanent damage to hearing from exposure to underwater noise. Excluding permanent hearing injuries, each of these effects has been determined by the Proponent to exist as a result of project-related commercial vessel traffic, which will double under the Phase 2 proposal.

Baffinland has undertaken extensive research into the behavioral responses of marine mammals, particularly narwhals, to ships. Statistically significant behavioral responses of narwhals to project ships have been repeatedly documented by shore-based visual observation when ships were within 15 km of the animals. These behavioral responses included changes in distance from

shore, increased swimming speed, changes in group formation, and decreases in group size (TSD-24 Sect. 4.1.2.1.2). When acoustic recording was undertaken in the same area as the behavioral observation, the noise levels rarely reached 120 decibels (dB re mPa) at the recorder (e.g. TSD-24 Fig. 4.37), suggesting that disturbance thresholds for narwhals may be lower within the project area than this commonly generalized estimate for acoustic disturbance in marine mammal species with similar hearing to narwhals (e.g. Southall *et al.*, 2007). At closer ranges to ships, narwhals have exhibited avoidance behavior, swimming directly away from the ship line of travel and sometimes exiting the observation area for a period of approximately two hours before returning to normal behavior (TSD-24 Sect. 4.1.2.2).

To help evaluate underwater noise levels and estimate acoustic disturbance resulting from the project, the Proponent has put considerable effort and resources into measuring and modeling underwater noise from shipping. Estimated distances from ships to noise levels high enough to cause behavioral disturbance (*i.e.* 120 dB re mPa) ranged from approximately 10 to 30 km for ore carriers transiting at 9 knots in typical open water operations along the shipping route (TSD-24 Quijano *et al.*, 2018 p. 27) and at ranges up to 44 km during icebreaking operations in the shoulder season (1663724-135-TM-Rev0, July 2019). For each transiting ore carrier in open water, this results in periods of one to almost four hours and with icebreaking up to ten hours during which the noise levels from the ship could be high enough to expect behavioral disturbance in narwhals. In Milne Inlet, the area of expected disturbance resulting from each transiting ship encompasses the entire inlet, resulting in the likelihood that all animals in Milne Inlet would exhibit some amount of behavioral disturbance each time a ship passes.

Under the proposed Phase 2 proposal, an average of six ore carrier transits per day would pass through Eclipse Sound and Milne Inlet. Narwhals across a large area of the northern shipping route would be disturbed six to 24 hours per day by project-related shipping. The Proponent has concluded without scientific basis that because each individual disturbance is ‘short-term’, lasting minutes to hours, that repeated daily instances of disturbance from large commercial vessels is “not significant” (TSD-24). There is insufficient evidence to draw this conclusion. Rather, the results of research by the Proponent suggest that narwhals across much of the northern shipping route will be disrupted from their natural behavior for a substantial proportion

of the day during the majority of days in the shipping season, which is the full duration of time each year in which narwhals inhabit this region. The effects of this level of disturbance to the individual and population are unknown, but should be carefully considered when evaluating the potential costs of the Phase 2 proposal to the ecosystem and to Inuit.

2.1.3 Cumulative impacts from ship noise masking narwhal communication

Marine mammals use sound for critical social communication. When noise levels increase in the frequency range of marine mammal acoustic communication, the potential for auditory masking exists. To address concerns about auditory masking resulting from shipping noise, the Proponent conducted modeling analyses to estimate of the loss of total area in which narwhals along the northern shipping route can effectively communicate with one another, also referred to as Listening Space Reduction (LSR), during project vessel transits. As with predictions of behavioral disturbance, each vessel transit is predicted to cause a substantial reduction in communication space for marine mammals along the northern shipping route (e.g. 1663724-102-R-Rev1-30000, Appendix B.3.2). These LSR events are similar in duration (and radius around transiting ships) to periods of behavioral disturbance. During each ship transit, the area in which narwhals can effectively communicate with one another using their normal social sounds would be reduced by 90% or more within a large area around the ship. The Proponent concludes without scientific justification that daily repeated reductions in communication space lasting substantial proportions of the day will have no significant effect on narwhals or other marine mammals. This region, and in particular Milne Inlet, is also known as a calving area for narwhals according to local hunters who are concerned about the potential for narwhal to abandon their calving areas (QIA Tusaqtuvut Study, 2019). The impacts of reduced communication space and behavioral disturbance on cow-calf pairs is not discussed. However, observations reported by the Proponent from the 2015 Bruce Head Study noted that female narwhals stopped nursing their calves when ships passed. The cumulative impact of this substantial daily reduction in communication space over the full annual time period in which narwhal inhabit this area is unknown, but should be carefully considered when evaluating the potential costs of the Phase 2 proposal to ecosystems and to Inuit.

2.2 Socio-Economic

Based on a thorough review of the socio-economic dimensions of the Mary River project, Oceans North maintains very low confidence in Baffinland's assertion that project expansion will result in substantial economic benefits for the Qikiqtani region.

As a result of the Nunavut Agreement and the land selection process that preceded it, Inuit retain surface and subsurface rights to mineral deposits that now fall within Baffinland's Mary River mine. These rights are held by Inuit whose representatives seek to maximize the socio-economic benefits that can flow from the exploitation of this resource. Maximizing the benefits to rights-holders is a constitutionally-protected requirement (*Nunavut Agreement*), reflected in legislation (*The Nunavut Planning and Project Assessment Act*) and reinforced by contract (IIBA).

The Proponent's position that expansion to 30 million tonnes of ore per year is necessary to ensure the success of this project is not supported by evidence; Baffinland has failed to demonstrate an economic case for this "necessity". Baffinland appears at present and by their own admission to be operating a profitable mine. This additional expansion, therefore, is not "necessary," and will result in lost benefits to rights holders.

Key socio-economic issues include:

- The economic benefits flowing to Nunavut beneficiaries and citizens from the Phase 2 development have been grossly exaggerated by the Proponent. Conclusions drawn from the Proponent's own labour market and economic benefit studies are incompatible - the economic benefits purported to flow to Nunavutmiut are not supported by the conditions described in the Proponent's labour market analysis.
- The projected growth in the workforce along the timelines proposed will vastly outpace any advancement in the local labour force resulting from training initiatives. Moreover, training initiatives alone are unlikely to resolve Baffinland's failure to hire significant numbers of Inuit. Other barriers to local employment, including social trauma, are not fully considered in the Proponent's socio-economic analyses.

- Ongoing failure to hire local residents by Baffinland will not likely prevent planned output levels from being reached; workers will continue to be brought in from outside Nunavut. However, this will result in diminished benefits throughout the Nunavut economy, adversely impacting GDP forecasts, government revenue and direct benefits to Nunavut residents. The Proponent has also failed to provide any information regarding the impact of the unionization of its workforce and collective bargaining on IIBA commitments and Inuit employment targets.

As a result of these issues, Oceans North believes the purported benefits of expansion have not been established and there remains an unacceptable level of uncertainty in Baffinland's impact predictions regarding the socio-economic environment. The proposed expansion of the Mary River mine will result in lost economic opportunities within the Qikiqtani region for citizens, Inuit organizations and government to capitalize on this non-renewable resource.

2.2.1 Inuit Employment Benefits

The Proponent has been unable to meet IIBA commitments-- notably, those targets related to Inuit employment and contracting. While Baffinland has expressed the commitment to increase Inuit participation, it also acknowledges that this is a "long-term" commitment that will unfold on a corresponding timeline. By its own admission, Baffinland recognizes the Inuit labour market conditions are such that these targets are unachievable at this time and "progress is likely to be slow." It is therefore unrealistic to estimate socio-economic benefits based on the assumption that IIBA targets will be met.

The FEIS and TSD 25 predict that the expansion will have a positive effect on the employment of LSA residents, with Baffinland "[remaining] committed to meeting Inuit employment targets". The Proponent has consistently failed to maximize benefits to Inuit at this stage of production and has never met IIBA "minimum Inuit employment goals", targets which it has subsequently described as "aspirational". There is to suggest in the language of the applicable IIBAs that such a commitment is "aspirational". Accordingly, the additional jobs associated with any expansion cannot be expected to result in a proportionate increase of employment benefits to

Nunavut—present labour market conditions suggest that these jobs will go to workers from outside the Territory.

A substantial portion of the benefits afforded to citizens from any mining development take the form of employment opportunities. However, the Inuit labour force currently does not have the absorptive capacity to meet the increased labour needs of the Project, a fact emphasized in the Proponent’s Labour Market Analysis. Accordingly, the high rates of labour participation suggested by the proponent in the Socioeconomic Benefit Study are unrealistic. Rather than gain from increased employment opportunities as the EIS implies, Inuit will instead lose benefits, as the percentage of Inuit employees at the Project will inevitably decrease with the Phase 2 expansion. This widening of the gap between Inuit employment targets and actual employment will only serve to diminish the overall share of Inuit employment opportunities—and therefore benefits—over the lifespan of the project.

Baffinland’s own Labour Market Analysis (TSD 26) suggests that it cannot meet IIBA Inuit employment commitments. The document estimates that there are approximately 2,200 regional Inuit both “ready” (working age) and “able” (possess high school diploma) to work. The document notes that even with expansion, there will be a very marginal increase in “D-class” jobs not requiring high school. Accordingly, a diploma is an important qualification in employability. This figure of 2,200 individuals does not account for an extensive number of other factors identified in TSD 26 as barriers to the likelihood of individuals seeking jobs at the Mary River Project or succeeding in long-term employment there. These barriers include current employment status (and willingness to change jobs), personal aptitudes, interests, familiarity with wage employment, family responsibilities, language, criminal record, dependencies, and the (substantial) influence of competition from other employers. Likewise, this Inuit labour force of 2,200 “ready and able” individuals includes people of all genders. This is particularly relevant as TSD 26 explicitly states that there is an argument for further separating this basic labour supply by gender, given the small percentage of woman amongst total employees in the context of any mining project. The document notes that “[i]t is not uncommon to find women representing no more than 20% of a mining project’s workforce, and oftentimes, this percentage is below 15%.”

The gendered of employment in the mining industry further reduces the potential labour force for the Project substantially.

Phase 2 is expected to increase total Project labour needs to fill approximately 1960 full-time equivalent positions. As per IIBA commitments, “Total Inuit Employment” targets are set at 50%, which would require 980 Inuit employees to meet targets at Phase 2 output levels. This would require nearly half of the regional Inuit labour force to be recruited and retained to work at the mine. Considering the myriad factors identified as barriers to this possibility—including the fact that, given women’s greater high school graduation rates, the proposed labour force of 2200 will be composed of more women than men—it is exceptionally unrealistic to expect that these targets can be met, should Phase 2 expansion occur at this time.

Further, Baffinland’s employment records to date demonstrate that they are incapable of meeting far more modest employment targets (25%), even when operating at current output levels. Since commencing operations, Baffinland has not managed to meet IIBA employment or contracting targets in a single year. Inuit employment significantly declined between 2013 (20.3% of all hours worked) and 2017 (13.5%) (TSD 25, p.34). While Baffinland has publicized recent initiatives intended to support Inuit recruitment and retention, improvements in this area have since been marginal at best. This is made evident in Baffinland’s 2018 Annual Report to the Nunavut Impact Review Board, which states that Inuit employment for the year “hovered around 14%”. This change corresponds with Baffinland having managed to hire an additional seven Inuit employees, out of the approximate 1572 individuals working at the Project, while operating in a territory where more than 84% of the population is Inuit. As perhaps could be anticipated given their issues with Inuit employment, Baffinland acknowledges profound difficulties with retention of Inuit employees. The Inuit turnover rate increased from 2013-2017, with the 2017 turnover rate being 45%—nearly half of all Inuit workers did not remain employed at the Project (TSD 25, p.37). While retention is a near-universal issue in remote mining operations, it is worth noting that the Inuit turnover rate was a third higher than that of non-Inuit employees (TSD 25, p.37). These statistics reflect the reality that the Inuit labour market may be approaching its absorptive capacity and that further gains of any significance will take much more time.

The magnitude of lost Inuit wages from rapid expansion becomes apparent in the Loxley report (Oceans North Technical Review Comments, 2019). This report establishes a strong case for denying this expansion at this time given the region's current inability to capitalize on employment benefits at present output levels. Should expansion proceed before the Inuit labour force can effectively fill IIBA targets (50% Inuit employment) surrounding the labour needs of the project, lost Inuit wages over the Project lifespan are anticipated to potentially fall in the \$1b range (Loxley, p.46). This figure does not account for employment-generating multiplier effects and other positive externalities, both of which are important factors driving potential losses faced by Inuit far higher yet.

Inuit employment targets are unachievable at this time, and the Project's poor track record of Inuit employment reflects this. Given this history, the estimated socio-economic benefits as quantified in TSD 25 are not reliable. This weakness in the Proponent's application is not trivial and raises implications at the heart of the NIRB mandate. Protecting the well-being of rights-holders is in fact a constitutionally-protected requirement (Nunavut Agreement), reflected in legislation (NuUPA) and reinforced by contract (IIBA).

2.2.2 Need for expansion

The Proponent maintains that project expansion at the proposed scale and timeline is "necessary" to maintain the financial viability of this mine, and to continue to provide benefits to rights-holders. However, the Proponent fails to justify the supposed financial or project necessity. This is of particular consequence given that the implications of rapid expansion are not benign; in addition to profound environmental impacts, our evidence suggests that there is a high likelihood that per tonne benefits to Inuit will significantly decrease should this project proposal proceed. Community members and Nunavut Agreement beneficiaries will ultimately bear substantial costs in lost potential revenues. (See section above). Baffinland has not provided any analysis of the relative benefits to Inuit at different output levels.

Baffinland maintains that an expansion of the Mary River Project is "necessary [...] to meet the demand of its customers, and to continue to provide these benefits [to communities]." The

implication inherent in this statement is that without increasing output, Baffinland's operations (and subsequent benefits to community) will not be feasible. These sentiments are echoed in TSD 01, where it is affirmed that "expansion of the Project is necessary for Baffinland to continue to operate and provide benefits to its shareholders, its Inuit partners, governments, and stakeholders." However, this is seemingly contradicted by "Table, 1.1: Assessed Alternatives" (TSD 01), in which the option of maintaining production at current levels is described as "less cost effective", rather than "least cost effective", or "not-economically feasible", as with several other alternatives evaluated in the document.

The limited evidence that Baffinland has produced to support the economic case for expansion refers to the current "marginal return on investment (ROI); possible negative ROI at lower ore prices". This is followed by a statement regarding ROI expressing that with recent low iron ore prices and production levels of less than 3 mtpa, the Project experienced a negative return on investments. This argument has not been updated to reflect 2018 output and 2019 output allowances of 6 mtpa, as well as any long-term forecasting of iron ore prices. Notably, Baffinland provides no actual data to substantiate these claims regarding ROI. This position contrasts sharply with the conclusions of the Loxley report. This document suggests that-- contrary to Baffinland's claims-- the mine is in all likelihood extremely profitable at present output (Section 3: "*Forecasts of the Financial Viability of the Mary River Project*", p.10-13).

Baffinland has provided insufficient evidence to demonstrate that expansion at this time is a financial necessity. There has been no credible argument made supporting the degree of economic urgency that could possibly justify an expansion in the context of environmental uncertainty and at the expense of local communities and Nunavut Agreement beneficiaries, and without accounting for GDP implications for the territory as a whole.

2.3 Overall uncertainty, precedents, and confidence

Based on our review of Baffinland's proposal, Oceans North believes that there is an unacceptable level of uncertainty with regard to the predicted ecosystemic and socio-economic impacts of the proposal. The NIRB report and ministerial decision related to AREVA Resources'

Kiggavik project set an important precedent for environmental review in Nunavut. In that case, the Kiggavik project was rejected due to unacceptable levels of uncertainty regarding project impacts. The fact that key aspects of the project had yet to be determined (especially a project start date and production timelines) was an important source of uncertainty, together with deficiencies in baseline data and impact analyses.

Baffinland's proposal suffers from similarly high levels of uncertainty and draws favorable conclusions that are not supported by the extensive research undertaken as a part of the environmental impact assessment process. In this case, sources of uncertainty include:

1) A lack of information about key aspects of the project, including marine shipping routes and a start-date for the Steensby Inlet component of the project. Baffinland has not submitted a credible development proposal that allows for the assessment of cumulative impacts of its previously-approved but never developed project to ship ore via Steensby Inlet.

2) Deficiencies in Baffinland's impact analyses regarding marine mammals. The Proponent's determination that no significant negative impacts to marine mammals will result from current or increased marine shipping operations is not supported by the findings of substantial research conducted by Baffinland and other groups in the region.

3) A failure develop early warning thresholds for significant negative impacts on marine mammals resulting from current levels of shipping and a failure to appropriately project cumulative impacts of proposed increased shipping. Thresholds for corrective action on the part of the Proponent are too high (e.g. abandonment of region by narwhals), are not reached with sufficient time to avoid long-term negative impacts on marine mammal populations, and adaptive management strategies have not been developed to respond to negative impacts that may occur.

4) A lack of sufficient baseline data for marine mammals. The NIRB recently completed a Strategic Environmental Assessment (SEA) into future oil and gas development Baffin Bay and Davis Strait. The SEA process made clear that there is insufficient baseline data for oil and gas

development to proceed in the region. Oceans North believes that this lack of data about marine mammals adds significant uncertainty to Baffinland's impact predictions.

5) Deficiencies in Baffinland's socio-economic analyses. Oceans North believes that Baffinland's socio-economic impact assessment does not sufficiently address barriers to local employment beyond training and provides inflated government and community benefit forecasts that have no factual basis.

6) The Proponent appears to be presenting an unrealistic development plan to the public that is not supported by its own behaviour and previous public communications, including NIRB submissions. Baffinland has a history of participating in the NIRB project review process while simultaneously moving forward with alternative development plans and the Phase 2 development plan appears to be a continuation of this pattern.

Given the unacceptably high levels of uncertainty associated with this proposal, Oceans North believes that the transportation of ore through the Milne port should not be permitted to exceed present output and that such output be reviewed when we have a better understanding of impacts in all recent shipping seasons.

Recent developments and actions taken by the Proponent also call into question their ability to strike a balance between legitimate corporate interests and the unique environmental and socio-economic considerations related to this project. Of new concern, the Proponent has, over the course of the present shipping season, been receiving shipments of equipment needed for this still unapproved expansion (*Bulk Handling Review*, 2019). These shipments comprise materials and high-tech purpose-built equipment only usable at Milne Inlet if the company's project changes and expansion are approved. This new infrastructure includes a complete railcar unloading station, a crusher and screening system, and a new ship loading system and conveyors. These acquisitions appear to be more than a mere gamble and the Proponent's actions undermine public confidence in a fair and fulsome impact review process.

As stated in our previous letter, Baffinland's ownership structure has changed since the Early

Revenue Phase was approved, such that a majority interest is no longer controlled by a publicly-traded corporation. This has resulted in increased barriers to public information. In our view, this places a greater onus on the Proponent to provide complete disclosure of risks and rewards as they pertain both to the existing terrestrial and maritime operations and to the expanded operations. It also places further responsibility with NIRB to show how their assessments of the Proponent's submissions meet with their stated mandate under the Nunavut Land Claims Agreement. Respectfully, a socio-economic assessment of the merits of this proposal cannot be properly completed without much more transparency as to the exact nature of the present, historical and future public and Inuit-specific benefits that flow from this project.

Baffinland's written and oral submissions throughout the Phase 2 Proposal up to the present date have been insufficient in both data and transparency. Oceans North has both led and participated in numerous research projects in Eclipse Sound and Milne Inlet and is deeply concerned with the connection between the data collected by the Proponent, the summary of results and the conclusions requiring action. Data from a number of marine monitoring programs is being accumulated annually with no coordination and little collaboration among contractors to the Proponent and independent research organizations to ensure rigorous scientific standards are met to allow for understanding of cumulative effects. Currently, neither the environmental monitoring programs in place nor local knowledge and observation have connections to the improvement of mitigations, or to ensuring regulations are being followed -- this is a serious issue.

In 2018, when Northern Affairs Minister Dominic LeBlanc and Crown-Indigenous Affairs Minister Carolyn Bennett overrode the NIRB recommendation and allowed for an increase of up to 6MT for 2018 and 2019, they noted that "the impacts of the production increase need to be more broadly examined during the Phase 2 reconsideration, and **it will be important to integrate the experience, knowledge and data gained over the course of the next two production years into that review process**" (emphasis added). Because of the Proponent's failure to conduct key studies, 2018 provided stakeholders with little information on how increased production impacted the environment. Any knowledge and data gained in 2019 has

been neither shared nor incorporated in the present review process. The Proponent has made it clear in public meetings, as noted earlier, that only a population level reduction in narwhal would lead to a change in operations and that two consecutive years of declining population estimates would be required to make changes. Baffinland did not run an aerial survey in 2018 during this increased shipping year. This does not live up to the clear expectations set out by Minister's Bennet and LeBlanc.

3.0 Conclusion

Without highly robust baseline data, no project will ever be able to fully capture the risks associated with unprecedented intensive shipping in sensitive marine environments. Furthermore, independent oversight of research design and implementation and analyses of data collected under the environmental impact assessment process is needed to appropriately assess the costs of the Phase 2 proposal to ecosystems and communities. Without this collaboration and oversight, the Proponent is left to conclude from its own monitoring that no significant impacts to the marine environment will result from the project. A review of this project must take into account the general lack of data and knowledge regarding present impacts of recent production increases and, in particular, the lack of data regarding recent increases in shipping intensity at Milne Inlet and Eclipse Sound. This information is critical to any assessment of expanded extraction and shipping. Accompanying this project's high levels of environmental impact uncertainty is the additional uncertainty associated with the putative public benefits (including benefits to Inuit specifically) that would potentially flow from this expanded project.

Based on our involvement in this process and our ongoing research in the region, and the deficiencies in the Proponent's environmental and socio-economic analyses, Oceans North believes the project should not be approved as it is proposed, for the following reasons:

1. Risks to the marine environment

- The Proponent proposes a single impact threshold that must be met to necessitate a change in shipping operations under the Phase 2 Proposal. This threshold is the abandonment or long-term displacement of marine mammals at the population level from the region as determined by two consecutive years of aerial survey data. No other monitoring efforts or Local Knowledge would connect to a change in project-related shipping operations. This ‘to little too late’ approach does not attempt to use early warning indicators to avoid displacement or abandonment or fulfill the Proponents obligations under their current permit.
- Disturbance of natural behaviour in narwhals is clearly observed and documented by the Proponent in their in their extensive research as part of this environmental assessment process. However, the Proponent concludes a “non-significant” impact of the project with no adequate justification or statistical confidence. The Proponent fails to take into account cumulative impacts of daily disturbance, which is expected to occur across the entire northern shipping route and to last throughout the annual period narwhal occupy the area for up to 24 hours per day. The effects of this level of disturbance to the individual and population are unknown.
- The ability to communicate using sound and to utilize hearing effectively are essential for narwhals to carry out vital life functions like foraging and maintaining social bonds. The Proponent predicts under a Phase 2 scenario that the effective communication area for narwhals would be reduced by 90% or more along the northern shipping route, but concludes that daily repeated reductions in communication space, lasting substantial proportions of the day, will have no significant negative effects on narwhals or other marine mammals. The Proponent provides no scientific justification for this conclusion. The cumulative impact of this substantial daily reduction in communication space over the full time period in which narwhal inhabit this area is unknown.
- The Proponents conclusion that narwhal will not abandon the area year to year is not supported by the data presented in the Phase 2 Development Proposal and ignores local knowledge and observations. The Proponent accepts that there is behavioural disturbance and temporary displacement of animals as a result of transiting ships, but its assumption that the level of disturbance is insignificant is not adequately supported by its research.

2. Socio-Economic Rationale

- The Proponent has given insufficient consideration of socio-economic benefits and has spent less effort in promoting their optimization.
- The percentage of Inuit employment at Baffinland, as measured by hours worked, has generally declined since the beginning of operations:

2013: 20.3%
2014: 20.3%
2015: 17.5%
2016: 14.8%
2017: 13.5%
2018: “hovered around 14%”

Source: 2013-2017 (TSD 25); 2018 (Baffinland Iron Mines 2018 Annual Report to the Nunavut Impact Review Board March 31, 2019)

- The proposed expansion would inevitably result in loss of significant employment benefits for Inuit over the lifespan of the mine. The output expansion would require approximately doubling the mine’s labour force to a total of 1960 employees during post-construction operations. While Baffinland characterizes the increase in employment opportunities as fundamentally beneficial to Inuit, in reality the Inuit labour force is not presently positioned to capture the benefits of this increase.
- There is a strong case for denying this expansion at this time given the region’s current inability to capitalize on employment benefits at present output levels. Should expansion proceed before the Inuit labour force can effectively support IIBA labour targets (50% Inuit employment), lost Inuit wages over the Project lifespan are anticipated to potentially fall in the \$1b range.
- Baffinland neglects to weigh the benefits of increased futureroyalties as a result of economies of scale against the losses incurred in Inuit employment opportunities. This is a particularly glaring omission given that a substantial portion of the benefits flowing to Inuit were intended to take the form of employment opportunities. Further, there are arguments to be made that benefits are maximized when conferred through employment, specifically. Increased workforce participation has tremendous capacity for generating

positive externalities in at community-level. These include stimulating the creation of other jobs, as well as the compounding social benefits that come with employees being able to move from (in many cases) circumstances of poverty, to those of financial independence and stability.

- In order to provide a more accurate analysis of the socio-economic impacts of Phase 2, benefits must be re-evaluated using achievable employment targets. TSD 26 is intended to provide a certain degree of background for the development of these targets, and acknowledges as much in the concluding section. However, until realistic targets are established using robust quantitative data, it is not possible that any projections of the socio-economic impacts of Phase 2 sufficiently account for the loss of employment benefits to Inuit. Accordingly, Baffinland's current predictions surrounding the socio-economic impacts of Phase 2 are not inclusive enough of this critical piece to be considered to be evidence-based.
- While Baffinland maintains that an expansion at the proposed scale and timeline is necessary to maintain the financial viability of this mine and to continue to provide benefits to rights-holders, they do not provide evidence that serves to substantiate this claim. The limited information provided is incomplete in that it pertains to only lower production levels from earlier years and therefore fails to account for current capacity and associated profits.
- This mineral deposit was selected by Inuit in a land claim negotiation process with the objective of maximizing benefits to Agreement beneficiaries. Protecting the well-being of rights-holders is in fact a constitutionally-protected requirement (Nunavut Agreement), reflected in legislation (NuUPA) and reinforced by contract (IIBA).

3. Proponent Behaviour

- The Proponent's inability to determine significance of impacts documented to affect marine mammals within the study region as a result of project-related shipping.

- The Proponent’s unwillingness to do the required work to establish a baseline and determine thresholds for adaptive management (ie. if aerial surveys are the only thing that triggers change in shipping why have comprehensive aerial surveys not been undertaken every year?).
- The Proponent’s concealment of documents related to significant impacts in narwhal distribution (LGL 2016 report).
- The Proponent’s ongoing lack of clarity on their future plans.
- The Proponent’s desire to keep pushing the line of maximum output without regard for environmental or Inuit social well-being.

4. Process Deficiencies

- This process has proceed in spite of an unacceptable level of uncertainty with regard to the predicted ecosystemic and socio-economic impacts of the proposal.
- Insufficient time has been provided to stakeholders to review and respond to proponent submissions. Proponent must be compelled to provide answers to inquiries with ample time for review and response. Two days prior to a technical meeting is not acceptable as well as documents coming after technical meetings that don’t have the same opportunity for public review.
- New and unexpected information being presented after technical meetings. The GN and others were asking for clarification on alternate shipping which was around the top of Bylot and into Baffin Bay – what was released was a paper on shipping west through the Northwest Passage which would undoubtedly require another Environmental Assessment as the current assessment does not cover this area, new communities that would be affected or this completely different marine environment.

5. Ministerial Oversight

- Ministers Leblanc and Bennet made direct reference to the importance of 2018 and 2019 “experience, knowledge and data” regarding the mining and shipping impacts of their

2018 decision to allow the production increase. These sources of information have not been incorporated into this review process.

References

Bulk Handling Review. August 29 2019. <https://www.bulkhandlingreview.com.au/thyssenkrupp-delivers-5500-tonne-iron-ore-handling-system-to-arctic-island/>

IUCN. 2017. *Monodon monoceros*. The IUCN Red List of Threatened Species 2017: e.T13704A50367651. <http://dx.doi.org/10.2305/IUCN.UK.2017-3.RLTS.T13704A50367651.en>

Loxley, J. 2019 . Assessment of the Mary River Project: Impacts and Benefits. <https://oceansnorth.org/wp-content/uploads/2019/02/Assessment-of-the-Mary-River-Project-Impacts-and-Benefits-final-draft.pdf>

McKenna, M. F., Wiggins, S. M., and Hildebrand, J. A. 2013. Relationship between container ship underwater noise levels and ship design, operational and oceanographic conditions. *Sci. Rep.* 3, 1760. DOI:10.1038/srep01760.

Miller, L. A., Pristed, J., Møhl, B., and Surlykke, A. 1995. The click sounds of narwhals (*Monodon monoceros*) in Inglefield Bay, Northwest Greenland. *Marine Mammal Science* 11, 491–502.

National Marine Fisheries Service. 2016. Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing: Underwater Acoustic Thresholds for Onset of Permanent and Temporary Threshold Shifts. U.S. Dept. of Commer., NOAA. NOAA Technical Memorandum NMFS-OPR-55, 178 p.

National Marine Fisheries Service. 2018. 2018 Revisions to: Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing (Version 2.0): Underwater Thresholds for Onset of Permanent and Temporary Threshold Shifts. U.S. Dept. of Commer., NOAA. NOAA Technical Memorandum NMFS-OPR-59, 167 p.

Qikiqtani Inuit Association. June 14 2019. Tusaqtavut for Phase 2 Application of the Mary River Project. FINAL REPORT.

Southall, B. L., Bowles, A. E., Ellison, W. T., Finneran, J. J., Gentry, R. L., Greene, C. R., Jr., Kastak, D., Ketten, D. R., Miller, J. H., Nachtigall, P. E., Richardson, W. J., Thomas, J. A., and Tyack, P. L. 2007. Marine mammal noise exposure criteria: Initial scientific recommendations. *Aquat. Mamm.* 33, 411–509.