Backgrounder No.2: Materials to Support the Understanding of Baffinland Annual Monitoring Report Templates

Introduction:

This backgrounder offers an overview of the current Mary River Project NIRB Annual Reporting contents as well as identification of areas where further collaboration and information sharing with other parties is required to improve the integration and understanding of cumulative effects in the region. The objective of this backgrounder is to provide reviewers with a clear direction to where and how information of interest to the Committee (i.e., IQ integration, monitoring results, cumulative effects, results vs. predictions) is included in annual reporting to enable all reviewers to feel that they can better evaluate reporting on the potential contributions of the project to regional cumulative effects.

The study and response to cumulative effects is a shared initiative that spans multiple parties, jurisdictions, and mandates. While changes may be observed, they are not necessarily caused by or contributed to by the Mary River Project. Project mitigations may address Mary River's contributions to a cumulative effect, but by definition, there are multiple contributors to cumulative effects outside of the Mary River Project's control that require monitoring, management, and potentially, mitigation. Ongoing government-led monitoring and management programs, and community engagement will provide feedback on effects predictions (including cumulative effects), and mitigation effectiveness. This will enable Baffinland to adapt management measures accordingly.

NIRB Annual Reporting Requirements:

The NIRB annual reporting under Project Certificate (PC) No.005 is intended to provide Inuit and regulators with a detailed overview of how the Mary River Project complies with the terms and conditions (T&Cs) of its PC, as well as information on how the predicted project effects are being monitored, if mitigation measures are proving effective, and if results are within predictions set out in the Final Environmental Impact Statement (FEIS), FEIS Addenda and applications to the NIRB. Baffinland provides a detailed annual report in a standard format for consistency year over year for ease of review. The following components of the annual report are included to satisfy the T&Cs of the PC:

- **Compliance with all Terms and Conditions** — Status of compliance, including any non-compliance events and corrective actions.
- **Project activities and any modifications** — Description of annual activities and any changes that could influence effects or monitoring needs.
- **Biophysical monitoring** — Results for air quality, water, marine environment, terrestrial environment, and wildlife.
- **Socio-economic monitoring** — Employment, training, Inuit participation, business opportunities, and community well-being indicators.
- **Inuit engagement and incorporation of Inuit Qaujimajatuqangit (IQ)** — How Inuit feedback was gathered and how IQ informed monitoring, mitigation, and interpretation.
- **Cumulative effects and regional context** — Discussion of how project effects interact with other activities and regional environmental or socio-economic trends.
- **Adaptive management and mitigation effectiveness** — Evaluation of whether mitigation measures are working and what adjustments were made or are planned.

Contents of the NIRB Annual Report for the Mary River Project:

Baffinland provides a consistent package of technical monitoring reports (or reference to where the publicly available report is located), summaries, data tables, and narrative explanations in the NIRB Annual Report, that describe all monitoring results for the reporting year. The content is structured to demonstrate compliance with PC requirements, document environmental and socio-economic conditions, and explain how Inuit feedback and IQ informed monitoring and mitigation. The annual package typically includes the following sections:

- **Popular Summary (English and Inuktitut)** — plain-language overview of project activities, monitoring results, Inuit feedback, and socio-economic outcomes. This can be reviewed as a standalone document to understand at a high-level the results of the annual monitoring of the Project.
- **Project overview and activity summary** — description of mining, transportation, shipping, construction, and any project modifications.
- **Compliance reporting** — status of all Terms and Conditions, non-compliance events, inspections, audits, and corrective actions.
- **Air quality and noise monitoring results** — dust, particulate matter, emissions, noise measurements, exceedances, and comparison to thresholds and predictions.
- **Freshwater monitoring** — water quality, hydrology, fish habitat observations, sediment data, and trend analysis.
- **Marine environment monitoring** — marine water quality, ice conditions, vessel activity, underwater noise, marine mammal observations, and shipping-related effects.
- **Terrestrial and wildlife monitoring** — caribou, foxes, birds, vegetation, habitat disturbance, camera data, and wildlife interactions.
- **Socio-economic monitoring** — Inuit employment, training, retention, contracting, business opportunities, community well-being indicators, and socio-economic trends.
- **Community engagement documentation** — summaries of meetings with communities, HTOs, and Inuit organizations; key themes of Inuit feedback; issue-response tracking; and follow-up commitments.
- **Inuit Qaujimajatuqangit (IQ) integration** — how IQ was gathered, key IQ observations for the year, and how IQ influenced monitoring design, interpretation, and mitigation.
- **Adaptive management reporting** — actions taken in response to monitoring results or Inuit feedback, changes to mitigation measures, and planned improvements.
- **Predictions vs. observed conditions** — comparison of monitoring results to EIS predictions, thresholds, and expected ranges.
- **Cumulative effects discussion** — interpretation of project-specific results in the context of regional trends, other activities, climate-driven changes, and available external studies.
- **Data appendices and technical reports** — detailed datasets, methods, maps, figures, and program-specific technical appendices.

Integration of Inuit feedback:

Baffinland outlines how IQ was gathered in the NIRB Annual Report by reporting on how Inuit Knowledge, observations and values shape the management of the Project throughout the year. Specifically, IQ is included across the Annual Report, in descriptions of how Inuit knowledge was gathered or shared through community meetings and engagements with Hamlets, HTO's, site visitors and public community members, as well as through a number of Baffinland led larger engagement opportunities (e.g. working groups further discussed below). The IQ is then summarized and included alongside scientific monitoring results to aid in interpretation and interpret trends in the data collected. IQ is also reflected in adaptive management and adjustments to monitoring program design, such as choosing sampling locations, the timing of sampling and additional indicators based on Inuit knowledge.

In addition to its monitoring programs, Baffinland is informed about potential cumulative effects through various working groups, such as the Government of Nunavut (GN) led regional Qikiqtaaluk Socio-Economic Monitoring Committee (QSEMC) and the Mary River Socio Economic Monitoring Working Group (MRSEMWG) as well as the Marine and Terrestrial Environment Working Groups (MEWG and TEWG). The QSEMC endeavour to identify areas of mutual interest and priorities for inclusion into a collaborative monitoring framework that includes socio-economic priorities related to the Project, communities, and the North Baffin region as a whole. The MRSEMWG is a sub-set of the QSEMC whose members include Baffinland (Lead), the Government of Nunavut (GN), the Government of Canada, and the QIA. The Terms of Reference for the MRSEMWG identifies socio-economic monitoring priorities and objectives for the Project, as well as the responsibilities of the Parties with a view to understanding the Projects effects on the larger region, while also providing an opportunity to provide greater context for regional effects may be identified through project monitoring.

Project Certificate No. 005 Terms and Conditions require that Baffinland establish three (3) working groups for the Project, identified as the:

- Terrestrial Environment Working Group (TEWG);
- Marine Environment Working Group (MEWG); and
- Mary River Socio-Economic Monitoring Working Group (SEMWG).

The Working Groups provide a valuable forum for ongoing Project communication and reporting between Baffinland and interested parties. The Working Groups also function as an advisory group that provide recommendations on monitoring and management approaches related to the Project. The meetings are structured to enable participants to have the opportunity to provide input on monitoring program design and implementation. The TEWG and MEWG receive presentations on the implementation of field programs and subsequent results in order to prioritize monitoring plans. Working group members are also able to provide input on measures for mitigation where required. The Working Groups provide a platform for the discussion of collaborative research opportunities between parties and to identify monitoring programs suited for community-based monitoring and Inuit participation. The TEWG and MEWG include member-status and observer-status participant organizations. Members of the group include the Mittimatalik Hunters and Trappers Organization (MHTO), Igloolik Hunters and Trappers Organization (IHTO), Arctic Bay (Ikajutit) Hunters and Trappers Organization (IHTA), Hall Beach (Sanirajak) Hunters and Trappers Organization (HBHTA), and Clyde River (Nangmautuq) Hunters and Trappers Organization (NHTO), the Government of Nunavut (GN), the Qikitani Inuit Association (QIA), Environment and Climate Change Canada (ECCC), Fisheries and Oceans Canada (DFO), Parks Canada (PCA), Makivvik Corporation, and Baffinland. Additionally, World Wildlife Foundation Canada (WWF), the NIRB, the Canadian Northern Economic Development Agency (CANNOR), and Oceans North (ON) participate as observers of the group. DFO and Makivvik, are only members of the MEWG. Natural Resources Canada

(NRCan) participates as an observer to the TEWG, but does not participate on the MEWG. Transport Canada (TC), ON, and WWF Canada are only observers for the MEWG and do not participate on the TEWG

Another avenue for collecting feedback is the Inuit-led Dust Audit Committee (DAC). The DAC a third-party committee that conducts independent audits and identifies sources of dust, and develops recommendations to reduce dust emissions. The Dust Audit Committee is comprised of nominated representatives from the Hamlets and their Hunter and Trappers' associations including Pond Inlet, Igloolik, Clyde River, Sanirajak and Arctic Bay, as well as representatives from the QIA and facilitators and engineering subject matter experts from Nunami Stantec and CWA Engineers Inc

Baffinland reports Inuit feedback through a combination of structured summaries, issue tracking tables, and narrative explanations that document what Inuit said, how concerns were addressed, and how feedback influenced monitoring and mitigation. This information is provided in the following areas of the annual report and through the monitoring reports:

- **Community meeting summaries** — dates, locations, participants, and the main themes raised by Inuit during HTO meetings, community townhall sessions, on the land visits, and working groups.
- **Integration into monitoring programs** — descriptions of how Inuit feedback shaped monitoring design, such as adjusting sampling locations, timing, or indicators based on Inuit observations and priorities.
- **Influence on mitigation and operations** — examples of operational changes made in response to Inuit concerns, such as modifications to shipping practices, dust control, or wildlife protection measures.
- **Inuit observations included alongside scientific results** — qualitative observations from harvesters and community members incorporated into the interpretation of environmental trends.

Reporting on monitoring results compared to Project predictions and adaptive management thresholds:

Baffinland generally reports monitoring results against low, moderate and high risk thresholds set out in Trigger, Action Response Plans (TARP's) tables included in relevant management plans. The thresholds included in the TARP tables have been developed over time and have been informed by multiple lines of evidence, including original FEIS predictions, relevant and evolving guidelines, project monitoring, site specific threshold research and engagement (regulators and communities). As indicators are monitored, the results of those monitoring programs including trends over time are compared against the thresholds in the TARP tables (original FEIS predictions if not TARP table applies) The detailed annual report[1] for each socio-economic or environmental component identifies whether observed conditions fall within, above, or below assigned threshold ranges, noting any exceedances of thresholds or guidelines, and explains the likely reasons for differences between predicted and observed outcomes, if those have in fact occurred. A critical component to this analysis is the determination of the Projects contributions to a demonstrated effect, which implicitly considers the potential and presence of cumulative effects. Depending on the magnitude of an exceedance, further investigation is a mandatory response and includes a formal evaluation of other potential contributing factors in relation to the Projects, with the intent to customize a response to the circumstance and the extent that it is reasonably position to result in a different outcome in future monitoring. All monitoring reports are reviewed by the working groups and feedback is incorporated as necessary; the reports are posted publicly as well as summarized in the NIRB Annual Report as applicable. Baffinland also interprets these comparisons using both scientific analysis and Inuit observations, and describes any adaptive management actions taken when results diverge from what was predicted.

[1] https://www.baffinland.com/document-portal/

Reporting on cumulative effects:

In addition to the above, Baffinland reports on cumulative effects by combining project-specific monitoring results with regional information to show how the Mary River Project activities interact with other environmental and socio-economic pressures in North Baffin. The annual report includes narrative sections that interpret monitoring results in the context of broader regional trends, such as changes in marine mammal presence, caribou movement, ice conditions, and community well-being. It compares observed conditions to EIS predictions and identifies where results align with, exceed, or fall outside predicted ranges. Through these elements, the report outlines the Mary River Projects contribution to cumulative effects and highlights data gaps or information needs that limit regional assessment. Attachment 1 provides a summary of cumulative effects assessment predictions for the Mary River Project along with the associated monitoring programs currently implemented for each Valued Components (VC; combination of Valued Ecosystem and Socio-Economic Components) that inform Baffinland's ongoing review and confirmation of the cumulative effects predictions in its prior assessments.

How non-Baffinland Studies are integrated into the Annual Report:

Wherever available Baffinland incorporates non-Baffinland data into the annual reports. The annual report typically references regional studies and datasets produced by federal and territorial departments, Inuit organizations, academic researchers, and the NIRB itself. This includes information on marine mammals, caribou, climate trends, shipping activity, socio-economic conditions, and regional environmental baselines. Baffinland has access to publicly available government datasets, NIRB monitoring reports and workshop materials, published academic studies, and research shared by Inuit organizations when made available. These external sources are used to compare project-specific observations to broader regional patterns. Baffinland can only incorporate data and reporting that is shared and/or published which is a limiting factor in identifying whether observed changes align with wider trends, and highlight data gaps that limit cumulative-effects assessment

Baffinland needs information from multiple external partners to strengthen cumulative effects reporting because many of the drivers of regional change are outside Baffinland' control or data collection capacity. The most important needs include:

- **Regional wildlife datasets** — updated information on narwhal, seals, polar bears, caribou, fish, and migratory birds from federal and territorial departments and Inuit organizations, including population trends, movement data, harvest information, and habitat use.
- **Marine traffic and noise data** — region-wide vessel activity, underwater noise measurements, and shipping forecasts from regulators and other operators to understand combined pressures on marine mammals.
- **Climate and environmental baselines** — long term data on sea ice, weather, permafrost, hydrology, and coastal conditions to distinguish project-related effects from climate-driven change.
- **Socio-economic indicators** — community level data on health, well-being, education, income, and employment from government and Inuit organizations to contextualize project-specific socio-economic trends. Some Government datasets haven't been updated for multiple years which impacts trend analysis.
- **Access to other proponents' monitoring results** — information from any current or proposed regional projects that may contribute to cumulative effects.
- **Shared regional indicators and methods** — agreement among NIRB, governments, Inuit organizations, and proponents on common indicators, thresholds, and data standards to allow cumulative analysis.

- **Guidance on expectations** — clear direction from NIRB and Responsible Ministers on the scope, format, and level of detail required for cumulative-effects reporting.

Attachment 2 is the current general table of contents for the Mary River Project Annual Report.

Attachment 1

Summary of Monitoring Programs and Cumulative Effects

Attachment 1: Baffinland Monitoring Programs and Cumulative Effects

VEC	Associated Monitoring Program	How Program Identifies and Verifies Cumulative Effects Predictions
Atmospheric Environment		
Climate Change - Greenhouse Gas Emissions	• Meteorology • Continuous Ambient Air Quality Monitoring	The meteorology data collected during 2022 is consistent with the historical data. Some data slightly depart from the historical trends, but those departures are within the natural variation that would be expected over a multi-year monitoring program (2022 NIRB Annual Report, Appendix G.2.1). Meteorology data by natures looks at regional trends, which inform cumulative effects predictions rather than only informing Project-related effects. Overall, monitoring results remain within predictions of the FEIS and subsequent Addenda, and therefore support cumulative effects predictions.
Air Quality	• Continuous Ambient Air Quality Monitoring • Dustfall Monitoring • Dustfall Extent (remote sensing) Monitoring • Site-Specific Dust Monitoring	Air quality assessments for the Project were completed in support of Baffinland's previous NIRB applications. The most recent air quality assessment evaluated the air quality effects of the Project emissions for a 6 Mtpa mine production rate and ore transport along the Tote Road to Milne Port and ore shipping during the open water season (July to October). The assessment focused on emissions of PM of different aerodynamic particle sizes (TSP, PM10 and PM2.5), which are the primary air COPCs associated with open pit mining and ore hauling. The SOP air quality assessment characterized the Project emission sources to represent mining operations at the nominal ore production and transport levels approved from 2018 to 2022 and incorporated dust mitigation measures that have been implemented along the Tote Road and at the ore stockpiles at Milne Port. A comparison of model-predicted and measured annual dustfall at dustfall monitoring stations at the Mine Site, Milne Port and Tote Road confirmed that monitoring results remain within predictions of the modelled annual dustfall at most monitoring sites (2022 NIRB Annual Report). Identification of cumulative effects is possible through dust monitoring in the regional study area. In response to comments shared by Inuit land users who reported seeing dust beyond what was predicted in baseline dust modelling, Baffinland also characterized dustfall extent by examining satellite images in 2022. The pattern of dustfall extent on the landscape was similar from 2014 to 2022 for all areas, with the highest concentrations near the Project. These monitoring results remain within the predictions of the FEIS and subsequent Addenda, and support the cumulative effects predictions. However Baffinland respects Inuit observations and experience with dust and is implementing significant mitigations designed to address the serious Inuit concerns about this issue. At a regional level, Baffinland is also working with NRCan to improve dust monitoring and assessment of cumulative effects.
Noise	• Noise Monitoring	Noise monitoring was conducted in the summer of 2022 to verify background sound levels and sound associated with the Project's ground operations. Overall, the impacts of noise by the Project have remained in compliance with the criteria presented in the FEIS for most areas (2022 NIRB Annual Report, Appendix G.5.1). Baffinland measures noise in both the local and regional study areas to account for cumulative effects. However, it should be noted that Baffinland is the only anthropogenic noise producer in the RSA. Thus, the baseline is reflective of all sources of noise. As a result, no cumulative effects are occurring as there is no other noise production within the RSA. Should monitoring programs identify a change in the future, Baffinland will be in a position to quantify cumulative effects on noise due to the careful design of its noise monitoring program.
Terrestrial Environment		
Vegetation	• Vegetation Health Monitoring • Vegetation Abundance and Composition • Metals Concentration in Soil and Vegetation • Rare Plants • Exotic Invasive Vegetation Monitoring • Ecosystem Classification • Normalized Difference Vegetation Index Analysis	Vegetation monitoring in 2022 included vegetation and soils base metals monitoring. Soil-metal concentrations at the Project predominantly indicated no significant change or were significantly lower in relation to baseline values, and all samples remained within guidelines. Lichen-metal concentrations showed no significant changes in relation to baseline values. Ancillary analysis of dust deposited metals on lichen and examination of the relationship between metals in dustfall versus soil-metal and lichen-metal were also completed to cross-reference potential trends from the passive dustfall monitoring program. No unifying trends were observed from the analyses of deposited metals on lichen or the relationship between metals in dustfall versus soil-metal and lichen-metal. No significant risk to human or ecological health was identified (2022 NIRB Annual Report, Appendix G.5.1). The vegetation monitoring program, by design, has a regional outlook and is set up to distinguish project-related effects vs regional effects. Sampling in the LSA and RSA allows the identification of any key differences between Project-effects and potential cumulative effects. Baffinland has collected an extensive baseline and to date, results have not identified any source of cumulative effects on vegetation. Monitoring results remain within predictions of the FEIS and subsequent Addenda, and therefore supports cumulative effects predictions.

VEC	Associated Monitoring Program	How Program Identifies and Verifies Cumulative Effects Predictions
Migratory Birds and Habitat	• Active Migratory Bird Nest Surveys • Cliff-Nesting Raptor Occupancy and Productivity Surveys • Communication Tower Survey • Roadside Waterfowl Surveys • Staging Waterfowl Surveys • Tundra Breeding Bird PRISM • Bird Encounter Transects • Coastline Nesting and Foraging Habitat Surveys • Red Knot Surveys	Bird nest surveys were completed before any land disturbance at the Project during the breeding bird season, and no nests were detected. Furthermore, after several years of raptor effects monitoring, occupancy and productivity were deemed to be stable, and no evidence of Project-related effects on raptors were found. Therefore, raptor occupancy and productivity surveys were paused in 2021 and 2022. No future surveys are proposed at this time. (2022 NIRB Annual Report). Monitoring results remain within predictions of the FEIS and subsequent Addenda, and therefore they support cumulative effects predictions. To further contribute to the verification of cumulative effects prediction, Baffinland supports ECCC with the collection of data for the PRISM survey, which are led across the Arctic on a regular cycle. Those surveys aim at collecting baseline and cumulative monitoring data on shorebirds, landbirds and inland waterbirds.
Terrestrial Wildlife and Habitat	• Aerial Caribou Survey • Height of Land Caribou Surveys • Snow Track Surveys • Snowbank Height Monitoring • Hunter and Visitor Logs • Wildlife Observations, Incidents and Mortality Logs	Wildlife monitoring included snow track surveys, Height of Land caribou surveys, and active migratory bird nest surveys, which are designed to monitor Project-effects. Following the completion of those monitoring programs in 2022, no caribou were observed during the Height of Land surveys, and no caribou tracks were identified during the snow track surveys. These results are consistent with previous years, and with low regional abundance estimates provided by the Government of Nunavut (2022 NIRB Annual Report). To identify and verify cumulative effects predictions, Baffinland also conducts aerial surveys of the entire regional project area. Caribou are observed in these aerial surveys, which shows that caribou populations are recovering on a regional basis. Through traditional knowledge, Baffinland understands that caribou come back in the vicinity of the Project area through a population recovery cycle.
Freshwater Aquatic Environment		
Freshwater Quantity	• Water Withdrawal Monitoring	The AEMP is an overarching monitoring program which comprises a number of component studies that aim at monitoring Project-related effects on the receiving environment. The various monitoring programs set up for freshwater and sediment quality evaluate baseline and Project-influenced impacts. The freshwater monitoring programs, by design, include mine-exposed and reference waterbodies to enable the comparison of project-related effects compared to potential cumulative effects. Baffinland has collected an extensive baseline and to date, results have not identified any source of cumulative effects on freshwater quantity, quality and sediment quality. Monitoring results remain within predictions of the FEIS and subsequent Addenda, and therefore support cumulative effects predictions.
Freshwater and Sediment Quality	• Surveillance Network Program (SNP) • Effluent and Waste Discharge • Lake Water Quality (Metals, COPCs) • Lake Sedimentation Monitoring Program • Groundwater monitoring Program • Aquatic Effects Monitoring Program (AEMP) • Core Receiving Environment Monitoring Program (CREMP) • Water Infrastructure monitoring	

VEC	Associated Monitoring Program	How Program Identifies and Verifies Cumulative Effects Predictions
Freshwater Fish and Fish Habitat (Arctic Char)	• AEMP • EEM • Milne Inlet Freshwater Fish Health • Sediment Quality (Metals, COPCs) • Fish Presence and Abundance Studies	As outlined above, the AEMP and other freshwater monitoring programs have been set up to consider cumulative effects. Furthermore, the Milne Inlet Freshwater Fish Health monitoring program was conducted in consultation with the MHTO. Their input was integrated to identify priority recommendations and their implementation. A discussion of cumulative effects was included in the 2022 Milne Inlet Freshwater Fish Health Report. It stated that "while changes in fish condition can be linked to anthropogenic change (e.g., climate change), it is more likely that this difference is a product of the sample bias (ratio of resident vs anadromous individuals comprising the sample) rather than mine-related effects." Thus, as monitoring results remain within predictions of the FEIS and subsequent Addenda, it supports the cumulative effects predictions.
Marine Environment		
Sea Ice	• Sea Ice Monitoring	Baffinland monitors sea ice condition in the context of its shipping activities in Milne Inlet. The break-up of landfast ice is confirmed at the start of the shipping season each year via satellite imagery and the Canadian Ice Service daily ice charts. Additionally, the commencement of Baffinland's current shipping operations are limited to when the floe edge is no longer being used by Pond Inlet land users. This high level monitoring of sea ice via satellite imagery is reviewed in the regional context. Prior to commencing Steensby shipping, Baffinland plans to develop a more extensive sea ice monitoring program to address concerns related to icebreaking of land-fast ice in support of shipping operations along the Southern Shipping Route and in Steensby Port. As Baffinland has not(and will not) carry out breaking of land-fast ice along the Northern Shipping Route, this monitoring program is yet to be developed (2022 NIRB Annual Report).
Marine Water and Sediment Quality	• MEEMP - Marine Water Quality • Marine Sediment Quality	Monitoring results from 2022 sampling indicated there was no evidence of Project-related impacts to sediment quality (i.e., concentrations of nutrients, metals, and hydrocarbons). In 2022, concentrations were below acceptable CCME sediment quality guidelines or consistent with what was documented in previous sampling years (2022 NIRB Annual Report, Appendix G.6.9 MMEMP). Monitoring results remain within predictions of the FEIS and subsequent Addenda, and therefore support cumulative effects predictions.
Marine Habitat and Biota	• MEEMP - Benthic Infauna • Macroflora and Epifauna • Fish Community • Fish Health • NIS/AIS	Monitoring results from 2022 remain within predictions of the FEIS and subsequent Addenda, which forecasted the potential for minor and localized sediment disturbance associated with propeller wash and associated short-term effects on benthic infaunal invertebrate community indicators (2022 NIRB Annual Report, Appendix G.6.9 MMEMP). The results therefore support cumulative effects predictions. Monitoring has continued in 2023 and results will be presented in the 2023 NIRB Annual report. Furthermore, the conclusions from the marine environment monitoring programs have been discussed at the Marine Environmental Working Group (MEWG) meeting, where cumulative effects are being considered and discussed.
Marine Mammals	• Bruce Head Shore Based Monitoring Program and Narwhal Tagging Program • Marine Mammal Aerial Surveys • Ringed Seal Aerial Surveys • Ship-Based Observer Program	The results of the marine mammal monitoring programs identified an increase in narwhal numbers in the RSA in 2022 (2022 NIRB Annual Report, Appendix G.6.2 MMASP) as compared to the previous years. A discussion of cumulative effects, combined with consideration of IQ were provided to explain the observed differences. Given that the combined stock estimate for Admiralty Inlet and Eclipse Sound indicated that the regional narwhal population remained stable relative to pre-shipping conditions, and in consideration of the available IQ regarding the degree of exchange between narwhal groups on their summering grounds, the observed changes in narwhal abundance in Eclipse Sound in recent years likely reflects a natural exchange between the two putative stock areas that began prior to Baffinland shipping operations, with animals shifting between Eclipse Sound and Admiralty Inlet based on where habitat conditions may be more favorable that season (e.g., ice coverage, prey availability, predation pressure). Following an assessment, it was identified that the potential for climate-driven shifts in species distributions cannot be ignored as a potential driver of the recently observed changes in summer narwhal distribution in Eclipse Sound. To better understand what is occurring, additional engagement and monitoring with Inuit stakeholders and regulatory agencies are needed, inclusive of collaborative regional-scale monitoring to better understand how climate change is impacting the Baffin Bay narwhal population as a whole.

VEC	Associated Monitoring Program	How Program Identifies and Verifies Cumulative Effects Predictions
		The 2022 Narwhal Adaptive Management Response Plan also considers cumulative effects, where the scope of Baffinland's cumulative effects monitoring is focused on studying adverse effects of anthropogenic activities on marine mammal populations, which has been incorporated in the ongoing monitoring programs (2022 NIRB Annual Report, Appendix G.6.3 NAMRP).
Communities		
Population Demographics	• Socio-Economic Monitoring Program • The Dust Audit Committee	Cumulative effects are monitored on an annual basis and presented in the Socio-Economic Monitoring Report. In the 2022 Report, it was noted that "the Project continues to make positive contributions to Nunavut's economy. 232 Inuit FTEs were employed by the Project in 2022, earning $24,082,687. $162.2 million was awarded to Inuit Firms in 2021. A total of $1.68 billion has been awarded to Inuit Firms since Project development. Mining remains an important contributor to the Nunavut economy. Nunavut's real gross domestic product (GDP) for all industries in 2021 (the latest year for which data is available) was $3,454 million16 (Statistics Canada, 2021). Of this amount, 'metal ore mining' was responsible for contributing $1,186 million (or 34%). Mining may also make economic contributions to supporting industries such as 'construction' ($313 million contribution to the Nunavut economy in 2021), 'transportation and warehousing' ($53 million contribution to the Nunavut economy in 2021), and 'accommodation and food services' ($21 million contribution to the Nunavut economy in 2021), among others. No negative regional or cumulative socio-economic effects directly associated with the Project were identified in 2022, although several indicators will continue to be closely monitored and discussed with the QSEMC, including crime rates and impaired driving violations. As such, no additional socio-economic mitigation measures have been proposed to manage negative effects" (Baffinland, 2022 Socio-Economic Monitoring Report for the Mary River Project). The Dust Audit Committee was created to directly respond to concerns from the five (5) Inuit communities on North Baffin and to identify the greatest sources of fugitive dust at the Mary River Project and any modifications or controls that could effectively reduce the generation or spread of dust. The Dust Audit Committee is comprised of nominated representatives from the hamlets and their Hunter and Trappers' associations including Arctic Bay, Clyde River, Igloolik, Pond Inlet, and Sanirajak, as well as representatives from the QIA, and facilitators and engineering subject matter experts from Nunami Stantec and CWA Engineers Inc. (CWA). The methodology considers Baffinland's commitment to identify present and future sources of dust and mitigations, to ensure proper dust controls are in place, and the approach to include Inuit Qaujimajatuqangit (IQ) in understanding and recording recommendations of the Dust Audit Committee. Baffinland has also committed to provide sufficient funding for the Dust Audit Committee to continue to support the annual dust audit and associated reporting for the life of the Project, and for any other work of the Dust Audit Committee where it supports other areas of the project (QIA TC# AE-4 – Appendix B Project Certificate No. 005). Nunami Stantec continues to facilitate the Dust Audit Committee and will provide a fourth annual dust audit report to be submitted to the NIRB in 2026.
Human Health and Well-Being		
Community Infrastructure and Public Services		
Culture, Resources and Land Use		
Archaeological Sites	• Archaeological Status Update Reports	Monitoring results remain within predictions of the FEIS and subsequent Addenda. This supports the cumulative effects predictions.
Land Use	• Socio-Economic Monitoring Program • Hunter and Visitor Logs	The Project is located in areas important for Inuit land use. It is monitored through the socio-economic monitoring program as well as hunter and visitor logs. The programs verify both localized Project-related effects, but also considers cumulative effects in the regional study area, through monitoring of country foods, and other Terrestrial Environment VECs. Monitoring results remain within predictions of the FEIS and subsequent Addenda, which support the cumulative effects predictions.

Attachment 2

Mary River Project Annual Report Table of Contents

APPENDICES