

APPENDIX 1A-2**POPULAR SUMMARY – ENGLISH**



**MARY RIVER PROJECT
FINAL ENVIRONMENTAL IMPACT STATEMENT ADDENDUM**

POPULAR SUMMARY

SECTION 1.0 PROJECT SUMMARY

The Mary River Project is located on northern Baffin Island, in the Nunavut Territory, in the Canadian Arctic. Baffinland Iron Mines Corporation (Baffinland)'s initial Project consisted of mining iron ore from the reserve at Deposit No. 1 at a production rate of 18 Million tonnes per year (Mt/a). The Nunavut Impact Review Board (NIRB) issued the Project Certificate for this Project on December 28, 2012.

On January 13, 2013 Baffinland informed the Nunavut Impact Review Board (NIRB or Board) that, due to various business drivers, Baffinland was proposing to make changes to the schedule and specific activities in the initial stages of the development associated with the Mary River Project (File No. 08MN053). Baffinland noted it understood that this Project amendment request would potentially necessitate a reconsideration of the Terms and Conditions contained within Project Certificate No. 005 as issued by the NIRB on December 28, 2012 for the Mary River Project.

The proposed changes to the schedule and specific activities, defined as Early Revenue Phase (ERP), consists of the re-introduction of shipment of up to 3.5 Mtpa ore via Milne Port, road transport of iron ore from the Mine Site to Milne Port via the Tote Road, and the deferral of the full scale development of the Approved Project (18 Mtpa production, with railway link to Steensby Port and the development of Steensby Port).

Pursuant to the NIRB's instruction to Baffinland (February 2013) regarding the "Next Steps for the NIRB's Reconsideration of Terms and Conditions Within Project Certificate No. 005 for Baffinland's Mary River Project", the Company has prepared this addendum to the final environmental impact statement (FEIS) for the ERP components of the Mary River Project. The Addendum to the FEIS is part of the environmental assessment process established for a project under the Nunavut Land Claims Agreement. Under this environmental assessment process, the proponent of a project, such as the Mary River Project, describes the surrounding environment and the proposed development. Potential effects are then predicted and mitigation plans are developed. The severity or "significance" of residual effects (effects remaining after mitigation measures have been applied), are evaluated based on established criteria and expert opinion.

The FEIS Addendum for the Early Revenue Phase (ERP) components of the Mary River project builds on the extensive baselines studies and assessments carried out since 2011 for the larger Approved Project and is thus closely linked to the FEIS submitted for review in February 2012.

1.1 THE PROPONENT

Baffinland is owned 50 % by ArcelorMittal and 50 % by Iron Ore Holdings LP, with ArcelorMittal remaining as the Project operator. Baffinland's head office is located in Toronto, Ontario, Canada. In addition to its head office, Baffinland maintains a year-round presence at its exploration camp at the Mary River site, and community liaison offices in Iqaluit, Igloolik, Pond Inlet, Hall Beach, Clyde River, and Arctic Bay. ArcelorMittal is one of Canada's leading suppliers of iron ore to steel markets around the world, generating some 40 per cent of Canada's total production. Recognized for the excellence of its products, the skills of its employees and its leadership in the industry, ArcelorMittal is one of the world's largest steel companies, operating in more than 60 countries. The Company's engineering and environmental teams have a wealth of Arctic development experience. Baffinland is also developing key partnerships with companies who have specific northern experience, for example, in shipping and ice-breaking.

1.2 THE EARLY REVENUE PHASE

With the introduction of the ERP, the Mary River Project consists of mining iron ore from the reserve at Deposit No. 1 at a production rate of 21.5 Million tonnes per year (Mt/a). Initially, for the Early Revenue Phase, 3.5 Mtpa of iron ore will be mined, transported by trucks to Milne Port and shipped to markets

from Milne Port during the open water season. As global markets improve for the prices of iron ore, the Company intends to proceed with the construction and operation of the larger Approved Project which includes the construction, operation, closure, and reclamation of a large scale mining operation (open-pit mine) and associated infrastructure for extraction, a railway link for the transportation of ore to Steensby Port, and, the construction and operation of a year around port facilities on Steensby Inlet for the shipment of iron ore.

There are 3 main project locations for the Early Revenue Phase (ERP) – the mine site, Milne Port north of the mine site, and the Tote Road which connects the Mine Site to Milne Port. Only limited development will occur at the Mine Site, sufficient to support the mining of 3.5 Mtpa of iron ore. The Tote Road will be upgraded to enable safe and efficient transportation of ore by truck from the Mine site to Milne Port. Milne Port will be fully developed and will accommodate a 3.5 million tonnes ore stockpile, an ore dock, maintenance facility and associated infrastructure for the operation of the port facilities.

1.3 NEED FOR THE PROJECT

The execution of the Approved Project requires a large financial undertaking from the Proponent. Although the financial returns generated by this investment are attractive, the “Approved Project” as planned in the project Certificate No. 005 has two main risks:

1. The funding requirement is large with 4 years construction prior to revenue.
2. Market and economic uncertainties.

As stated in correspondence to the NIRB on January 13, 2013, due to various business drivers, Baffinland proposes to make changes to the schedule and some activities in the initial stages of project development associated with the Mary River Project Proposal for which the NIRB recently issued Project Certificate No. 005 (the ‘Project Certificate’). Such changes are necessary because the current global financial market is averse to taking on large value financial risks making it difficult to fund the Approved Project. The ERP enables the Mary River Project to advance in a phased approach.

In its request to the NIRB, Baffinland indicated that although the Company remains committed in the long-term to developing the Project as authorized in the Project Certificate, in the short term Baffinland proposes to change some development activities and project timelines to accommodate a proposed “Early Revenue Phase” which would include development of a nominal 3.5 million tonnes per annum (Mtpa) road haulage operation from the Mary River mine site to a port facility at Milne Inlet for shipping of iron ore during the open water season. As noted by Baffinland, this development option was presented previously as a project alternative, and was included within the initial review of the Draft Environmental Impact Statement for the Mary River Project.

Key advantages of this approach include:

1. Reduced initial capital requirements, generation of early revenue.
2. Open water shipping during the Early Revenue Phase.
3. Early product exposure at reduced quantity, while enabling Northern communities to slowly adjust to training, jobs and business opportunities.

The ERP will include development of a 3.5 Mtpa road haulage operation from Mary River to a marine facility at Milne Inlet for shipping of iron ore during the open water season. The operation will be very similar in concept to the bulk sample mining and export effort by Baffinland in 2008.

Meanwhile, the Approved Project will be fully executed as infrastructure debt financing becomes available.

For the purpose of the Environmental Impact Statement (EIS) of the Early Revenue Phase (ERP), it is assumed that complete financing for the Approved Project will become available to begin engineering in 2014 and mobilization in 2015. Construction would be completed in 5 years to enable the first ore shipment from Steensby Port in Q4 2019.

Despite the temporary downturn in global demand for iron ore, the world needs iron ore to continue to build and develop the materials our society uses every day. Global iron ore demand is expected to increase as countries such as China, India, and other emerging areas continue to grow and develop while the economies of western countries continue to improve. Baffinland proposes to develop the Project to supply high quality iron ore to world markets and provide an acceptable profit for its investors.

For the people of Nunavut, the Project will contribute to the development of infrastructure, skills, jobs, business opportunities, and will provide increased revenues to the Government of Nunavut and the Inuit birthright corporation (Nunavut Tunngavik Inc.). The Project is expected to bring many benefits to local communities, by supporting both the traditional lifestyle of Inuit, as well, the generational shift occurring in the Inuit community as youth show an interest to participate in the wage-based lifestyle.

The Inuit Impact and Benefits Agreement (IIBA), presently being negotiated between Baffinland and the Qikiqtani Inuit Association (QIA), will ensure that benefits from the Project flow to nearby Inuit communities and the Qikiqtaaluk Region of Nunavut. The development of the Project is consistent with the Nunavut Planning Commission's broad planning principles, policies, and goals as well as the Government of Nunavut's strategy for mining development. The Project should help to attract additional investment to the region.

The Project also contributes to Canada's northern strategy for strengthening Canada's sovereignty in the North, protecting the country's environmental heritage, promoting economic and social development in the region, and improving Northern governance.

1.4 PROJECT DEVELOPMENT APPROACH

Baffinland will carry out the Early Revenue Phase (ERP) in an environmentally and socially responsible manner. The needs and values of others, particularly hunters and trappers, will be respected throughout development and operation of the Project. Baffinland will comply and, where it is economically and technically feasible, exceed Nunavut and federal regulatory requirements by applying technically proven and cost-effective environmental protection measures for each part of the Project. Baffinland's decision-making will be guided by sound management principles where the sequence of "Policy – Planning – Implementation and Operation – Checking and Corrective Actions – Management Review" are systematically followed. At each of these stages community involvement will be an important part of the process. An approach that emphasizes learning as you check the effects of actions will allow Baffinland to continuously improve and adapt quickly to changing conditions. Baffinland is committed to precaution to avoid and/or reduce potentially adverse effects of its operations to ensure the safety of its employees, the well-being of the residents of Nunavut, and the protection of the natural environment.

Baffinland has adopted progressive employment and business principles that will guide the Company through the life of the Project. Safety for employees is a cornerstone of all decisions. Baffinland will provide a work environment that will attract, develop, and retain qualified personnel and maximize Inuit participation. To the extent possible, the company will hire employees from the five communities closest to the Project (Igloolik, Pond Inlet, Clyde River, Arctic Bay, and Hall Beach). Baffinland will work closely with the Qikiqtani Inuit Association (QIA) and others to deliver necessary training to employees and support community programs which will increase the benefits of the Project and provide local residents with skills that will continue to be important for them beyond the life of the Project.

The construction workforce for the ERP will range in size from 400 to 600 persons. The estimated workforce during the operation phase is about 210 persons. Workers from Nunavut communities will work a rotation of two weeks at the site followed by two weeks off. Southern workers will likely work the common remote-site construction schedule of four weeks on and two weeks off.

All workers will be transported to and from the Mine Site by air. Ground transportation from the Mine Site will be provided for workers based at Milne Port. Baffinland will provide air transportation to the Mine Site from the five closest communities in the North Baffin region as well as from Iqaluit and a southern location. Other locations may be considered in the future.

1.5 PROJECT CHALLENGES

The development of a major mining project in a remote location of Nunavut faces several important challenges:

- High costs associated with building and operating a mine operation and transportation infrastructure in the Arctic.
- Logistical challenges associated with the construction and operation due to the limited seasonal access to the site and lack of existing transportation infrastructure.
- Long winters and extreme cold affects efficiency of construction crews and operations.
- Difficult geotechnical conditions (permafrost, ice lenses) require specialized design and construction techniques.
- The competitive nature of the steel-making industry demands a steady, consistent, and secure supply of iron ore.

In order to satisfy these requirements, the Project must ensure a reliable and consistent shipping operation throughout the year. The Early Revenue Phase (3.5 Mtpa) will enable Baffinland to demonstrate the economic viability of the larger investment in the Approved Project (18 Mtpa). Once the ERP is fully operational, it is expected that approximately 55 ships (any combination of Supramax at 55,000 Dead Weight Tonnes, Panamax at 70,000 DWT and Post Panamax at 110,000 DWT) will transit to and from Milne Port for ore shipments between July 15 and October 15 annually.

There are also two additional important factors to consider:

- The Project must provide real and measurable benefits for Baffinland shareholders, as well as, for Inuit landowners, local communities and land users.
- Baffinland's revenues depend on the world commodity prices for iron ore.

Together these challenges and factors have shaped Project design and implementation strategy.

1.6 PROJECT SCHEDULE AND PROJECT LIFE

The construction of the ERP will commence immediately following the amendment to the Project Certificate. Construction will require two years. The operation of the ERP, expected to begin in the third quarter of 2013, will continue until the larger Approved Project (18 Mtpa) is constructed and fully operational. Based on current market forecasts for iron ore, construction of the larger Project could begin as early as 2015 with completion by 2019.

1.7 HIGHLIGHTS OF THE EARLY REVENUE PHASE

The Mine Site, the Tote Road and Milne Port are the three major Project sites. Both the Mine Site and Milne Port will have all the facilities needed to operate effectively including maintenance and administrative buildings, warehouses and laydown areas, ore stockpiles and associated runoff management facilities, camps, water supply, wastewater treatment plants, waste management facilities including landfills, power generation, fuel depots, telecommunication facilities, and airstrips.

In addition to these facilities, the Mine Site includes the open pit mine, the fleet of trucks to support the mining, facilities to prepare and store explosives, a waste rock pile, a mobile ore crushing sizing facility, and mobile equipment for loading of ore into trucks.

Milne Port will be fully developed for the ERP. The site will include a floating freight dock, and ore dock, a 3.5 million tonnes ore stockpile, multiple laydown areas, camps and sewage treatment facilities, fuel tank farm, and miscellaneous warehouses and administrative buildings.

1.8 ORE PRODUCTS

Since the Mary River iron ore is of a very high-grade, there is no need to have a process plant (or mill) on site, resulting in no tailing being generated. As such, no tailings pond will be required. This is accomplished by crushing and screening of the ore to produce two iron ore "products":

- a lump ore product in which the pieces of ore are between 6.3 mm and 31.5 mm in size (about golf ball size), and
- a fine ore product, in which the pieces of ore are less than 6.3 mm in size (about pea size).

1.9 CLOSURE AND POST-CLOSURE

Throughout all phases of the Project, Baffinland will plan and conduct operations in a manner designed to return the Project sites to a safe and environmentally stable condition. Baffinland will undertake ongoing reclamation activities throughout the mine life. Temporary facilities required for the construction camps will be decommissioned and removed at the end of their useful life. Borrow areas, quarries, temporary roads and other disturbed sites will be stabilized to limit erosion of ground surfaces and rehabilitated once they are no longer required. Environmental and safety monitoring will continue as long as necessary.

1.10 POTENTIAL FOR FUTURE DEVELOPMENT

The ERP is designed for a production rate of 3.5 Mtpa while the larger Approved Project has been designed for an estimated 18 Mt/a of iron ore. Annual production rates can vary with factors such as market conditions, ore grades and unanticipated events. It is expected that construction of the larger Approved Project will commence once global market conditions improve.

As well, regional exploration over the past two years has enabled Baffinland to identify additional iron ore deposits that appear, based on surface sampling, to be of similar high-grade iron ore as Deposit No.1. While these other deposits have not yet been thoroughly evaluated, Baffinland's regional exploration program points to considerable potential for additional development. Having the mine and associated shipping, road, and railway infrastructure in place will facilitate such future development in the region. A significant expansion of the Project would trigger additional review processes.

SECTION 2.0 COMMUNITY INVOLVEMENT

There has been ongoing and extensive consultation with many communities and organizations that have an interest in the Project. Engagement has included the public, local, and regional Inuit organizations, the

Government of Nunavut, and federal agencies. There has been a particular focus on the Inuit communities near the Project sites.

Inuit of the Baffin Region enjoy a rich oral tradition. This tradition has influenced how Baffinland has engaged local communities. The company has focused on establishing a presence in the region through local Community Liaison Officers, held numerous face-to-face meetings with community members and arranged site tours where possible. Since the main language through the north Baffin region is Inuktitut, with a number of regional dialects across Baffin Island, translation using local interpreters has been an important element in supporting effective communication. In all instances, detailed records were prepared for the various meetings and other in-person discussions.

There have been specific efforts at assembling, recording and integrating traditional knowledge into project design decisions. Inuit knowledge of the area is extensive and extremely valuable especially when integrated into scientific studies and understanding.

In addition, community acceptance and preferences were important factors considered in the evaluation of project alternatives such as the use of Milne Inlet, the location of the Steensby Port, the shipping route in the Foxe Basin and the work rotation schedule.

Following the issuance of the Project Certificate for the larger Project, there have been numerous interactions with many government agencies both federal and territorial, the regional Inuit Association (QIA) and other interested parties with many individual meetings, workshop sessions and written submissions. Through these efforts the overall understanding of the Early Revenue Phase and its potential effects are increasingly better understood.

SECTION 3.0 PROJECT SETTING

3.1 PHYSICAL SETTING

The landforms and the iron ore deposits in the Mary River Project area are associated with widespread past and current glaciation on Baffin Island. Surface geology consists of locally abundant sediment deposits from glaciers and rivers. The North Baffin region containing the Mary River area lies within the Committee Belt, a granite-greenstone terrain mixed with sedimentary and volcanic rock. Occasional outcrops of granitic and sedimentary rock formations occur. The mountains to the east are older than 540 million years old, and the lowland plateaus to the west are about 250 to 540 million years old.

The Project is situated in the Northern Arctic Ecozone. The climate is semi-arid and permafrost coverage is continuous extending to a depth of 500 metres, with an active layer of up to 2 metres. The extremely cold temperatures of the region, combined with the permafrost, result in a short period of runoff that typically occurs from June to September. All rivers and creeks, with the exception of the very largest systems, freeze completely during the winter months. Due to the combination of low temperatures and the low capacity of the soil to hold moisture, vegetation is minimal and surface water is abundant. The region is dotted with thousands of small lakes and streams.

The region experiences near 24-hour darkness with less than two hours of twilight from November to January. During the winter months the treeless topography and fine powdery snow produce blowing snow conditions, resulting in restricted visibility. There is continuous daylight from May to August and frost-free conditions occur from late June to late August. The months of July and August usually experience the greatest precipitation. From September to November, temperature and the number of daylight hours decrease, and by mid-October the mean daily temperature is generally well below 0°C. The highest snowfall typically occurs during this period.

Air quality is very good and noise levels are low in the Project area as is typical of a remote environment. Freshwater quality measurements in the Mary River area indicate naturally elevated concentrations of dissolved oxygen, aluminium, and iron. As well, significant dissolved solids lead to increased turbidity of the water. Some average values for pH, as well as cadmium and mercury in the fresh water environment are currently greater than levels recommended by the guidelines of Canadian Council of Ministers of the Environment.

3.2 BIOLOGICAL SETTING

Plant life is relatively sparse in much of the Project area and is generally consistent with the plants that usually occur in arctic regions. No plant species considered to be "rare" in Canada were found to occur in the survey locations.

Terrestrial mammals in the region include barren-ground caribou of the North Baffin herd, wolf, arctic and red fox, ermine, arctic hare, and lemmings. Marine mammals are found in abundance in the region, including polar bears, narwhals, beluga whales, bowhead whales, several species of seals, and walrus. Killer whales and northern bottlenose whales were found in small numbers.

North Baffin caribou are currently present at low densities and their numbers seem to vary in accordance with a 60- to 70-year cycle. The last period of caribou abundance in the area was 1980 to 2000, and the previous period of low abundance was in the 1940s. Caribou are expected to remain at low numbers for the next couple of decades. However, there is evidence that caribou do occur throughout the entire region. While some populations of caribou migrate between preferred habitats in summer and winter, North Baffin caribou appear to be non-migratory and are likely to be found relatively equally in many locations throughout the Project area.

Migratory bird species observed in the Mary River area include snow geese, ducks, eiders, loons, and mergansers. Raptors found include rough-legged hawks, peregrine falcons, gyrfalcons, and snowy owls. Relatively low densities of songbirds and shorebirds were recorded throughout the region. There are also numerous sea birds in the area of the shipping route including thick billed murres and many types of gulls.

There are two fish species in the freshwater environment: arctic char and a minnow species named nine-spine stickleback. The inland waters near the Project mainly contain landlocked arctic char, though sea-run char are present in a lake next to Steensby Port and up the Cockburn River system next to a portion of the railway. Fish in the marine waters include arctic char, sculpin, and Atlantic lumpfish at Steensby Inlet, and Arctic char, sculpin and Greenland cod at Milne Inlet.

3.3 SOCIO-ECONOMIC SETTING

The Baffin Region of Nunavut has a rich and visible archaeological heritage dating many thousands of years. There are many archeological sites both small and more significant, particularly around Milne Port and Steensby Port but also along some sections of the rail line.

The five communities of northern Baffin Island in the immediate vicinity of the Mary River Project, listed alphabetically, include Arctic Bay (280 km), Clyde River (415 km), Hall Beach (192 km), Igloolik (155 km), and Pond Inlet (160 km). Each of these communities has long term social, economic and environmental ties to the Project area. For many of these North Baffin households, harvest of country food provides an important contribution to their overall well-being, both physical and cultural. In all five communities, caribou, ringed seal, and arctic char are of major importance. In addition, walrus is a significant species in Hall Beach and Igloolik, while narwhal is a key component of the harvest among households in Arctic Bay, Pond Inlet, and to a lesser degree, Clyde River.

The land-based economy is a major part of the livelihoods of many residents of the North Baffin. Harvesting from the land and sea is estimated to produce food worth between \$12 million and \$20 million per year in this region. The amount of work to harvest this food is estimated to be 350 full-time jobs.

In addition, residents of the region earn money through sales of arts and crafts, through employment, and from various government social programs such as Income Support. The personal income reported by residents of the five North Baffin communities amounted to \$83 million per year.

The Inuit of the North Baffin region have experienced tremendous social and cultural change over the course of a few decades. In particular, initiatives such as residential schools, have affected family integrity and by implication, social cohesion. Elders are becoming increasingly engaged in community life and in promoting the learning of traditional culture for the younger generation. At the same time, a shift toward western middle-class expectations appears to be taking place among Inuit youth. These communities have experienced dramatic population growth over the last 20 years. Over 70 % of the population is under the age of 25. Underemployment and lack of opportunities are contributing to social stress.

Demand amongst residents for wage employment is very high. People want to work, even when this work requires flying to remote locations away from the community. However, job opportunities in the North Baffin are limited. Inuit employment in North Baffin is characterized by many individuals earning small levels of income, well under what full-time work would pay, and a small number earning full-time, year-round incomes. Most residents working in full-time jobs in Iqaluit do so year-round. In North Baffin, many more full-time workers are engaged in these jobs for only short periods. Women who work full-time jobs in North Baffin are more likely to work year-round than are men.

Still, there are good-paying, full-time, year-round employment opportunities available. These are often in government and the "public sector" and require levels of education and kinds of experience that many residents do not have. Community Elders recognize that the communities need to position themselves to enter the wage economy.

The number of jobs occupied by women has generally increased at a greater pace than those occupied by men. However, women in the region are working mostly in the public sector. The past public sector growth is not likely to continue and this suggests that as young women start to look for employment, they may need to find work in sectors not traditionally filled by women.

Approximately one-in-five jobs in North Baffin and in Iqaluit require a university education. One-quarter to one-third of jobs in the region require college or apprenticeship levels of training and skills. A similar number require high school education and/or occupation-specific training. The remainder can be accessed by unskilled workers with on-the-job training. Clearly the opportunities for employment are much more limited for those who do not have good education or training.

The Government of Nunavut relies on federal transfer payments for at least 90 % of its revenue. Government employment is a mainstay of the wage economy with many of Nunavut's small businesses and retail outlets established to support government needs, or those of public servants. Government jobs in administration, education, and health areas account for about half of all employment earnings in the territory. Construction employment has also been growing to support the development of government infrastructure.

SECTION 4.0 PROJECT INTERACTIONS AND EFFECTS ON VECS AND VSECS

Public consultations have enabled Baffinland to identify the key interests and concerns of the communities and stakeholders of the Project. As well, extensive scientific baseline studies were carried

out to establish current conditions. Interviews with many Inuit Elders provided valuable insight into their traditional knowledge of the region. Through these studies and consultations the Project team was able to clearly identify the key areas for assessment and review. These areas of focus are identified in the EIS as the “valued ecosystem components (VECs)” and “valued socio-economic components (VSECs)” of the Project.

4.1 Valued Ecosystem Components

The VECs include both the natural environment and the wildlife that depends on the health of that environment. The VECs can be grouped in theme areas related to key components of the environment. Significant indicator species were identified and provided a focus for the assessments.

Atmospheric Environment – Climate change; Air quality; Noise and vibration.

Land Environment – Landforms, soil and permafrost; Vegetation; Terrestrial wildlife and habitat; Birds.

Freshwater Environment – Surface water and sediment quality; Water quantity; Freshwater fish, fish habitats and other aquatic organisms.

Marine Environment – Sea ice; Marine water and sediment quality; Marine habitat and biota; Marine mammals.

4.2 Valued Socio-economic Components

The VSECs are related to the well-being of the people, their communities and the overall social and economic health of the area.

People: Population demographics; Education and training; Human health and well-being.

Community: Community infrastructure and public service; Cultural Resources; Resources and land use; Governance and leadership; Livelihood and employment; Cultural well-being.

Economy: Economic development and self-reliance; Contracting and business opportunities; Benefits, taxes and royalties.

4.3 VECs and VSECs Interaction with the Project

Through the review process the interactions of the Early Revenue Phase with the various VECs and VSECs were identified and where appropriate, key indicator species were identified and analyzed. Extensive studies combined with traditional knowledge were used to establish the pre-Project conditions. Using scientific understanding, experience from past developments and traditional knowledge, predictions are made on the effects of various interactions. Where negative ERP interactions could not be avoided, plans were developed to minimize or offset these effects.

Taking into account the adjustments and mitigation measures included in the ERP to limit negative effects, residual effects of the Project were then assessed for their significance on the biophysical and socio-economic environments. This FEIS Addendum presents the outcomes of these assessments. A summary by theme area follows.

4.3.1 Project Effects on VECs

Introduction

The ERP design sought to minimize the interactions of the Project with the natural environment and to implement measures to minimize the potential negative effects of interactions. With these measures in place, the effects of the ERP on the natural environment overall was assessed as not significant. The following sections summarize key project interactions and mitigation measures that will be implemented.

Atmospheric Environment - Climate change; Air quality; Noise and vibration

Climate change is predicted to have little effect on the very cold and deep permafrost conditions in the area over the planned life of the larger Approved Project. The ERP facilities will also be designed to account for any changes in site conditions induced by climate change. The ERP activities will produce Greenhouse gases. The incremental amount of GHG is not significant relative to the larger amount of GHG expected for the Approved project. Furthermore, although the GHG emissions of the Approved Project are a significant increase compared to current Nunavut levels, these emissions are very small compared to those on a national scale and add very little to overall GHG emissions for Canada.

Ore handling, as well as driving on access roads, and emissions from power plants, trucks, and camp incinerators will reduce air quality through the generation of dust and other emissions. The use of low-sulphur arctic diesel fuels and ensuring modern emission controls on equipment will reduce these emissions. As well, air pollution controls such as dust suppressants will prevent significant effects on air quality.

ERP activities will increase noise levels but these will be limited to areas close to the activities. As well, the use of mufflers and regular maintenance of engines and equipment will prevent significant noise effects.

Land Environment: Landforms, soil and permafrost; Vegetation; Terrestrial wildlife and habitat; Birds

Sensitive landforms in the Project area include frozen soils that contain ice lenses or areas that could shift under pressure. Sensitive landforms will be mostly avoided and appropriate engineering designs will be used to protect the sensitive areas in situations where such landforms cannot be avoided. In addition, site preparation will include adequate drainage to prevent water pooling during thaw periods.

The design of all ERP facilities minimizes the amount of land that the Project needs to disturb. Thus the amount of vegetation that is affected is minimal compared to the amount of vegetation cover in the region. Numerical modelling was done to predict the amount of dust that could settle on the vegetation in the area and these studies concluded that the dust suppression actions would prevent significant dusting of plants.

Caribou are the main indicator species used to assess potential effects on terrestrial animals. The main project interaction with caribou would be when caribou cross the road or rail line. Although it is possible that individual caribou could be involved in collisions with trains or trucks, these numbers are expected to be limited and will not be significant compared with total numbers in the region. Several measures are in place to avoid collisions with caribou. Strict speed limits will be in place for trucks and trains, thus decreasing the probability of collision. Trucks will be required to stop if wildlife is observed on or next to the road.

There are many birds through the region and a very small, but not significant, amount of habitat loss for migratory birds is expected to result from ERP activities. These are not expected to lead to effects on populations of key species such as peregrine falcons, snow geese, eiders, and loons. Prior to initiating ERP activities, nests and nesting areas will be identified and avoided where possible until fledging occurs.

Freshwater Environment – Surface water and sediment quality; Water quantity; Freshwater fish, fish habitats and other aquatic organisms

A number of proven mitigation measures have been included in the ERP to reduce potential effects on water quality, freshwater fish, fish habitat, and other aquatic organisms. Specific Management Plans detail the many ways that water will be protected.

Water use will be reduced to the minimum necessary and all used water will be tested and treated as required before it is released back to the environment. Modern sewage treatment facilities will ensure that all discharged water meets or exceeds established standards. Run-off water from fuel storage and maintenance facility areas will be contained and wastewater from truck and rail maintenance facilities and explosives equipment-washing facilities will meet established standards before being discharged to the natural environment. An Emergency and Spill Response Plan will be in place and will ensure that there is prompt and appropriate clean-up of any spills should they occur.

The potential for acid-generating drainage from the waste rock pile, ore stockpiles or quarries is very low, but will be carefully managed, treated where needed and monitored through the life of the ERP and the life of the larger Approved Project.

The Tote Road crosses a large number of watercourses and a portion of these contain fish habitat. Four new bridges will be constructed to replace existing seacan crossings which will improve fish passage and movement. Many culverts will be replaced and will be designed to limit barriers to fish movement.

Marine Environment – Sea ice; Marine water and sediment quality; Marine habitat and biota; Marine mammals

At Milne Port, near-shore, including port activities, will be carefully managed to protect the marine environment. All sewage and wastewater from maintenance facilities and explosives will be treated before discharge and runoff from Milne Port site areas will be contained and monitored for water quality before discharge. Ship to shore fuel transfers will take place following the *Canada Shipping Act* regulations.

All shipping will take place during the open water season. Approximately 55 Supramax, Panamax or Post Panamax ore carriers per season will be required to transport 3.5 million tonnes of ore. Ore carriers will carry ballast water during their inbound trips to Milne Port. This water is required in order to keep the vessels stable and at an even draft. The water is pumped overboard as the vessels approach Milne Port. Ballast water will only be slightly different (in temperature and salinity) from the water in the Inlet. Modeling has shown that discharge will not alter the quality of water in Milne Inlet. There is an important concern that ballast water could result in the unintended introduction of invasive species to such receiving waters. There are strict protocols developed by regulatory agencies that will protect against this concern, including mid-ocean transfer of ballast water and treatment of the ballast water prior to discharge. Ships will meet all future regulatory requirements for the treatment of ballast water using methods identified by Transport Canada. Such practices will limit the risk of introduction of invasive species.

The key marine mammal species include narwhals, beluga whales, and bowhead whales. Effects of ERP activities were assessed for these species as well as ringed seals, bearded seals and walrus.

Ringed seals are present year-round along the northern shipping route, including the Milne Port site. Shipping and most construction activities at the Milne Port site will occur during the open-water period, which avoids pupping, nursing, mating, and moulting. Ringed seals are generally tolerant of industrial activity and shipping. The effects of ERP activities on ringed seals are considered minor and are expected to occur in a localized area.

Bearded seals are expected to occur in small numbers along the northern shipping route during the open-water periods given that they predominately occur in areas of pack ice. Shipping during the ERP does not overlap with bearded seal pupping and nursing. If bearded seals do occur along the northern shipping route or near the Milne Port, they may exhibit localized avoidance of shipping and construction activities. Given the small numbers of bearded seals expected to occur in Eclipse Sound and Milne Inlet, and the planned mitigation measures, predicted impacts are not significant.

*Walrus*es may occur in small numbers along the northern shipping route during the open-water period. If walrus^{es} do occur along the northern shipping route or near the Milne Port, they may exhibit localized avoidance of shipping and construction activities. Given the small numbers of walrus^{es} expected to occur in Eclipse Sound and Milne Inlet, and the planned mitigation measures, predicted impacts are not significant.

Narwhals are present along the northern shipping route primarily during the open-water period when about 20,000 animals summer in the Eclipse Sound and Milne Inlet area. Narwhals are thought to calve and perhaps feed in this summering area. While there is little information on how narwhals respond to vessel traffic—there are relevant observations in the Milne Inlet area that indicated that narwhals exhibited variable responses to vessels (including the passage of an ore carrier, fuel tanker and sea lifts). Observations suggest that some narwhals may have left certain areas after a ship's passage but that others did not. It is predicted that narwhals will exhibit localized avoidance of ore carriers along the northern shipping route and vessel traffic in the Milne Port area. Potential effects are expected to be reduced by decreasing ship speed and hence, minimizing sound levels. Narwhals are predicted to habituate to repeat passages of ore carriers along the northern shipping route. To address the uncertainty with this prediction ongoing monitoring will be conducted to detect unexpected effects on narwhals and to identify any additional mitigation measures.

Beluga whales occur in relatively small numbers in Eclipse Sound and Milne Inlet during the open-water period. Beluga responses to vessels during periods of open water are variable, ranging from tolerance to avoidance, and likely depend on the type of vessel and its speed and course, and the whales' activity and previous exposure to industrial activity. It is likely that belugas will exhibit localized avoidance of ore carriers along the northern shipping route. Effects are expected to be reduced by decreasing ship speed. It is predicted that belugas will habituate to repeat passages of ore carriers along the northern shipping route. To address the uncertainty with this prediction ongoing monitoring will be conducted to detect unexpected effects on belugas and to identify any additional mitigation measures.

Bowhead whales regularly occur along the northern shipping route, and it is thought that this summering area is used for feeding. Behavioural responses to shipping activity by bowhead whales are variable and appear to depend on the whale's activity and the type of vessel. Based on previous studies, bowheads will likely avoid at least the immediate area around ore carriers and that effects can be minimized by reducing ship speed and by vessels maintaining a constant course and speed. It is predicted that bowheads will exhibit localized avoidance of ore carriers along the northern shipping route. It is predicted that bowheads will habituate to repeat passages of ore carriers along the northern shipping route. To address the uncertainty with this prediction ongoing monitoring will be conducted to detect unexpected effects on belugas and to identify any additional mitigation measures.

Polar bears occur along the northern shipping route throughout the year in relatively small numbers. ERP activities will primarily occur during the open-water period and as such will not overlap with polar bear denning and mating. Bylot Island and coastal Baffin Island are used as summer retreats by polar bears. Polar bears are expected to avoid ships and the port site; however, they may also approach these areas. Project personnel will be educated about bear safety and the strict management of waste will reduce the chances of human-bear interactions. Polar bear monitors will be hired to ensure worker safety.

4.3.2 Project Effects on VSECs

Introduction

The ERP will provide many potential social and economic benefits to the residents of North Baffin. These will arise from employment and training opportunities as well as from opportunities for businesses and

from payments made to government and Inuit organizations. Careful planning is needed in order to improve the ability of people to attain these opportunities. Individuals and families will also require support as they cope with the challenges associated with the fly-in/fly-out style of life and with the wealth and financial responsibilities that come with this lifestyle. The assessment of valued socio-economic components is an important way to identify issues and develop appropriate mitigation measures. Overall the ERP represents important and significant socio-economic benefits to Nunavut.

People: Population demographics; Education and training; Human health and well-being

The potential for the ERP to cause non-Inuit migration into communities, as well as the potential for Inuit to move out of the communities as a result of the ERP was assessed. Neither of these possibilities is identified as significantly affecting the composition and numbers of the North Baffin populations or the community social fabric.

Baffinland's education and training commitments will help upgrade the skills of North Baffin residents. Baffinland is committed to supporting training programs that will enable residents of nearby communities to develop the skills needed to qualify and perform jobs at every level of the ERP operation. Baffinland has been actively pursuing education and training partnership initiatives. In particular, Baffinland, the QIA, Qikiqtaaluk Corporation, and Kakivak Association have agreed to develop and promote the delivery of mine-related training, training related to economic and community development, labour market research, curriculum development, career development, and other related activities for the benefit of Inuit in the communities associated with the ERP. A similar agreement has been signed with the Government of Nunavut and Arctic College. As well, a minimum age of 18 for Project employment will serve as an incentive for students to complete high school. Experience gained at work will also help improve overall life skills.

The challenges associated with fly-in/fly-out work are recognized. Steps will be taken to help workers and families to succeed in this type of work environment. Orientation and training will be provided to help workers and families adapt to the work rotations and improve money management practices. The shorter two-week work rotations will limit the period of absence of workers from their families and communities and provide opportunities for individuals to participate in traditional activities during two-week periods off work.

Concerns are sometimes raised about the potential effects of the ERP or the Approved Project on the transport of illegal substances through Project sites and on the affordability of such substances. To counter the possibility of increased substance abuse the company has a strict no drug–no alcohol policy. Addiction counselling will also be available.

Community: Community infrastructure and public service; Cultural Resources; Resources and land use; Governance and leadership; Livelihood and employment; Cultural Well-being

The Project is expected to create competition for skilled workers. Hamlets have expressed concern that they may face difficulty in hiring the people they need to deliver local services. However, employment experience and ongoing training will significantly improve labour force capacity helping to equip local residents with the qualifications and experience. As a result, increased competition for workers will be balanced by increased capacity.

The ERP will be making use of the public airstrips at Iqaluit and at the five nearest communities for transporting workers to and from worksites. The ERP's transportation plans will be designed to avoid placing demands on the airport's facilities beyond its capacity. Some increased demand for infrastructure is also expected to arise indirectly due to the ERP. For example, increased wealth might lead to more vehicles and a need for road improvements.

Education and training as well as on-the-job work experience and counseling will develop leadership skills that will significantly improve local governance. The participation of community residents and leaders in agreement negotiations with Baffinland and in initiatives to identify key indicators for regional monitoring programs has already contributed to local community leadership development.

Measures will be taken to respect and preserve the culture of Inuit employees while they are working. Policies that encourage respect of other cultures and diversity are in place. Baffinland supports the use of Inuktitut onsite, for signage and in work units. Traditional country foods will be provided in the Project cafeterias. Policies encouraging safety, employment equity, and, preventing harassment will be strictly enforced.

Archaeological sites have been identified in ERP areas that contain features and artifacts representing substantial degrees of area use throughout the human past to the present. A number of important archaeological sites will be avoided by relocating ERP infrastructure, and others will require protection through excavation, mapping, and artifact retrieval by a licensed archaeologist. Baffinland's Cultural and Heritage Resource Protection Management Plan outlines the policies and procedures for management of archaeological sites.

The ERP will interact with existing land uses by Inuit. Measures to support these activities include check-in procedures at ERP sites and a focus on public safety for the Milne Inlet Tote Road.

Economy: Economic development and self-reliance; Contracting and business opportunities; Benefits, taxes and royalties

Direct and indirect economic growth generated by the ERP will create new opportunities for employment and business. The ERP will enhance labour force capacity and may increase Inuit business capacity. Businesses may gain opportunities to expand through the supply of business services to the ERP as well as indirectly through an expanded market for consumer goods and services. Baffinland will help Inuit firms, and in particular smaller Inuit firms located in communities in the Baffin Region to develop capacity to bid on and carry out contracts for the ERP.

The ERP will provide substantial cash payments to Inuit organizations and to government. These will arise through the Inuit Impact and Benefits Agreement with QIA as well as through royalty payments for the iron ore made to NTI. Payments to the Government of Nunavut will arise from fuel taxes, property taxes, and taxes on the profits earned by Baffinland. Some of these payments will start as early as the construction phase, while other payments will not kick in until later in the operations phase.

Through its contribution to human skills, to household wealth and to economic growth, the ERP will support achievement of overall economic development goals, including progress toward improved self-reliance of individuals, communities, and the territory.

SECTION 5.0 ENVIRONMENTAL, HEALTH AND SAFETY MANAGEMENT

Baffinland is committed to protection of the health and safety of employees and the environment, and to ongoing community involvement and participation in the ERP. The ERP will meet or exceed the requirements of all applicable Nunavut and Canadian laws, regulatory requirements, agreements, permits, and licences.

Baffinland's Environment, Health, and Safety (EHS) Management System is the framework for adaptive management based on international best practices. The EHS embraces the Precautionary Principle and Sustainable Development. Within this framework, individual plans have been developed to address all aspects of the company's activities and contain the detailed mitigation measures and monitoring to be implemented throughout the life of the Project in order to eliminate, limit or minimize adverse effects. All

Baffinland employees and contractors are required to comply with these management plans. The reporting and documentation requirements for these management plans, auditing, and process of management review and revisions are all specified in the EHS Management System.

The accountability for safety and environmental protection is shared among all employees and contractors and Baffinland is committed to providing the necessary training and awareness programs for effective implementation of its policies and management plans. These training programs will be documented, procedure manuals will be maintained, and retraining schedules will be established. Baffinland's Human Resource Management Plan outlines these commitments.

One of the key management plans is focused on Emergency Preparedness and Response. In the unlikely event that a major diesel fuel spill would occur along the shipping lane, such a spill would have a significant environmental effect. However, refuelling of fuel depots is a well mastered routine activity in Arctic communities. Furthermore, Baffinland will receive fuel only during the open water season. A recent study published by the National Energy Board looked at the effectiveness of oil spill recovery techniques for the Beaufort Sea and the Davis Strait under a range of weather conditions. The study concludes that for the central Davis Strait during the months of June, July, August and September, at least one method of response intervention would be available given the expected weather and wave patterns. This study confirms that for the Mary River Project, the optimal months for fuel delivery are indeed during the July to September ice-free period in Foxe Basin.

SECTION 6.0 CUMULATIVE AND TRANSBOUNDARY EFFECTS

Consideration was given to potential cumulative effects from reasonably foreseeable projects. For the Approved Project (18 Mtpa), the main potential cumulative effects are thought to arise if development of the Mary River Project would lead to further iron ore production up to twice the currently proposed production rate. Other projects in the area will have only minor cumulative effects. A doubled production rate of one or more other deposits would increase effects to a number of valued ecosystem and socio-economic components, but not to the extent that any of the cumulative effects are expected to be significant. In relation to the Approved Project, the ERP presents no significant cumulative effects.

Transboundary effects to marine mammals would occur as a result of shipping, however, because the effects to marine mammals within the study area are not significant, the transboundary effects are similarly not significant. Socio-economic effects will occur in other jurisdictions of Canada as a result of employment of the ERP by people living outside of Nunavut. However, these effects are not deemed significant.

SECTION 7.0 CONCERNS OF THE COMMUNITIES

Through the past years a number of community concerns have been raised and addressed. Some of the key issues are related to the essential balance between development and maintaining traditional lifestyles.

SOCIAL-CULTURAL CHANGE

The socioeconomic benefits offered by the ERP will inevitably trigger social changes for the Inuit of the neighbourhood communities and Nunavut as a whole. The increased purchasing power of employees as well as the redistribution of wealth generated by ERP activities has the potential to accelerate the changes currently being experienced by the Inuit society and families. Although such changes are inevitable and will continue to occur, with or without the ERP or the larger Approved Project, the rate and direction of such changes remain legitimate concerns for many Inuit.

Concerns were expressed on the overall effect of the ERP or the Approved Project on harvesting and land-use activities that could arise from the combined interactions of the ERP or the Approved Project on a wide range of factors. These interacting effects have been carefully considered and the potential for beneficial outcomes on harvesting activities appears to be more likely than overall negative outcomes. Baffinland will continue to work with communities to undertake collaborative monitoring and address issues as they arise.

SECTION 8.0 CONCLUSIONS OF THE EIS

The FEIS Addendum for the ERP for the Mary River Project includes a thorough environmental impact assessment of Project development plans. The FEIS Addendum is based on extensive studies of the biophysical and socio-economic environments and builds on the knowledge acquired during the Approved Project FEIS review. Many consultations have been undertaken to identify and address the concerns and interests of local communities, regulatory agencies, and other interested stakeholders and to benefit from the knowledge of the Elders in the region. The FEIS Addendum has addressed the topics identified by NIRB in the guidelines provided for the Project.

The ERP will be designed to meet all relevant regulatory requirements and to avoid, limit, and, minimize negative effects where possible and to enhance socio-economic benefits. Baffinland is confident that it has proposed a ERP that will provide positive economic returns to investors and benefits to the people, the Government of Nunavut, and Inuit organizations. A comprehensive management and monitoring system has been developed to ensure that the commitments in the FEIS Addendum as well as the FEIS of the Approved Project will be respected. Baffinland is committed to ongoing consultations with stakeholders and will address public concerns throughout the life of the ERP and the larger Approved Project.

NO SIGNIFICANT NEGATIVE IMPACTS ON THE BIOPHYSICAL ENVIRONMENT

The environmental assessment concludes that residual effects of the Project on the valued ecosystem component (VECs) of the biophysical environment will be not significant.

POSITIVE SOCIO-ECONOMIC IMPACTS

Assessments of potential effects on the socio-economic environment have concluded that there will be significant positive effects on local employment and skills development and that significant revenue will accrue to the Government of Nunavut. The IIBA, currently under negotiation between Baffinland and the regional Inuit association, will ensure that benefits from the Project flow to nearby Inuit communities and the Qikiqtaaluk Region of Nunavut. A major ERP benefit will be a growing territorial economy that will increase economic stability in Nunavut. Increasing the number of ongoing mining projects in Nunavut will help stabilize the territorial economy.

Over the long term, the ERP will lead the way for the development of the larger Approved Project (18 Mtpa). The road, railway, and port infrastructure built by the Approved Project will provide opportunities to access further mineral deposits in the North Baffin region and could improve access for Inuit harvesting and tourism. The two ports will provide opportunities for additional commercial uses and the bathymetry information collected and assembled as a result of the Project and ERP will provide important information for shipping lanes through Foxe Basin and to Milne Port.