June 2016

VOLUME 7 - HUMAN ENVIRONMENT

Whale Tail Pit Project Meadowbank Division

Submitted to:
Nunavut Impact Review Board
Nunavut Water Board

REPORT

Report Number: 1541520

AGNICO EAGLE

Golder Associates

EXECUTIVE SUMMARY – VOLUME 7 HUMAN ENVIRONMENT

Volume 7, Human Environment, for the Whale Tail Pit and Haul Road Project (the Project), assesses the significance of the Project's effects on archaeological and heritage resources, traditional land use, and socio-economics. Where Project effects are identified, mitigation measures are developed to minimize adverse effects, while benefit enhancement measures are crafted to maximize positive effects. The significance of the Project's residual effects is then determined based on the assessment criteria described in Volume 3, Methods.

Public / Inuit Qaujimajatuqangit Concerns

Public concerns, including those based on Inuit Qaujimajatuqangit (IQ), have been considered in determining the focus of Volume 7. Inuit Qaujimajatuqangit has been incorporated throughout the assessment in the description of the existing human environment. Inuit perspectives on the cultural value of archaeological and heritage sites, the importance of the lands and resources traditionally used, and the complex interaction between the traditional and wage economies are considered when determining the magnitude and significance of the Project's residual effects on features of the human environment. Inuit Qaujimajatuqangit also guides the development of mitigation and benefit enhancement measures that are appropriate for the Project's social and cultural context.

Heritage Resources

The Heritage Resources Assessment recorded 19 heritage resource sites within or adjacent to the archaeology Local Study Area (LSA). Of these, nine were perceived to be of highly significant value, eight of moderately significant value, and two of lowly significant value. Sites included campsites, caches, blinds, a marker, and a gravesite. The assessment considered the potential of Project construction, operations, and closure to disturb cultural deposits and features, damaging artifacts, hindering, or increasing access to archaeological deposits, and destroying contextual information essential for interpreting site function and age. Following discussions with community stakeholders including Elders and the Hunting and Trapping Organization (HTO), the route of the road and location of the borrow pit areas were altered to minimize impacts to heritage sites. The assessment determined that 15 of the 19 archaeological sites, including the gravesite, are outside the LSA, and not impacted by Project development. The remaining four sites (two campsites, a blind and a marker) are within the haul road or borrow source boundaries, and will be disturbed by Project construction.

The marker site will be recorded and documented; however, as it has been evaluated as having limited scientific interpretive value, no further mitigation has been recommended, pending the approval of the Nunavut Department of Culture and Heritage. The remaining three sites will mitigated through systematic data recovery measures such as detailed site mapping, mapping of individual stone features, collection of artifacts, shovel testing, archaeological excavation, and/or community consultation, as appropriate. Given that these sites will be mitigated, the Heritage Resources Assessment concludes that there are no primary pathways between Project construction, operations and closure, and heritage resources. Residual Project effects to archaeological sites relative to baseline conditions are not expected.

Traditional Land and Resource Use

The Traditional Land and Resource Use (TLRU) Assessment identifies the importance of caribou, fur bearers, birds, fish, and plants and berries in the traditional way of life of the Inuit. The importance of cultural and spiritual areas (trails, camps, cabins, caches, graves) in the preservation of traditional values, and the transfer of traditional knowledge and IQ between generations, is also highlighted.

The assessment determined that Project activities could have four primary effect pathways on TLRU: affecting opportunities for wildlife harvesting, fishing, plant harvest, and using culturally important sites through disturbances to preferred use areas, changes to the availability of land and resources, and social and economic factors affecting participation in TLRU. Mitigation measures aimed at limiting the Project' effect on the availability of wildlife, vegetation and fish will be employed, constructing and maintaining marked crossings for traditional land use, limiting the cascading effects on continued opportunities for traditional harvesting of these resources. Avoidance of archaeological and heritage resources, and mitigation of those that are unavoidable, are similarly anticipated to limit the associated Project effect on continued opportunities to use culturally important sites.

The Project is not expected to change opportunities for harvesting furbearers, as no environmentally significant effects are anticipated for Arctic wolf, wolverine, or grizzly bear, and preferred Arctic fox trapping areas are typically in close proximity to Baker Lake. Similarly, the Project is not expected to significantly affect continued opportunities for harvesting birds, as preferred harvesting areas were not documented in the vicinity of the Project. The Project will, however, change caribou movement patterns, potentially affecting opportunities for traditional harvesting of caribou. Given the uncertainty around the nature of the Project's effect on caribou migration and movement, and the importance of the species in the traditional way of life, the residual effect on continued opportunities for caribou harvesting is low to moderate in magnitude, local to regional in extent, short- to medium-term in duration, and assessed as significant.

The Project is not expected to result in changes to opportunities for traditional fishing, as significant environmental effects to fish habitat and abundance in preferred fishing locations are not anticipated.

Project-generated dust and changes to hydrology are expected to be restricted to the terrestrial LSA and reversible, confining the effect on the quality of traditional plants to the Project area. With the implementation of dust control measures and ongoing monitoring, these effects are expected to be minimal. Given the abundance of traditionally harvested plant communities in the region, the localization of vegetation effects, and the limited traditional use of the Project area for plant harvesting, the Project's residual effect on continued opportunities for traditional plant harvesting is low in magnitude, local in extent, medium- to long-term in duration, and, therefore, assessed as not significant.

Socio-Economics

The Socio-Economic Assessment describes the Project's potential interactions with population demographics, economic activity, business development, employment, education and training, individual and community wellbeing, housing, and infrastructure. As an extension of an existing mine, the Whale Tail Pit is expected to continue many of the socio-economic benefits of the Meadowbank Mine, including contributions to the territorial economy, local business development, local employment and incomes, and contributions to education, training, and community investment. The Project can have both positive and negative effects on worker and community health and safety, providing health and safety training and awareness, while at the same time presenting risks of accidents and emergencies. The Project has the potential to result in adverse changes in family and community cohesion, indirectly contributing to substance abuse and addiction, associated family and intergenerational conflict, domestic violence and crime, and to inequalities between families and communities. Involvement in the wage economy sustained by the Project also has the potential to change cultural practices and values, and may influence participation in community activities. The existing Meadowbank Mine workforce transitioning to the Project has experience in managing their finances, and it is unlikely that they would change their current behavior or lifestyle as a result of the Project. However, the behaviour of new employees may be impacted.

The Project will extend employment opportunities at Meadowbank Mine by an additional 3 to 4 years and by around 200 additional direct employment opportunities. Many of these opportunities will be targeted to the local population in Baker Lake and other Kivalliq communities. Most indirect employment opportunities occurring in Nunavut are expected to be filled by the existing labour force working in industries currently supplying Meadowbank Mine. The Project will maintain current pick-up points in Kivalliq communities, and any incidental employment that arises via attrition will be filled with priority given to residents of the Kivalliq Region, and, secondarily, Nunavut. Given the approach to recruitment, the Project is not expected to induce intra- or inter-territorial migration, population increase, or demographic change.

The Project is anticipated to have a number of positive effects that have been assessed as significant, specifically a positive effect on the GDP, tax revenues, local business development, employment and training, incomes, and well-being related to disposable incomes, community contributions, and the continuation of the Inuit Impact Benefit Agreement (IIBA). The Project's positive GDP effect is over 10% of the current GDP of Nunavut. Project-related tax generation and royalties paid will amount to government revenue in Nunavut equivalent to about 4% of the territory's total annual budgeted revenue.

The Project's primary income effect will be the continuation of high paying wage employment from Meadowbank Mine. Employment incomes for current employees are not expected to change significantly, but will be extended by the Project beyond Meadowbank Mine's closure in 2018. The Project will also generate new incomes associated with a limited amount of new employment, and will sustain indirect and induced incomes, through to closure. The Project's overall effect of continued incomes, community contributions and the Meadowbank IIBA is expected to have a positive effect on the wellbeing of individuals and communities. Community and IIBA contributions are substantial, and support community development and wellbeing initiatives. Both will occur throughout the Kivalliq Region, but will be concentrated in Baker Lake over the operational life of the Project.

ᓇᐃᓈᖅᓯᒪᔪᖅ – ᐅᖃᓕᒫᒐᖅ 7 ᐃᓄᐃᑦ ᒥᒃᓵᓄᑦ ᐊᕙᑎ

ᐅᖃᓕᒫᒐᖅ 7, ᐃᓄᐃᑦ ᒥᒃᓵᓄᑦ ᐊᕙᑎ, Whale Tail ᐃᓗᑦᑐᖅᓯᒪᔪᕐᒧᑦ ᐊᒻᒪᓗ ᐅᓯᑲᑦᑕᖕᓂᕐᒧᑦ ᐊᑉᖁᑎᒧᑦ ᐱᓕᕆᐊᖅ (ᐱᓕᕆᐊᖅ), ᖃᐅᔨᓴᐃᔪᖅ ᐊᖏᓂᖓᑕ ᐱᓕᕆᐊᑉ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᖓ ᐃᑦᑕᕐᓂᑕᖃᕐᕕᐅᔪᓂᒃ, ᐱᖁᓯᕆᔭᐅᔫᒃᑯᑦ ᓄᓇᒥᒃ ᐊᑐᖃᑦᑕᕐᓂᕐᒧᑦ, ᐊᒻᒪᓗ ᐃᓄᐃᑦ-ᐱᕈᖅᐸᓪᓕᐊᓂᖏᓐᓂᒃ. ᐱᓕᕆᐊᖅ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᖓᓄᑦ ᐃᓕᑕᕆᔭᐅᔪᑦ, ᐊᖏᓗᐊᖏᒋᐊᖅᑎᑦᑎᓃᑦ ᐱᙳᖅᑎᑕᐅᓯᒪᔪᑦ ᒥᑭᓛᒃᑰᖅᑎᓐᓂᕐᒧᑦ ᐊᖏᔪᑦ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᐅᔪᑦ, ᐃᑲᔪᐃᓂᐅᔪᑦ ᐱᐅᓯᒋᐊᖅᑎᑕᐅᑎᓪᓗᒋᑦ ᐊᖏᓛᒃᑰᖅᑎᓐᓂᕐᒧᑦ ᐱᐅᔪᑦ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓃᑦ. ᐊᖏᓂᖓᑕ ᐱᓕᕆᐊᑉ ᕿᒪᒃᑎᓐᓂᕐᒧᑦ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓃᑦ ᖃᐅᔨᓴᐅᓕᖅᓱᑎᒃ ᖃᐅᔨᓴᐃᓂᒃᑯᑦ ᐅᖃᐅᓯᐅᔪᖅ ᐅᖃᓕᒫᒐᖅ 3-ᒥᑦ, ᐊᑐᖅᑕᐅᔪᑦ.

ᐃᓄᓱᒃᑖᑦ / ᐃᓄᐃᑦ ᖃᐅᔨᒪᔭᑐᖃᖏᑦ ᒥᒃᓵᓄᑦ ᐃᓱᒫᓘᑏᑦ

ᐃᓄᓱᒃᑖᓄᑦ ᐃᓱᒫᓘᑏᑦ, ᐃᓚᐅᔪᑦ ᐊᑐᖅᑕᐅᔪᑦ ᐃᓄᐃᑦ ᖃᐅᔨᒪᔭᑐᖃᖏᑦ (IQ), ᐃᓱᒪᒋᔭᐅᓚᐅᖅᑐᑦ ᖃᐅᔨᓂᕐᒧᑦ ᑕᐅᑐᒐᐅᔪᖅ ᐅᖃᓕᒫᒐᖅ 7-ᒧᑦ. ᐃᓄᐃᑦ ᖃᐅᔨᒪᔭᑐᖃᖏᑦ ᐃᓚᓕᐅᑎᔭᐅᓯᒪᔪᑦ ᖃᐅᔨᓴᐃᓂᕐᒥᓗᒃᑖᖅ ᐅᖃᐅᓯᐅᔪᒥᑦ ᑕᐃᒪᐅᔪᒥᑦ ᐃᓄᐃᑦ ᒥᒃᓵᓄᑦ ᐊᕙᑎᒥᑦ. ᐃᓄᐃᑦ ᑕᐅᑐᒐᖓᑦ ᐱᖁᓯᖅ ᐃᒃᐱᒋᔭᐅᓂᖓᓄᑦ ᐃᑦᑕᕐᓂᑕᖃᕐᕕᐅᔪᑦ, ᐱᒻᒪᕆᐅᓂᖏᑦ ᓄᓇᐃᑦ ᐊᒻᒪᓗ ᐱᕝᕙᐅᖃᑦᑕᖅᑐᑦ ᐱᖁᓯᒃᑯᑦ ᐊᑐᖅᑕᐅᖃᑦᑕᕐᓂᖏᑦ, ᐊᒻᒪᓗ ᐊᖏᔫᓂᖓᑕ ᐱᖁᓯᕆᔭᐅᔫᒃᑯᑦ ᐊᒻᒪᓗ ᐱᓕᕆᐊᖃᕐᓗᓂ ᑮᓇᐅᔭᓕᐅᕐᓂᕐᒧᑦ ᐱᕈᖅᐸᓪᓕᐊᓂᑦ ᐃᓱᒪᒋᔭᐅᔪᑦ ᖃᐅᔨᓯᐊᕈᑎᒃ ᐊᖏᓂᕆᔭᖓᑕ ᐱᓕᕆᐊᑉ ᕿᒪᒃᑎᑦᑐᓄᑦ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᕆᔭᖓ ᐊᒃᑐᐊᓂᕆᔭᖏᓐᓄᑦ ᐃᓄᐃᑦ ᐊᕙᑎᖓᓐᓄᑦ. ᐃᓄᐃᑦ ᖃᐅᔨᒪᔭᑐᖃᖏᑦ ᒪᓕᒃᑎᑦᑎᖕᒥᔪᑦ ᐱᕙᓪᓕᐊᓂᕐᒧᑦ ᐊᖏᓗᐊᖏᒋᐊᖅᑎᑦᑎᓂᕐᒧᑦ ᐊᒻᒪᓗ ᐃᑲᔫᑎᖃᕐᓂᕐᒥᒃ ᐱᐅᓯᒋᐊᖅᑎᑦᑎᓂᕐᒨᖓᔪᑦ ᓈᒻᒪᒃᑑᔪᑦ ᐱᓕᕆᐊᑉ ᐃᓄᖕᓄᑦ ᐊᒻᒪᓗ ᐱᖁᓯᖏᓐᓄᑦ ᐊᑐᖅᑕᖓᓐᓄᑦ.

ᐱᖁᓯᕆᔭᐅᔪᓂᒃ ᐱᕝᕚᐅᔪᑦ

ᐱᖁᓯᕆᔭᐅᔪᓂᒃ ᐱᕝᕚᐅᔪᓂᒃ ᖃᐅᔨᓴᐃᓂᖅ ᑎᑎᕋᐃᓚᐅᖅᑐᖅ 19-ᓂᒃ ᐱᖁᓯᕆᔭᐅᔪᓂᒃ ᐱᕝᕚᐅᔪᑦ ᐃᓂᖏᓐᓂᒃ ᑕᐃᑲᓂ ᐊᑭᐊᓂᓪᓘᓐᓂᑦ ᐃᑦᑕᕐᓂᑕᐃᑦ ᒥᒃᓵᓄᑦ ᖃᓂᑦᑐᒥᑦ ᖃᐅᔨᓴᐃᓂᕐᒥᑦ (LSA). ᑖᑉᑯᓇᓂ, 9-ᙳᔪᑦ ᐃᓱᒪᒋᔭᐅᓚᐅᖅᑐᑦ ᖁᑦᑎᒃᑐᒥᑦ ᐃᒃᐱᒋᓂᖃᕐᕕᐅᓂᖏᓐᓄᑦ, 8-ᙳᔪᑦ ᕿᑎᐊᓃᑦᑐᒥᒃ ᐃᒃᐱᒋᓂᖃᕐᕕᐅᑉᓗᑎᒃ, ᐊᒻᒪᓗ ᒪᕐᕉᒃ ᐊᑦᑎᒃᑐᒥᑦ ᐃᒃᐱᒋᓂᖃᕐᕕᐅᑉᓗᑎᒃ. ᐃᓂᐅᔪᓂᑦ ᐃᓚᐅᔪᑦ ᑕᖕᒫᕐᕖᑦ, ᐱᕈᐃᕝᕖᑦ, ᑕᓗᐃᑦ, ᓇᓗᓇᐃᑯᑦᑎᖅᓯᒪᔪᖅ, ᐊᒻᒪᓗ ᐃᓗᕕᕐᕕᒃ. ᖃᐅᔨᓴᐃᓂᖅ ᐃᓱᒪᓚᐅᖅᑐᖅ ᐱᓕᕆᐊᖅ-ᒥᒃ ᓴᓇᕙᓪᓕᐊᓂᕐᒧᑦ, ᐊᐅᓛᕐᓂᕐᒧᑦ, ᐊᒻᒪᓗ ᐅᒃᑯᐊᖅᐸᓪᓕᐊᓂᕐᒧᑦ ᐃᓱᐃᓵᕆᓂᖃᕐᓂᐊᕐᓂᖓᓄᑦ ᐱᖁᓯᖃᕐᕕᐅᔪᓂᒃ, ᓯᕿᐃᓗᑎᒃ ᐱᕐᑯᑎᑐᖃᓂᒃ, ᓄᖅᑲᖓᑎᑦᑎᓗᓂ, ᐅᕙᓘᓐᓂᑦ ᐊᖏᓪᓕᒋᐊᖅᑎᑦᑎᓗᑎᒃ ᑎᑭᑕᐅᔾᔮᕐᓂᖏᑦ ᐃᑦᑕᕐᓂᑕᖃᕐᕕᐅᔪᑦ, ᐊᒻᒪᓗ ᓯᕿᐃᓗᓂ ᑖᑉᑯᓄᙵ ᑐᑭᓯᐅᒪᔾᔪᑎᓂᒃ ᑐᑭᓕᐅᕆᔾᔪᑕᐅᔭᕆᐊᖃᖅᑐᑦ ᐃᓂᐅᔫᑉ ᖃᓄᐃᓕᐅᖃᑦᑕᓂᕆᔭᖓᓂᑦ ᐊᒻᒪᓗ ᐅᑭᐅᕆᔭᖓᓂᑦ. ᐅᖃᓪᓚᐅᓯᕆᓚᐅᖅᓱᒍ ᓄᓇᓕᖕᒥᑦ ᐱᖃᖃᑕᐅᔪᓂᒃ ᐃᓚᐅᑉᓗᑎᒃ ᐃᓐᓇᕆᔭᐅᔪᑦ ᐊᒻᒪᓗ ᐆᒪᔪᓕᕆᔨᐊᓛᒃᑯᑦ (HTO), ᐊᑉᖁᑎᐅᔪᖅ ᐊᒻᒪᓗ ᐃᓂᒋᔭᖓ ᐃᓗᑦᑐᖅᓯᒪᔫᑉ, ᐃᓚᐅᑉᓗᑎᒃ ᐃᓗᕕᕐᕕᒃ, ᓯᓚᑖᓂᑦᑐᑦ LSA, ᐊᒻᒪᓗ ᐊᒃᑐᖅᑕᐅᓯᒪᙱᑦᑐᑦ ᐱᓕᕆᐊᖅ ᐱᕙᓪᓕᐊᓂᕆᔭᖓᓄᑦ. ᐊᒥᐊᒃᑯᐃᑦ ᓯᑕᒪᐅᔪᑦ ᐃᓂᐅᔪᑦ (ᒪᕐᕉᒃ ᑕᖕᒫᕐᕖᒃ, ᑕᓗ ᐊᒻᒪᓗ ᓇᓗᓇᐃᑯᑎ) ᐅᓯᑲᑦᑕᖕᓂᕐᒧᑦ ᐊᑉᖁᑎᐅᑉ ᖃᓂᖕᒫᓃᑦᑐᑦ ᐅᕙᓘᓐᓂᑦ ᐃᓗᑦᑐᖅᑕᐅᓂᐊᖅᑑᑉ ᑭᒡᓕᖏᓐᓂᑦ, ᐊᒻᒪᓗ ᐊᒃᑐᖅᑕᐅᓂᐊᖅᑐᑦ ᐱᓕᕆᐊᖅ ᓴᓇᔭᐅᑎᓪᓗᒍ.

ᓇᓗᓇᐃᑯᑕᐅᑉ ᐃᓂᖓ ᑎᑎᕋᐅᓯᐅᓂᐊᖅᑐᖅ; ᑭᓯᐊᓂ, ᕿᒥᕐᕈᔭᐅᓯᒪᑎᓪᓗᒍ ᒥᑭᑦᑐᒥᒃ ᓱᓇᑐᐃᓐᓇᓂᒃ ᖃᐅᔨᓴᖅᑕᐅᓂᕐᒧᑦ ᑐᑭᓕᐅᖅᑕᐅᔭᕐᓇᕐᓂᖓᓄᑦ, ᐊᖏᓗᐊᖏᒋᐊᖅᑎᑦᑎᓂᕐᒧᑦ ᐱᒃᑲᓐᓂᕐᓂᖃᓚᐅᖏᑦᑐᖅ, ᓈᒻᒪᒋᔭᐅᓂᕐᒧᑦ ᓄᓇᕗᒻᒥᑦ ᐱᖁᓯᓕᑎᓇᒃᑯᓐᓂᑦ. ᐊᒥᐊᑯᐃᑦ ᐱᖓᓱᐃᑦ ᐃᓂᐅᔪᑦ ᐊᖏᓗᐊᖏᒋᐊᖅᑎᑦᑎᓂᕐᒧᑦ ᐱᓕᕆᐊᖑᓂᐊᖅᑐᑦ ᐊᑐᖅᑕᐅᖃᑦᑕᕐᓂᒃᑯᑦ ᓈᓴᐅᑎᒃᑯᑦ/ᑎᑎᖅᑲᑎᒍᑦ ᐅᑎᖅᑎᕆᓂᕐᒨᖓᔪᒧᑦ ᓲᕐᓗ ᓇᓗᓇᐃᔭᕐᓗᒋᑦ ᐃᓂᐅᔪᖅ ᓄᓇᙳᐊᑎᒍᑦ, ᓄᓇᙳᐊᓕᐅᕐᓗᒋᑦ ᐊᑐᓃᖓᓗᒋᑦ ᐅᔭᖅᑲᓄᑦ ᓴᓇᓯᒪᔪᑦ, ᑲᑎᖅᓱᐃᓗᓂ ᐱᕐᑯᑎᕕᓂᕐᓂᑦ, ᐳᐊᓇᔭᕐᓂᒃᑯᑦ ᐆᒃᑐᕋᐃᓂᒃᑯᑦ, ᐃᑦᑕᕐᓂᑕᕐᓂᒃ ᐲᖅᓯᓗᓂ, ᐊᒪᓗ/ᐅᕙᓘᓐᓂᑦ ᓄᓇᓕᖕᒥᐅᓂᒃ ᐅᖃᖃᑎᖃᕐᓗᓂ, ᐱᔭᕆᐊᖃᕌᖓᓕᑦ. ᑕᒪᒃᑯᐊ ᐃᓂᐅᔪᑦ ᐊᖏᓗᐊᖏᒋᐊᖅᑎᑦᑎᓂᖃᕐᕕᐅᓂᐊᖅᑎᓪᓗᒋᑦ, ᐱᖁᓯᕆᔭᐅᔪᓂᒃ ᐱᕝᕚᐅᔪᓂᒃ ᖃᐅᔨᓴᐃᓂᕐᒥᑦ ᐃᓚᐅᔪᑦ ᐊᑐᖅᑕᐅᓗᐊᖅᑐᒥᑦ ᐊᑉᖁᑎᑕᖃᙱᑦᑐᖅ ᐊᑯᓐᓂᖏᓐᓂᑦ ᐱᓕᕆᐊᖅ ᓴᓇᔭᐅᓂᖓ, ᐊᐅᓛᓂᖓ ᐊᒻᒪᓗ ᐅᒃᑯᐊᖅᐸᓪᓕᐊᓂᖓᓄᑦ, ᐊᒻᒪᓗ ᐱᖁᓯᓂᒃ ᐱᕝᕚᐅᔪᓄᑦ. ᕿᒪᒃᑎᑦᑎᓄᑦ ᐱᓕᕆᐊᕐᒥᑦ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᐅᔪᑦ ᐃᑦᑕᕐᓂᑕᖃᕐᕕᐅᔪᓄᑦ ᖃᓂᑦᑐᓄᑦ ᑭᒡᓕᒋᔭᐅᔪᑦ ᖃᓄᐃᓐᓂᕆᔭᖏᓐᓄᑦ ᓂᕆᐅᒋᔭᐅᖏᑦᑐᑦ.

ᐱᖁᓯᒃᑯᑦ ᓄᓇᒥᒃ ᐊᒻᒪᓗ ᐱᕝᕕᐅᔪᓂᒃ ᐊᑐᕐᓂᖅ

ᐱᖁᓯᒃᑯᑦ ᓄᓇᒥᒃ ᐊᒻᒪᓗ ᐱᕝᕕᐅᔪᓂᒃ ᐊᑐᕐᓂᖅ (TLRU) ᖃᐅᔨᓴᐃᓂᖅ ᐃᓕᑕᖅᓯᔪᖅ ᐱᒻᒪᕆᐅᓂᖏᓐᓂᒃ ᑐᒃᑐᐃᑦ, ᒥᖅᑯᓖᑦ, ᑎᖕᒥᐊᑦ, ᐃᖃᓗᐃᑦ, ᐊᒻᒪᓗ ᐱᕈᖅᑐᐃᑦ ᐊᒻᒪᓗ ᐸᐅᕐᖓᐃᑦ ᐱᖁᓯᕆᔭᐅᔪᒃᑯᑦ ᐃᓅᓯᖏᑦᑕ ᐃᓅᔪᐃᑦ. ᐱᒻᒪᕆᐅᓂᖓ ᐱᖁᓯᖅ ᐊᒻᒪᓗ ᐅᒃᐱᕐᓂᕐᒨᖓᔪᑦ (ᐊᐸᕐᑯᑏᑦ, ᑕᕐᒦᕐᕖᑦ, ᐃᒡᓗᕐᔪᐊᕋᓛᑦ, ᐱᖄᕆᕝᕖᑦ, ᐃᓗᕖᑦ) ᐊᓯᐅᔨᑦᑕᐃᓕᓂᕐᓄᑦ ᐱᖁᓯᒃᑯᑦ ᐃᒃᐱᒋᓂᕆᔭᐅᔪᑦ, ᐊᒻᒪᓗ ᑐᓂᐅᑎᒋᔭᐅᓂᖓ ᐱᖁᓯᕐᒥᒃ ᖃᐅᔨᒪᓂᖅ ᐊᒻᒪᓗ ᐃᓄᐃᑦ ᖃᐅᔨᒪᔭᑐᖃᖓᑦ (IQ) ᑭᒍᕚᓄᑦ, ᓇᓗᓇᐃᖅᑕᐅᓯᒪᖕᒥᔪᖅ.

ᖃᐅᔨᓴᐃᓂᖅ ᖃᐅᔨᓚᐅᖅᑐᖅ ᐱᓕᕆᐊᕐᒥᑦ ᖃᓄᐃᓕᐅᕐᓂᐅᔪᑦ ᓯᑕᒪᓗᐊᓂᒃ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᖃᕈᓇᕐᓂᖓᓂᒃ ᐊᑉᕐᑯᑎᓄᑦ TLRU-ᒧᑦ: ᐊᒃᑐᖅᓯᓗᓂ ᐱᕕᖃᕐᓂᐅᔪᓂᒃ ᓂᕐᔪᑎᓂᒃ ᒪᖃᐃᓐᓂᕐᒧᑦ, ᐃᖃᓗᒃᓯᐅᕐᓂᕐᒧᑦ, ᐱᕈᖅᑐᓂᒃ ᐱᖃᑦᑕᕐᓂᕐᒧᑦ, ᐊᒻᒪᓗ ᐊᑐᕐᓂᕐᒧᑦ ᐱᖁᓯᒃᑯᑦ ᐱᒻᒪᕆᐅᔪᒥᒃ ᐃᓂᐅᔪᓂᒃ ᐃᓘᐃᔅᖅᑕᐅᓂᒃᑯᑦ ᐊᑐᖅᑕᐅᔪᒪᓂᖅᓴᐅᔪᑦ, ᐊᓯᐊᕐᒎᕐᓂᖕᒋᑦ ᒪᓂᒪᓂᖓ ᓄᓇᐅᑉ ᐊᒻᒪᓗ ᐱᕝᕕᐅᔪᑦ, ᐊᒻᒪᓗ ᐃᓅᖃᑎᒌᖕᓂᕐᒧᑦ ᐱᕈᖅᐸᓪᓕᐊᓂᕐᒧᑦ ᐱᔾᔪᑕᐅᔪᑦ ᐊᒃᑐᖅᓯᓂᖏᑦ ᐃᓚᐅᖃᑕᐅᓂᕐᒧᑦ TLRU-ᒥᑦ. ᐊᖏᕈᐊᖏᕆᐊᖅᑎᑦᑎᓂᐅᔪᑦ ᑐᕌᖓᔪᑦ ᑭᒡᓕᖃᖅᑎᓐᓂᕐᒧᑦ ᐱᓕᕆᐊᑉ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᖓ ᒪᓂᒪᖏᓐᓄᑦ ᓂᕐᔪᑏᑦ, ᐱᕈᖅᑐᐃᑦ ᐊᒻᒪᓗ ᐃᖃᓗᐃᑦ ᐱᓕᕆᐊᖑᓂᐊᖅᑐᑦ, ᓴᓇᓗᑎᒃ ᐊᒻᒪᓗ ᐱᓕᕆᐊᕆᖃᑦᑕᕐᓗᒋᑦ ᓇᓗᓇᐃᑯᑎᖅᓯᒪᔪᑦ ᐃᑳᖅᑕᕝᕕᐅᔪᑦ ᐱᖁᓯᒃᑯᑦ ᓄᓇᒥᒃ ᐊᑐᕐᓂᕐᒧᑦ, ᑭᒡᓕᓕᐅᕐᓗᓂ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᖅᐸᓪᓕᐊᓂᐅᔪᑦ ᑲᔪᓯᓂᒃᑯᑦ ᐱᕕᖃᕐᓂᐅᔪᓂᒃ ᐱᖁᓯᒃᑯᑦ ᒪᖃᐃᓐᓂᕐᒥᒃ ᑕᒪᒃᑯᓂᖓᑦ ᐱᕝᕕᐅᖃᑦᑕᖅᑐᓂᒃ. ᐃᑦᑕᕐᓂᑕᖃᕐᕕᐅᔪᓄᐊᖅᑕᐃᓕᓂᖅ ᐊᒻᒪᓗ ᐱᖁᓯᕆᔭᐅᔫᒃᑯᑦ ᐱᕝᕕᐅᖃᑦᑕᖅᑐᓂᒃ, ᐊᒻᒪᓗ ᐊᖏᕈᐊᖏᕆᐊᖅᑎᑦᑎᓂᖅ ᐊᒃᑐᖅᑕᐃᓕᓂᖅ ᐊᔪᕐᓇᖅᑐᓂᒃ, ᐊᔾᔨᕐᓚᒋᔭᖓ ᓂᕆᐅᒋᔭᐅᔪᑦ ᑭᒡᓕᖃᖅᑎᓐᓂᕐᒧᑦ ᐊᒃᑐᐊᔪᑦ ᐱᓕᕆᐊᒧᑦ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᐅᔪᑦ ᑲᔪᓯᔪᒥᒃ ᐱᕕᖃᕐᓂᐅᔪᓄᑦ ᐊᑐᕐᓂᕐᒧᑦ ᐱᖁᓯᒃᑯᑦ ᐱᒻᒪᕆᐅᔪᓂᒃ ᐃᓂᐅᔪᓂᒃ.

ᐱᓕᕆᐊᖅ ᓂᕆᐅᒋᔭᐅᖏᑦᑐᖅ ᐊᓯᐊᕐᒍᖅᓯᓂᐊᕐᓂᕐᒧᑦ ᐱᕕᖃᕐᓂᐅᔪᓂᒃ ᒪᖃᐃᓐᓂᕐᒧᑦ ᒥᖅᑯᓕᖕᓂᑦ, ᐊᕙᑎᒨᖓᔪᒥᒃ ᐊᖏᔪᒥᒃ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᕐᒧᑦ ᓂᕆᐅᒋᔭᐅᖏᒻᒪᑦ ᑎᕆᒐᓂᐊᓄᑦ, ᖃᕝᕙᖕᓄᑦ, ᐅᕙᓘᓃᑦ ᐊᒃᓴᓄᑦ, ᐊᒻᒪᓗ ᑎᕆᒐᓂᐊᓂᒃ ᑮᔭᖃᑎᐊᖃᑦᑕᕐᓂᕐᒧᑦ ᐃᓂᐅᔪᑦ ᐊᑐᖅᑕᐅᖃᑦᑕᕐᓂᖅᓴᐅᖕᒐᒧᑦ ᖃᓂᑦᑐᕋᓚᐅᖕᒪᑕ ᖃᒪᓂᑦᑐᐊᕐᒧᑦ. ᐊᔾᔨᓚᖕᒐ, ᐱᓕᕆᐊᖅ ᓂᕆᐅᒋᔭᐅᖏᑦᑐᖅ ᐊᖏᔪᒥ ᐊᒃᑐᖅᓯᓂᖃᕐᓂᐊᕐᓂᖕᒐᓄᑦ ᑲᔪᓯᔪᒥ ᐱᕕᖃᕐᓂᐅᔪᓂᒃ ᒪᖃᐃᓐᓂᕐᒧᑦ ᑎᖕᒥᐊᓂᒃ, ᐱᔾᔪᑎᒪᓂᖅᓴᐅᔪᓂᒃ ᒪᖃᐃᓐᓂᕐᒧᑦ ᐃᓂᐅᔪᑦ ᑎᑎᕋᐅᓯᐅᖅᓯᒪᙵᑦᑐᑦ ᐱᓕᕆᐊᑉ ᐃᓂᒋᔭᖓᓄᑦ. ᐱᓕᕆᐊᖅ, ᑭᓯᐊᓂ, ᐊᓯᐊᕐᒎᖅᓯᑎᑦᑎᓂᐊᖅᑐᖅ ᑐᒃᑐᐃᑦ ᓅᓐᓂᖃᑦᑕᖅᑕᕐᖓᓐᓂᒃ, ᐊᒃᑐᖅᓯᑐᐃᓐᓇᖃᐊᖃᖅᓗᓂ ᐱᕕᖃᕐᓂᐅᔪᓂᒃ ᐱᖁᓯᒃᑯᑦ ᒪᖃᐃᓐᓂᕐᒥᒃ ᑐᒃᑐᓂᒃ. ᓇᓗᓇᕐᓂᖓᐅᑎᓪᓗᒍ ᖃᓄᐃᓐᓂᖓᑕ ᐱᓕᕆᐊᑉ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᖓ ᑐᒃᑐᐃᑦ ᓅᖃᑦᑕᕐᓂᖏᓐᓄᑦ, ᐊᒻᒪᓗ ᐱᒻᒪᕆᐅᓂᖓᑕ ᐆᒪᔪᐃᑦ ᐱᖁᓯᒃᑯᑦ ᐃᓅᓯᕆᔭᐅᓂᖏᓐᓄᑦ, ᕿᒪᒃᑎᓐᓂᖏᓐᓄᑦ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᐅᔪᑦ ᑲᔪᓯᓂᒃᑯᑦ ᐱᕕᖃᕐᓂᐅᔪᓄᑦ ᑐᒃᑐᓂᒃ ᒪᖃᐃᖃᑦᑕᕐᓂᕐᒧᑦ ᐊᑦᑎᒃᑑᔪᖅ ᕿᑎᐊᓈᖅᓱᓂ ᐊᖏᓂᕆᓴᖕᒐᑕ, ᖃᓂᑦᑐᒥᑦ ᐅᖓᓯᖕᓂᖅᓴᒧᑦ ᐅᖓᓯᒃᑎᒋᓂᖓ, ᓇᐃᑦᑑᒥᑦ-ᕿᑎᐊᓄᑦ ᑕᑭᑎᒋᓂᖓ, ᐊᒻᒪᓗ ᖃᐅᔨᓴᖅᑕᐅᔪᖅ ᐊᖏᔫᓂᖓᓄᑦ.

ᐱᓕᕆᐊᖅ ᓂᕆᐅᒋᔭᐅᖏᑦᑐᖅ ᐊᓯᐊᕐᒍᖅᓯᑎᑦᑎᓂᐊᕐᓂᖓᓄᑦ ᐱᕕᖃᕐᓂᐅᔪᓄᑦ ᐱᖁᓯᒃᑯᑦ ᐃᖃᓗᒃᓯᐅᕐᓂᕐᒧᑦ, ᐊᖏᔪᒥᒃ ᐊᕙᑎᓕᕆᓂᕐᒧᑦ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᖅᑕᖃᙱᒪᑦ ᐃᖃᓗᐃᑦ ᐃᓂᖏᓐᓄᑦ ᐊᒻᒪᓗ ᖃᐸᐅᓂᖏᓐᓄᑦ ᐃᖃᓗᒃᓯᐅᕝᕕᐅᔪᒪᓂᖅᓴᐅᔪᓄᑦ.

ᐱᓕᕆᐊᕐᒥᑦ-ᐱᔪᑦ ᐳᔪᖃᑖᑦ ᐊᒻᒪᓗ ᐊᓯᐊᕐᒍᖅᓯᓂᐅᔪᑦ ᐃᒪᕐᓄᑦ ᓂᕆᐊᒋᔭᐅᔪᑦ ᓄᓇᒥᐅᓂᐊᕐᓂᕐᒪᓄᑦ LSA-ᒥᑦ ᐊᒻᒪᓗ ᐅᑎᖅᑎᑦᑐᙳᕐᓂᐊᖅᓱᓂ, ᑖᒃᑲᓂᑐᐃᓐᓇᐅᓗᓂ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᖅ ᖃᓄᐃᓐᓂᖓᓄᑦ ᐱᕈᖅᑐᐃᑦ ᐱᓕᕆᐊᑉ ᐃᓂᖓᓂᑦ. ᐊᑐᓕᖅᑎᑦᑎᓂᖅ ᐳᔪᖃᑖᖕᒥᑦ ᐊᐅᓚᑦᑎᓂᕐᒨᖓᔪᑦ ᐊᒻᒪᓗ ᑲᔪᓯᔪᒥᒃ ᖃᐅᔨᒋᐊᖃᑦᑕᕐᓂᖅ, ᑕᒪᒃᑯᐊ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᐅᔪᑦ ᓂᕆᐊᒋᔭᐅᔪᑦ ᒥᑭᑦᑑᓂᐊᕐᓂᖔᓄᑦ. ᐊᒥᓲᓂᖏᑦᑐᑎᓪᓗᒋᑦ ᐱᕈᖅᑐᓂᒃ ᑲᑎᖅᓱᐃᖃᑦᑕᕐᓂᐅᔪᑦ ᖃᓂᑦᑐᒥᑦ, ᑕᒫᓃᓐᓂᖏᑦ ᐱᕈᖅᑐᐃᑦ ᖃᓄᐃᓕᕐᓂᖏᑦ, ᐊᒻᒪᓗ ᑭᒡᓕᖃᕐᓂᖓ ᐱᖁᓯᒃᑯᑦ ᐊᑐᖃᑦᑕᕐᓂᖅ ᐱᓕᕆᐊᑉ ᐃᓂᒋᔭᖓᓂᑦ ᐱᕈᖅᑐᓂᒃ ᑲᑎᖅᓱᐃᓂᕐᒧᑦ, ᐱᓕᕆᐊᑉ ᕿᒪᒃᑎᑦᑐᓄᑦ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᖓ ᑲᔪᓯᔪᓄᑦ ᐱᕕᖃᕐᓂᐅᔪᑦ ᐱᕈᖅᑐᓂᒃ ᑲᑎᖅᓱᐃᓂᕐᒧᑦ ᐊᑦᑎᒃᑑᔪᖅ ᐊᖏᓂᖓ, ᖃᓂᑦᑑᑉᐸᓗᓂ, ᕿᑎᐊᓂᑦ-ᐊᑯᓂᐅᑎᒋᓂᖓ, ᐊᒻᒪᓗ, ᑕᐃᒪᓐᓇᒧᑦ, ᖃᐅᔨᓴᐃᓂᖅ ᐊᖏᔫᖏᑦᑐᖅ.

ᐃᓄᐃᑦ-ᐱᕈᖅᐸᓪᓕᐊᖓᔪᑦ

ᐃᓄᐃᑦ-ᐱᕈᖅᐸᓪᓕᐊᔪᓂᒃ ᖃᐅᔨᓴᐃᓂᖅ ᐅᖃᐅᓯᖃᖅᑐᖅ ᐱᓕᕆᐊᑉ ᐊᒃᑐᐊᓂᖃᖃᑦᑕᕐᓂᖓ ᐃᓅᓂᒃ, ᐱᕈᖅᐸᓪᓕᐊᓂᕐᒧᑦ ᖃᓄᐃᓕᐅᕐᓂᕐᒥᒃ, ᓇᖏᓂᖃᖅᑐᓕᐅᕆᓂᕐᒥᒃ, ᐱᓕᕆᐊᒃᓴᖃᖅᑎᑦᑎᓂᕐᒥᒃ, ᐃᓕᓐᓂᐊᕐᓂᕐᒥᒃ ᐊᒻᒪᓗ ᐊᔪᕈᓐᓃᖅᓴᓂᕐᒥᒃ, ᐃᓅᖕᒧᑦ ᐊᒻᒪᓗ ᓄᓇᓕᖕᒥᐅᑦ ᖃᓄᐃᖕᒋᑦᒃᑎᐊᕐᓂᖕᖏᓐᓄᑦ, ᐃᒡᓗᓕᕆᓂᖅ, ᐊᒻᒪᓗ ᐱᕐᑯᑎᒋᔭᐅᔪᓄᑦ. ᐅᐃᒍᒋᐊᖅᓯᓂᖅ ᑕᐃᒪᐅᔪᒥᒃ ᐅᔾᔨᖕᓂᐊᕐᓂᐅᔪᒥᒃ, Whale Tail ᐃᓗᑦᑐᖅᓯᒪᔪᖅ ᓂᕆᐅᒋᔭᐅᔪᖅ ᑲᔪᓯᑎᑦᑎᓂᐊᕐᓂᖓᓄᑦ ᐃᓄᐃᑦ-ᐱᕈᖅᐸᓪᓕᐊᓂᖕᖑᓄᑦ ᐃᑲᔪᐃᓂᕐᒥᒃ ᐊᐳᖅᑎᓈᖅᑐᕐᒥᑦ ᐅᔭᕋᓐᓂᐊᕐᓂᖅ, ᐃᓚᐅᑉᓗᓂ ᑐᓂᕐᕈᑕᐅᔪᑦ ᓄᓇᕗᑦ ᐱᕈᖅᐸᓪᓕᐊᓂᖓᓄᑦ, ᓄᓇᓕᖕᒥᑦ ᓇᖏᓂᖃᕐᓂᕐᒧᑦ ᐱᕙᓪᓕᐊᓂᕐᒥᒃ, ᓄᓇᓕᖕᒥᑦ ᐱᓕᕆᐊᖃᖅᑎᑦᑎᓂᕐᒥᒃ ᐊᒻᒪᓗ ᑮᓇᐅᔭᓕᐅᕐᓂᕐᒥᒃ, ᐊᒻᒪᓗ ᑐᓂᕐᕈᑎᖃᕐᓂᖅ ᐃᓕᓐᓂᐊᕐᓂᕐᒧᑦ, ᐊᔪᕈᓐᓃᖅᓴᓂᕐᒧᑦ, ᐊᒻᒪᓗ ᓄᓇᓕᒃ ᐱᕐᑯᑎᑖᖅᑕᐅᓂᕐᒧᑦ. ᐱᓕᕆᐊᖅ ᑕᒪᐃᓐᓂᒃ ᐱᔪᒥᒃ ᐊᒻᒪᓗ ᐱᐅᖏᑦᑐᒥᒃ ᖃᓄᐃᖕᖓᓕᖅᑎᑦᑎᓂᖅᑲᕆᓇᖅᑐᖅ ᐱᓕᕆᕐᒥᒃ ᐊᒻᒪᓗ ᓄᓇᓕᑉ ᐋᓂᐊᖅᑕᐃᓕᒪᓂᖕᖑᓂᒃ ᐊᒻᒪᓗ ᐊᑦᑕᓇᖅᑐᖅᑲᖏᓐᓂᖅᓴᖕᖑᓂᒃ, ᑐᓂᓯᒍᓂ ᐋᓐᓂᐊᖅᑕᐃᓕᒪᓂᕐᒥᒃ ᐊᒻᒪᓗ ᐅᔾᔨᕆᔭᐅᓂᕐᒥᒃ, ᐊᑕᐅᑦᑎᒃᑯᑦ ᑐᓂᓯᓗᓂ ᐅᓗᕆᐊᓇᖅᑐᓂᒃ ᐱᓂᕐᓗᐊᕿᔪᓂᒃ ᐊᒻᒪᓗ ᑐᐊᕗᓇᖅᑐᕆᓂᕐᒥᒃ. ᐱᓕᕆᐊᖅ ᐊᖏᔪᒥᒃ ᐊᓯᐊᙳᖅᓯᓂᖅᑎᑦᑎᔭᓇᖅᑐᖅ ᖃᓪᓚᖑᑎᒌᓄᑦ ᐊᒻᒪᓗ ᓄᓇᓕᖕᒧᑦ, ᑕᐃᑲᙵᐅᖏᑦᑐᖅ ᐱᔪᓂᒃ ᐋᖓᔮᖅᓇᖅᑐᓕᕆᓗᕿᓂᒥᒃ ᐊᒻᒪᓗ ᑕᒻᑯᓂᙶᙵᑦ ᐊᔪᓕᖅᓯᒪᓂᐅᔪᓂᒃ, ᐊᒃᑐᐊᓂᖃᖅᑐᓂᒃ ᖃᓪᓚᖑᑎᓖᓄᑦ ᐊᒻᒪᓗ ᑭᖑᕚᓄᑦ ᐃᓘᐃᓗᑦᑎᐅᑎᔪᓂᒃ, ᓂᖓᖃᑦᑕᕐᓂᕐᒥᒃ ᐊᒻᒪᓗ ᐱᕋᔾᔭᓂᕐᒥᒃ, ᐊᒻᒪᓗ ᐊᕐᓰᓐᓂᖃᕈᓐᓃᖅᑎᑦᑐᓂ ᖃᓪᓚᖑᑎᓖᓄᑦ ᐊᒻᒪᓗ ᓄᓇᓕᖕᓄᑦ. ᐃᓚᐅᖃᑕᐅᓂᖅ ᑮᓇᐅᔾᔭᓕᐅᕐᓂᕐᒧᑦ ᐱᕈᖅᐸᓪᓕᐊᓂᕐᒥᒃ ᐱᓕᕆᐊᕐᒥᑦ ᐱᔪᒥᒃ ᐊᓯᐊᙳᖅᓯᓂᖅᑲᖅᑎᑦᑎᔪᓐᓇᕐᒥᔪᖅ ᐱᖅᑯᓯᕆᔭᐅᔪᒃᑯᑦ ᐊᑐᖅᑕᐅᖃᑦᑕᖅᑐᒥᒃ ᐊᒻᒪᓗ ᐃᒃᐱᒋᓂᕆᔭᐅᔪᒥᒃ, ᐊᒻᒪᓗ ᐱᒋᐊᖅᑎᑦᑎᔪᓐᓇᖅᖢᓂ ᐃᓚᐅᖃᑕᐅᓂᕐᒥᒃ ᓄᓇᓕᖕᒥᑦ ᖃᓄᐃᓕᐅᕐᓂᐅᔪᓂᒃ. ᑕᐃᒪᐅᔪᖅ ᐊᐳᖅᑎᓈᖅᑐᕐᒥᑦ ᐅᔭᕋᓐᓂᐊᕐᕖᕐᒥᑦ ᐱᓕᕆᔪᐃᑦ ᐱᓕᕆᐊᕐᒧᐊᖅᓯᒪᔪᑦ ᐱᓕᕆᐊᖃᕐᓂᑯᖃᖅᓯᒪᔪᑦ ᐊᐅᓚᑦᑎᓂᕐᒥᒃ ᑮᓇᐅᔭᓕᐊᖏᓐᓂᒃ, ᐊᒻᒪᓗ ᒫᓇᐅᔪᖅ ᐃᓕᖅᑯᓯᑦᓯᖏᓐᓂᒃ ᐊᓯᐊᙳᖅᓯᓂᐊᖏᑦᑐᔅᓴᐅᓕᖅᐳᑎᒃ ᐅᕙᓗᓐᓃᑦ ᐃᓅᓯᖓᑦ ᐱᔾᔪᒥᒃ ᐱᓕᕆᐊᕐᒥᑦ. ᑭᓯᐊᓂ, ᐃᓕᖅᑯᓯᓕᖅᑕᖏᑦ ᓄᑖᑦ ᐱᓕᕆᓃᑦ ᐊᒃᑐᖅᑕᐅᑐᐃᓐᓇᕆᐊᖅᑐᑦ.

ᐱᓕᕆᐊᖅ ᐅᐃᒍᒋᐊᖅᓯᓂᐊᖅᑐᖅ ᐱᓕᕆᐊᖃᕐᓂᕐᒧᑦ ᐱᕕᖃᕐᓂᐅᔪᓂᒃ ᐊᐳᖅᑎᓈᖅᑐᒥᑦ ᐃᓚᓯᒃᑳᓂᕐᒧᓂ ᐱᖓᓱᓂᑦ ᓯᑕᒪᓄᑦ ᐅᑭᐅᓄᑦ ᐊᒻᒪᓗ 200 ᖃᓂᑕᖓᓂᑦ ᐱᓕᕆᐊᒃᓴᓂᒃ ᓴᖅᑭᑦᑎᒃᑳᓂᕐᒧᓂ. ᐊᒥᓱᐃᑦ ᐱᕕᖃᕐᓂᐅᔪᑦ ᑐᕌᖅᑎᑕᐅᓂᐊᖅᑐᑦ ᓄᓇᓕᖕᒥᐅᓄᑦ ᖃᒪᓂᑦᑐᐊᕐᒥᑦ ᐊᒻᒪᓗ ᐊᓯᖕᒋᓄᑦ ᑭᕙᓪᓕᕐᒥᑦ ᓄᓇᓕᖕᒋᓄᑦ. ᑕᐃᑲᙵᐅᖏᑦᑐᖅ ᐱᓕᕆᐊᒃᓴᒃᑖᕐᓚᐃᑦ ᓄᓇᕗᒻᒥ ᓂᕆᐅᒋᔭᐅᔪᑦ ᐃᓄᒃᑕᐅᓂᐊᕐᓂᖕᒋᓄᑦ ᑕᐃᒪᐅᔪᓄᑦ ᐱᓕᕆᔨᐅᔪᓂᑦ ᐱᓕᕆᕝᕕᐊᓂᑦ ᑐᓂᓯᔪᑦ ᐊᐳᖅᑎᓈᖅᑐᒧᑦ. ᐱᓕᕆᐊᖅ ᐱᓕᕆᐊᖃᕐᓂᐊᖅᑐᖅ ᒫᓇᐅᔪᖅ ᐱᓕᕆᔨᓂᒃ ᐊᐃᒃᓯᖃᑦᑕᕐᓂᕐᒥᒃ ᑭᕙᓪᓕᐅᑉ ᓄᓇᓕᖕᒋᓂᑦ, ᐊᒻᒪᓗ ᓱᓇᑐᐃᓇᐃᑦ ᐱᓕᕆᐊᒃᓴᙳᖅᑐᑦ ᐃᓄᒃᑕᐅᑎᖃᑦᑕᕐᓂᐊᖅᑕᖓᑦ ᓯᕗᓪᓕᖅᐸᐅᑎᓗᒋᑦ ᑭᕙᓪᓕᕐᒥᐅᓄᑦ, ᐊᒻᒪᓗ, ᑑᓕᐅᓗᒍ, ᓄᓇᕗᒻᒥᐅᓄᑦ. ᑕᒪᓐᓇ ᐊᑐᕐᓗᒍ ᐱᓕᕆᔨᑖᖅᑐᕐᓂᖅ, ᐱᓕᕆᐊᖅ ᓂᕆᐅᒋᔭᐅᔪᖅ ᐱᒋᐊᖅᑎᑦᑎᓂᕐᒥᒃ ᓄᓇᕗᒧᐊᖃᑦᑕᕐᓂᕐᒥᒃ ᓄᓇᕗᑦ ᓯᓚᑖᓂᙵᖅᑐᓂᒃ, ᐃᓄᖕᒋᑦ ᐊᒥᓲᕐᓂᕐᒥᓄᑦ, ᐅᕙᓘᓐᓃᑦ ᐃᓄᐃᑦ ᖃᑉᓯᐅᓂᖕᒋᑦ ᐊᓯᐊᙳᕐᓗᓂ.

ᐱᓕᕆᐊᖅ ᓂᕆᐅᒋᔭᐅᔪᖅ ᖃᑉᓯᐊᕐᔪᖕᓂᒃ ᐱᐅᔪᓂᒃ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᖃᕐᓂᐊᕐᓂᖓᓄᑦ ᖃᐅᔨᓴᖅᑕᐅᓯᒪᔪᓂᒃ ᐊᖏᔫᓂᖕᒋᓄᑦ, ᐱᓗᐊᖅᑐᒥᒃ ᐱᐅᔪᓂᒃ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᖅ GDP-ᒧᑦ, ᑖᒃᑯᓯᐅᔭᕐᓂᕐᒧᑦ ᑮᓇᐅᔭᓕᐊᓄᑦ, ᓄᓇᓕᖕᒥᑦ ᓇᖏᓂᖅᑖᖅᑐᖅᐸᓪᓕᐊᓂᕐᒥᒃ, ᐱᓕᕆᐊᒃᓴᓂᒃ ᐊᒻᒪᓗ ᐊᔪᕈᓐᓃᖅᓴᓂᐅᔪᓂᒃ, ᑮᓇᐅᔭᓕᐊᓂᒃ, ᐊᒻᒪᓗ ᖃᓄᐃᖕᒋᑦᑎᐊᕐᓂᕐᒨᖓᔪᓂᒃ ᑮᓇᐅᔭᓕᐊᖑᔪᓄᑦ, ᓄᓇᓕᖕᒧᑦ ᑐᓂᕐᕈᑎᖃᖃᑦᑕᕐᓂᕐᒥᒃ, ᐊᒻᒪᓗ ᑲᔪᓯᓂᖓ ᐃᓄᐃᑦ ᐊᒃᑐᖅᑕᐅᓂᖕᖏᓄᑦ ᐃᑲᔪᑎᒧᑦ ᐊᖏᖃᑎᒌᒍᑎᒃᑯᑦ (IIBA). ᐱᓕᕆᐊᑉ ᐱᔪᒥᒃ GDP-ᖃᕐᓂᖓ ᐊᒃᑐᖅᓯᔪᖅ 10%-ᖑᔪᒥᒃ ᒫᓇᐅᔪᖅ GDP-ᖓᓂᑦ ᓄᓇᕗᑦ. ᐱᓕᕆᐊᕐᒨᖓᔪᑦ ᑖᒃᑯᓯᐅᔭᕐᓂᕐᒧᑦ ᑮᓇᐅᔭᓕᐊᖑᔪᑦ ᐊᒻᒪᓗ ᐊᑭᓕᐅᑕᐅᔪᑦ ᒐᕙᒪᒃᑯᑦ ᑮᓇᐅᔭᓕᐊᖑᓂᒃ ᓄᓇᕗᒻᒥ ᐃᑲᔪᐃᓂᐊᖅᑐᑦ 4%-ᓗᐊᒧᑦ ᓄᓇᕗᒻᒥᑦ ᑲᑎᑉᓗᒃᑖᖅᐳᑎᑦ ᑮᓇᐅᔭᖅᑑᑎᓕᐊᖑᔩᑉ ᑮᓇᐅᔭᓕᐊᖓᓄᑦ.

ᐱᓕᕆᐊᑉ ᑮᓇᐅᔭᓕᐊᓗᐊᖓ ᐊᒃᑐᖅᓯᓂᐅᔪᖅ ᑲᔪᓯᓂᐅᓂᐊᖅᑐᖅ ᖁᑦᑎᒃᑐᒥᒃ ᑮᓇᐅᔭᓕᐅᖅᑎᑦᑎᓂᐊᕐᓂᕐᒧᑦ ᐱᓕᕆᔪᓂᒃ ᐊᐳᖅᑎᓈᖅᑐᒥᑦ ᐅᔭᕋᓐᓂᐊᕐᕕᖕᒥᑦ. ᐱᓕᕆᐊᖅᑲᐅᑎᒃ ᑮᓇᐅᔭᓕᐊᖑᔪᖅ ᒫᓇᐅᔪᖅ ᐱᓕᕆᔨᓄᑦ ᐊᓯᐊᙳᕐᓂᖅᓯᐊᕐᓂᐊᕐᓂᖕᖑᓄᑦ ᓂᕆᐅᒋᔭᐅᖕᒋᑦᑐᖅ, ᑭᓯᐊᓂ ᐅᐃᒍᒋᐊᖅᑕᐅᓂᐊᖅᑐᖅ ᐱᓕᕆᐊᑉ ᐊᐳᖅᑎᓈᖅᑐᒥᑦ ᐅᔭᕋᓐᓂᐊᕐᕕᐅᑉ ᐅᒃᑯᐊᕐᕕᒃᓴᖓᑕ 2018 ᐅᖓᑖᓄᑦ. ᐱᓕᕆᐊᖅ ᓄᑖᓂᒃ ᑮᓇᐅᔭᓕᐅᕐᓂᖅᑕᖃᕐᓂᐊᕐᒥᔪᖅ ᐱᔾᔪᑎᖃᖅᑐᓂᒃ ᑭᓪᓕᖃᖅᑐᓄᑦ ᑮᓇᐅᔭᓕᐊᓂᒃ ᓄᑖᓄᑦ ᐱᓕᕆᐊᓄᑦ, ᐊᒻᒪᓗ ᑕᐃᑲᙵᐅᖏᑦᑐᖅ ᑮᓇᐅᔭᓕᐅᕐᓂᖅᑕᖃᖅᑎᑦᑎᓗᓂ, ᐅᒃᑯᐊᖅᐸᓪᓕᐊᓂᒃᑯᑦ. ᐱᓕᕆᐊᑉ ᑕᒪᐃᓄᓗᒃᑖᖅ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᖓ ᑲᔪᓯᓂᒃᑯᑦ ᑮᓇᐅᔭᓕᐅᕐᓂᒃᑯᑦ, ᓄᓇᓕᖕᒧᑦ ᑐᓂᕐᕈᑎᖃᕐᓂᒃᑯᑦ ᐊᒻᒪᓗ ᐊᐳᖅᑎᓈᖅᑐᒧᑦ IIBA-ᑯᑦ ᓂᕆᐅᒋᔭᐅᔪᖅ ᐱᐅᔪᒥᒃ ᖃᓄᐃᖓᓕᖅᑎᑦᑎᓂᖃᕐᓂᐊᕐᓂᐊᕐᒥᒃ ᖃᓄᐃᖕᒋᑦᑎᐊᕐᓂᖕᖑᓄᑦ ᐃᓄᐃᑦ ᐊᒻᒪᓗ ᓄᓇᓖᑦ. ᓄᓇᓕᖕᒧᑦ ᐊᒻᒪᓗ IIBA-ᒧᑦ ᑐᓂᕐᕈᑕᐅᔪᑦ ᐊᖏᔫᔪᑦ, ᐊᒻᒪᓗ ᓄᓇᓕᖕᒧᑦ ᐱᕙᓪᓕᐊᓂᕐᒥᒃ ᐃᑲᔪᐃᓃᑦ ᐊᒻᒪᓗ ᖃᓄᐃᖕᒋᑦᑎᐊᕐᓂᖕᖏᑦ ᐱᓕᕆᐊᒃᓴᐃᑦ. ᑕᒪᕐᒥᒃ ᑕᐃᒪᐅᓂᐊᖅᑐᑦ ᑭᕙᓪᓕᓗᒃᑖᕐᒥᑦ, ᑭᓯᐊᓂ ᖃᒪᓂᑦᑐᐊᕐᒥᓗᐊᖑᓂᐊᖅᑐᑦ ᐊᐅᓚᕐᓂᖓᓂᑦ ᐱᓕᕆᐊᖅ.

SOMMAIRE DE GESTION – VOLUME 7 - L'ENVIRONNEMENT HUMAIN

Le Volume 7, L'environnement humain, du Projet de gisement Whale Tail et de route de transport (le Projet) évalue l'importance des effets du Projet sur les ressources archéologiques et patrimoniales, l'utilisation traditionnelle de la terre et les paramètres socio-économiques. Lorsque des effets du Projet sont identifiés, des mesures d'atténuation sont développées afin de réduire les effets négatifs, alors que des mesures de renforcement des bénéfices sont élaborées afin de maximiser les effets positifs. L'importance des effets résiduels du Projet est alors déterminée à partir des critères d'évaluation décrits au Volume 3 : Les méthodes d'évaluation.

Préoccupations du public / Inuit Qaujimajatuqangit

Les préoccupations du public, incluant celles basées sur l'Inuit Qaujimajatuqangit (IQ), ont été prises en considération lors de la détermination de l'orientation du Volume 7. L'Inuit Qaujimajatuqangit a été intégré tout au long de l'évaluation dans la description de l'environnement humain actuel. Les perspectives inuites sur la valeur culturelle des sites archéologiques et patrimoniaux, l'importance des terres et des ressources utilisées traditionnellement et l'interaction complexe entre l'économie traditionnelle et l'économie basée sur les salaires sont considérées lors de la détermination de l'ampleur et de l'importance des effets résiduels du Projet sur les caractéristiques de l'environnement humain. L'Inuit Qaujimajatuqangit guide également le développement des mesures d'atténuation et des mesures de renforcement des bénéfices qui sont appropriées pour les contextes social et culturel du Projet.

Ressources patrimoniales

L'évaluation des ressources patrimoniales a répertorié 19 sites de ressources patrimoniales au sein, ou à proximité, de la zone d'étude locale (ZEL) archéologique. Parmi ceux-ci, neuf ont été perçus comme comportant une valeur significative élevée, huit de valeur significative modérée et deux de valeur significative faible. Les sites incluent des campements, des caches, des affûts de chasse, un repère et un lieu de sépulture. L'évaluation a pris en considération le potentiel de la construction, des opérations et de la fermeture à perturber les vestiges et éléments culturels, à endommager les artéfacts, à entraver ou augmenter l'accès aux vestiges archéologiques et à détruire de l'information contextuelle essentielle à l'interprétation de la fonction et de l'âge des sites. À la suite de discussions avec les parties prenantes de la collectivité, dont les aînés et l'Organisation des chasseurs et des trappeurs (HTO - Hunting and Trapping Organization) locale, le tracé de la route et l'emplacement des aires d'emprunts de la fosse ont été modifiés afin de réduire les impacts sur les sites patrimoniaux. L'évaluation a permis de déterminer que 15 des 19 sites archéologiques, incluant le lieu de sépulture, sont situés à l'extérieur de la ZEL, et ne sont pas touchés par le développement du Projet. Les quatre autres sites (deux campements, un affût et un repère) sont situés à l'intérieur des limites de la route de transport ou des sources d'emprunt, et seront perturbés par la construction du Projet.

Le site du repère sera enregistré et documenté; cependant, comme il a été évalué comme ayant une valeur interprétative et scientifique limitée, aucune mesure d'atténuation supplémentaire n'a été recommandée, en attente de l'approbation du ministère de la Culture et du Patrimoine du Nunavut. Les trois sites restants profiteront d'une atténuation par le biais de mesures de récupération systématique des données telles que la cartographie détaillée du site, la cartographie des éléments de pierre individuels, la collecte d'artéfacts, les tests avec pelle, l'excavation archéologique et/ou la consultation de la collectivité, selon ce qui convient. Puisque ces sites seront atténués, l'évaluation des ressources patrimoniales conclut qu'il n'y a pas de trajectoires significatives entre la construction, les opérations et la fermeture du Projet et les ressources patrimoniales. Aucun effet résiduel découlant du Projet n'est prévu sur les sites archéologiques, relativement aux conditions de base.

Utilisation traditionnelle des terres et des ressources

L'évaluation de l'utilisation traditionnelle des terres et des ressources (UTTR) identifie l'importance du caribou, des animaux à fourrure, des oiseaux, des poissons, et des plantes et baies dans la façon de vivre traditionnelle des Inuits. L'importance des aires culturelles et spirituelles (sentiers, campements, cabanes, caches, tombes) dans la préservation des valeurs traditionnelles et le transfert des connaissances traditionnelles et des IQ entre les générations est également soulignée.

L'évaluation a déterminé que les activités du Projet pourraient engendrer quatre trajectoires principales d'effets sur l'UTTR : affecter les opportunités de récolte d'animaux sauvages, de pêche, de récolte de plantes et d'utilisation de sites importants culturellement en raison de la perturbation des aires de prédilection, une modification dans la disponibilité des terres et des ressources, ainsi que des facteurs sociaux et économiques affectant la participation à l'UTTR. Des mesures d'atténuation visant à limiter les effets du Projet sur la disponibilité de la faune, de la végétation et du poisson seront utilisées. Il y aura également construction et entretien de passages bien identifiés pour l'utilisation traditionnelle des terres, ce qui limitera les effets en cascade sur la non-interruption des opportunités de récolte traditionnelle de la faune, des plantes (et baies) et du poisson. Le contournement des ressources archéologiques et patrimoniales, ainsi que l'atténuation sur celles qui ne peuvent être évitées, est également prévu afin de limiter les effets associés du Projet sur la non-interruption des opportunités d'utilisation des sites culturellement importants.

Le Projet ne devrait pas modifier les opportunités de récolte des animaux à fourrure, puisqu'aucun effet environnemental important n'est anticipé sur le loup arctique, le carcajou ou l'ours grizzly, et les aires de prédilection pour le piégeage du renard arctique sont typiquement situés à proximité de Baker Lake. De manière similaire, le Projet ne devrait pas affecter de façon importante la non-interruption des opportunités de la chasse des oiseaux, puisque les zones de prédilection pour cette chasse n'ont pas été répertoriées à proximité du Projet. En revanche, le Projet modifiera les modèles de déplacement du caribou, affectant potentiellement les opportunités de récolte traditionnelle du caribou. Étant donné l'incertitude autour de la nature des effets du Projet sur la migration et le déplacement des caribous, ainsi que l'importance de l'espèce dans le mode de vie traditionnel, l'effet résiduel sur la non-interruption des opportunités de la chasse au caribou est de faible à modéré en terme d'ampleur, d'une étendue locale à régionale, d'une durée de court à moyen terme, et évalué comme important.

Le Projet ne devrait pas entraîner de modifications dans les opportunités de pêche traditionnelle, puisque des effets environnementaux importants sur l'habitat et l'abondance des poissons dans les aires de prédilection de la pêche ne sont pas anticipés.

La poussière générée par le Projet ainsi que les changements aux paramètres hydrologiques devraient se limiter à la ZEL terrestre et être réversibles, confinant l'effet sur la qualité des plantes traditionnelles à la zone du Projet. Grâce à la mise en œuvre de mesures de contrôle de la poussière et d'une surveillance continue, ces effets devraient être minimes. Étant donné l'abondance des communautés de plantes traditionnelles récoltées dans la région, la localisation des effets sur la végétation et l'utilisation traditionnelle limitée de la zone du Projet à des fins de récolte de plantes, l'effet résiduel du Projet sur la non-interruption des opportunités de récolte de plantes traditionnelles est faible en terme d'ampleur, d'une étendue locale, d'une durée de moyen à long terme et a été ainsi évalué comme non important.

Facteurs socio-économiques

L'évaluation socio-économique décrit les interactions potentielles du Projet avec les paramètres démographiques, l'activité économique, le développement des affaires, l'emploi, l'éducation et la formation, les individus, ainsi que le mieux-être, le logement et l'infrastructure de la collectivité. En tant que prolongement de la mine actuelle, il est anticipé que le gisement Whale Tail poursuive plusieurs des avantages socio-économiques de la mine Meadowbank, incluant les contributions à l'économie du territoire, au développement des commerces locaux, à l'emploi et aux salaires des résidents locaux, ainsi que des contributions à l'éducation, à la formation et à l'investissement dans la collectivité. La Projet peut comporter autant d'effets positifs que négatifs sur la santé et la sécurité des travailleurs et de la collectivité, fournissant une formation et de la sensibilisation sur la santé et la sécurité, tout en présentant simultanément des risques d'accidents et de situations d'urgence. La Projet comporte le potentiel d'entraîner des changements négatifs au niveau de la cohésion de la famille et de la collectivité, contribuant indirectement à l'abus et à la dépendance de substances, à des conflits familiaux et intergénérationnels, à de la violence conjugale et à des crimes, ainsi qu'à des inégalités entre les familles et les collectivités. L'engagement dans une économie de salaires soutenu par le Projet comporte également le potentiel de modifier les pratiques et les valeurs culturelles, et peut influencer la participation à des activités communautaires. La main-d'œuvre actuelle de Meadowbank faisant la transition vers le Projet a de l'expérience dans la gestion de ses finances, et il est peu probable qu'elle modifie ses habitudes actuelles ou son mode de vie en raison du Projet. Cependant, le comportement des nouveaux employés pourrait être influencé.

Le Projet prolongera les possibilités d'emplois de la mine Meadowbank de 3 à 4 années supplémentaires et d'environ 200 occasions d'emplois directes additionnelles. Plusieurs de ces occasions seront offertes surtout à la population locale de Baker Lake et des autres collectivités de la région de Kivalliq. La plupart des possibilités d'emplois indirectes se produisant au Nunavut devraient être comblées par la main-d'œuvre actuelle dans les industries fournissant présentement la mine Meadowbank. Le Projet maintiendra les points de cueillette actuels des collectivités de la région de Kivalliq, et tout emploi accessoire se présentant en raison d'un manque d'effectifs sera comblé en priorité par les résidents de la région de Kivalliq, puis, au besoin, par les résidents d'autres collectivités du Nunavut. Étant donnée l'approche en matière de recrutement, le Projet ne devrait pas provoquer de migration intra ou interterritoriale, d'augmentation de la population ou de modification des paramètres démographiques.

Il est anticipé que le Projet aura un certain nombre d'effets positifs qui ont été évalués comme importants, particulièrement un effet positif sur le PIB, les recettes fiscales, le développement du commerce local, l'emploi et la formation, le revenu des individus, ainsi que le mieux-être associé au revenu disponible, les contributions à la collectivité et la poursuite de l'Entente sur les répercussions et les avantages pour les Inuits (ERAI). L'effet positif du Projet sur le PIB est une augmentation de plus de 10 % du PIB actuel du Nunavut. La génération de taxes et de redevances associées au Projet qui seront payées mènera à un revenu pour le gouvernement du Nunavut équivalent à environ 4 % de la recette totale budgétée annuellement pour le territoire.

Le principal effet du Projet sur le revenu sera la conservation d'emplois à salaire élevé issus de la mine Meadowbank. Les revenus d'emploi des employés actuels ne devraient pas changer de manière importante, mais seront prolongés par le Projet au-delà de la fermeture de la mine de Meadowbank en 2018. Le Projet générera également de nouveaux revenus associés à un nombre limité de nouveaux emplois et soutiendra des revenus indirects et induits, et ce, jusqu'à la fermeture. L'effet global du Projet sur la préservation des revenus, les contributions à la collectivité et l'ERAI de Meadowbank devrait avoir un effet positif sur le mieux-être des individus et des collectivités. Les contributions à la collectivité et à l'ERAI sont substantielles et supportent le développement de la collectivité et les initiatives en matière de mieux-être. Les deux toucheront la totalité de la région de Kivalliq, mais seront surtout concentrées à Baker Lake au cours de la durée de vie opérationnelle du Projet.

Table of Contents

TABLES

FIGURES

APPENDICES

LIST OF ACRONYMS

Agnico Eagle	Agnico Eagle Mines Limited
AWAR	all-weather access road
CLARC	Community Lands and Resources Committee
EIS	Environmental Impact Statement
EFAP	Employee and Family Assistance Program
FEIS	Final Environmental Impact Statement
GDP	Gross Domestic Product
GN	Government of Nunavut
GN - CGS	Government of Nunavut – Department of Community and Government Services
GN - DOH	Government of Nunavut – Department of Health
HTO	Hunter and Trapper Organization
IDS	Interdisciplinary Systems Ltd.
IIBA	Inuit Impact Benefit Agreement
IQ	Inuit Qaujimajatuqangit
KIA	Kivalliq Inuit Association
LSA	Local Study Area
MTS	Mine Training Society
NCJ	Nunavut Court of Justice
NBS	Nunavut Bureau of Statistics
NEAS	Nunavut Eastern Arctic Shipping
NIRB	Nunavut Impact Review Board
NSSI	Nunavut Sealink and Supply Inc.
NTI	Nunavut Tunngavik Incorporated
RCMP	Royal Canadian Mounted Police
RSA	Regional Study Area
ROW	right of way
SMP	Socio-Economic Management and Monitoring Plan
the Project	Whale Tail Pit and Haul Road
TLRU	Traditional Land and Resource Use
VC	valued component

LIST OF UNITS

%	percent
$M	million dollars
km	kilometre
m	metre

7.0 HUMAN ENVIRONMENT

7.1 Introduction

The purpose of this section is to address the Guidelines issued by the Nunavut Impact Review Board (NIRB) for the Meadowbank Mine (Cumberland 2005a), and specifically those relating to the impact of the Whale Tail Pit and Haul Road (the Project) on heritage resources, traditional way of life, and socio-economics. Volume 2, Appendix 2-B list the specific requirements set out in the guidelines, and relating to the baseline and impact assessment of these components.

Volume 7 includes a discussion on valued components (VCs), incorporation of Inuit Qaujimajatuqangit (IQ), description of the study areas, and an assessment of effects to heritage resources, traditional way of life, and socio-economic conditions in the respective discipline study areas. The effects assessment evaluates construction, operations, and closure of the Whale Tail Pit and Haul Road.

7.1.1 Volume Structure

- **Section 7.1:** Introduction
- **Section 7.2:** Heritage Resources
- **Section 7.3:** Traditional Land and Resource Use/Inuit Qaujimajatuqangit
- **Section 7.4:** Socio-economics

7.1.2 Valued Components

Valued components were used to assess effects on the human environment from the extension of the Meadowbank Mine, through development of the Whale Tail Pit and Haul Road. The VCs have been selected based on discussions with stakeholders, public meetings (November 2014, 2015), and IQ (Cumberland 2005a; Table 7.1-1 and Table 7.1-2). Additional factors considered when selecting human environment VCs included:

- socio-economic and cultural components identified by NIRB during scoping of the Final Environmental Impact Statement (FEIS) (Cumberland 2005b), Agnico Eagle community and stakeholder consultation, and as outlined in the Project Guidelines (NIRB 2004);
- socio-economic and cultural components identified by regional monitoring groups as important to communities and governments; and
- experience with environmental and socio-economic assessments and monitoring programs in Nunavut.

Table 7.1-1: Summary of Cultural Valued Components

Valued Component	Rationale for Inclusion
Heritage Resources	■ Identified as a VC in the NIRB (2004) Guidelines for the Meadowbank EIS and included as a VC in the FEIS (Cumberland 2005a) ■ Territorial and Federal Legislation protects archaeological and palaeontological sites (Nunavut Archaeological and Palaeontological Sites Regulations 2001of the *Nunavut Act*; Territorial Land Use Regulations 2013 of the *Territorial Lands Act*; *Canada Oil and Gas Operations Act* in the Canada Oil and Gas Geophysical Operations Regulations 2012) ■ Inuit Qaujimajatuqangit identified heritage resources as VC with a request that archaeological surveys be conducted and identified archaeological and grave sites not be disturbed (Agnico Eagle 2014a; Cumberland 2005a; NIRB 2015a; Volume 7, Appendix 7-A)
Traditional Land and Resource Use ■ Wildlife harvesting (hunting and trapping) ■ Fishing ■ Plant Harvesting ■ Use of Culturally Important Sites	■ The maintenance of cultural ties to traditional and subsistence activities is essential to the social and emotional wellbeing of Inuit people today[a]. ■ Traditional activities are important to the traditional economy, for maintaining social relationships and cultural identity among Inuit populations[b]. ■ IQ encompasses knowledge of the land and its resources and the passing down of this knowledge through generations, the skills in applying this knowledge to livelihoods, and a value system rooted in responsible resource use, respect, sharing, collaboration, collective decision-making, and the development of skills[c]. ■ IQ provides cultural grounding and a sense of purpose and wellbeing; the ability to continue traditional land use activities and to retain traditional knowledge and skills is an integral part of IQ[d]. ■ Project activities have the potential to affect traditional land and resource use activities, including hunting, trapping, fishing and plant harvesting due to disturbance to preferred land use areas, changes in the availability of wildlife, fish and vegetation resources, and changes in access to traditional land use areas. Project activities may also affect the use of culturally important sites or areas, including historical resources, spiritually important sites and travel routes, due to disturbance to these sites or areas and changes in access to these sites or areas. ■ Project activities have the potential to affect opportunities for participation in traditional land and resource use activities.

[a] Dana and Anderson 2014; Freeman 2011.

[b] Nuttall et al. (2005).

[c] NIRB (2013, 2007, n.d.); Cumberland (2005b).

[d] Tagalik (2012).

VC = valued component; FEIS = Final Environmental Impact Statement; EIS = Environmental Impact Statement; NIRB = Nunavut Impact Review Board.

Table 7.1-2: Summary of Socio-Economic Valued Components

Valued Component	Topics Included	Rationale for Inclusion
Economic Development	■ Project Expenditures ■ Gross Domestic Product ■ Government Revenues ■ Business Development	Represents a key Project benefit, and measures the fiscal effect of the Project on local and territorial economies
Employment and Training	■ Employment ■ Incomes ■ Workforce Training ■ Community Education	Represents a key Project benefit, and measures the ability of the Project to create long-term capacity in the labour force
Individual and Community Wellbeing	■ Population, Demographics, and Migration ■ Health and Safety ■ Accidents and Emergencies ■ Family and Community Cohesion ■ Disturbances to Quality of Life	Identifies the way in which the Project will interact with people in their day to day lives
Infrastructure and Services	■ Housing ■ Physical Infrastructure ■ Social and Healthcare Services ■ Protective and Emergency Services	Identifies the Project's role in affecting demand for social and physical infrastructure and services

The VCs presented in Table 7.1-2 were then confirmed to be appropriate for the Whale Tail Pit and Haul Road, through an additional IQ study carried out in 2014 (Agnico Eagle 2014a), and consultation conducted in 2016 (Agnico Eagle 2016a-e). While not identified as VCs in the FEIS (Cumberland 2005b), the topics of governance and non-traditional land use are considered in this Addendum, as appropriate.

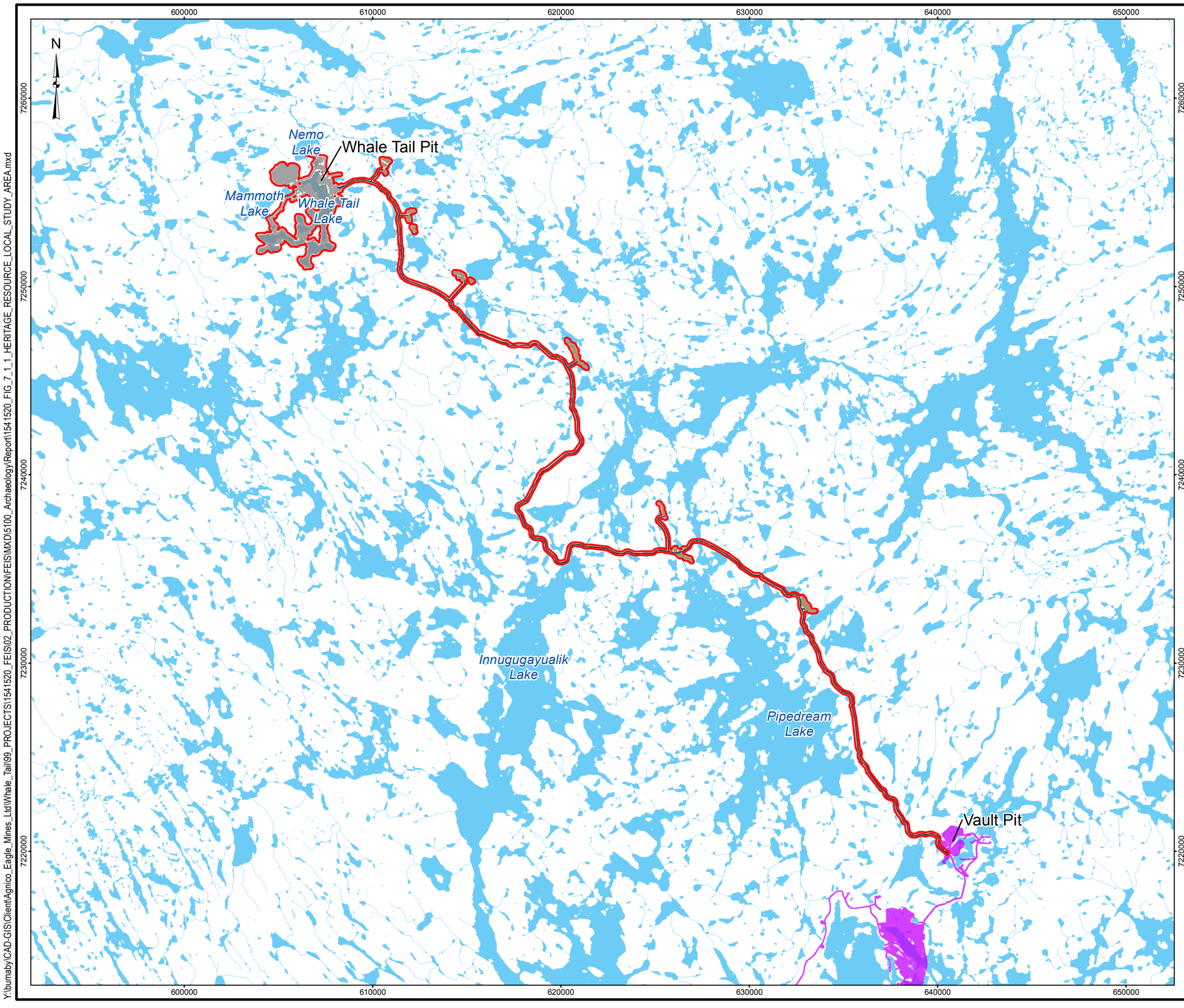
7.1.3 Spatial and Temporal Boundaries

7.1.3.1 Heritage Resources

Spatial Boundaries

The Local Study Area (LSA) for heritage resources is defined as the area that encloses the proposed haul road and Whale Tail Pit footprint (Figure 7.1-1). For the haul road, the LSA includes an area extending 25 metre (m) on either side of the road center line (a 50 m wide corridor), as well as proposed borrow locations on esker numbers 1 to 6 adjacent to the haul road. For the Whale Tail Pit, the LSA includes the footprint for the various Project facilities where Project activities will occur (e.g., Whale Tail Pit, waste rock storage facility, ore stockpile facility, overburden storage, camps, dikes, and other associated infrastructure).

Given the site-specific and stationary nature of heritage resources, this is the maximum area where direct and indirect Project effects to heritage resources could reasonably occur. There are no expected direct effects to heritage resources outside the LSA. As a result, a Regional Study Area (RSA) for heritage resources has not been defined, and all discussion will remain at the LSA scale.



LEGEND

- HERITAGE RESOURCE LOCAL STUDY AREA
- WHALE TAIL
  - BORROW SOURCE
  - INFRASTRUCTURE
  - PROPOSED HAUL ROAD
- MEADOWBANK
  - INFRASTRUCTURE/ALL WEATHER ROAD
  - WATERCOURSE
  - WATERBODY

NOTE

ARCHAEOLOGICAL SITES ARE PROTECTED BY TERRITORIAL AND FEDERAL LEGISLATION. SITE LOCATIONS ARE NOT SHOWN IN ACCORDANCE WITH THE ARCHAEOLOGICAL SITE DATA LICENSE AGREEMENT FOR PUBLICALLY AVAILABLE DOCUMENTS.

REFERENCE

1. WHALE TAIL INFRASTRUCTURE OBTAINED FROM AGNICO EAGLE MINES LIMITED ON DECEMBER 21, 2015.
2. MEADOWBANK INFRASTRUCTURE OBTAINED FROM AGNICO EAGLE MINES LIMITED ON NOVEMBER 12, 2015.
3. WATERCOURSE AND WATERBODY DATA OBTAINED FROM CANVEC © DEPARTMENT OF NATURAL RESOURCES CANADA. ALL RIGHTS RESERVED.
4. INSET MAP DATA OBTAINED FROM ESRI

DATUM: NAD 83 CSRS PROJECTION: UTM ZONE 14

4 0 4
KILOMETRES

PROJECT
AGNICO EAGLE

AGNICO EAGLE MINES LIMITED:
MEADOWBANK DIVISION
WHALE TAIL PIT PROJECT

TITLE

HERITAGE RESOURCE LOCAL STUDY AREA

Golder Associates

PROJECT		1541520	FILE No.	
DESIGN	PY	24 Feb. 2016	SCALE AS SHOWN	REV. A
GIS	CDB	24 Feb. 2016		
CHECK	JR	29 Feb. 2016		
REVIEW	DRW	29 Feb. 2016		

FIGURE 7.1-1

Y:\burnaby\CAD-GIS\Client\Agnico_Eagle_Mines_Ltd\Whale_Tail\99_PROJECTS\1541520_FEIS\02_PRODUCTION\FEIS\MXD\5100_Archaeology\Report\1541520_FIG_7_1_1_HERITAGE_RESOURCE_LOCAL_STUDY_AREA.mxd

Temporal Boundaries

The temporal boundary for construction, operations, and closure of the Project is approximately seven years. This includes one year for construction, three to four years for operations, and two years for closure.

Potential direct effects to heritage resources are associated primarily with the construction and operations phase during ground altering activities and the removal of soil, vegetation, and bedrock. Heritage resources are non-renewable and can be permanently damaged or destroyed during these activities.

7.1.3.2 Traditional Land and Resource Use/ Inuit Qaujimajatuqangit

Traditional Land and Resource Use (TLRU) relies upon the availability of resources used for traditional harvesting, which are associated with the terrestrial and freshwater VCs (i.e., wildlife, vegetation, and fish). Therefore, the TLRU assessment of continued opportunities for traditional wildlife harvesting and traditional plant harvesting considers the terrestrial study areas used for wildlife and vegetation (Volume 5, Section 5.1.3.1.2), and the TLRU assessment of continued opportunities for traditional fishing considers the freshwater study areas used for fish (Volume 6, Section 6.1.3).

Effects on TLRU related to use of culturally important sites considers the effects on cultural sites and features, and effects on the acoustic environment, which are associated with the heritage resources and noise and disturbance VCs, respectively. Therefore, the TLRU assessment of continued opportunities for the use of culturally important sites considers the study areas used for heritage resources (Volume 7, Section 7.1.3) and noise and disturbance (Volume 4, Section 4.1.3).

For the purposes of the assessment of potential effects of the proposed Project on TLRU, the temporal boundary for construction, operations, and closure of the Project is about seven years. This includes one year construction, three to four years operations, and two years closure (Volume 3, Section 3.3.2).

7.1.3.3 Socio-economics

The spatial boundaries for the socio-economic effects assessment are delineated as either local or regional. Local effects are those expected to occur within the Kivalliq Region, particularly in Baker Lake (or the Hamlet). Regional socio-economic effects are those that occur at the territorial level (i.e., Nunavut).

The socio-economic assessment determines the effect of the Project on baseline conditions, and identifies the role of the Project in relation to Agnico Eagle's other Kivalliq projects (Meadowbank Mine and the Meliadine Project). Depending on the timing of the Project, it will have a different impact on the territorial economy and employment of Agnico Eagle workers in relation to the closure and operations of Meadowbank Mine and the Meliadine Project (respectively). Three development scenarios are compared for the assessment of economic and employment effects (Table 7.1-3): 1) the Project advances as currently planned; 2) the Project is delayed by a year, creating a gap in Agnico Eagle's Kivalliq operations in 2019; and 3) the Project does not move forward.

Table 7.1-3: Development Scenarios Used in Socio-Economic Modelling and Effects Assessment

Scenario 1: Project advances as planned, no gap between Meadowbank Mine closure and operations at Whale Tail Pit

Project	Ops Labour	2016	2017	2018	2019	2020	2021	2022
Meadowbank	693			Q4				
Meliadine	700							
Whale Tail Pit[a]	931		Q3		Q3		Q4	

Scenario 2: Project is delayed by one year, gap (2019) between Meadowbank Mine closure and operations at Whale Tail Pit and Meliadine Project

Project	Ops Labour	2016	2017	2018	2019	2020	2021	2022
Meadowbank	693			Q4				
Meliadine	700				Gap Year			
Whale Tail Pit[a]	931			Q3	Gap Year	Q3		Q4

Scenario 3: Project does not move forward, gap (2019) between Meadowbank Mine closure and operations at Meliadine Project

Project	Ops Labour	2016	2017	2018	2019	2020	2021	2022
Meadowbank	693			Q4				
Meliadine	700				Gap Year			

[a] Estimated to be a three to four year extension to Meadowbank Mine.

Construction
Operations
Closure

7.2 Heritage Resources

7.2.1 Incorporation of Inuit Qaujimajatuqangit

The following reports were reviewed for IQ-specific information related to heritage Resources:

- Inuit Qaujimajatuqangit Baseline Report 2015 (Volume 7, Appendix 7-A);
- Public Information Meeting Summary Report (NIRB 2015a);
- Proposed All-weather Exploration Road from the Meadowbank Mine to the Amaruq Site, Baseline Traditional Knowledge Report (Agnico Eagle 2014a); and
- Meadowbank Gold Baseline Traditional Knowledge Report (Cumberland 2005a).

7.2.1.1 Existing Environment and Baseline Information

Inuit Qaujimajatuqangit information helped focus and prioritize data collection methods and inform heritage resource baseline data. Through community meetings and engagement, culturally special places, locations of known or potential archaeological sites, as well as grave sites were identified in the LSA and broader region. Areas identified as culturally sensitive include a prominent esker northeast of the proposed haul road, of which small areas will be used as a borrow source, locations overlooking lakes, and at least one known grave site near the Whale Tail Pit (Agnico Eagle 2014a). As recommended during consultation, an archaeological survey has been carried out prior to any development of the haul road and Whale Tail Pit, and that local people and elders with knowledge of the land will participate with the archaeological teams (Agnico Eagle 2014a; NIRB 2015a; Volume 7, Appendix 7-A).

Local assistants participated in all baseline field studies and assisted with the identification and interpretation of archaeological sites and graves (Tischer 2014, 2015). Agnico Eagle also invited members from Baker Lake and the Hunter and Trapper Organization (HTO) to visit three archaeological sites recorded during baseline studies (two campsites: LhLa-4, LhLb-7, and one gravesite/campsite: LiLc-2) to discuss any concerns and share any knowledge or interpretations of the sites (NIRB 2015a; Tischer 2014).

7.2.1.2 Valued Component Selection

Through IQ data collection, heritage resources were identified as a VC (Volume 7, Appendix 7-A). It was expressed that valued archaeological sites and graves are important to the community and should not be disturbed (Agnico Eagle 2014a). Types of archaeological features that were mentioned by Baker Lake community members and the HTO include tent rings, caches, inuksuit, artifacts, camping areas, and spiritual areas (Agnico Eagle 2014a; Cumberland 2005a). Graves were specifically identified as features that should be located and avoided.

7.2.1.3 Impact Assessment

The impact assessment for heritage resources focused on the presence of archaeological sites, their distance from the proposed Project footprint, and the predicted level of impact. Heritage resource value or significance was considered when determining Project effects and mitigation measures. Both scientific and IQ perspectives were considered in the assessment.

Factors considered when evaluating the scientific significance of a site include site type, size, complexity, age, number and type of artifacts, and presence of intact, buried components. Beyond these tangible attributes, Inuit

perspectives of site value were also important criteria for evaluating sites. This perspective was incorporated through community meetings/engagement, and community member participation during baseline studies (Agnico Eagle 2014a; NIRB 2015a; Volume 7, Appendix 7-A). Subsequent field visits were made to those archaeological sites identified as having the greatest value to community representatives. During site visits, information regarding features/materials observed at each site was recorded, and any information regarding use by Baker Lake community members was documented, including any memories or stories passed down through elders.

7.2.1.4 Mitigation and Monitoring

Inuit Qaujimajatuqangit informed the development of mitigation and monitoring programs as they relate to heritage resources (Agnico Eagle 2014a; Cumberland 2005a; NIRB 2015a; Volume 7, Appendix 7-A). The main concerns raised were that archaeological and grave sites should not be disturbed. As indicated in Agnico Eagle's Amaruq Exploration Access Road Management Plan (2015a), Project design and construction will incorporate avoidance where possible to protect heritage resources. Where this is not possible, mitigation of archaeological sites directly affected by the Project will take place prior to construction. Mitigation measures required to reduce impacts to archaeological sites will be determined in consultation with the Nunavut Department of Culture and Heritage, and with the community of Baker Lake (specifically elders and the HTO Members).

7.2.2 Existing Environment and Baseline Information

Heritage resource baseline studies related to the Meadowbank Mine have been ongoing since 1999 (Webster 2004; Prager 2006; Tischer 2007, 2010, 2012). Baseline studies specifically related to the proposed Whale Tail haul road and pit have been carried out over four years (Tischer 2013, 2014, 2015, 2016).

7.2.2.1 Methods

Methods are detailed in the baseline assessments for the Project (Tischer 2013, 2014, 2015, 2016). In summary, methods included:

- a literature review of existing archaeological/IQ studies, as well as a database search for previously recorded archaeological sites in the LSA and immediately adjacent areas;
- a desktop overview to identify areas of potential that may contain undocumented archaeological sites within the LSA and adjacent areas (including topographic map and satellite imagery review); and
- a field study including helicopter aerial assessments of the LSA as well as ground inspection of high potential target areas to identify and record archaeological sites, if present.

Identified archaeological sites were documented in the following manner:

- archaeological feature and artifact locations were documented using a Global Positioning System to record Universal Transverse Mercator coordinates;
- digital photographs of each site were taken; and
- archaeological site record forms, describing site characteristics (including a sketch map), were completed for each site and submitted to the Nunavut Department of Culture and Heritage and the Canadian Museum of History for inclusion in the archaeological sites database.

Final permit reports summarizing previous research, assessment methods, and results were completed and submitted to the Nunavut Department of Culture and Heritage and Agnico Eagle.

7.2.2.2 Results

Between 2013 and 2016, one archaeological overview and three archaeological inventory studies of the proposed Project were undertaken by Nunami-Stantec. The results are summarized as follows:

- Permit 13-15A (Tischer 2013): Archaeological field work was conducted in the Whale Tail exploration area, including an assessment of five drill locations and adjacent priority areas. No archaeological sites were identified.
- In 2014, Nunami-Stantec (Tischer 2014) prepared an Archaeological Overview of the proposed all-weather access road (AWAR). This report included a summary of previous archaeological studies carried out in the region and described four previously recorded archaeological sites located within 1 kilometre (km) of the proposed road.
- Permit 14-017A (Tischer 2015): Archaeological field work was carried out in the Whale Tail exploration area and along a proposed winter road between Meadowbank Mine and the Whale Tail exploration area. Eight archaeological sites were identified and one previously recorded site was revisited.
- Permit 15-026A (Tischer 2016): Further field work was carried out in the Whale Tail exploration area and along the proposed haul road/borrow pit locations. Fifteen new archaeological sites were identified and three previously recorded sites were revisited.

As a result of baseline studies carried out in relation to the Project (Tischer 2013, 2015, 2016), a total of 19 archaeological sites have been identified within or adjacent to the LSA (Table 7.2-1). These archaeological sites suggest a long history of land use in the region by Inuit peoples. This is consistent with information provided by Baker Lake community members during the field studies and IQ engagement meetings. Eight archaeological sites were identified during assessment of the haul road, nine during assessment of borrow sources, and two during assessment of the Whale Tail Pit study area.

Table 7.2-1: Heritage Resources Recorded Within or Adjacent to Local Study Area

Project Component	Site	Site Type	Site Type Class	Description	Perceived Significance Value	Relationship to Project
Haul Road	LhLa-4	Campsite	Indigenous historic	Multiple features, including two tent rings, two hearths and wooden artifacts	High	Within haul road ROW (km 18.3)
Haul Road	LhLa-5	Marker	Indigenous historic?	Two rocks appear to be markers at a crossing of the Meadowbank River	Low	Within haul road ROW (km 23.8)
Haul Road	LhLa-10	Campsite	Indigenous historic? Prehistoric?	Multiple stone features were observed, including tent rings	High	Approximately 1.5 km southwest of haul road ROW (km 21)
Haul Road	LhLb-2	Campsite	Indigenous historic? Prehistoric?	Multiple stone features (caches, uprights, blinds)	High	Over 200 m southeast of haul road ROW (approx. km 32.5)
Haul Road	LhLb-3	Campsite	Prehistoric	Lithic artifact scatter as well as a possible tent ring; scatter extends at least 10 m to the south of the tent ring	High	Approx. 100 m southwest of haul road ROW (approx. km 32.5)
Haul Road	LhLb-5	Blind	Indigenous historic? Prehistoric?	Blind or shelter consists of a wall of cobbles and an area cleared of stone	Moderate	Approx. 100 m southwest of haul road ROW (approx. km 32.5)
Haul Road	LhLb-6	Cache	Indigenous historic? Prehistoric?	Three caches on a bedrock outcrop; lichen growth suggests the features are relatively old	Moderate	Over 200 m southeast of haul road ROW (approx. km 32.5)
Haul Road	LgLa-20	Campsite	Indigenous historic?	One tent ring on a rise in low rocky terrain	Moderate	Approx. 300 m west of haul road ROW
Borrow Pits	LhLa-6	Campsite	Prehistoric	A tent ring, likely of considerable age based on lichen growth; a scatter of lithic artifacts was observed 15 m south of the ring	High	Within Esker #2A
Borrow Pits	LhLa-7	Blind	Indigenous historic? Prehistoric?	Low, north facing hunting blind	Moderate	Within Esker #2A
Borrow Pits	LhLa-8	Cache	Prehistoric	Large cache appears to be very old based on lichen growth and developed sod	Moderate	Adjacent to Esker #2A

Table 7.2-1: Heritage Resources Recorded Within or Adjacent to Local Study Area (continued)

Project Component	Site	Site Type	Site Type Class	Description	Perceived Significance Value	Relationship to Project
Borrow Pits	LhLa-9	Cache	Indigenous historic?	Relatively recent cache; caribou antler observed in the cache	Low	Over 500 m south of Esker #2A
Borrow Pits	LhLb-7	Campsite	Indigenous historic? Prehistoric?	Multiple stone features, including tent rings (n=8), hearths (n=3), and a cache	High	Immediately adjacent to Esker #3
Borrow Pits	LhLb-8	Campsite	Indigenous historic? Prehistoric?	Two large tent rings	High	Immediately adjacent to Esker #3
Borrow Pits	LhLb-9	Campsite	Indigenous historic	Two large, poorly defined tent rings	Moderate	Immediately adjacent to Esker #3
Borrow Pits	LiLb-1	Campsite	Indigenous historic?	One hearth and one cairn or collapsed inukshuk	Moderate	Over 500 m to the east of the haul road ROW (km 61) between Esker #5 and 6
Borrow Pits	LiLb-3	Blind	Indigenous historic? Prehistoric?	A low hunting blind facing south on an esker	Moderate	Adjacent to Esker #4C
Whale Tail Pit	LiLc-1	Campsite	Indigenous historic	One well defined, square tent ring, one possible hearth, and wood pieces	High	Approx. 600 m north of the Whale Tail Freshwater Intake
Whale Tail Pit	LiLc-2	Campsite/ Grave	Indigenous historic	Burial cairn comprised of human remains covered by a pile of cobbles; tent rings (n=3?) and a scatter of historic wood and metal artifact are present	High	Over 1.5 km south of the Whale Tail Dike

ROW = right of way; km = kilometre; m = metre.

In summary, the types of heritage resources documented in baseline studies include:

- one marker site consisting of two stone uprights demarcating a crossing at the narrows of the Meadowbank River;
- three cache sites (two single and one multiple) located on prominent landforms overlooking the Meadowbank River;
- three hunting blind sites (also located on prominent landforms) consisting of large cobbles forming a low wall in the shape of an arc (n=2), or a circular pattern (n=1);
- 11 campsites consisting of a combination of stone tent rings, hearths, stone uprights, cairns, possible inuksuit, caches, wooden artifacts, and lithic scatters; and
- one burial cairn/campsite consisting of a grave, tent rings, and a wood and metal artifact scatter.

Three sites have been interpreted as prehistoric and contain either lithic artifact scatters from stone tool production or obviously old stone features that exhibit lichen and sod development. Eight sites were identified as potentially historic or prehistoric because they contained stone features, but no artifacts to assist with an age estimate. Eight sites were identified as historic based on the presence of more recent wood and metal artifacts, square tent outlines indicating use of canvas tents, or obviously recent stone features with little lichen or sod development.

7.2.3 Potential Project-related Effects Assessment

Potential pathways through which the Project could affect heritage resources are presented in Volume 3, Appendix 3-C, Table 3-C-8. There are no primary pathways anticipated for heritage resources.

The following pathways are anticipated to be secondary in relation to heritage resources and were carried through to the effects assessment:

- Construction activities that involve ground disturbance have the potential to impact archaeological sites by disturbing cultural deposits and features, damaging artifacts, hindering or increasing access to archaeological deposits, and destroying contextual information that is essential for interpreting site function and age.
- Operational activities that involve ground disturbance have the potential to impact archaeological sites by disturbing cultural deposits and features, damaging artifacts, hindering or increasing access to archaeological deposits, and destroying contextual information that is essential for interpreting site function and age.
- Closure activities that involve ground disturbance have the potential to impact archaeological sites by disturbing cultural deposits and features, damaging artifacts, hindering or increasing access to archaeological deposits, and destroying contextual information that is essential for interpreting site function and age.

The results of the archaeological baseline studies indicate there are 19 archaeological sites in the vicinity of the LSA (Tischer 2013, 2014, 2015, 2016). Of these 19 archaeological sites, the majority (n=15; 79 percent [%]) are located outside the LSA and will not be affected by the Project. Two sites are located greater than 500 m from

proposed Project components associated with the Whale Tail Pit (including burial cairn/campsite LiLc-2). Six sites (LgLa-20, LhLa-9, -10, LhLb-2, -6, and LiLb-1) are located greater than 200 m from haul road/borrow source boundaries. Seven sites (LhLa-8, LhLb-3, -5, -7, -8, -9, and LiLb-3) are located within 100 m of the haul road/borrow source boundaries.

The remaining four sites (LhLa-4, -5, -6, and -7) are located within the haul road or borrow source boundaries and potential Project effects are adverse. LhLa-5, which consists of two marker rocks, was evaluated as having limited scientific interpretive value. Recording and documentation is considered sufficient mitigation of this site. Pending approval from the Nunavut Department of Culture and Heritage, no further mitigation is recommended for this site. The remaining three heritage sites have been considered in Project planning, and appropriate mitigation measures as outlined in the Archaeological Management Plan (Volume 8, Appendix 8-E.8) will be implemented prior to construction of the proposed haul road and Whale Tail Pit (Table 7.2-2). With the implementation of appropriate mitigation measures, it is anticipated that there will be no or minimal Project effects to archaeological sites relative to baseline conditions.

Table 7.2-2: Heritage Resources within the Local Study Area Proposed for Mitigation

Site	Site Type	Description	Perceived Interpretive Value	Relationship to Project	Mitigation Measure
LhLa-4	Campsite	Multiple features, including two tent rings, two hearths, and wooden artifacts	High	Within haul road ROW (km 18.3)	Systematic Data Recovery
LhLa-6	Campsite	A tent ring, likely of considerable age based on lichen growth; a scatter of lithic artifacts was observed 15 m south of the ring	High	Within Esker #2A	Systematic Data Recovery
LhLa-7	Blind	Low, north facing hunting blind	Moderate	Within Esker #2A	Systematic Data Recovery

ROW = right of way; km = kilometre; m = metre.

7.2.4 Residual Impact Classification

Pathways for heritage resources have been assessed as secondary and are not assessed further. Potential residual effects to heritage resources are not considered significant after mitigation measures are applied.

7.2.5 Cumulative Effects Assessment

Pathways for heritage resources have been assessed as secondary and are not assessed further. Potential cumulative effects to heritage resources are not considered significant after mitigation measures applied.

7.2.6 Uncertainty

Future proposed changes to the Project footprint, if contemplated, or other ancillary activities will be assessed relative to the heritage resources VC through desktop review and field studies (where warranted) by a qualified archaeologist. Any data gaps will be addressed prior to ground disturbance activities by a qualified archaeologist. Agnico Eagle is committed to providing ongoing consultation with the community of Baker Lake (specifically Elders and the HTO Members) and to provide opportunities for participation in heritage resource

surveys and mitigation measures. These activities will address uncertainty with respect to potential Project effects to the heritage resources VC.

7.2.7 Mitigation and Monitoring

As indicated in the Archaeological Management Plan (Tishcer 2016), mitigation measures will be formulated to reduce or eliminate impacts to identified archaeological sites. Avoidance is the preferred mitigation measure where possible. Agnico Eagle was provided with site-specific locational information to use in Project planning and design to result in site avoidance where possible. It is anticipated that in most cases archaeological sites identified within close proximity to the haul road footprint will be avoided. Buffers of a minimum of 30 m extending from the nearest artifact or feature, as required by the *Territorial Lands Act,* will be determined based on the size and nature of each identified archaeological site. Sites identified within 100 m of Project boundaries will be marked with temporary fencing as a precaution (e.g., Road: LhLb-3, LhLb-5; Borrow: LhLa-8, LhLb-7, -8, -9, and LiLb-3). The condition of the sites will be periodically inspected to confirm they are in good condition.

Further, as per Agnico Eagle's Amaruq Exploration Access Road Management Plan (2015a), all road construction equipment will remain within the boundaries of the borrow pits to ensure nearby archaeological sites are not inadvertently damaged. Exploration activities in the Whale Tail Pit area are ongoing. Agnico Eagle has committed to avoid all archaeological sites in this area. This includes the grave site (LiLc-2), which is not in an area planned for disturbance. In a response prepared for NIRB (2015b), Agnico Eagle has committed to a minimum buffer of 100 m around this site.

In some cases avoidance of an archaeological site may not be possible due to engineering requirements (e.g., LhLa-4, -6, and -7). If avoidance of archaeological sites is not feasible, alternate measures will be formulated and implemented to mitigate impacts to the site. These alternate mitigation measures can include systematic data recovery involving detailed site mapping, mapping of individual stone features, collection of artifacts, shovel testing, archaeological excavation, and/or community consultation. The objective of this mitigation is to offset adverse effects and generate positive effects by creating a detailed record of heritage resources that contribute to the archaeological and cultural record. As indicated in the Archaeological Management Plan (Volume 8, Appendix 8-E.8), acceptable mitigation measures will be formulated in consultation with Agnico Eagle, their archaeological consultants, the Department of Culture and Heritage (Government of Nunavut [GN]), and the community of Baker Lake (specifically elders and the HTO Members). Site-specific mitigation measures will be formulated for each individual site based on the nature and heritage value of the site. These mitigation measures will be implemented and completed to the specifications of the Department of Culture and Heritage prior to any construction related impacts to the site (Volume 8, Appendix 8-E.8).

As outlined in Agnico Eagle's Amaruq Exploration Access Road Management Plan (2015a) and Archaeological Management Plan (Volume 8, Appendix 8-E.8), should additional sites be identified at any time during construction or operations, work in the immediate area will cease, a professional archaeologist consulted and the Department of Culture and Heritage informed of the discovery. Construction will resume only after an evaluation of the site has been completed and proper mitigation measures devised (e.g., avoidance or systematic data recovery) in consultation with the Department of Culture and Heritage and community members.

Agnico Eagle is committed to providing an education program for mine staff and contractors that will provide general awareness training for the Proponent and Contractors that includes general guidelines for the appropriate response to the inadvertent discovery of known or suspected archaeological sites. This will aid in limiting direct and indirect effects to the heritage resources VC during construction, operations, and closure of the Project.

Agnico Eagle is committed to an ongoing program to monitor the condition of known archaeological sites adjacent to the Project footprint to reduce the potential for inadvertent impacts to the heritage resources VC during construction, operations, or closure.

Implementation of appropriate mitigation measures that are acceptable to the regulators, such as site avoidance or further investigation at archaeological sites that cannot be avoided, will reduce or eliminate impacts to archaeological sites as a result of the proposed Project.

7.3 Traditional Land and Resource Use / Inuit Qaujimajatuqangit

The preservation of traditional ways of life is critical to the quality of life for Inuit peoples, for maintaining social relationships, cultural identity, and the traditional economy (Nuttall et al. 2005). Traditional ways of life relates to the practice of subsistence activities, the retention of traditional skills, values and language (Cumberland 2005a). Inuit Qaujimajatuqangit encompasses not only knowledge of the land and its resources, and the passing down of this knowledge through generations, but also skills in applying this knowledge to livelihoods and a value system that rests on responsible resource use, respect, sharing, collaboration, collective decision-making, and the development of skills (Cumberland 2005a; NIRB n.d.). Inuit Qaujimajatuqangit provides a cultural grounding and sense of purpose and wellbeing, and is considered to be a significant contributing factor to the sustainability of Inuit people (Tagalik 2012). While participation in the formal wage economy is critical to the economic and social well-being of the community, this needs to be balanced with the ability to continue to practice subsistence activities, and to retain traditional skills, values, and language (Cumberland 2005a). This assessment will address the VC of TLRU as a component of traditional ways of life.

Project effects on continued opportunities for TLRU considers disturbance to preferred areas used for harvesting of resources, and changes in the availability of traditional resources used for harvesting (i.e., wildlife, fish, vegetation). Therefore, the TLRU assessment considers the results of the assessments of other VCs related to effects on the availability of resources. Beyond these tangible attributes of TLRU, this assessment also considers social and cultural perspectives of Nunavummiut, such as patterns of TLRU, and IQ principles and values, including the cultural and spiritual importance of traditional land use areas, resources and historic features, and Project-specific concerns related to traditional land use and resources. Therefore IQ principles and values are incorporated throughout the assessment.

7.3.1 Existing Environment and Baseline Information

The IQ baseline report describes in detail baseline information on TLRU (Volume 7, Appendix 7-A). This section summarizes the methods used to collect baseline information, and the results that are presented in the IQ baseline report, including TLRU, IQ and values, and Project-specific concerns and issues raised through Baker Lake community consultation and engagement activities. Concerns, recommendations, or requests for mitigation related to TLRU and IQ that were raised during consultation meetings, TK workshops, or group discussions between 2014 and 2016 for the Amaruq Exploration Access Road and for the Project are listed in Table 7.3-1 and have been integrated into the assessment, where appropriate.

Table 7.3-1: Community Concerns and Requests for Mitigation Related to Traditional Land and Resource Use

Topic of Concern	Issue/Concern and Requests for Mitigation Identified	FEIS Amendment Reference to Mitigation Measures
Access	■ The potential effects of the Project on traditional winter trail use to Gjoa Haven[h]	Agnico Eagle will work with the HTO and Elders to identify safe traditional land use crossing locations and construct ramps with signage.
Wildlife	■ Wildlife may no longer use certain areas for feeding due to dust generated from the haul road[d]	The potential effects of dust on wildlife will be minimized with the implementation of the Air Quality and Dust Management Plan (Volume 8, Appendix 8-E.1).
Caribou	■ *It was requested that Agnico Eagle and biologists continue to determine the potential adverse effects of the Project on caribou and to ensure the community and stakeholders are informed of the results*[a] ■ The potential effects of the mine on the taste of caribou meat[h] ■ Caribou are not as afraid of human activity and development as they previously were[a] ■ Caribou are becoming increasingly habituated to people and noise, and appear to be attracted to certain areas for feeding following blasting activities[e] ■ The potential effects on caribou from spills and accidents along the road; spills can persist for years[a] ▪ *It was requested that the environment be kept as clean as possible by avoiding spills, keeping fuel and contaminants off of the ground, and responding quickly to spills in case of an emergency* ■ The potential changes in caribou distribution[h] ■ The ability to continue to hunt caribou and rely on them as they are the main diet of many people[h] ■ The potential effects of the road on caribou, including changes in movement patterns and rocks causing injury[a,b,d,h] ▪ *It was requested that there is an increase in wildlife monitoring along the road, and a quicker response time, road closures and potentially the halting mine traffic and operations during key caribou migration periods* ■ The potential effects of construction activities on caribou[e] ▪ *It was requested that construction activities halt if caribou are in the vicinity* ■ The potential effects of dust on caribou and caribou habitat, plants and caribou feeding behavior[d,e,f,h] ▪ *It was requested that dust is monitored more and treated more effectively, possibly with CaCl*[h] ■ The cumulative effects of dust[d] ▪ *It was requested that the accumulation of dust is measured during both the summer and winter months*	An assessment of potential Project effects on caribou is provided in Volume 5, Section 5.5.3. A wildlife health risk assessment is provided in Volume 3, Appendix 3-B. The potential effects of spills and accidents on caribou will be minimized with the implementation the spill plan (Volume 8, Appendix 8-D.6). The potential effects of the road on caribou will be minimized with the implementation of the Terrestrial Environmental Monitoring Plan (Volume 8, Appendix 8-E.7). The efficacy of using CaCl was examined and the results are provided in the air quality effects assessment (Volume 4, Appendix 4-C). The potential Project effects of dust on caribou will be minimized with the implementation of the Air Quality and Dust Management Plan (Volume 8, Appendix 8-E.1).

Table 7.3-1: Community Concerns and Requests for Mitigation Related to Traditional Land and Resource Use (continued)

Topic of Concern	Issue/Concern and Requests for Mitigation Identified	FEIS Amendment Reference to Mitigation Measures
Furbearers/ Predators	■ Disturbance to dens of wolves, foxes, and wolverines near the Project footprint, especially at the Eskers along the road route[a,b c,e] ▪ *It was requested that the entire esker area is surveyed for den sites and signs of wolf use prior to the designation of borrow pits, and a local hunter who is familiar with the area assists with the survey* ▪ *It was requested that the road route is moved to avoid the esker with wolf dens* ■ The potential disturbance to wolves due to construction activities causing them to leave the area[b]	An assessment of potential Project effects on wolves, foxes and wolverines from the Project is provided in Volume 5, Section 5.5.3.1. Agnico Eagle is committed to surveying the esker complex prior to construction activities (Volume 8, Appendix 8-E.7).
Birds	■ The potential effects of the Project on migratory birds[h]	An assessment of potential Project effects on waterfowl is provided in Volume 5, Section 5.5.3.1.
Fish	■ The potential effects of the mine on fish and fish habitat[b,h] ■ The potential effects of dust generated from the road on fish[h] ▪ *It was requested that additional studies are conducted on the effects of dust on fish and fish habitat*	An assessment of potential Project effects on fish and fish habitat is provided in Volume 6, Section 6.5. The potential Project effects of dust on fish and fish habitat will be minimized with the implementation of the Air Quality and Dust Management Plan (Volume 8, Appendix 8-E.1). Monitoring of fish and fish habitat is addressed through the implementation of the Core Receiving Environment Monitoring Program, and through Environmental Effects Monitoring.
Water	■ Watercourse crossings[b] ■ The protection of lakes from disturbance due to construction activities[h] ■ The protection of water from spills and accidents along the road, and its potential impact to rivers, streams and lakes that caribou rely on for migrating[h] ■ The potential effects of the mine on water quality, including changing color and dust, and decreased confidence in this water as a source for drinking[g]	An assessment of potential Project effects on water quality is provided in Volume 6, Section 6.4. The potential Project effects of spills and accidents on water quality will be minimized with the implementation of the spill plan (Volume 8, Appendix 8-D.6). Potential Project effects on water quality will be minimized through implementation of the Aquatic Effects Management Program, the

Table 7.3-1: Community Concerns and Requests for Mitigation Related to Traditional Land and Resource Use (continued)

Topic of Concern	Issue/Concern and Requests for Mitigation Identified	FEIS Amendment Reference to Mitigation Measures
		Core Receiving Environment Monitoring Program, and the Water Quality and Flow Monitoring Plan (Volume 8, Section 8.3.2, and Appendix 8-B.3).
Vegetation	■ The effect of dust generated from the road on wildlife habitat and vegetation in general, and on plants that caribou rely on for food[d,g] ▪ *It was requested that dust is monitored more and treated more effectively, possibly with CaCl* ■ The protection of the land from potential spills and accidents along the road due to the Project[h] ▪ *It was requested that the environment is kept as clean as possible by avoiding spills, keeping fuel and contaminants off of the ground, and responding quickly to spills in case of an emergency*	An assessment of potential Project effects on vegetation is provided in Volume 5, Section 5.4.3. The potential Project effects of dust on vegetation will be minimized with the implementation of the Air Quality and Dust Management Plan (Volume 8, Appendix 8-E.1). Agnico Eagle examined the efficacy of using CaCl (Volume 4, Appendix 4-C). The potential Project effects of spills and accidents on vegetation will be minimized with the implementation of the spill plan (Volume 8, Appendix 8-D.6).
Cultural Sites and Travel Routes	■ The protection and maintenance of traditional travel routes[c,h] ▪ *It was requested that ramps are constructed and maintained at traditional trail sites for the proposed exploration road* ▪ *It was requested that land users have access to the new exploration road to facilitate access to these travel routes* ■ Concerns for the protection of graves and other archaeological sites, including caches and tent rings[a,b,c,f] ▪ *It was requested that they not be disturbed* ▪ *It was requested that cultural and archaeological surveys are conducted prior to road construction, with the assistance of local people who are familiar with the area and with identifying the gravesites* ▪ *It was requested that more time on the ground is provided in order to assess the Project area and identify additional cultural and historic sites* ▪ *It was requested that the opportunity to return to the Project area is provided to place crosses at gravesites, so these sites can be recognized as graves*	Agnico Eagle will work with the HTO and Elders to identify safe traditional land use crossing locations and construct ramps with signage. An assessment of potential Project effects on heritage resources is provided in, Volume 7, Section 7.3 Agnico Eagle adjusted access road alignment to avoid as many cultural sites as possible, lengthening the road. Agnico Eagle has not impacted any gravesites. The potential Project effects on cultural sites

Table 7.3-1: Community Concerns and Requests for Mitigation Related to Traditional Land and Resource Use (continued)

Topic of Concern	Issue/Concern and Requests for Mitigation Identified	FEIS Amendment Reference to Mitigation Measures

	■ The potential destruction of all cultural sites due to the road route and borrow pits[4,5,8]
	  ▪ *The road route be changed to avoid these sites, or a 500 m buffer be placed around gravesites*
	■ The proposed mitigation at a specific site involving the removal or reconstruction of structures located at Borrow Pit Esker #2[e]
	  ▪ *It was requested that all historical and archaeological sites needed to be respected, preserved and if possible avoided.*
	  ▪ *It was requested that the opportunity to collect some of the pegs that are near the Project footprint is provided to preserve them, as they are likely from the 1940s (and not that old)*[c]
	  ▪ *It was requested that the opportunity to participate in the archaeological mitigation work in 2016 be provided as an educational experience for youth*
	  ▪ *It was requested that road access is provided in the future in order to facilitate access to cultural sites for youth learning opportunities*[d]
	■ The potential effect of dust on caches located near the road. Hunters are no longer able to cut up and cache meat near the road due to dust accumulation on the ground[c,f,h]
	  ▪ *It was requested that dust is suppressed, be monitored more frequently, and treated more effectively, possibly with CaCl*
	  ▪ *It was requested that the accumulation of dust is measured during both the summer and winter months*
	  ▪ *It was requested that Agnico Eagle donate seacans to the community for meat storage*
		will be mitigated with the implementation of the Archaeology Management Plan (Volume 8, Appendix 8-E.8).
		
		Mitigation measures will be implemented according to the approved Road Management Plan and specifications of the GN Department of Culture and Heritage prior to construction activities.
		
		The potential Project effects of dust on cultural sites will be minimized with the implementation of the Air Quality and Dust Management Plan (Volume 8, Appendix 8-E.1).

[a] Agnico Eagle (2014a).

[b] Agnico Eagle (2015e).

[c] Agnico Eagle (2016a).

[d] Agnico Eagle (2016b).

[e] Agnico Eagle (2016c).

[f] Agnico Eagle (2016e).

[g] Agnico Eagle (2016d).

[h] NIRB 2015a

FEIS = Final Environmental Impact Statement; HTO = Hunter and Trapper Organization; GN = Government of Nunavut; CaCl = Calcium chloride; m = metre.

7.3.1.1 Baseline Study Methods

Information presented in the IQ baseline report came from a variety of sources including a literature review of publicly available sources, and information provided directly by Baker Lake Elders, land users, and other community members, including women and youth. Information provided directly by Baker Lake stakeholders and other community members was collected through the following engagement or consultation activities related to the Project or Project area:

- a traditional knowledge workshop conducted with ten Baker Lake Elders on December 9 and 10, 2014, related to the Proposed All-weather Exploration Road between the Meadowbank Mine and the Amaruq Site;
- participation of local community field assistants in the 2015 field programs conducted for the Project;
- a consultation meeting and site visit with thirteen Elders and land users from the Baker Lake HTO, the Community Lands and Resources Committee (CLARC), and the Kivalliq Inuit Association (KIA) on September 8, 2015;
- a follow-up consultation meeting with six members of the CLARC on February 4, 2016;
- a follow-up consultation meeting and six members of the HTO on February 4, 2016;
- a follow-up TK/IQ workshop and consultation meeting with thirteen Baker Lake Elders, including the original group of Elders who participated in the December 2014 TK workshop, plus several additional Elders on February 5, 2016;
- a group discussion with seventeen students from the Jonah Amitnaqq high school (grades 9-12) in Baker Lake on February 3, 2016; and,
- a group discussion with eight women from the community on February 3, 2016.

Additional consultation meetings related to the Project were held in 2015 and 2016 with Baker Lake stakeholders and other community members. Traditional knowledge and land use information shared, and concerns and issues raised at the 2015 meetings were included in the IQ baseline report and integrated into this assessment. Any proposed recommendations or requests for Project specific mitigation are presented in Table 7.3-1. The results of consultation meetings held in March 2016 for the Project will be considered in Project planning.

7.3.1.2 Existing Environment and Baseline Information

The results of the IQ baseline report is presented in Volume 7, Appendix 7-A.

The Traditional Economy

The traditional economy remains important to Inuit individual and community wellbeing, for cultural, economic, and health reasons, and in 2012 it was reported that approximately 90% of the Baker Lake community harvested regularly (every few weeks to almost every day) (Peterson 2012). Today, Baker Lake community members maintain a balance between waged employment to pay for commercial goods and services, and practicing traditional harvesting activities to feed their families and maintain cultural ties (also see Section 7.4).

Wildlife Harvesting

Caribou

- Caribou are considered a vital traditional resource to the community as a primary food source, and caribou hunting is the most wide-ranging harvesting activity practiced in the area and is conducted year-round. In the past, caribou were hunted anywhere they were encountered in the region, and often at crossing places, where large numbers of caribou encounter rivers and lakes during their migration. The Project area was used by local people in the past, primarily as a travel corridor between Baker Lake and the Back River, and caribou harvesting was practiced in the region based on caribou accessibility. Areas most frequently used to hunt caribou were within 10 km of Baker Lake during the late 1970s, with use decreasing further north (IDS 1978). Studies conducted between 2001 and 2008 indicated that Baker Lake hunters prefer to hunt between approximately 10 and 64 km of the community, depending on caribou availability and other factors (Kendrick and Manseau 2008; AREVA 2011).

- Use of the area between Baker Lake and Meadowbank Mine for caribou hunting has increased in recent years due to the development of the AWAR. Hunter harvest survey results indicate that before the AWAR was built (between 1996 and 2001), 67% of harvests occurred within 50 km of the proposed road, and after the AWAR was constructed (between 2007 and 2014), use fluctuated between 73 and 85% within 50 km of the road. (Agnico Eagle 2015g, 2016f). Elders added that they do travel past the Project site to hunt when they are able to, since the caribou are considered to be in better health in that area.

- Elders and Baker Lake hunters indicated that caribou appear to be shifting their distribution in recent years further from Baker Lake and north of the Meadowbank Mine, resulting in decreased abundance and availability near the community, which was attributed to the effects of exploration activities, aircrafts and transport trucks. Baker Lake land users have also observed that climate change is having an impact on caribou movements, behavior and habitat, including shifts in migration patterns and foraging habitat, and increased mortality from starving due to the unpredictable freeze-thaw cycle and from drowning due to thin ice.

Furbearers /Predators

- Trapping activity has decreased in intensity over the years due to the low price of furs; however, some community members continue to trap today, and furbearing animals still play an important role in Inuit culture and way of life. Arctic fox are the primary species targeted for trapping, and Arctic wolf and wolverine are taken incidentally during caribou hunting or fox trapping excursions. Trapping activity in the Meadowbank Mine area and Project area was limited in the past, and mostly occurred in areas closer to Baker Lake; however, wolf harvesting has increased in recent years in the Meadowbank Mine area.

Birds

- Birds, including waterfowl and geese, provide an important alternate food source for the local people and are harvested during spring migration near lakes and rivers close to Baker Lake. Snow goose, Canada goose, and greater-white fronted goose are the most commonly harvested species, followed by Northern pintails, long-tailed ducks, and tundra swans. Ptarmigan are hunted opportunistically wherever they are found.

Fishing

- Fish provide an important secondary source of food after caribou for Baker Lake residents, and fishing is a year round activity that occurs over a wide area. Preferred fishing areas used today include several lakes and rivers close to Baker Lake. Fishing sites in the Project area were used in the past, including Nutipilik, Qugiilik, Tahinajuk, Hiatuuq, Kivgajulik, Haninajuq, Uiguklik, and Tasirjuaraajuk Lakes. Some of these lakes may still be used opportunistically today by people while travelling through the area. Lake trout and Arctic char are preferred species harvested for food, and Arctic grayling, broad and round whitefish, and a smaller fish (potentially cisco) are also harvested.

Plant Harvesting

- Traditional plant use was extensive in the past, and plants were valued for the different purposes they served, including food, medicine, shelter, and tools. Vegetation is considered important in the context of providing important wildlife foraging habitat, especially for caribou. Baker Lake Elders continue to use wild plants today, although not as extensively as previously. Other Elders reported that they no longer use traditional medicines, but continue to collect berries for consumption or use in jams and tea. Crowberry, blueberry, blackberry, red berry, and cloudberry are reported to be used

Use of Cultural Sites and Trails

- Traditional land use and cultural sites that were identified in the region and potentially located near many of the lakes in the Project area and along eskers adjacent to the Project footprint include trails, camps, cabins, caching sites, gravesites, and other culturally important sites (Volume 7, Appendix 7-A, Figure 3-2). The protection of historic sites and the maintenance of traditional travel routes is considered critical to the Elders of Baker Lake, for transferring knowledge to future generations and to educate youth.

- Two main travel routes that overlap with the Project area were used in the past, and followed several lakes when they were frozen (Volume 7, Appendix 7-A, Figure 3-1). The AWAR is used today to access preferred harvesting areas. Water crossing sites for caribou that were considered preferred camping and hunting sites were identified crossing Uiguklik Lake, Nutipilik Lake, Tasirjuaraajuk Lake, and Hiatuuq Lake. None of these crossing sites overlap with the Project footprint (Volume 7, Appendix 7-A, Figure 3-1). Cache sites were important in the past and were also associated with camping; tent rings and cache sites were identified as potentially located adjacent to Tahinajuk and Nutipilik lakes, and three large caching areas were identified, one of which overlaps with the Project footprint (Volume 7, Appendix 7-A, Figure 3-2). Elders confirmed three different cache sites near the Project footprint during a site visit in 2015; two are located over 200 m southeast of the haul road, and one is located adjacent to an Esker (Section 7.2.2). Two camping areas were identified near the Project footprint, including north of Nutipilik Lake, approximately 10 km east of the haul road, and south of Uiguklik Lake, approximately 25 km south of the haul road. Both camping areas are situated along travel routes and near caribou migration routes. Grave sites were noted to be located to the west of the haul road and Whale Tail Pit, and one gravesite location was confirmed by Elders during a site visit in 2015, but was located over 500 m from the Project footprint (Section 7.2.2.2).

Weather and Climate

- Traditionally, Inuit land users have relied on the weather for generations to help them navigate daily activities, including safe travelling and successful hunting. Baker Lake Elders and land users have

observed changes in weather patterns over the past 10 to 20 years, including changes in the length and timing of traditional Inuktitut seasons, unpredictable weather and winds, changes in the direction of the prevailing wind, stronger winds, and storm behavior. Changing weather patterns have also affected traditional land use activities and resources (Volume 7, Appendix 7-A).

7.3.2 Potential Project-related Effects Assessment

A pathway analysis was conducted to identify linkages between the Project and TLRU. Pathways determined to have no linkage or those that are considered secondary are not predicted to result in significant effects on TLRU and are summarized in Appendix 3-C, Table 3-C-9. Primary pathways are those where effects from the Project will likely result in a measurable change to measurement indicators that could contribute to residual effects on TLRU relative to baseline conditions. Primary pathways that require further effects analysis to determine the cultural significance from the Project on TLRU have been carried forward for the assessment.

Pathways potentially leading to effects on TLRU include direct and indirect effects. For the purposes of this assessment, direct effects are related to changes in access to TLRU areas, including culturally important sites (e.g., spiritual, grave sites), or disturbance to land that would result in the land no longer being available for traditional activities. Direct effects also include the alteration or removal of culturally important features or sites. Indirect effects are related to changes in the availability of resources, such as wildlife, vegetation, and fish used by traditional harvesters. Indirect effects are therefore related to residual adverse effects on other aspects of the environment, such as changes in the quantity, or abundance and distribution of vegetation, wildlife, and fish resources, and changes in the quality of these resources. Indirect effects are also related to avoidance of traditional land use and cultural sites based on people's perceptions of changes to these sites. For cultural sites, indirect effects include effects on the enjoyment of these sites and changes in the quality of sites or features (e.g., noise disturbance, dust).

As a result, the assessment of Project effects on continued opportunities for TLRU considers the effects of VCs as described in the following sections:

- Wildlife and Wildlife Habitat (Volume 5, Section 5.5) - traditional wildlife harvesting;
- Fish and Fish Habitat (Volume 6, Section 6.5) - traditional fishing;
- Vegetation (Volume 5, Section 5.4) - traditional plant harvesting; and
- Heritage Resources (Section 7.2) and Noise and Vibration (Volume 4, Section 4.4) - culturally important sites.
- This assessment also considers intangible aspects TLRU, including patterns of TLRU and IQ principles and values, including the cultural and spiritual importance of traditional land use areas, resources and historic features, and Project-specific concerns related to traditional land use and resources.

7.3.2.1 Primary Pathways Effects Analysis

Table 7.3-2 provides the primary pathways that require further effects analysis to determine the cultural significance from the Project on TLRU. The evaluation of Project effects on TLRU considers changes to the following measurement indicators and associated primary pathways.

Table 7.3-2: Primary Pathways and Measurement Indicators

Primary Pathway	Associated Indicators
■ Project activities may affect continued opportunities for traditional wildlife harvesting	■ disturbance to preferred traditional wildlife harvesting areas ■ changes in the availability of traditionally harvested wildlife resources (caribou, furbearers, birds) ■ social and economic factors affecting participation in traditional land use activities
■ Project activities may affect continued opportunities for traditional fishing	■ disturbance to preferred traditional fishing areas ■ changes in the availability of traditionally fished resources ■ social and economic factors affecting participation in traditional land and resource use activities
■ Project activities may affect continued opportunities for traditional plant harvesting	■ disturbance to preferred traditional plant harvesting areas ■ changes in the availability of traditionally harvested plant resources ■ social and economic factors affecting participation in traditional land resource use activities
■ Project activities may affect continued opportunities for the use of culturally important sites	■ disturbance to preferred use or culturally important areas ■ changes in the availability of traditionally important cultural and historic sites or features ■ social and economic factors affecting participation in traditional land resource use activities

7.3.2.1.1 Continued Opportunities for Traditional Wildlife Harvesting

Continued opportunities for traditional wildlife harvesting (hunting and trapping) considers potential effects of the Project on wildlife and wildlife habitat that may result in changes in the availability of wildlife resources for harvesting purposes, and changes in traditional land use patterns. Inuit Qaujimajatuqangit values and concerns are also considered in assessing potential effects on traditional wildlife harvesting. Potential Project effects on terrestrial wildlife and birds were analyzed and results are provided in Volume 3, Appendix 3-C, Table 3-C-3. Primary pathways that are likely to result in measurable environmental changes and residual effects on wildlife were identified for caribou and birds (Volume 5, Section 5.5.3.1), and are related to changes in wildlife habitat quantity, wildlife habitat quality, and wildlife survival and reproduction. Upland birds were not identified as a preferred species for harvesting by Baker Lake harvesters other than ptarmigan, which is harvested opportunistically and closer to Baker Lake. Therefore, potential effects to continued opportunities for traditional wildlife harvesting only considers effects on the harvesting of caribou and waterbirds (waterfowl and geese).

Inuit Qaujimajatuqangit baseline results indicated that Arctic fox is a traditionally important species for trapping, and Arctic wolf and wolverines are occasionally trapped. These furbearers remain highly valued for their cultural and ecological significance. Baker Lake Elders and other land users frequently expressed concerns related to Project effects on Arctic wolf and Arctic fox and their denning habitat. Mitigation measures will be implemented to reduce potential effects on furbearers, including conducting surveys at borrow sites prior to quarry activities to identify and avoid predatory mammal dens and are outlined in Volume 5, Section 5.5 and in the Terrestrial Environmental Monitoring Plan. No environmentally significant effects were anticipated for muskox, predatory mammals (Arctic wolf, wolverine, grizzly bear), raptors and small mammals, following the implementation of mitigation measures, and these pathways were not assessed in the residual effects analysis for wildlife and

wildlife habitat (Volume 5, Section 5.5; Volume 3, Appendix 3-C). Therefore, no significant changes to the populations of Arctic Wolf and wolverine are expected. Inuit Qaujimajatuqangit baseline results indicated that trapping activities are practiced closer to Baker Lake, therefore furbearers, including Arctic fox, Arctic wolf, and wolverine will still be available for trapping in preferred trapping locations, and in the greater region. As a result, effects to these furbearers are not considered within the analysis of effects on opportunities for traditional wildlife harvesting.

It is anticipated that loss of waterbird breeding habitat and the potential destruction of nests will occur due to flooding at the Project as a result of the construction of dikes (Volume 5, Section 5.5.4.1). This effect is considered low magnitude, since it is local in geographical extent, is short-term, and is not expected to have a long-term effect on local waterbird populations. Waterfowl and geese were noted to provide an important alternate food source for the local people, and preferred harvesting locations were identified near lakes and rivers close to Baker Lake. Therefore it is anticipated that waterfowl and geese will continue to be available for harvesting, as the Project area has limited or no documented traditional land use for this purpose. With the implementation of mitigation measures the availability of waterfowl and geese for harvesting is not expected to change due to the Project in a significant way, relative to baseline conditions.

Direct loss and fragmentation of wildlife habitat due to the Project footprint are expected to have a measureable effect on caribou that is considered moderate in magnitude (Volume 5, Section 5.5.4). However, the amount of habitat that will be lost will be at the local scale and is not likely to have a continuous effect on wildlife populations due to the amount of habitat available for caribou populations in the RSA and beyond. Similarly, the magnitude of cumulative effects related to habitat loss for caribou is considered low because of the large amounts of remaining intact habitat within the caribou range.

Changes in caribou movement patterns is expected due to indirect habitat loss from sensory disturbance and due to barriers to migration (Volume 5, Section 5.5.4.1). Indirect changes to preferred habitat has the potential to affect caribou through altered movement and avoidance behaviour at the regional scale, leading to potential changes in distribution. The implementation of mitigation measures, including managing traffic volumes and road closures during peak migration periods, enforcing speed limits, providing wildlife with the right-of-way on all roads, designing roads with low profiles and avoiding the build-up of snowbanks in the winter, will help to minimise the effects of sensory disturbance and barriers to migration. The magnitude of these effects is considered to be moderate, continuous throughout the life of the Project and reversible following closure (Volume 5, Section 5.5.4.1). Changes in the availability of caribou for harvesting in certain areas within the Project regional area are anticipated due to the effects of the Project, based on anticipated changes in caribou movement patterns and distribution (Volume 5, Section 5.5.4.1).

Inuit Qaujimajatuqangit indicates that caribou are considered the most important traditional resource to the community as a primary food source, and caribou hunting is the most wide-ranging harvesting activity that is practiced year-round. The traditional harvesting of wildlife, especially caribou, remains important to the Baker Lake community for cultural, economic, and health reasons. Preferred harvesting areas are variable among individual hunters, and are based on numerous factors including caribou movement patterns and personal preference. Preferred harvesting areas include “convenient” locations, remote locations less frequented by others, and areas requiring long distance travel over several days, including up to 300 km northwest of town (Agnico Eagle 2016f; Kendrick and Manseau 2008). Caribou harvesting locations have been reported to be within approximately 64 km of Baker Lake (Kendrick and Manseau 2008; AREVA 2011), located south of the

Project. Caribou harvesting in areas north of Baker Lake have increased with the development of the AWAR (Agnico Eagle 2015g, 2016f). Hunters will continue to have access up to km 85 along the AWAR as it will remain open for the duration of Mine operations, however, they will not have access to the haul road including the Whale Tail Pit since public use is not permitted within operational areas. Elders indicated that they continue to use the area north of the Project site when they are able to (Agnico Eagle 2016f). There is limited data available on caribou harvesting patterns in the Project area, however, the available data suggests that preferred harvesting locations are variable and dependent on numerous factors, and some may overlap with the Project footprint.

Community members frequently noted that caribou change their migration patterns in different areas and in different years, and the reasons provided for these changes are varied and appear to depend on numerous factors (Cumberland 2005a; AREVA 2011; Agnico Eagle 2014a, 2015e, 2016a). Community members, including hunters, Elders, and youth indicated that caribou appear to be shifting their distribution in recent years, and are migrating further north of the Meadowbank Mine rather than along their traditional routes closer to the community (Agnico Eagle 2014a, 2016b, 2016c; Maksimowski 2014; AREVA 2011). There is also a perception among Elders that caribou health and therefore meat, is of higher quality north of the Meadowbank Mine compared to closer to town (Agnico Eagle 2016b). Community members attributed changes in caribou migration routes to development, and reported decreased abundance due to the Meadowbank Mine, resulting in less availability for harvesting closer to the community (AREVA 2011; Agnico Eagle 2016b, 2016c). Some harvesters expressed concerns with potential changes in caribou distribution due to Project activities, and their ability to continue to hunt and rely on caribou as the main diet for the community (NIRB 2015a). On the other hand, other community members noted that it is not unusual for caribou to change their migration routes about every 50 years (Maksimowski 2014), and hunters have suggested that weather and snow conditions play a greater role in defining caribou distribution than other factors (Kendrick and Manseau 2008). Community members have also observed changes in caribou habitat and range and shifts in migration patterns due to the impacts of climate change (Cumberland 2005a; Thorpe 2000; GN 2005).

The Meadowbank Mine has had an impact on traditional harvesting patterns from a socio-economic perspective. For some, the impacts have been beneficial; the combination of resources for the purchase of hunting supplies facilitated by wage employment, and the development of the AWAR has allowed some individuals to hunt more animals, over a larger geographic area (Peterson 2012; Agnico Eagle 2016f). On the other hand, some have indicated that participation in the wage economy has resulted in a decrease in harvesting activities due to a lack of time and resources, and observations of decreased caribou availability and accessibility as a result of the Meadowbank Mine (Maksimowski 2014). Potential shifts in caribou movements and distribution away from the community and further north may not affect caribou availability and opportunities for traditional harvesting for hunters who have the means and resources to access caribou in these areas, but may reduce opportunities for other hunters who are lacking the time, resources and skills to access caribou further away from the community.

Changes in caribou movement patterns and distribution in the Project terrestrial RSA are anticipated as described in the wildlife and wildlife habitat assessment. Based on these results, and considering Inuit observations of changes in caribou movement patterns further north of the Mine site, there is the potential that hunters will have to adapt their harvesting and land use patterns in the future to reflect shifts in caribou distribution and changes in availability in certain areas. However, the vast majority of caribou range is undisturbed, and a reduction in caribou survival is not expected due to the Project, therefore caribou will still be available in preferred harvesting locations close to Baker Lake and in areas north of the community that are

accessed by the AWAR. Access to harvesting sites from the AWAR up to km 85 will still be available to land users, and access will not be affected through the Project area during operations, since important trails and all-terrain vehicle or snowmobile crossing points potentially intersecting the haul road and Whale Tail Pit will be identified and marked with signs. Continued opportunities for traditional harvesting of wildlife is expected to decrease for some traditional land users due to the Project, based on expected shifts in caribou distribution and potential changes in availability, combined with barriers to participation in traditional hunting activities for some, however the effect is anticipated to be limited. Rotational employment will facilitate participation in hunting activities for employees during their time off so that traditional activities can be balanced with wage employment (Volume 7, Section 7.4.3.4). Caribou meat from these harvests can still be shared with other community members, providing access to traditional foods for those who may not have the means to participate in traditional activities.

7.3.2.1.2 Continued Opportunities for Traditional Fishing

Continued opportunities for traditional fishing considers potential effects of the Project on fish and fish habitat that may result in changes in the availability of fish resources for fishing purposes, and changes in traditional land use patterns. Inuit Qaujimajatuqangit values and concerns are also considered in assessing potential effects on traditional fishing. Potential Project effects on fish and fish habitat were analyzed and results are provided in Volume 3, Appendix 3-C, Table 3-C-7. Primary pathways that are likely to result in measurable environmental changes and residual effects on fish and fish habitat were identified and are related to changes in fish habitat quantity and quality, fish abundance and distribution, and survival and reproduction (Volume 6, Section 6.5).

The Project is anticipated to affect fish and fish habitat primarily as a result of localized direct habitat losses, and these changes are expected to have a measurable effect on Arctic Char, Lake Trout, and Round Whitefish, species that rely on coarse substrate habitat for spawning, and rearing in Mammoth and Whale Tail Lakes (Volume 6, Section 6.5.4). The direct mortality from dewatering and fish-out activities is expected to result in measurable effects to the abundance and distribution of fish species in Mammoth and Whale Tail Lakes to post-closure. Indirect effects of the Project on fish and fish habitat will also result from changes in hydrology and water quality, and are expected to have a moderate impact on Arctic Char, Lake Trout, and Round Whitefish, occurring on a localized scale (Volume 6, Section 6.5.4). Operational flooding is expected to increase lake habitat in Whale Tail Lake (South Basin).

Fish is a secondary source of food after caribou for the Baker Lake community, and are a highly valued resource. In 2006, 77% of adults in Baker Lake reported fishing, and in 2016, 88% of youth indicated that they fished (Statistics Canada 2011a; Agnico Eagle 2016d). Lake trout and Arctic char were identified as preferred fish species harvested for food, and preferred fishing sites are located in lakes and rivers close to the community. Historically, several sites located in the near the Project were used for fishing when people travelled through the region between Baker Lake and the Back River, camping along the way. Fishing sites that were identified include Nutipilik, Qugiilik, Tahinajuk, Hiatuuq, Kivgajulik, Haninajuq, Uiguklik, and Tasirjuaraajuk Lakes.

Dust will be generated as a result of construction activities and operations, and its effect on fish and fish habitat and water quality was raised as a key concern by Baker Lake community members. Concerns were also raised regarding the potential effects of siltation, spills, and the accumulation of toxic substances on fish and fish habitat, and fish habitat loss. Based on the results of the air quality predictions for the Project, and with the implementation of best management practices and mitigation, the effects of dust deposition and acidifying air

emissions is predicted to have a negligible effect on water quality, and thus a negligible effect on aquatic ecosystems (i.e., fish) and traditional uses (Volume 6, Section 6.4.4). Concerns regarding the potential effects of construction activities on fish and fish habitat were also expressed. During construction and operations, fish populations above and below any barriers are expected to be maintained, and habitats with the potential to provide overwintering, spawning, rearing, and foraging functions will remain available. Residual effects to fish and fish habitat is expected to be reversible, since full use of habitat by fish species is expected to occur quickly and within a few years given the highly mobile behaviour of these species, and recovery of fish populations is expected to be no longer than one generation time following closure (Volume 6, Section 6.5.4).

Fishing remains an important traditional activity for Baker Lake community members, and the lakes and rivers in the Project area are considered culturally significant. Use of the Project area appears to be limited today and was not identified as a preferred fishing area; Arctic char and lake trout will remain locally and regionally abundant and therefore will still be available for fishing in preferred harvesting sites.

7.3.2.1.3 Continued Opportunities for Traditional Plant Harvesting

Continued opportunities for traditional plant harvesting considers potential effects of the Project on vegetation that may result in changes in the availability of vegetation resources for harvesting purposes, and changes in traditional land use patterns. Inuit Qaujimajatuqangit values and concerns are also considered in assessing potential effects on traditional plant harvesting. Potential Project effects on vegetation were analyzed and results are provided in Volume 3, Appendix 3-C, Table 3-C-2. Primary pathways that are likely to result in measurable environmental changes and residual effects on vegetation were identified and are related to changes in vegetation habitat quantity and habitat quality (Volume 5, Section 5.4.3.1).

The physical loss of vegetation populations and communities as a result of Project construction will remain during the life of the mine (Volume 5, Section 5.4.4). The impact is considered low due to Project effects being localized, the loss of approximately 820 ha, or 2.9% of habitat in the LSA, and with the implementation of environmental design and mitigation measures. Reclamation activities and natural re-vegetation of disturbed areas during the closure and post-closure phases, including the eventual closure of the road will result in the recovery of plants and vegetation communities removed during construction and operations.

Baker Lake community members emphasised the importance of vegetation in the context of providing important wildlife foraging habitat for caribou, especially lichen, and expressed general concern for the protection of caribou habitat. Concerns were also raised about the effects of less rain and vegetation growth due to climate change, resulting in fewer feeding areas for wildlife. And about the capacity of vegetation to regenerate following mining activities. Mitigation measures will be implemented to minimize potential effects on caribou habitat, and revegetated areas of the Project footprint during post-closure are expected to function as wildlife habitat. Vegetation will be monitored to confirm that measures to minimize the amount of vegetation (wildlife habitat) lost due to Project activities are effective, that concentrations of contaminants in vegetation do not exceed acceptable levels for wildlife health, and that the site is restored to its natural state (Volume 5, Section 5.4.7).

Dust will be generated as a result of construction activities and operations, and its effect on vegetation and wildlife habitat, especially on caribou foraging habitat was raised as a key concern by Baker Lake community members and land users (Volume 5, Section 5.4.4). Effects on vegetation will be mostly confined to within 100 m of the haul road. The magnitude of the effects of dust along the haul road will be mitigated by constructing and topping the road with natural esker material, limited traffic speeds, and targeted spraying of roads with water or

chemical suppressants as needed. Regular monitoring on the haul road will assess the dust deposition and effects on vegetation. The effects on vegetation habitat communities due to changes in hydrology as a result of flooding would be localized and limited to the Project terrestrial LSA.

Harvesting for traditional plants is still practiced among Baker Lake community members, however use of the Project area appears to occur opportunistically while people are travelling to other important traditional land use sites, and was not identified as a preferred plant harvesting area. Baker Lake community members also expressed a concern about fewer traditional plant harvesting areas as a result of less rain and vegetation growth due to climate change. Traditional use of the Project area is limited for plant harvesting, and traditional use plants are associated with a range of plant community types that are locally and regionally abundant and will therefore still be available for harvesting. The indirect effects of changes to vegetation quality as a result of dust and changes in hydrology are expected to be restricted to the terrestrial LSA and reversible. With the implementation of dust control measures and ongoing monitoring, these effects are expected to be minimal. Dust generated by traffic on the AWAR has been documented in annual reporting to remain within 100 m of the road (Volume 4, Section 4.3). Furthermore, although high-quality caribou habitat (i.e., graminoid and lichen dominated ELC units) will be affected by the Project, these vegetation types will remain well represented across the terrestrial LSA and RSA, and will continue to be available across the landscape.

7.3.2.1.4 Continued Opportunities for the use of Culturally Important Sites

Continued opportunities for the use of culturally important sites considers potential effects of the Project on heritage resources (archaeological and sacred sites) and the potential effects of the Project on the acoustic environment that may result in disturbance to culturally important sites, and changes in traditional land use. The IQ values and concerns are also considered in assessing potential effects on the use of culturally important sites, including cabins, camp sites, caching sites, grave sites, spiritual sites, and travel routes. Potential Project effects on heritage resources and noise and vibration were analyzed and the results are provided in Volume 3, Appendix 3-C. Noise levels will either decay to ambient noise levels or be compliant with AER Directive 038 Criteria at the noise LSA boundary during construction and operations, with the exception of blasting, which will comply with NPC-119 (Volume 4, Section 4.4.4). While members of the community may potentially pass through the Project area on-route to traditionally or culturally important sites, people are expected to be primarily outside the LSA, limiting exposure. Subsequently noise was not carried forward in the effects assessment.

No primary pathways were identified for heritage resources; with the implementation of appropriate mitigation measures, residual effects to heritage resources were not considered significant (Section 7.2). From an IQ perspective, these sites and features have high cultural and spiritual significance, and concerns were frequently raised by community members and Elders regarding the protection and respect of these sites (Agnico Eagle 2014a, 2015e, 2016a, b, c, e, NIRB 2015a). Therefore, residual effects to the use of culturally important sites are considered a primary pathway. The results of archeological baseline studies indicated a total of 19 archaeological sites have been identified within or adjacent to the LSA. These sites include marker sites (1), cache sites (3), hunting blind sites (3), campsites (11), and one grave site/camp site (Section 7.2.2). These results are consistent with IQ baseline results, indicating that the Project area overlaps with an important region culturally that was frequently used as a transportation corridor between Baker Lake and the Back River in the past. Elders and other land users noted the potential for several cultural sites to be located near many of the lakes in the Project area along the eskers adjacent to the Project footprint, and two travel routes were identified that overlap with the Project footprint (Volume 7, Appendix 7-A, Figure 3-1).

The protection of historic sites and the maintenance of traditional travel routes is considered critical to the Elders of Baker Lake, for the transfer of knowledge to their grandchildren and to educate youth. Community members emphasized that all historical and archaeological sites needed to be respected, preserved and if possible avoided. It was also noted that some of the older structures had higher value than more recent structures (i.e., tent rings with bones pegs vs. wooden pegs). To address concerns related to cultural sites, to avoid denning and to improve the grade of the road in certain sections, the Amaruq exploration borrow sites locations were adjusted and the access road route was altered and extended by 1.6 km (Agnico Eagle 2015e). Subsequently, most of the identified archaeological sites (15) are located outside of the LSA and will not be affected by the Project. Avoidance is the preferred mitigation measure; sites identified within 100 m of Project boundaries will be marked with temporary fencing as a precaution, and the grave site will be avoided (Section 7.2.2).

Site-specific mitigation measures have been developed for each individual site based on the nature and heritage value of the site, and may include systematic data recovery involving detailed site mapping, mapping of individual stone features, collection of artifacts, shovel testing, archaeological excavation, and/or community consultation (Section 7.2.7). Given the cultural and spiritual value that these sites hold to Baker Lake community members, including land users and Elders, Agnico Eagle is committed to providing ongoing consultation with the Baker Lake community, and to providing opportunities for participation in future heritage resource surveys and the development and implementation of mitigation measures. Indirect potential impacts to cultural sites will be mitigated through ongoing monitoring of the condition of archaeological sites adjacent to the Project footprint, and the delivery of an education program for mine staff and contractors focusing on general awareness training and guidelines for responding to the inadvertent discovery of archaeological sites.

Baker Lake community members commented that the impacts of climate change were resulting in a decreased ability to access resources, dangerous travel conditions, loss of traditional travel routes, and increased difficulty in navigating. These experiences underscore the importance of maintaining access to key traditional travel routes for land users. Agnico Eagle has committed to consulting with land users to identify important trails that potentially intersect the haul road and Whale Tail Pit, and will install all-terrain vehicle or snowmobile crossing areas to notify vehicles along the haul road. The effects of dust on cache sites was raised as a concern; effects of dust on vegetation and wildlife are addressed in their respective assessments, which is also relevant to cache sites. With the implementation of appropriate mitigation measures, changes in continued opportunities for the use of culturally important sites is anticipated, relative to baseline conditions.

7.3.3 Residual Impact Classification

The residual impact classification is used to describe the residual effects on TLRU from incremental changes to measurement indicators due to the Project. To determine whether an impact may have a significant residual adverse effect on continued opportunities for traditional land use after mitigation measures are applied, each impact was assessed according to the criteria and descriptions in Volume 3, Section 3.7.

The Project's residual incremental effects on traditional wildlife harvesting, traditional fishing, and traditional plant harvesting are considered to be a combination of effects on the direct disturbance to preferred TLRU areas, the availability of resources, and IQ values related to TLRU (Table 7.3-3). The Project's residual incremental effects on the use of cultural sites are considered to be a combination of effects on the direct and indirect disturbance to cultural use sites, and on IQ values related to culturally important sites (Table 7.3-3).

Table 7.3-3: Residual Impacts Classification and Determination of Significance on Traditional Land and Resource Use

Effects Pathways	Direction	Magnitude	Geographic Extent	Duration	Frequency	Reversibility	Likelihood	Significance for Assessment Endpoint
Project activities may affect continued opportunities for traditional wildlife harvesting	Negative	Low to Moderate	Local to Regional	Short-term to Medium-term	Isolated to Continuous	Reversible	Likely	Not Significant
Project activities may affect continued opportunities for traditional fishing	Negative	Low to Moderate	Local to Regional	Short-term to Permanent	Infrequent to Continuous	Reversible to Irreversible	Likely	Not Significant
Project activities may affect continued opportunities for traditional plant harvesting	Negative	Low	Local	Medium-term to Long-term	Continuous	Reversible	Likely	Not Significant
Project activities may affect continued opportunities for the use of culturally important sites	Negative	Low	Local	Permanent	Isolated and Continuous	Irreversible	Highly Likely	Not Significant

7.3.3.1 Traditional Wildlife Harvesting

The community's ability to continue to hunt and rely on waterfowl and geese as an alternate source of food will not be significantly affected due to the Project, because preferred harvesting sites are not documented in the Project study areas, and waterfowl and geese will continue to be available for harvesting close to Baker Lake.

Measurable changes in the distribution and movement patterns of caribou are anticipated due to the effects of the Project, and therefore the potential availability of caribou resources for traditional harvesting in certain preferred harvesting areas. Direct loss and fragmentation of caribou habitat due to Project activities is expected but is not likely to have a continuous effect on caribou populations (Volume 5, Section 5.5.4.1). Indirect habitat loss due to sensory disturbance, and adverse effects due to barriers to migration will extend beyond the Project footprint and have a moderate effect on caribou populations. Impacts from sensory disturbance and barriers to migration will be regional in scale, continuous, but medium-term in duration and reversible following closure (Volume 5, Section 5.5.4.1). The magnitude of cumulative effects from the Project and other developments on caribou is considered to range from low to moderate.

Inuit Qaujimajatuqangit indicates that preferred caribou harvesting locations are variable and dependent on caribou distribution and movement patterns; most hunters appear to prefer areas within approximately 64 km of Baker Lake for convenience, or within 50 km of the AWAR. Others prefer to hunt in more remote locations, with reported distances of up to approximately 300 km from the community, and therefore, some harvesting locations may overlap with the Project footprint. Hunters, Elders, and youth have observed changes in caribou migration patterns and distribution which they attributed to several different factors, with migration patterns shifting further north of Meadowbank Mine within the last five years, and resulting in decreased caribou availability for harvesting. Several concerns were raised related to potential changes in caribou distribution due to Project activities, including effects of the road on movement patterns, and the ability to continue to hunt and rely on caribou as the main diet for the community.

Inuit of all ages emphasized that wildlife harvesting is the most critical aspect of their heritage, connecting them to the lands of their grandparents and ancestors, and youth view harvesting as integral to their quality of life. Continued opportunities for traditional harvesting are required to facilitate the passing down of traditional knowledge and skills, the sharing of meat with family members and Elders, and other community members who may not have access to hunting opportunities. These continued opportunities will strengthen the IQ principles of *Pijitsirniq* (serving and providing for family and/or community) and *Pilimmaksarniq/Pijariuqsarniq* (development of skills through observation, mentoring, practice and effort), thereby promoting a cultural grounding which is considered essential for Inuit wellbeing (Tagalik 2012, NIRB n.d.). New economic opportunities will, and have, provided many benefits to Baker Lake community members, including an increase in opportunities for traditional wildlife harvesting, which will facilitate the generation and transmission of traditional knowledge and skills that are required to continue aspects of traditional ways of life and subsistence activities, including traditional wildlife harvesting.

It is anticipated that the residual effects of the Project on continued opportunities for traditional wildlife harvesting of caribou will be moderate in magnitude and regional in extent, since caribou availability may decrease in certain preferred harvesting areas, and some community members will continue to face barriers to participation in hunting activities as a result of wage employment through the Project. However this effect is expected to be limited since the regional area contains high proportions of undisturbed caribou habitat and caribou survival is not expected to be affected due to the Project. Furthermore, IQ suggests that the movement of caribou appear to

be dependent on numerous factors, and their distribution is variable in different areas and years. Preferred harvesting areas will still be available, the AWAR (up to km 85) will continue to facilitate access to harvesting locations, and the Project will not present barriers in accessing areas further north of the Mine site. Potential adverse effects resulting from barriers to participation in traditional hunting activities will be minimised with rotational employment. The community's ability to continue to practice subsistence activities, and to hunt and rely on caribou as a primary food source will not be significantly affected.

7.3.3.2 Traditional Fishing

Although historically the lakes closest to the Whale Tail Pit Project have not been commonly used for traditional purposes, measurable changes in the fish and fish habitat for the lakes are anticipated. More specifically, changes in the abundance and distribution of fish species are expected due to Whale Tail Pit activities resulting in direct loss or alteration of fish habitat and mortality of fish (Volume 6, Section 6.5.4). However, residual effects to fish populations are expected to be reversible, since habitats for overwintering, spawning, rearing, and foraging will remain available during construction, operations and through to closure, and the fish populations are expected to recover to baseline levels following closure.

Several fish species, including Lake Trout, Arctic Char, and Whitefish contribute to a substantial proportion of the diet of Baker Lake community members, and fishing activities are practiced year round. The protection of water, fish and their habitat are important values to Baker Lake traditional land users. Concerns related to the potential effects of dust, and construction activities on water quality and fish will be addressed through mitigation and ongoing monitoring described in Volume 6, Section 6.5. The lakes and rivers along the proposed Whale Tail Pit haul road are considered culturally significant since they were used in the past as people travelled, camped, hunted and fished in the region; however, use of the Project area appears to be limited today and was not identified as a preferred fishing area. Arctic Char and lake trout will remain locally and regionally abundant and therefore will still be available for fishing in preferred harvesting sites. Considering the results of the fish and fish habitat and traditional land use patterns, it is anticipated that the residual effects of the Project on traditional fishing opportunities will be primarily be low to moderate in magnitude, local to regional in geographic extent, short- to long-term in duration, and reversible. The resilience of the regional fishery will be maintained through the implementation of environmental design features and mitigation for the Project. The community's ability to continue to practice traditional fishing not be significantly affected.

7.3.3.3 Traditional Plant Harvesting

Measurable changes in vegetation are anticipated due to the effects of the Project, and have the potential to affect the availability of plant resources for traditional harvesting in the Project area. Although physical loss of vegetation populations and communities as a result of construction activities will occur, including high quality caribou habitat, they will be restricted to the Project footprint, and are well represented throughout the terrestrial LSA and RSA. Changes in vegetation quality due to dust deposition are anticipated, but will be restricted in area and will be monitored and mitigated. With the implementation of mitigation measures, including progressive reclamation and monitoring of vegetation, the effects to vegetation resources are predicted to be low in magnitude, local, medium- to long-term in duration, and reversible.

The protection of wildlife habitat and plants that caribou and other wildlife depend are important values to Baker Lake community members. High value caribou habitat may be avoided through Project design, and other high quality caribou habitat that will be impacted will be localised to the Project footprint, with vast amounts of habitat remaining available in the region. Concerns related to the potential impact of dust on wildlife foraging habitat will

be addressed with mitigation measures. Preferred traditional plant harvesting areas were not documented in the Project area. Considering the results of the vegetation assessment and traditional land use patterns, it is anticipated that the residual effects of the Project on traditional plant harvesting will be low in magnitude, local in geographic extent, medium- to long-term in duration, and reversible. The community's ability to continue to gather traditional plants will not be significantly affected.

7.3.3.4 The Use of Culturally Important Sites

Measurable changes in the disturbance to culturally important sites are anticipated due to the effects of the Project. The Project area is rich in historical and cultural significance, which is evidenced by the numerous archaeological features that have been identified in the region and which was frequented by local Inuit in the past. Baker Lake Elders and other land users emphasized the cultural and spiritual significance of historic or cultural sites and features, and their protection and respect are critically held values.

The majority of the cultural sites that were identified will be avoided, including the gravesite, which will also be buffered by 100 m. To address concerns regarding the four remaining sites that will be directly impacted by the Project, site-specific mitigation measures have been developed for each individual cultural site in consultation with Department of Culture and Heritage (GN), and with the community of Baker Lake (specifically elders and the HTO Members). Successful mitigation measures will include detailed site mapping and the collection of artifacts, which would contribute to the archaeological and cultural record of the region. Mitigation measures will be implemented according to the specifications of the Department of Culture and Heritage prior to construction activities (Section 7.2.7). Other cultural sites may be indirectly impacted due to Project activities through dust deposition and increased human activity in the area, which will be managed through dust control measures and monitoring, and cultural awareness training of Project staff and contractors (Section 7.2.7). Access to traditional travel routes that intersect the Project will be maintained through the installation of crossing areas and signage.

It is anticipated that the residual effects of the Project on the use of culturally important sites will be low in magnitude, local in geographic extent, and permanent in duration. Through Agnico Eagle's commitment to providing ongoing consultation with the community, and with their direct participation in the implementation of mitigation measures, the community's ability to continue to use culturally important sites in the Project area will be not be significantly affected.

7.3.4 Cumulative Effects Assessment

Residual effects to TLRU were predicted to be confined to the LSAs for plant harvesting and use of culturally important sites, and to the fish and fish habitat assessment area for fishing. The database of reasonably foreseeable future developments (Volume 3, Appendix 3-D) indicates that there are some planned developments within the Kivalliq Region that have the potential to interact with the potential effects of the Project on traditional land use. It is not anticipated that these developments will result in any changes in the availability of traditional resources for fishing, plant harvesting or culturally important sites, as they are all located outside of the RSA for vegetation and heritage resources, and the assessment area used for fish and fish habitat.

Residual effects to traditional wildlife harvesting, specifically caribou, are predicted to extend to the RSA and beyond. The wildlife and wildlife assessment predicted that the cumulative effects of the Project in combination with the other developments present in the RSA may lead to localized cumulative effects for birds, raptors, predatory mammals, and muskox (Volume 5, Section 5.5.4.2). Therefore, localised cumulative effects may occur for traditional wildlife harvesting due to changes in the availability of furbearers, waterfowl, and geese. There are

eight potential future developments within the range of either one or all three of the caribou herds occurring in the Kivalliq Region (Volume 3, Appendix 3-D, Figure 3-D-4), herds that Baker Lake harvesters, their families, and other community members rely on as a key part of their diet. The wildlife and wildlife habitat assessment predicted that cumulative effects to caribou as a result of these projects would be a concern should most or all of them proceed within a similar timeframe (Volume 5, Section 5.5.4.2). Therefore, cumulative effects to traditional wildlife harvesting due to changes in the availability of caribou and opportunities to harvest them may occur.

The associated access roads that are required to support these developments may result in increased access to traditional land use areas for local community members, which may offset the cumulative effects of changes in the availability of caribou for harvesting. Additional roads as supporting infrastructure to proposed Projects would improve access and change land use in the Kivalliq Region, creating increased opportunities for traditional land use activities. However, increased access may also lead to increased wildlife harvesting and competition among hunters, and could potentially lead to decreased availability of caribou.

7.3.5 Uncertainty

There is inherent uncertainty in assessing the significance of some traditional land use effects. The key sources of uncertainty in the assessment for traditional land use includes:

- The potential effects on traditional land use incorporates the assessment results of other VCs (i.e., wildlife and wildlife habitat, vegetation, fish and fish habitat, heritage resources, and noise and vibration). Therefore any limits in residual impact classification and determination of significance in those assessments are applied in the assessment on TLRU.
- There are no established thresholds or standards for most measurement indicators on TLRU. Although it may be possible to set thresholds for purposes of an Environmental Impact Statement (EIS), it often cannot be demonstrated that there is any consensus on a specific threshold value where an effect on traditional land use occurs or what such a threshold means in terms of significance of an effect.
- The effects on traditional land use may not lend themselves to the assignment of criteria or determination of significance except in terms of potential, thus introducing a larger element of uncertainty. There generally is the expectation that an effect brought forward for assessment will in fact occur, at least to some degree. However, it is difficult to predict, for example, whether some effects will be positive, negative or both, and in what ways.
- The reliance on previously written literature to inform the IQ baseline and assessment may result in limitations if it doesn't reflect the most current information available. Therefore gaps in data may result in an under representation of effects on TLRU.
- The potential effects of climate change on TLRU use activities remains unclear, and therefore it is challenging to incorporate these uncertainties into the prediction of long-term effects.

Uncertainty was addressed in the assessment by applying a conservative estimate of effects in the residual impact classification and in the determination of significance. Uncertainty was also addressed by incorporating both publicly available information from the literature and directly from Baker Lake Elders, hunters and other land users, and from using past experience in similar areas including the experiences at Meadowbank Mine. Uncertainty will be further minimized through Agnico Eagle's commitment to providing ongoing consultation with different stakeholders and Baker Lake community members to address their concerns, and through opportunities

for participation in the development and implementation of mitigation measures, and in the ongoing monitoring and adaptive management of culturally and traditionally important resources.

7.3.6 Monitoring and Follow-up

Agnico Eagle is committed to providing ongoing consultation with community members and to provide opportunities for participation in the development and implementation of mitigation measures, and in monitoring programs, as per the NIRB Guidelines requirements (NIRB 2004), and the terms and conditions of the Meadowbank Project Certificate (NIRB 2006). Agnico Eagle will continue to host site visits with Baker Lake Stakeholders and will be hosting a series of open houses in the Kivalliq region in September 2016.

Working collaboratively with Baker Lake stakeholders and community members in the development and implementation of management and monitoring programs supports the following IQ principles (NIRB n.d.):

- *Inuuqatigiitsiarniq* (Respecting others, relationships, and caring for people);
- *Tunnganarniq* (Fostering good spirits by being open, welcoming, and inclusive);
- *Aajiiqatigiinniq* (Decision making through discussion and consensus);
- *Piliriqatigiinniq/Ikajuqtigiinniq* (Working together for a common cause);
- *Qanuqtuurniq* (Being innovative and resourceful); and
- *Avatittinnik Kamatsiarniq* (Respect and care for the land, animals, and the environment).

Monitoring will follow an adaptive approach such that if changes to traditional land use are determined as a result of changes in the availability of resources harvested or cultural sites used, or access to traditional land use areas, appropriate remedial actions will be implemented and subsequent monitoring programs adjusted to ensure the effectiveness of remedial actions and future operations.

Baker Lake community members expressed several concerns and requests for mitigation related to traditional land use and resources during numerous consultation meetings for the Project, which are described in Table 7.3-1. The corresponding EIS reference to mitigation measures, management plans, and monitoring programs that address these concerns are listed in the table.

7.4 Socio-Economics

7.4.1 Incorporation of Inuit Qaujimajatuqangit

The following documents were reviewed for IQ-specific information related to socio-economics and incorporated into this effects assessment:

- Whale Tail TK Workshop (Agnico Eagle 2016 a-e);
- Environmental Impact Statement Guidelines for the Meadowbank Project (NIRB 2004);
- Traditional Knowledge Baseline for the Proposed Amaruq All-weather Exploration Road (Agnico Eagle 2014b); and
- Community Consultations/Public Information Meeting Reports for 2014 and 2015 (NIRB 2014, 2015a).

Results from consultation with Inuit from Baker Lake (Agnico Eagle 2014b; 2016a-e) have been incorporated into the summary of the existing socio-economic environment provided below. Information from the Kivalliq Socio-Economic Monitoring Committee annual reports was used in the socio-economic baseline report to describe monitored socio-economic conditions in communities. Inuit Qaujimajatuqangit was incorporated in VC selection by reviewing documented IQ information, concerns raised through community engagement and consultation with regulators, and a review of VCs identified in other Northern mining projects.

Engagement and IQ are incorporated into socio-economic management implementation, monitoring, and adjustment. Agnico Eagle's engagement plan has been conceived to provide people with the mechanisms they need to provide input, including IQ, such that the Project is better able to inform its decision making where decisions have potential to affect people. There are also expectations on the part of affected communities for participation in processes to monitor Project effects and to monitor Agnico Eagle's compliance with conditions under which the Project may be approved.

For further discussion of Agnico Eagle's approach to incorporating engagement and IQ into socio-economic mitigation, benefit enhancement, and monitoring, refer the Socio-Economic Management and Monitoring Plan (SMP; Volume 8, Appendix 8-E.6).

7.4.2 Existing Environment

The results of the socio-economic baseline report (Volume 7, Appendix 7-B) have been summarized below, and supplemented with additional information from community consultations conducted by Agnico Eagle in 2016.

7.4.2.1 Population

Annual population growth of between 2% and 3% per year has seen the population of both the Kivalliq Region and Baker Lake increase, from 8,722 and 1,807 (respectively) in 2006, to 10,187 and 2,117 in 2013. During this same period, the composition of the population changed. The male and non-Inuit populations in Baker Lake grew quicker than the female and Inuit populations, as did the proportional representation of the working-age population. This pattern can be explained by increased intra-territorial in-migration to the Region and, in particular, to Baker Lake. About half (40 people) of in-migrants were of working age, and around the same number were from outside Nunavut. This influx of working age population to the Kivalliq Region and Baker Lake coincides with an increase in the representation of Kivalliq workers at Meadowbank Mine, which increased by 40% (100 workers) between 2010 and 2011.

7.4.2.2 Economic Activity and Business Development

The relative proportion of Meadowbank Mine contract expenditures in Nunavut has remained around the 50% mark since the beginning of operations. In 2014, contract expenditures with businesses registered in Baker Lake amounted to $38 million (16% of total contract expenditures), while contract expenditures with businesses registered in other parts of Nunavut totalled $67 million (29% of total contract expenditures). In absolute dollar terms, the annual value of Agnico Eagle contract expenditures at Meadowbank Mine has fallen since 2012 as exploration activities shifted to Meliadine Project. Expenditures on Inuit-owned businesses (Nunavut Tunngavik Incorporated (NTI)-registered), though lower in absoluter dollars, have increased in terms of their relative share of total contract expenditures, representing 37% of total contract expenditures in 2014.

In 2015, Nunavut had a Gross Domestic Product (GDP) of $2.1 billion. Between 2010 and 2014 the contribution of the mining and construction industries to GDP grew by $298 million dollars (72%) to $366 million. This increase accounted for around 70% of overall territorial GDP growth in that period. Nunavut's GDP grew steadily between 1999 and 2008 prior to the global recession. When Meadowbank Mine began production in 2010, Nunavut's GDP began to increase again and at a higher rate. Since 2010 (i.e., during Meadowbank Mine's operations phase), these increases range from $127 million to $388 million. As the only operating mine in the territory, Meadowbank has been the driver of these higher rates of Nunavut GDP growth.

The territorial budget for the 2016-2017 operating year predicts government revenue in the order of $1.867 billion. Of this, the vast majority (i.e., $1.547 billion, or 83%) comes from federal transfer payments. Taxes make up a further 6% ($108.5 million) of revenue, while third party contributions make up another 5% ($91.0 million). The remaining 11% of territorial government revenue comes from recovery of revenue from the prior year, the restoration of the territorial funding formula, the net cost of goods sold, and other government sources.

Meadowbank Mine employment taxes provide an average $30 million per year to the federal government, and $3 million per year to the GN. Property taxes paid to the GN by Agnico Eagle are on average $1.1 million per year. Since 2007, Agnico Eagle has provided $11.8 million to NTI and the KIA.

7.4.2.3 Employment

The Kivalliq labour force grew by 360 people (11.1%) between 2006 and 2011. Over a third of this growth (130 people active in the labour force) occurred in Baker Lake. Employment growth during this period did not keep up with growth of the labour force, with only 155 additional people employed of the 360. Most of this employment was associated with the construction of Meadowbank Mine, and most of the employed (105 people) were from Baker Lake. During this period, labour force participation rates increased; however, given the size of employment expansion relative to the larger labour force expansion, unemployment rates increased.

Since the beginning of operations, Nunavummiut representation at Meadowbank Mine has remained relatively stable at around one third of the total operational workforce. Of the Nunavummiut employed at the Mine, over half reside in Baker Lake. The representation of Inuit in the overall Meadowbank operational workforce has remained similarly steady at between 31% and 34% since 2012. Inuit participation in Meadowbank Mine's temporary workforce is much higher, representing 95% of all temporary employment. The annual turnover rate for both permanent (26%) and temporary (70%) Inuit workers has increased since operations at Meadowbank Mine commenced.

Both Meadowbank's Kivalliq and Inuit workforce is almost evenly split between genders, with marginally more men employed than women. While Agnico Eagle is placing considerable effort on training women that are interested in haul truck driver positions or other mining-related trades, attraction and retention of female employees (especially those with children) remains a challenge.

Employment incomes paid at Meadowbank Mine are high (e.g., around $50,000 to $100,000 annually for salaried positions) relative to local and regional averages. As noted above, over half of Nunavummiut employment at Meadowbank Mine is taken up by residents of Baker Lake. The Hamlet has had the highest percentage increase in median income of all the Kivalliq communities (59%). It is the only community to show above average increases in median income since 2010, when production began at Meadowbank Mine. The highest increases in median income in Baker Lake came between 2007 and 2009, during the construction of Meadowbank Mine. In 2013, the median income of Baker Lake tax filers surpassed the regional average for the first time since 2009. Hamlet residents have noted that, for many, new income from employment at the Meadowbank Mine has enhanced their quality of life by improving access to food, hunting equipment, and consumer goods (e.g., vehicles and entertainment systems), and allowing for the assistance of extended families (Agnico Eagle 2015b; Agnico Eagle 2016e).

7.4.2.4 Education and Training

Regional and community-level education services are provided by Kivalliq School Operations, Nunavut Arctic College and the Kivalliq Mine Training Society (MTS). The Nunavut Arctic College and the Kivalliq MTS offer programming in pre-apprenticeship, apprenticeship, and trades programs. In 2016, a Women's Focus Group in Baker Lake noted the availability of training in careers such as heavy equipment operation and mechanics (Agnico Eagle 2016e).

While the majority of the Kivalliq Region population 15 years and over have no certificate, diploma, or degree, the proportion decreased from 65% in 2006 to 61% in 2011, suggesting that educational attainment is improving (Statistics Canada 2013a). From 2006 to 2011, educational attainment in the Kivalliq Region improved in every measured category. During this same period in Baker Lake, the percentage of residents with a high school diploma increased by 3%; however, the percentage with a college diploma decreased by 4%, and the overall percentage of the population without a degree or diploma grew by 1%.

Recent trends in graduation rates also signal that educational attainment continues to rise in the Kivalliq Region. Since 2009, graduation rates in the Kivalliq Region have been higher than the territorial average, and the average for other regions. This may be in part due to employment opportunities available at the Meadowbank Mine and through contractors, and the associated reinforcement of the importance of educational achievement.

Agnico Eagle has made total contributions of approximately $284,000/year to a variety of school-based initiatives. Agnico Eagle's financial investments in externally-delivered training programs have been steady at just under $4 million per year for the past three years, with the Kivalliq MTS being the largest recipient. The scope of, and participation in, in-house training and apprenticeship programs have been relatively consistent throughout Meadowbank's operations. Annual fluctuations in the number of training hours and haul truck driver program graduates largely reflect changing demand at Meadowbank Mine for additional positions for which specific training is provided.

7.4.2.5 Individual and Community Wellness

Wellness is multifaceted, and influenced by a number of factors. The ability to participate in traditional activities such as hunting and fishing, and to practice and maintain traditional culture are important to both individuals and communities. Access to goods and services, such as nutritious food and education, also contribute to people's health, happiness and sense of wellbeing. Indicators of a community's wellbeing include safety and security, which can be measured using statistics on social ills, such as substance abuse, domestic violence, and crime.

Use of Inuktitut is lower in Baker Lake than in other Kivalliq communities, as is the rate of Inuktitut as a mother tongue (Statistics Canada 2013b). This is likely due to the growing non-Inuit population in the hamlet, the need to speak English to access most government services, and the influence of English language media in the home.

Limited statistical data are available at the regional level on the harvest and consumption of country foods. In 2006, average participation in traditional activities in Kivalliq communities was higher than in Nunavut as a whole (Statistics Canada 2011a-f). Baker Lake residents maintain a balance between wage employment to pay for commercial goods and services, and practicing traditional harvesting activities to feed their families and reinforce social relations (Peterson 2012). Hamlet residents estimated that approximately 90% of the community harvests regularly. These activities remain very important to the community for cultural, economic, and health reasons (Peterson 2012). Baker Lake residents continue to maintain close ties with the land, and hunting remains an important cultural activity. Subsistence wildlife harvesting plays an important role in the contemporary wellbeing of the Inuit of Baker Lake through the acquisition and sharing of knowledge through experience, and by providing an emotional and spiritual connection to the land (Makimowski 2014; Bernauer 2011). Today, many hunters continue to share their meat with family members and friends who have been less successful at harvesting, with preference often given to Elders (Ford and Berrang-Ford 2009, cited in Peterson 2012). The most commonly harvested species are caribou and lake trout, with wolf, fox, ptarmigan, geese, Arctic char, whitefish, and grayling also contributing to harvesting activities (Priest and Usher 2004, cited in Bernauer 2011).

Community representatives have reported to Agnico Eagle an increase in the number of trips on the land by those with income from the mine who have an increased ability to purchase harvesting supplies. Further, it has been noted that access to harvesting areas has been improved by the AWAR (Peterson 2012). Others, however, have suggested that stress associated with work and school schedules limit the time that people have available to spend on the land. Elders have also perceived change in traditional values, decreased interest in harvesting, and a loss of land-based skills among the younger generation (Bernauer 2011; Maksimowski 2014).

Food costs in the Kivalliq Region are on average about twice as much as that of the rest of Canada (NBS 2015). Food costs in Baker Lake are among the lowest in the Region, and have been decreasing since 2011. Harvesting helps supplement the diet of Baker Lake residents (Maksimowski 2014). Baker Lake Elders have reported that caribou is a primary food source that sustains their community, with fish providing an important secondary food source (Cumberland 2005b; AREVA 2011; NIRB 2015a).

Elders have indicated that food was traditionally shared amongst Inuit in times of need, including during starvation times, which ensured the survival of families (Bennett and Rowley 2004). Caribou meat helps combat food insecurity in the community, especially for Elders who can no longer hunt or for families who cannot afford store-bought meat (Peterson 2012). Baker Lake residents interviewed for the Meadowbank Project's Public

Information Meeting reiterated the importance of caribou and fish to the Inuit, and expressed concerns about their food security, which relates strongly to the continued ability to harvest caribou (NIRB 2015a).

Incomes associated with employment at Meadowbank Mine has enhanced the quality of life of employees by offering a reliable means to afford food as well as hunting equipment. While some employees reported enjoying time off for camping and harvesting, others reported decreased harvesting activities due to a lack of time and resources, and decreased caribou availability and accessibility (Maksimowski 2014). Baker Lake residents raised concerns regarding the maintenance of Inuit wellbeing, including the loss of community feasts, the weakening of community sharing, and threats to food security (Maksimowski 2014). Other residents have expressed concerns related to food security and the decrease in caribou due to the Project (NIRB 2015a).

Baker Lake residents have expressed concern about the proportion of income spent on alcohol, drugs, and gambling. Residents have noted to Agnico Eagle that drug and alcohol use is affected by underlying social issues (e.g., a history of drug or alcohol use and abuse in the family), rising incomes, the two-week rotational schedule, and crowding. The two weeks of downtime without structure, combined with a lack of money management skills, was also identified as a cause of reckless spending (Agnico Eagle 2015b).

There is ongoing concern that employment of one or more spouses at the Mine is affecting familial relationships in a negative way in the community of Baker Lake (Pauktuutit Inuit Women of Canada and the University of British Columbia 2014). Concerns expressed at community meetings stated that the two-week rotation at Meadowbank Mine has contributed to spousal stress in Baker Lake, and that gossip and rumours of infidelity are causing relationship problems. A recent study focused on the impacts of mining on Baker Lake women, found that the jealousies created by having a partner working away from home for weeks at a time can lead to an increase in domestic abuse files (Pauktuutit Inuit Women of Canada and the University of British Columbia 2014).

Population growth and an increase in consumer goods, drugs, alcohol, and gambling are perceived by residents of Baker Lake to be affecting crime rates, particularly thefts and home break-ins (Agnico Eagle 2015b). Concern has also been expressed that increased incomes due to employment at the Meadowbank Mine has increased access to and consumption of alcohol and associated binge drinking, with bootleggers of alcohol finding success (Agnico Eagle 2016e). In Baker Lake, rates of mischief, disturbing the peace, harassment, and theft more than doubled between 2010 and 2012. The rates of more serious crimes including assault and sexual assault also increased substantially (49 to 82%) during this period. Most violations decreased in 2013 (except assault, impaired driving, and drug violations), coinciding with the Hamlet's overall crime rate decrease that year (NBS 2014; Statistics Canada 2014).

7.4.2.6 Housing, Infrastructure and Services

Most residents in the Kivalliq Region live in subsidized non-market rental units maintained by the Nunavut Housing Corporation. Additional housing is needed throughout Nunavut to address the persistent issues of housing shortages, overcrowding and repairs. In 2011, 37% of private households in the Region and 32% of private households in Baker Lake did not have sufficient size nor bedrooms for their occupants compared to 31% in Nunavut as a whole (Statistics Canada 2013a-c).

Poor housing conditions in the region and in Baker Lake are due primarily to crowding. Demand for housing is high and significant portions of the Kivalliq Region and Baker Lake populations remain on the housing wait list. In 2010, there were 1,120 persons aged 15 years and over (17% of the total population 15 years and over) in the

Kivalliq Region, and 300 persons aged 15 years and over (19% of the population 15 years and over) in Baker Lake, who were on the public housing wait list (Nunavut Bureau of Statistics and Statistics Canada 2011). In 2014, Baker Lake, with a 19% housing shortage, placed 23rd out of the 25 Nunavut communities in a ranking of public housing shortage.

With no roads connecting communities or territorial regions, the Kivalliq Region is dependent upon sealift for resupply shipments that are scheduled from July to September, and air transports for the other months of the year (Nunavut Sealink and Supply Inc. [NSSI] 2015; Prolog Canada 2011). Almost all non-perishable goods, such as fuel, construction materials, vehicles, and dry goods, needed in Nunavut move by water as it is a more economical method of transportation (Government of Nunavut – Department of Community and Government Services [GN – CGS] 2015). Sealifts of goods and supplies to the Kivalliq Region are offered by NEAS (Nunavut Eastern Arctic Shipping) and NSSI from Sainte-Catherine, Quebec and Churchill, Manitoba (NEAS 2015; NSSI 2015). Baker Lake has a marine dock, public dock, and community mooring bollards (Aarluk Consulting 2010).

Agnico Eagle's use of public physical infrastructure consists of use of Baker Lake airport (300 to 400 passenger trips/year) and the use of other Nunavut airports (200 to 400 passenger trips/year) (Stratos 2015).

Since the publication of Baker Lake's infrastructure investment priorities (Aarluk Consulting 2010), the water, wastewater, and sewage disposal needs of the hamlet were addressed by upgrading of the water treatment and sewage disposal facilities, and a new water pump house. Water for the community is sourced from Baker Lake and delivered by scheduled, trucked services to all houses and other buildings (GN – CGS 2011).

Trucked sewage collection services are provided to the residents of Baker Lake. A sewage disposal facility consisting of a passive wetland discharges effluent into Finger Lake (also referred to as Airplane Lake), which ultimately drains to Baker Lake. Sewage treatment is an issue for improvement, as the passive wetland site is no longer working efficiently. Residents have observed that the water in some parts of Baker Lake appear yellowish in colour, which makes them more hesitant regarding their drinking water. The Solid Waste Disposal Facility and the bulky metals/hazardous waste storage area is unlined and runoff drains directly into Finger Lake and the sewage treatment wetland.

Kivalliq communities have health centres managed and staffed by nurses, and emergency medical evacuation services. Communities also have access to regular fly-in specialists (e.g., psychiatrists, physiotherapists, dentists) and physicians at varying frequencies throughout the year. Rankin Inlet has a health centre staffed full time with doctors, nurses and midwives. Between 2009 and 2010, per capita visits to health centres increased in all Kivalliq communities except Coral Harbour. Since 2010, per capita visits have remained relatively steady in all communities except Chesterfield Inlet and Baker Lake, where visits have increased, though not substantially (GN – DOH 2014).

Demand for health care services has remained relatively stable throughout the eight-year period with only small or infrequent annual fluctuations in visits per capita. The number of Meadowbank Mine employees referred to community health centres for personal or work-related reasons has ranged from 14 to 47 people per year, and has been highest in recent years. In 2013, the number of on-site accidents requiring use of Nunavut Health Centres (47) represented less than 1% of all visits to the Baker Lake Community Health Centre (Agnico Eagle 2015c).

Royal Canadian Mounted Police detachments are located in all Kivalliq communities (RCMP 2015), and the Nunavut Court of Justice's (NCJ) Circuit Court administers trials and sentencing (NCJ 2015). The Hamlet of Baker Lake has a fire hall and truck (both of which are in need of minor repairs) maintained by a Fire Chief and assistant Fire Chief, and approximately 20 volunteers (Aarluk Consulting 2010). Search and rescue services are also available in the community; however, equipment is in need of an upgrade (Aarluk Consulting 2010).

7.4.3 Effects Assessment

The process of socio-economic impact assessment employs both qualitative and quantitative approaches when assessing Project effects. Quantitative analysis involves modelling the Project's economic and employment effects on the economy of Nunavut and Canada. Quantitative effects are described as direct, indirect, and induced. Direct effects are those generated by the Project itself and reflect expenditures that will be made by the Project during construction and operations. Indirect effects are prompted by the Project's demand for goods and services from supplier industries, and are a measurement of the secondary business transactions resulting from direct expenditures. Induced effects occur as direct and indirect incomes associated with the Project are spent in the economy. Closure represents an end to most economic and employment effects.

For effects that are not as quantifiable, a qualitative analysis of Project effects is conducted. The Project's effects on topics such as wellbeing, culture, and family structure are not quantified. Rather, they are described in terms of their potential for realization, and the extent to which people may experience them. Some socio-economic effects come about as a result of the social management practices of a Project, and so are described in terms of their nature and ability to have a positive effect on VCs such as education, health, and wellbeing. For a full discussion of the Project's socio-economic management and monitoring practices, including mitigations and benefit enhancement measures, please refer to the SMP (Volume 8, Appendix 8-E.6). Project effects related specifically to Agnico Eagle's socio-economic management procedures are addressed in summary below for the purpose of residual effects assessment. Some social effects, notably those related to wellbeing, have the potential to extend beyond closure.

7.4.3.1 Pathway Analysis Results

A pathway analysis was conducted to identify linkages between the Project and key features of the socio-economic environment. The full analysis, including a discussion of pathways with no linkage to the Project, is presented in Volume 3, Appendix 3-C, Table 3-C-10. Only primary pathways have been carried forward for effects assessment, mitigation, and residual impact classification. Primary pathways for socio-economic VCs and associated indicators are included in Table 7.4-1. Associated indicators are not comprehensive of the indicators of a VC, but rather reflect those that are potentially influenced by the Project.

Table 7.4-1: Primary Pathways and Indicators

VC	Pathway	Associated Indicators
Economic Activity and Business Development	Continued territorial economic activity	■ Project expenditures ■ Procurement in the territory ■ Contribution to Gross Domestic Product
	Continued contributions to government revenue	■ Royalty Payment ■ Taxes
	Continued local economic activity	■ Local procurement ■ Contracting of Inuit-owned businesses
Employment and Education	Continued direct, indirect and induced employment	■ Direct, indirect, and induced employment ■ Employment by point of origin ■ Employment by skill level
	Continued direct, indirect and induced incomes	■ Employment incomes ■ Total territorial labour income
	Provision of workforce training and support for community education	■ On the job training ■ Apprenticeships ■ Provision of scholarships ■ Support for education initiatives and programming
Individual and Community Wellbeing	Continued community investment	■ Access to education, consumer goods, and savings ■ Community development ■ Inuit Impact Benefit Agreements
	Improved worker and public health and safety	■ Worker health and safety training ■ Provision of healthcare services on-site ■ Community health and safety programming
	Potential for Project-related accidents and emergencies	■ Risk of accidental injury and emergencies impact public health and safety
	Changes in family and community cohesion	■ Substance abuse and addiction ■ Family and intergenerational conflict ■ Domestic violence and other crime ■ Inequality between families, communities ■ Changes in cultural practices and values ■ Participation in community activities

VC = valued component.

Given the expectation that they are not expected to be materially changed by the Project, the following topics have no associated primary pathway, and are not carried forward for assessment:

- population demographics;
- infrastructure and services;
- governance and leadership; and
- non-traditional land use.

The Project will extend employment opportunities at Meadowbank Mine, which currently has around 700 staff. The Project will require a workforce of around 900, and so will create around 200 new direct employment opportunities. Many of these opportunities will be in entry-level and semi-skilled category of positions, and will be

targeted to the local population in Baker Lake and other Kivalliq communities. Other opportunities will be filled by workers on rotation, housed in the on-site camp. Most indirect employment opportunities occurring in Nunavut are expected to be filled by the existing labour force working in industries currently supplying Meadowbank Mine.

The Project will maintain current pick-up points in Kivalliq communities, and any incidental employment that arises via attrition will be filled with priority given to residents of the Kivalliq Region, and, secondarily, Nunavut. Given the approach to recruitment, the Project is not expected to induce intra- or inter-territorial migration, population increase, or demographic change.

As the Project will not bring about a change in population, it is not expected that any additional demand on housing, infrastructure, or services will occur in Kivalliq communities. Further, the Project will operate at a time when Meadowbank Mine is in the closure phase, and so is not expected to increase demand on physical transportation infrastructure (e.g., airport) beyond current levels.

The Project is not expected to result in nuisance effects impacting people's quality of life. The FEIS (Cumberland 2005c) predicted that the construction of Meadowbank Mine would result in temporary nuisance effects on people's quality of life, as related to dust, noise, changes in air quality and visual disturbances. This prediction was related to construction of infrastructure at Meadowbank Mine (e.g., fuel tank farm, lay down and warehouse facilities, transportation of infrastructure construction equipment) and the AWAR, and was considered to be of low significance given mitigation and the duration of effects. Given that the Project will use existing infrastructure at Meadowbank Mine, on-site construction activities are not expected to generate additional nuisance effects on quality of life, and so no primary pathway related to nuisance effects on individual and community wellbeing is anticipated. Given its distance from communities, Project operations is not expected to result in significant additional nuisance effects.

Agnico Eagle will operate in a manner compliant with all relevant governing bodies, and within the bounds of the Nunavut Land Claims Agreement and applicable regional and municipal development plans. The Project will contribute to government revenue, and will not have an adverse effect on government operations.

The Project will comply with land use planning in its immediate vicinity. No commercial fishing operations or guiding and outfitting camps are known to exist in the vicinity of the Project. Camping at the Inuujaarvik Territorial Park and canoeing on the Thelon River are not expected to be disrupted by Project construction or operations, given their distance from the proposed mine site. The Project is therefore not expected to interfere with non-traditional land use in its vicinity, or near Baker Lake.

7.4.3.2 Economic Activity and Business Development

- **The Project will continue to contribute to territorial economic activity**

Gross Domestic Product represents the monetary value of all goods and services produced by a jurisdiction over a specific period of time, and acts as a measure of the "size" of an economy. The real GDP of Nunavut has been growing steadily since the 1990s by between $127 million and $388 million annually, to $2.093 billion in 2015 (GN 2016; Statistics Canada 2015). As the only operating mine in the territory in this period, Meadowbank Mine has been a major driver of this growth. With production at Meadowbank Mine ceasing in 2018, this growth could be expected to slow. The Project serves to continue territorial economic growth and expansion of Nunavut's GDP beyond the scheduled closure of Meadowbank Mine. The Project's total direct, indirect and induced GDP effect during construction is small relative to the territorial economy, contributing between $24 million (2017) and

$30 million (2018) (Figure 7.4-1). This is to be expected, given that, during construction of a mine, little ore is produced, and that most Project construction equipment is sourced from outside of Nunavut, or from Agnico Eagle's existing resources. While construction results in a relatively small contribution to total territorial GDP, it is still a significant contribution for a single development.

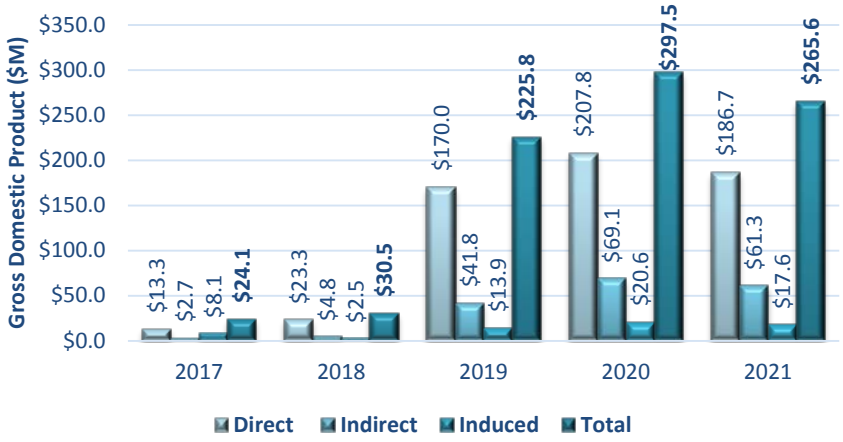


Figure 7.4-1: Project Contributions to Gross Domestic Product in Nunavut, 2017 to 2021

During operations, the Project will begin production, and will represent a substantial contribution to the territorial economy, with total annual GDP contributions of between $225 million and nearly $300 million annually (Figure 7.4-1) (i.e., 11 to 14% of the current territorial GDP). The Project's operational GDP contribution would begin in 2019, coinciding with the end of production at Meadowbank Mine. As Meadowbank Mine exits the territorial economy, the Project would enter, creating some level of economic stability.

If the Project is delayed by a year, its annual GDP contributions are not expected to change. Operational GDP contributions would not, however, begin until 2020, creating a gap of one year between the end of production at Meadowbank Mine and the beginning of production at the Project. With no other projects of similar scale scheduled to begin production in 2019, GDP growth would slow for a year.

The Project's economic output and contribution to GDP is split across industries. As would be expected, the construction industry will experience the bulk (i.e., 71%) of Project-generated GDP effects during the construction phase. Other industries that would benefit to a lesser extent, but still significantly, from Project construction include finance, insurance, real estate, rental and leasing (7% of Project GDP); professional, scientific and technical services (6%); and manufacturing (4%). The remaining 12% of the Project's cumulative construction GDP effect would be spread across industries identified in Table 7.4-2.

Table 7.4-2: Project-Generated Economic Activity by Industry

Industry	Gross Output Impact ($M)		GDP at Basic Price ($M)	
	Construction[a]	Operations[b]	Construction[a]	Operations[b]
Mining and Oil and Gas Extraction	19.3	693.2	0.4	207.8
Construction	233.1	90.9	69.9	40.3
Utilities	3.5	22.2	2.0	12.3
Transportation and Warehousing	4.6	18.9	1.9	7.9
Finance, Insurance, Real Estate, Rental and Leasing	9.0	17.7	6.5	12.7
Government Sector	3.4	6.1	1.7	3.1
Operating, Office, Cafeteria and Laboratory Supplies	2.5	6.1	0.0	0.0
Retail Trade	2.6	4.7	1.8	3.1
Manufacturing	7.6	4.2	4.1	2.3
Travel, Entertainment, Advertising and Promotion	1.6	3.0	0.0	0.0
Professional, Scientific and Technical Services	10.3	2.2	6.2	1.3
Wholesale Trade	0.7	2.1	0.7	1.9
Information and Cultural Industries	1.5	1.9	1.1	1.5
Accommodation and Food Services	1.3	1.8	0.6	0.9
Non-Profit Institutions Serving Households	0.8	1.4	0.4	0.8
Health Care and Social Assistance	0.6	1.1	0.3	0.5
Administrative, Waste Management and Remediation	1.4	1.0	0.9	0.6
Other Services (Except Public Administration)	0.4	0.5	0.2	0.2
Arts, Entertainment and Recreation	0.1	0.2	0.0	0.1
Educational Services	0.1	0.1	0.0	0.0
Transportation Margins	0.1	0.0	0.0	0.0
Total	**304.5**	**879.3**	**98.7**	**297.3**

a Cumulative.
b Average Annual.
GDP = Gross Domestic Product; $M = million dollars.

During operations, the Project's average annual GDP contributions are concentrated (i.e., 70%) in the mining and oil and gas extraction industry. Ongoing capital construction activities during operations will result in a further 14% of operational GDP contributions accruing to the construction industry. The utilities and finance, insurance, real estate, rental and leasing industries would each capture approximately 4% of the Project's operational GDP contributions. The remaining 8% of annual GDP contributions are spread across other industries (Table 7.4-2).

- **The Project will continue government revenues**

The Project is expected to operate with fairly low to modest margins that consequently would result in little to no Project-specific corporate taxes paid to the territory or nation[1]. The Project will, however, result in taxes on

[1] Agnico Eagle sees future potential to grow the ore reserve at this site and consequently believes that future phases of this Project may be possible. The capital to develop any such future potential is largely paid by the Project as defined here. However this future potential is as yet unproven and will require continued investment over the coming years in exploration drilling and engineering.

personal incomes of the employed, unincorporated businesses, and sales and excise. Project-generated government tax revenues are summarized in Table 7.4-3.

Table 7.4-3: Project-Generated Fiscal Impacts to Government

Level of Government	Personal Income Tax ($M)	Corporate Income Tax ($M)	Taxes on Unincorporated Business Profits ($M)	Non-Renewable Resource Revenue ($M)	Sales and Excise Taxes ($M)	Total Revenue ($M)
Construction (Cumulative)						
Federal	17.7	0.6	1.7	n/a	0.5	**20.4**
Territorial	2.1	0.4	1.2	0.0	0.7	**4.5**
Total	**19.8**	**1.0**	**2.9**	**0.0**	**1.2**	**24.9**
Operations (Average Annual)						
Federal	102.4	15.5	9.8	n/a	2.2	**129.8**
Territorial	16.2	3.7	2.1	49.9	3.3	**75.3**
Total	**118.6**	**19.2**	**11.9**	**49.9**	**5.5**	**205.1**

Note: individual revenues may not add up to the sum total for each jurisdiction due to rounding.
n/a= not applicable; $M = million dollars.

In addition to taxes, the Project will also generate royalty payments at the territorial level. Royalties will be paid to NTI, and through the Project's Inuit Impact Benefit Agreement (IIBA). The Project will not generate royalties during construction, as no production is anticipated. During operations, the Project will pay an average annual IIBA payment of $12.48 million, and an average annual NTI royalty of $37.43 million, for a total average annual royalty payment of $49.91 million to the territory (Table 7.4-3).

When resource royalties are included, the Project's total operational average annual government revenue impact is projected to be approximately $205 million, of which 37% ($75.3 million) would accrue to Nunavut. At about 4% of the territorial budget, this represents an important source of revenue for the territory. When transfer payments are removed from the territory's budgeted revenue, however, the Project's contribution is even more substantial, equivalent to roughly a quarter of the territory's total non-transfer payment revenue.

As with the Project' GDP effect, with no delay between the closure of Meadowbank Mine and Project operations, the Project would serve to bridge the gap in government revenue that would otherwise occur in 2019.

- **The Project will sustain local business development and contracting**

Meadowbank Mine has historically conducted much of its procurement with Nunavut-registered businesses; in particular, those registered in Baker Lake. In 2014, 44% ($105.1 million) of Meadowbank Mine's procurement was with businesses registered in the territory, of which 36% ($37.7 million) was spent with businesses registered in the Hamlet (Figure 7.4-2). Procurement of goods and services from Baker Lake, as a percentage of total procurement, has declined in recent years (i.e., post 2012) due to a decline in gold prices, and the temporary cessation of exploration at Meadowbank Mine while resources were shifted to Meliadine Project.

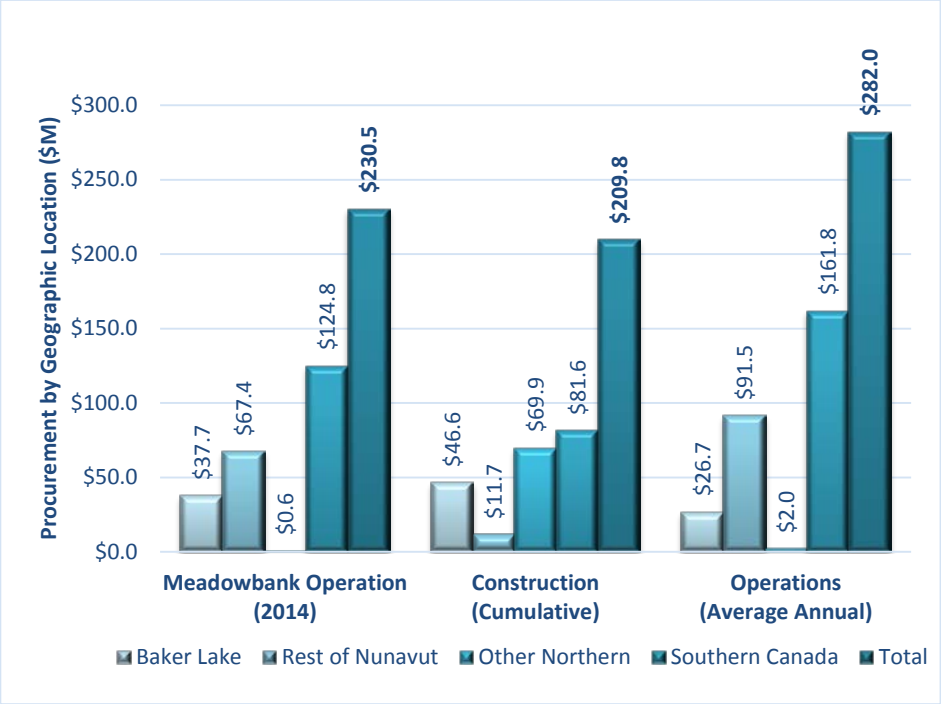


Figure 7.4-2: Project Procurement by Geographic Location and Phase, Compared to the Existing Meadowbank Mine Operations

It is expected that the Project will continue to source goods and services from Nunavut- and Baker Lake-registered companies, and that existing contracts with local businesses will be extended based on Project need. In the past, most procurement in Baker Lake has been with Baker Lake Construction, Peter's Expediting, and Arctic Fuel.

Project construction will require the procurement of materials and equipment not available in Nunavut. Total territorial procurement is expected to account for 23% ($58.3 million) of all Project construction procurement (Figure 7.4-2). Of this territorial procurement, the vast majority (80%, or $46.6 million) is expected to occur through businesses registered in Baker Lake, given the availability of construction contracting services. This procurement will also represent additional demand for goods and services, and, potentially new contracts with local businesses.

During operations, the Project is expected to procure a greater value of goods and services annually than the current Meadowbank Mine operations (i.e., $282 million versus $231 million). A large proportion of this increase will be the fuel required to service (move materials and personnel) from Meadowbank to the Whale Tail Pit and to transport ore from the Project site back to the Meadowbank mill. The proportion of procurement by geographic location is, however, expected to be similar. Of the total value of procurement, 42% ($118.2 million annually) is

expected to occur with Nunavut-registered businesses. Of this, 23% ($26.7 million) is expected to be with Baker Lake-registered businesses (Figure 7.4-2).[2]

In the context of high economic growth due to mineral development, contract expenditures highlight the potential for business growth and development in Baker Lake and the Kivalliq Region. Agnico Eagle has developed the Building People Initiative to assist Kivalliq businesses meet the market needs of the mining industry in Nunavut. The initiative is designed to develop the capacity of workers and contractors in Nunavut to work in the territory's mining industry (Agnico Eagle 2013). In addition, Agnico Eagle launched the Inuit Business Opportunities Initiative in April 2010 to assist Inuit businesses seeking contract opportunities through Meadowbank Mine (Agnico Eagle 2015b). Since 2011, Agnico Eagle has issued 25 contracts to Inuit-owned businesses for work at Meadowbank Mine. The proportion of NTI-registered businesses supplying the mine has grown from 13% in 2011, to 37% in 2014. The Project will continue to offer these programs, and will continue to prioritize Inuit-owned businesses.

7.4.3.3 Employment and Education

- **The Project will create direct, indirect and induced employment opportunities**

Project construction will generate, at peak, 500 direct employment opportunities. Early construction activities associated with the development of the underground exploration will require about 200 workers. Dewatering and preparation of the pit will add another 300 positions to the construction workforce. Most (75%) direct construction positions will be filled by specialized professionals from southern Canada (Table 7.4-4), who will be housed in the on-site accommodation camp while on rotation. The remaining 25% of direct construction positions will be sourced locally, and are expected to be filled by the existing Meadowbank Mine workforce as operations activities slow and the mine enters closure.

Table 7.4-4: Project Construction Employment (Positions) by Location

Region	Employment Impact	2017	2018	2019
Nunavut	Direct	40	70	100
	Indirect	4	8	11
	Induced	57	17	26
	Total	**101**	**95**	**138**
Southern Canada	Direct	160	280	400
	Indirect	18	31	45
	Induced	0	0	0
	Total	**178**	**311**	**445**
Total	Direct	200	300	500
	Indirect	22	39	57
	Induced	57	17	26
	Total	**279**	**356**	**583**

Note: Economic modelling has allowed for spending of incomes in Nunavut when determining induced employment impacts.
Note: The totals for some categories may not reflect the sum of values due to rounding of indirect and induced employment.

[2] Project procurement from Baker Lake is projected to be lower than that levels experienced in 2014. This is primarily due to the completion of contracts associated with continued raising of the Meadowbank TSF facilities dikes in 2014. This work was being carried out by a Baker Lake based contractor. This was a significant sustaining capital expenditure in 2014 and thus skews the dollar value of mine expenditures when looking forward.

Project construction will generate further indirect and induced employment opportunities fluctuating between 56 and 83 jobs over the construction period. Most (approximately 80%) indirect opportunities will be created in southern Canada, where industries (e.g., manufacturing) servicing the Project's demand for specialized goods and services are concentrated. The remaining 20% of indirect employment will occur in Nunavut businesses supplying the Project. As these businesses are already supplying Meadowbank Mine, the Project's demand for Northern goods and services is expected to continue employment for the existing indirect Nunavut workforce, rather than creating new jobs. Likewise, induced employment is also expected to occur within the territory.

During operations, the Project will have a more pronounced employment effect. Direct operational employment is expected to be 931 positions (Table 7.4-5). Of these, nearly half (392 or 42%) are expected to be filled by Nunavummiut, the majority of which are employed at Meadowbank Mine and will move over to the Project. The Project therefore represents both an extension of employment opportunities for those currently working, and a source of new employment for Nunavummiut. It is estimated that about 100 new direct operations positions will be sourced from the Nunavut labour force in fulfillment of the Project's operational workforce requirements. Agnico Eagle will continue to prioritize residents of the Kivalliq Region for these positions, and to offer pick-up points in communities in an effort to prevent migration from other parts of the territory, or from within the Region to Baker Lake. Further benefit enhancement measures outlined in the SMP (Volume 8, Appendix 8-E.6) aimed at recruiting locally and removing barriers are expected to improve the local labour force's ability to access direct Project operational employment.

Table 7.4-5: Project Operations Employment (Positions) by Location

Region	Employment Impact	2019	2020	2021
Nunavut	Direct	392	392	392
	Indirect	42	84	76
	Induced	67	135	116
	Total	**502**	**612**	**584**
Southern Canada	Direct	539	539	539
	Indirect	170	337	302
	Induced	0	0	0
	Total	**709**	**876**	**841**
Total	Direct	931	931	931
	Indirect	212	421	378
	Induced	67	135	116
	Total	**1,211**	**1,488**	**1,425**

Note: Economic modelling has allowed for spending of incomes in Nunavut when determining induced employment impacts.
Note: The totals for some categories may not reflect the sum of values due to rounding of indirect and induced employment.

Project operations is expected to generate between 279 and 556 indirect and induced employment opportunities (Table 7.4-5). As is the case during construction, most (80% or 337 positions) indirect employment will occur in southern Canada, where industries servicing the Project's demand for specialized goods and services are concentrated. Indirect employment occurring in Nunavut is expected to be filled by the existing contractor's workforce or businesses supplying Meadowbank Mine, representing an extension of employment.

The majority (55%) of the Project's direct operational employment will be entry level or semi-skilled in nature (Figure 7.4-3). Skilled, professional and management positions will make up smaller portions of the direct operational workforce (28%, 10%, and 8%, respectively). For those Nunavummiut currently working at Meadowbank Mine, it is expected that they would transition into Project positions of similar skill requirements. The estimated additional 100 Nunavummiut directly employed by Project operations will likely be in positions concentrated in the entry-level and semi-skilled categories.

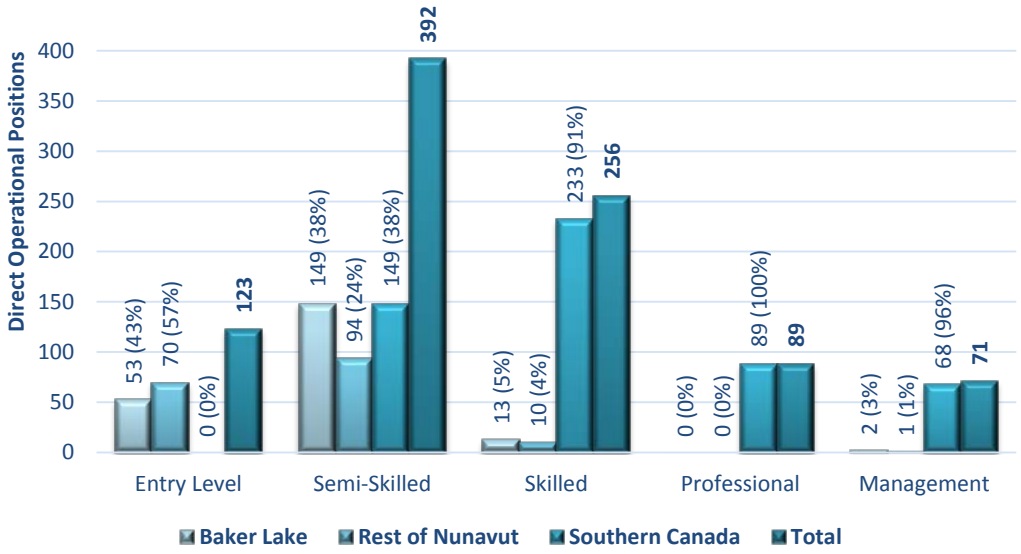


Figure 7.4-3: Project Direct Operational Employment by Skill Level and Point of Origin

Agnico Eagle's commitment to sourcing employment locally involves the provision of employment opportunities that match the skill level of the local labour force. To this end, all entry-level positions are expected to be recruited locally, and filled by Nunavummiut. Approximately 43% (53) of entry level positions will be filled by residents of Baker Lake, with the remaining 57% (70) being sourced from other parts of Nunavut. It is expected that Nunavummiut will fill nearly two thirds (62%, or 243 positions) of all semi-skilled positions during Project operations, with 61% (149) of Nunavummiut employees coming from Baker Lake. Given their highly specialized nature, it is expected that most skilled and professional employment positions will be sourced from southern Canada, although some Project-specific managerial positions will be filled locally (Figure 7.4-3). The proportions presented in Figure 7.4-3 are preliminary, and will be updated as the development of the Whale Tail Pit advances.

In the event of a one year delay in Project development, construction activities would not commence until 2018, and full operations would not begin until 2020. This creates a gap between the ramp-down of production at Meadowbank Mine, and the ramp-up of Whale Tail Pit construction activities. Nunavummiut employees who would otherwise be transferring during reduced pre-closure production at Meadowbank Mine to initial Project construction would, therefore, experience a one year period wherein they are not employed by Agnico Eagle. Similarly, workers who would otherwise be transferring from Meadowbank Mine as it enters closure to Project

operations would experience a delayed, but similar, period wherein they are not employed by Agnico Eagle. It is difficult to predict what workers would do should they experience a temporary lapse in employment with Agnico Eagle. Some may choose to remain unemployed for this period, drawing upon Employment Insurance and severances. Others may attempt to secure interim employment outside of Kivalliq, or relocate to other parts of the country in search of employment (e.g., the Northwest Territories). In the latter scenario, this would result in out-migration, and a depopulation of the mining-skilled labour force from the region.

- **The Project will generate direct, indirect and induced incomes**

Annual incomes paid by the Project will be high relative to local and territorial incomes. As with existing employment incomes at Meadowbank Mine, incomes associated with Project employment of Nunavummiut will range from $50,000 to $100,000 annually, with some positions of higher skill and responsibility earning more. Project construction will result in $14.1 million (cumulatively) of direct labour income in Nunavut. When indirect and induced incomes are included, the Project's total territorial construction labour income is predicted to be $22.1 million between 2017 and 2019. During operations, the Project is projected to generate $92.4 million (cumulatively) in direct labour income in Nunavut, and $131.6 million in total territorial labour income (Table 7.4-6).

Table 7.4-6: Labour Income by Phase and Location

Region	Income Impact ($M)	2017	2018	2019	2020	2021
Construction						
Nunavut	Direct	2.7	4.7	6.7	0.0	0.0
	Indirect	0.3	0.6	0.8	0.0	0.0
	Induced	3.6	1.1	1.7	0.0	0.0
	Total	**6.6**	**6.3**	**9.2**	0.0	0.0
Southern Canada	Direct	10.7	18.6	26.6	0.0	0.0
	Indirect	1.3	2.2	3.3	0.0	0.0
	Induced	0.0	0.0	0.0	0.0	0.0
	Total	**11.9**	**20.9**	**29.9**	0.0	0.0
Total	Direct	13.3	23.3	33.3	0.0	0.0
	Indirect	1.6	2.8	4.1	0.0	0.0
	Induced	3.6	1.1	1.7	0.0	0.0
	Total	**18.5**	**27.2**	**39.0**	**0.0**	**0.0**
Operations						
Nunavut	Direct	0.0	0.0	18.7	40.0	33.7
	Indirect	0.0	0.0	4.0	7.9	7.0
	Induced	0.0	0.0	4.3	8.7	7.4
	Total	0.0	0.0	**27.0**	**56.5**	**48.1**
Southern Canada	Direct	0.0	0.0	43.6	93.3	78.6
	Indirect	0.0	0.0	15.9	31.5	28.1
	Induced	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	**59.5**	**124.8**	**106.6**

Table 7.4-6: Labour Income by Phase and Location (continued)

Region	Income Impact ($M)	2017	2018	2019	2020	2021
Total	Direct	0.0	0.0	62.3	133.4	112.3
	Indirect	0.0	0.0	19.9	39.4	35.1
	Induced	0.0	0.0	4.3	8.7	7.4
	Total	**0.0**	**0.0**	**86.5**	**181.4**	**154.8**

Note: Direct, indirect, and induced incomes may not add up to the sum total for each jurisdiction due to rounding.
$M = million dollars.

- **The Project will provide workforce training and support community education**

The Project will continue the workforce training programs in place at Meadowbank Mine. Following a spike in Meadowbank Mine's first two years of operations associated with the onboarding of Inuit employees, training hours per employee have remained relatively steady at around 30 per year for non-Inuit employees, and around 50 per year for Inuit employees. Agnico Eagle has invested in training the Inuit labour force to maximize their ability to access employment. This is expected to continue with training for the Project. Workforce training at Meadowbank Mine that will be carried over for the Project is described in detail in the SMP (Volume 8, Appendix 8-E.6, Section 5.3).

In continuing these programs, the Project continues to build capacity in its workforce. As Nunavummiut employees achieve further training and education, it is expected that they will be better poised to advance to more skilled positions as they arise, thereby increasing representation of Nunavut residents in the skilled, professional and management employment categories. Further, training and education attained in association with the Project is, in many cases, transferrable, and does not disappear with the closure of the Project. Instead, the skills developed through Project employment and associated training will carry forward into the future, improving people's access to other employment opportunities that may arise when the Project is finished its operational life.

As with workforce training, the Project will continue to support educational attainment in communities through the initiatives outlined in the SMP (Volume 8, Appendix 8-E.6, Section 5.3) and the Meadowbank Gold Project Annual Report (Agnico Eagle 2015d, Section 11.11.5). In 2014 alone, Agnico Eagle contributed over $280,000 to community education programs, and a further $3.8 million to mine training education.

In contributing to skills development and educational attainment in communities, the Project will enhance the ability of the local labour force to respond not only to Project-related employment, but also future employment in other industries. Many skills associated with mining employment are transferrable, as are those learned through programs like the Work Readiness Program or Math and Science Camps. The provision of scholarships to community members creates opportunities to obtain the education required to access skilled and professional employment. Overall, the Project is expected to have a positive effect on educational attainment, both at the level of the employee, and the community.

7.4.3.4 Individual and Community Wellness

- **The Project will continue positive effects in communities**

Regular incomes paid to Project employees can have a positive effect on their wellbeing, and the wellbeing of their families. Incomes provide the money for nutritious food, recreation, education, and resources with which to

conduct traditional activities, and can be used to enhance a household's ability to save for the future and its financial security. In a setting where one employed family member may be using their incomes to support multiple generations, the positive fiscal effect of employment incomes carries over into the broader community, potentially reducing poverty. For existing employees (and their dependents) of Meadowbank Mine who transfer to the construction or operations of the Whale Tail Pit, the Project represents a continuation of the beneficial effects of regular incomes without interruption. With additional employees, more families and individuals benefit from regular incomes, potentially improving the local economy and reducing poverty.

To maximize the benefits of Project incomes for Nunavummiut, and in particular residents of Baker Lake, the Project will continue to provide work readiness training to new potential employees, including training on how to cope with, and appropriately manage their earnings. Work readiness training is also aimed at providing potential employees with the skills needed to successfully keep their job. The Project will continue to offer an Employee and Family Assistance Program (EFAP) that, among other counselling services, provides employees with guidance on money management and coping with work routines and strategies to maintain employment. Further details on the Work Readiness Program and the EFAP are provided in the SMP (Volume 8, Appendix 8-E.6). Project incomes are expected to have a positive effect on individual and community wellbeing, as related to improved access to goods and services. Adverse effects associated with rising incomes in communities are discussed further below when assessing the Project's effects on family and community cohesion.

In addition to the benefits of regular income, the Project is expected to continue to contribute to the wellbeing of communities and their residents through support for community programming, and through the continuation of the Meadowbank IIBA with the KIA. Community support and contributions include funding for educational initiatives and programs (described above in Section 7.4.3.3), community engagement initiatives (e.g., community coordinator program, community clean-ups, feasts, trade shows, sporting events), and community donations aimed at enriching the cultural and social wellbeing of Kivalliq communities. The current Meadowbank IIBA will be updated for the Project. The continuation of community contributions to Kivalliq communities and, in particular, Baker Laker, and of the IIBA, is expected to have a positive effect on community wellbeing. Agnico Eagle will evaluate the effectiveness of its community contributions and the outcome of programming to see that goals are reached and, if not, will responsively change how contributions are managed.

- **The Project may improve worker and public health and safety**

The Project is expected to have an overall positive effect on worker and public health and safety through the provision of training, on-site health services, and public education programs on safe and healthy lifestyles. The SMP (Volume 8, Appendix 8-E.6, Sections 5.4, 5.5, and 5.6) details specific benefit enhancement measures through which the Project's health and safety-related benefits will be realized.

Some health and safety initiatives at Meadowbank Mine that will be continued for the Project will benefit not only Project employees and their families, but also Kivalliq communities, particularly Baker Lake. Programs and procedures expected to improve community health and safety include:

- support for wellbeing programs such as addictions management, youth recreation, and IQ retention;
- communication with hamlets regarding road traffic and shipment schedules; and
- provision of emergency assistance to people travelling near the Project when their safety is at risk.

Through the measures identified above, the Project is expected to build upon health and safety performance at Meadowbank Mine. Training provided to workers is expected to increase their ability to lead safe and healthy lifestyles, and is expected to carry forward into their home life, benefiting their families and friends. Community education and public involvement in monitoring is expected to increase public awareness, not only of the importance of healthy lifestyles, but also improve public understanding of the impacts of mining as related to their health and safety (e.g., hazard awareness, accident prevention).

- **The Project has the potential to result in accidents and emergencies**

While the Project's planned activities are expected to yield an overall positive effect on worker and public health and safety, there remains potential risks associated with accidents and emergencies. While the occurrence of these is not predictable with accuracy, preventative actions can be developed pro-actively to address public concern and reduce risk of accidents. Agnico Eagle will operate the Project to the highest standard of health, safety and risk management. Planning traffic and shipment schedules to avoid public traffic and communication with hamlets, in addition to driver safety training, will help to minimize the risk of traffic accidents. Project risk management and emergency response planning pre-emptively establishes procedures to minimize risk of injury to workers, communities, and the environment associated with Project-related accidents. Project facilities with the potential to pose public health risks will be secured to prevent access and potential resultant injury. Despite best efforts on the part of Agnico Eagle to mitigate risks to public health and safety as related to accidents of emergencies, by their very nature, accidents may still occur, creating potentially significant impacts at the individual level.

- **Project incomes may affect family and community health and cohesion**

Despite many positives associated with employment and regular income, negative effects can occur because of the challenges of rotational work, poor spending choices, rising inequalities between 'haves" and have nots" and changes in traditional values that may bring about conflict between generations. These effects are not directly within the control of Agnico Eagle to mitigate. However, Agnico Eagle has taken an interest in providing support to individuals, families and communities in managing the potential for adverse effects such as those mentioned above.

As noted in the FEIS (Cumberland 2005c), there is a potential association between incomes and social ills such as substance abuse, sexual misconduct, family violence, and crime. Best practices incorporated into Project designs to mitigate these associations focus on removing the stimuli (e.g., maintenance of a dry camp, worker codes of conduct, zero tolerance policy towards drug and alcohol abuse) or preventing contact between the workforce and nearby communities (e.g., fly-in/fly-out rotations, pick-up points in communities, restrictions on leaving the site while on rotation). Agnico Eagle will continue to employ the practices developed at Meadowbank Mine in the construction and operations of the Project.

Social monitoring activities to date have not drawn a causal link between incomes earned at Meadowbank Mine and changing trends in adverse social behaviours by employees. However, communities have expressed concern that some social ills, most notably substance abuse and crime, have increased in frequency since the mine began operations. The existing Meadowbank Mine workforce is held to a zero tolerance policy regarding substance abuse while on rotation, and criminal activity. It is, therefore, unlikely that the Project, as a continuation of employment, would result in changed behavior of current employees who both have experience

with managing wage incomes and are living healthy lifestyles. New employees will be held to the same code of conduct and will receive the training on money management and other life management issues.

Increased incomes for some and not others leads to growing income disparity, resulting social disparity and, in some instances, inequality-driven conflict. Many who are unable to access Project employment opportunities are already among the most vulnerable (e.g., young people, people with disabilities, women with young children, the elderly). Though the Project is not expected to influence inflation, which can make matters worse for the vulnerable, the negative emotions related to social and financial inequalities in tightly knit communities is a potential negative effect, especially if it contributes to substance abuse, stress and depression. Past studies (e.g., Sly et al. 2001; Kirmayer et al. 2007) have suggested a correlation between suicide rates and vulnerability created by being caught between the traditional and wage economies. Criminal activity related to theft or property crime could also become more problematic as some individuals struggle to obtain consumer goods.

To minimize the potential adverse effects of the Project on family and community cohesion, Agnico Eagle will continue to offer work readiness training to prepare prospective employees for dealing with all aspects of wage employment, and will continue to provide access to an EFAP to help both new and existing employees and their families cope with the stresses of employment and managing incomes. Both programs will also address the importance of making healthy lifestyle choices, such as avoiding illegal drugs and minimizing alcohol consumption, and maintaining positive home lives. The Meadowbank onsite counsellor and elder visitation initiatives will also be extended with the Project to provide employees and their families with both professional and traditional sources of emotional support, with a view to balance wage employment with traditional culture and practices in pursuit of healthy lifestyles. Providing Inuit workers with access to Elders is also expected to help validate and maintain traditional values such as sharing and volunteering; values that are integral to reducing the vulnerability of those not benefiting from wage employment.

As a deterrent to substance abuse, Agnico Eagle will continue to have a zero tolerance policy for drug and alcohol abuse while on, or in transit to/from site, and will perform random drug and alcohol testing, as well as testing following any onsite incidents where substance abuse is suspected as a contributing factor. This is expected to reduce substance abuse amongst the workforce, and in turn may allow employees to share what they have learned about healthy lifestyle choices in their communities.

Mitigation and benefit enhancement measures outlined in Sections 5.4, 5.5 and 5.6 of the SMP (Volume 8, Appendix 8-E.6) and detailed above are expected to minimize or alleviate some of the adverse effects of increased incomes on family and community cohesion. There is, however, great uncertainty regarding individual responses to increased incomes, the ability or willingness of those affected to take up related programming, and the way in which families and communities will respond to changes in income distribution. As a result, increased incomes from the Project have the potential to have some deleterious effect on families, communities and on community cohesion.

- **Project rotational employment may affect family and community health and cohesion**

Like employment incomes, rotational employment has both positive and negative effects on family and community cohesion. Two week rotations can help to balance traditional activities such as hunting with wage employment, providing those employed with a period of uninterrupted time away from work in which to participate in traditional activities, and the resources to do so. Harvests from these activities can be shared in the community, providing others access to food. Effect of rotational schedules highly depend on an employee's

individual situation. For example, workers with young children at home face issues that single workers without children do not.

Rotation can also, however, have adverse effects on families and on community cohesion. Workers report that the two weeks off does allow for participation in harvesting activities but after a two week shift, harvesting takes them away from their families again. This reportedly is sometimes a source of conflict between spouses. People also report that jealousies and accusations of infidelity while spouses are away on lengthy rotations were prevalent when Meadowbank Mine first opened. Additionally, two weeks away from an employee's home community can potentially influence the time they have to regularly volunteer for community activities (e.g., children's sports) that depend on volunteer commitment, or participate in traditional activities scheduled while on rotation. Traditional values may fade and be replaced by values that place greater importance on money and material things. Thus, there are a number of difficult to measure effects associated with rotational employment that place pressure on families and communities.

To maintain and build upon the beneficial aspects of rotational employment, and address, where possible, its negative effects, Agnico Eagle will implement mitigation and benefit enhancement measures outlined in Sections 5.4 and 5.5 of the SMP (Volume 8, Appendix 8-E.6). These mitigations and benefit enhancement measures are expected to alleviate some of the adverse effects on family and community cohesion as related to rotational employment. Agnico Eagle will encourage employees to use the programs presented in the SMP, and will evaluate program success. Where programs are not being taken up by employees and their families, or where programs are identified as ineffective, Agnico Eagle will adaptively improve them.

7.4.4 Residual Impact Classification

To determine whether an impact may have a significant residual adverse effect on a VC following mitigation and benefit enhancement, each impact was assessed according to the criteria and descriptions in Volume 3, Section 3.7. All sources of information (i.e., existing and collected data, new analyses, existing publications, and IQ) were considered equally in the classification of residual impacts.

The assessment of the Project's effects on individual and community wellbeing is subject to uncertainty (as described further in Section 7.4.6), as the choices and response of individuals to the Project and its direct effects will vary and will be difficult to predict. Further, the uptake of Project initiatives and programs aimed at enhancing benefits and minimizing adverse effects are voluntary and their effectiveness has to be regularly evaluated. As such, magnitude has been assigned based on the *assumption* of the effectiveness of mitigation. The determination of an effect's significance is not, however, based purely on the assessment criteria. A pronounced effect on even a small portion of the population can be significant when impacting wellbeing.

Territorial Economic Activity

The Project's positive GDP effect is substantial at over 10% of the current GDP of Nunavut. This effect will persist through Project operations to 2022, extending the GDP contribution of Meadowbank Mine beyond planned closure, and bridging the gap in territorial GDP that would otherwise occur in 2019 between the closure of Meadowbank Mine (2018) and the operations of Meliadine Project (2020). This effect is, therefore, considered to be of high magnitude, regional extent, and medium-term duration. Overall, the Project's positive effect on the GDP of Nunavut is assessed as significant.

Should Project development delay for a year, this effect would be less pronounced, as the Project would begin operations in the same year as Meliadine Project, thereby removing its role as a bridge between the closure of

Meadowbank Mine and operations at Meliadine Project. This would also be the case for the Project's effects on government revenue, local business development and contracting, and employment.

Government Revenues

Project-related tax generation and royalties paid will amount to a sizable contribution to government revenue in Nunavut equivalent to about 4% of the territory's total annual budgeted revenue. When transfer payments are deducted, Project-related revenues to government are predicted to be roughly equivalent to a quarter of Nunavut's total own-source budgeted revenue. This effect will occur through Project operations to closure, and, as with the Project's effect on territorial GDP, would serve to bridge the gap between the closure of Meadowbank Mine and the operations of the Meliadine Project. This effect is, therefore, assessed to be of high magnitude, regional extent, and medium-term duration. Overall, the Project's positive effect on government revenue in Nunavut is assessed as significant.

Local Business Development and Contracting

Project procurement of goods and services will be substantial during both construction and operations. The cumulative impact of construction is expected to result in approximately $58 million in spending with Nunavut-registered businesses, with 80% of this spending concentrated in businesses registered in Baker Lake. Once operational, the Project's demand for goods and services is expected to be slightly higher than the current Meadowbank Mine operations, with about $118 million procured from Nunavut-registered companies. Of this, roughly $27 million will be through Baker Lake-registered businesses. Closure will result in a drop off of procurement of this scale. This effect is, therefore, assessed to be of high magnitude, local to regional in extent, and medium-term duration. Overall, the Project's positive effect on local business development and contracting is assessed as significant.

Employment

The Project serves to extend employment opportunities for the existing Meadowbank Mine workforce, and to create additional employment opportunities for Nunavummiut. While the Project comes online in 2020, then receiving the outgoing Meadowbank Mine workforce, without the Project there will be a gap in employment in 2019. In addition to the additional jobs it will create, the Project's most pronounced employment effect is this stabilizing role. As Meadowbank Mine ramps down in 2018, select staff will begin transitioning over to the Project to aid in construction activities. At final closure of Meadowbank Mine, the remainder of the workforce will transition to Project operations positions that will last until closure. This effect is, therefore, assessed to be of high magnitude, local to regional in extent, and medium-term duration. Overall, the Project's positive effect on employment in Nunavut, Kivalliq Region and, especially, Baker Lake, is assessed as significant.

Incomes

As with employment, the Project's primary income effect will be the continuation of high paying wage employment from Meadowbank Mine. Employment incomes for current employees are not expected to change significantly, but will be extended by the Project beyond Meadowbank Mine's closure in 2018, and bridging the gap that would otherwise occur in 2019 prior to operations at the Meliadine Project in 2020. The Project will also generate new incomes associated with a limited amount of new employment, and will sustain indirect and induced incomes, through to closure. This effect is, therefore, assessed to be of high magnitude, local to regional in extent, and medium-term duration. Overall, the Project's positive effect on incomes in Nunavut, Kivalliq Region and, especially, Baker Lake, is assessed as significant.

Education and Training

The Project is expected to continue to provide the education and training opportunities currently supported by Meadowbank Mine to both its workforce, and Kivalliq Region communities. While this does not represent a change in programs offered or funding for educational initiatives, uptake of educational opportunities during operations is expected to continue to build capacity in the labour force, and promote educational attainment for youth and the broader community. Capacity building and education does not end with Project closure, instead persisting into the future. It is not known, however, how exactly workers and communities will respond to educational programming and initiatives offered or supported by the Project. This effect is assessed to be of moderate magnitude, local to regional in extent, and long-term duration. Overall, the Project's positive effect on education and training is assessed as significant.

Positive Effects in Communities

The Project's overall effect of continued incomes, community contributions and the Meadowbank IIBA is expected to have a positive effect on the wellbeing of individuals and communities. Regular incomes can help lift or keep people out of poverty; provide access to nutritious food, education, and recreation; and allow for savings. Community and IIBA contributions are substantial, and support community development and wellbeing initiatives. Both will occur throughout the Kivalliq Region, but will be concentrated in Baker Lake over the operational life of the Project. This effect is, therefore, assessed to be of high magnitude, local to regional in extent, and medium-term duration. Overall, the Project's positive effect on wellbeing related to disposable incomes, community contributions, and the continuation of the IIBA is assessed as significant.

Worker and Public Health and Safety

Project health and safety training is expected to improve health and safety awareness amongst employees, their families, and other members of their communities, as are community-based health and safety-related programming and policies. The extent to which this benefit will be realized is difficult to predict, as it may influence the behavior and decision making of some more than others, and because it is not known how individuals will react. Monitoring by Agnico Eagle (e.g., interview worker families to gauge health and safety understanding) is expected to confirm this benefit. The effect of improved health and safety awareness, like education, does not end with the closure of a project, but instead continues to influence people's behavior into the future. This effect is, therefore, assessed to be of moderate magnitude, local to regional in extent, and long-term duration. Overall, the Project's positive effect on worker and public health and safety is assessed as significant.

Accidents and Emergencies

As noted above, attempting to assess the magnitude of a risk of accidents and emergencies is problematic. Should neither occur, there will be no associated effect. However, it can also not be assumed that either or both *will* occur definitely, or to what extent. Mitigations measures, emergency response planning, and training can all play a role in reducing risk or the severity of the outcome of an accident or emergency, but the effectiveness of each is unknown. For these reasons, residual effects criteria have not been assessed for accidents and emergencies. To do so would require further risk analysis beyond the scope of this Addendum to the Meadowbank FEIS. However, in the event that an accident or emergency does manifest, it can be conservatively assumed that there is the potential for the effect on an individual or community to be adverse, potentially catastrophic, and, therefore, significant.

Family and Community Cohesion

As noted above, while incomes can have a positive effect on the fiscal wellbeing of some, they can also have a negative effect if income earners and their families use their incomes unwisely. Property theft, increased substance abuse, family violence, and debt are all often associated with new money or wealth. Incomes for some and not others results in social disparity between families and communities, and can further highlight existing vulnerability of those unable to access employment opportunities. The existing Meadowbank Mine workforce transitioning to the Project has experience in managing their finances, and it is unlikely that they would change their current behavior or lifestyle as a result of the Project. The limited number of new Nunavummiut employees required for Project operations may, however, struggle.

Mitigation measures offered to new employees are expected to alleviate some of the social ills associated with increased incomes in the local population, however it is not known to what extent, or how individuals will react. Further, the efficacy of Agnico Eagle's current social management programming is not fully understood. Continued monitoring (e.g., Baker Lake Wellness program) and evaluation of the uptake and outcome of programs is required to determine with greater certainty the Project's residual effect on family and community cohesion. If the adverse effects noted above do materialize in already vulnerable communities, despite mitigation, the residual effect could be pronounced.

Rotational employment can be a positive approach to wage employment, giving people long periods of time off and resources for traditional pursuits and other activities. It can also, however, have negative effects on cohesion, taking workers away from their communities and families for extended periods of time, and can erode traditional values. As with other effects to individual and community wellbeing, it is difficult to assess both the extent of these effects, the effectiveness of mitigation and benefit enhancement measures, and the response of individuals, families and communities to both. The positive effects of rotational employment end with Project closure, however changes in family and community cohesion would persist into the future.

The Project's residual effect on family and community cohesion is, therefore, considered to be of moderate magnitude[3], local to regional in extent, and long-term duration. Overall, the potential adverse social impacts associated with Project incomes and rotation on family and community cohesion are assessed as significant.

Summary of Residual Effects

Table 7.4-7 provides a summary of the residual effects classification for socio-economic effects.

[3] Given the unknown success of mitigation.

Table 7.4-7: Residual Impacts Classification and Determination of Significance for Socio-Economics

Valued Component	Pathway	Direction	Magnitude	Geographic Extent	Duration	Significance
Economic Activity and Business Development	The Project will continue to contribute to territorial economic activity	Positive	High	Regional	Medium-term	Significant
	The Project will continue government revenues	Positive	High	Regional	Medium-term	Significant
	The Project will sustain local business development and contracting	Positive	High	Local to Regional	Medium-term	Significant
Employment and Education	The Project will create direct, indirect, and induced employment opportunities	Positive	High	Local to Regional	Medium-term	Significant
	The Project will generate direct, indirect, and induced incomes	Positive	High	Local to Regional	Medium-term	Significant
	The Project will provide workforce training and support community education	Positive	Moderate	Local to Regional	Long-term	Significant
Individual and Community Wellbeing	The Project will continue positive fiscal effects in communities	Positive	High	Local to Regional	Medium-term	Significant
	The Project may improve worker and public health and safety	Positive	Moderate	Local to Regional	Long-term	Significant
	The Project has the potential to result in accidents and emergencies	Negative	n/a			Significant
	Project incomes and rotational employment may affect family and community cohesion	Negative	Moderate	Local to Regional	Long-term	Significant

7.4.5 Cumulative Effects Assessment

The approach to cumulative social and economic effects is, in some respects, different from that taken by the physical and biological disciplines. When describing conditions and trends beyond present day, the socio-economic impact assessment considers all reasonably foreseeable projects. Only projects with proven economics (e.g., financing, some approvals) and a strong likelihood of proceeding are considered in the interest of providing a meaningful projection of future social and economic conditions. The socio-economic effects assessment takes into account Agnico Eagle's existing Meadowbank Mine operations (and its closure), and the development of the Meliadine Project, and so assesses the cumulative effect of these operations in conjunction with the Project. The residual effects assessment for socio-economics is, therefore, cumulative in nature.

The overall cumulative socio-economic effects of development are both positive and negative. With more development comes growth in the territorial economy, increased government revenues, and more employment and associated incomes. A growing economy with employment opportunities and associated incomes can increase access to consumer goods, education and training, and savings. While inequality may persist, economic growth can give people goals to strive towards. Through benefit enhancement measures and respect for the culture in which development occurs, economic growth can be targeted to ensure that local benefits are realized. A growing economy can also, however, result in social ills that can jeopardize the wellbeing of individuals and communities. Monitoring and evaluating the success of mitigation measures aimed at reducing these ill effects will be key in the years to come in the understanding of the cumulative effect of development on, in particular, wellbeing, and the relationship between specific Projects and socio-economic features.

7.4.6 Uncertainty

There is inherent uncertainty in assessing the significance of some socio-economic effects given the reliance of effect realization on the responses of individuals, families and communities to effect stimuli, mitigation, and benefit enhancement measures. Forces outside the control of a single Project can further this uncertainty by undermining the effectiveness of mitigation and benefit enhancement measures.

Many socio-economic effects may not lend themselves to the assignment of criteria or determination of significance except in terms of potential, thus introducing a larger element of uncertainty into socio-economic effects assessment. There generally is the expectation that an effect brought forward for assessment will in fact occur, at least to some degree. However, it is difficult, and in some cases not possible, to predict whether an effect will be positive, negative or both, and in what ways for whom. For example, Project employment incomes will be beneficial to those accessing employment opportunities and their families (positive effect); however, for vulnerable segments of society (e.g., women, children in single parent homes, the elderly), these opportunities may not be accessible, and not influence their quality of life (neutral effect). Where these employment incomes are concentrated in only a portion of households, this can create inequality (negative effect). The significance of the effect of Project-paid incomes is, therefore, nuanced.

Confidence in the assessment of the significance of the Project's socio-economic effects necessarily depends on:

- the perceptions and values of affected people and their leadership, as made evident through engagement;
- the adequacy of baseline data for understanding both current conditions, and the cause-effect relationship between socio-economic trends and Agnico Eagle's existing development (i.e., Meadowbank Mine);

- the statues of Project planning and design features, including economic modelling inputs;
- knowledge of the effectiveness of mitigation in reducing or removing adverse effects, and of benefit enhancement measures; and
- lessons learned from other experiences.

Confidence in the prediction of whether an effect is significant or not is often high, regardless of all the uncertainties in describing the detail of that effect. This may at times seem to be a contradiction. For example, effects on GDP and labour income are only an approximation based on Input/Output modelling. Even in the event of large errors in the approximation, however, the Project's effects on GDP and labour income will necessarily be significant.

7.4.7 Monitoring and Follow-up

The Socio-Economic Management Plan (Volume 8, Appendix 8-E.6) provides a full discussion of Agnico Eagle's monitoring measures. Agnico Eagle will collaborate with the Kivalliq Socio-Economic Monitoring Committee and other regional monitoring bodies to track socio-economic trends in the region and in communities, and will track, internally, appropriate indicators within the purview of a developer. Agnico Eagle will monitor direct employment and incomes allowing it to understand the impact on Nunavummiut. Workforce training, educational initiatives, and community contributions will also be monitored, and reported on in the annual Socio-Economic Monitoring Program report for the Project. Efforts to support and encourage Traditional pursuits will be similarly tracked and reported on. Agnico Eagle will monitor employee and family use of the Project's EFAP, on-site medical services, Elder counselling, and other mental and physical health-related programming, and evaluate outcomes in the interest of adaptive management.

7.5 References

Aarluk Consulting. 2010. Baker Lake Integrated Community Infrastructure Sustainability Plan Vol. 2. Available at: http://toolkit.buildingnunavut.com/ICSP/Baker%20Lake/Baker%20Lake%20ICISP%20Volume%202%20Final%20(2011-07-22).pdf. Accessed July 27, 2015.

Agnico Eagle (Agnico Eagle Mines Limited). 2013. Meadowbank Gold Project 2012 Annual Report.

Agnico Eagle. 2014a. Proposed All-weather Exploration Road from the Meadowbank Mine to the Amaruq Site. Baseline Traditional Knowledge Report Version 2. December 2014.

Agnico Eagle. 2014b. Amaruq All-weather Exploration Road Traditional Knowledge/Inuit Qaujimajatuqangiit Community Consultation. Notes from Meetings, December 9-10, 2014.

Agnico Eagle. 2015a. Amaruq Exploration Access Road. Road Management Plan. Version 2. March 2015.

Agnico Eagle. 2015b. Environmental Impact Statement (EIS) Addendum for the Meadowbank Project: Vault Expansion to Include Phaser Pit and BB Phaser Pit.

Agnico Eagle. 2015c. Meadowbank Gold Mine DRAFT Socio-Economic Monitoring Program. February 12, 2015.

Agnico Eagle. 2015d. Meadowbank Gold Project. 2014 Annual Report. Prepared for the Nunavut Water Board, Nunavut Impact Review Board, Fisheries and Oceans Canada, Aboriginal Affairs and Northern Development Canada, and the Kivalliq Inuit Association.

Agnico Eagle. 2015e. Meeting Minutes for the fall 2015 consultation meeting for the All-weather Exploration Road and exploration area. September 2015.

Agnico Eagle. 2015f. Meadowbank Gold Project 2014 Annual Report. April 2015.

Agnico Eagle. 2015g. Meadowbank Mine. 2014 Wildlife Monitoring Summary Report. March 2015.

Agnico Eagle. 2016a. Amaruq and Whale Tail Pit Project. Notes. Traditional Knowledge Consultation. Meeting with Elders. February 3-5, 2016.

Agnico Eagle. 2016b. Amaruq and Whale Tail Pit Project. Notes. Traditional Knowledge Consultation. Meeting with CLARC. February 3-5, 2016.

Agnico Eagle. 2016c. Amaruq and Whale Tail Pit Project. Notes. Traditional Knowledge Consultation. Meeting with Baker Lake HTO. February 3-5, 2016.

Agnico Eagle. 2016d. Amaruq and Whale Tail Pit Project. Notes. Traditional Knowledge Consultation. Focus Group with Youth. February 3-5, 2016.

Agnico Eagle. 2016e. Amaruq and Whale Tail Pit Project. Notes. Traditional Knowledge Consultation. Focus Group with Women. February 3-5, 2016.

Agnico Eagle. 2016f. Meadowbank Mine. 2015 Wildlife Monitoring Summary Report. March 2016.

AREVA. 2011. Kiggavik Project Environmental Impact Statement – Technical Appendix 9A Socio-Economic Baseline. Available at: ftp://ftp.nirb.ca/02-REVIEWS/ACTIVE%20REVIEWS/09MN003-AREVA%20KIGGAVIK/2-REVIEW/09-FINAL%20EIS/03-FEIS/03-TECH%20APPENDICES-Teir%203/. Accessed September 21, 2015.

Bennett, J., and S. Rowley. 2004 (Compiled and Edited). Uqalurait: An Oral History of Nunavut. Montréal and Kingston: McGill's-Queen's University Press. Cited in Golder 2015. Agnico Eagle Mines: Meadowbank Division – Whale Tail Pit Project. Inuit Qaujimajatuqangit Baseline Report.

Bernauer, W. 2011. Uranium Mining, Primitive Accumulation and Resistance in Baker Lake, Nunavut: Recent Changes in Community Perspectives. Master of Arts Thesis. University of Manitoba. Winnipeg, MB. Available at: http://www.collectionscanada.gc.ca/obj/thesescanada/vol2/002/MR77418.PDF. Accessed October 6, 2015. Cited in Golder 2015. Agnico Eagle Mines: Meadowbank Division – Whale Tail Pit Project. Inuit Qaujimajatuqangit Baseline Report.

Cumberland (Cumberland Resources Limited). 2005a. Meadowbank Gold Project, Baseline Traditional Knowledge Report 2005. Final Report. October 2005.

Cumberland. 2005b. Meadowbank Gold Project Baseline Socio-Economic and Archaeology Impact Assessment.

Cumberland. 2005c. Meadowbank Gold Project, Final Environmental Impact Statement. October 2005. Cumberland Resources Ltd. Vancouver, British Columbia.

GN (Government of Nunavut). 2005. Inuit Qaujimajatuqangit of Climate Change in Nunavut, a Sample of Inuit Experiences of Climate Change in Nunavut Baker Lake and Arviat, Nunavut. Available at: http://gov.nu.ca/sites/default/files/kivalliq_english.pdf. Accessed October 6, 2015.

GN. 2016. Department of Finance. Budget 2016-2017. Fiscal and Economic Indicators. Available at: http://www.gov.nu.ca/sites/default/files/files/Finance/Budgets/2016-17_fei_en.pdf. Accessed March 2016.

GN – CGS (Government of Nunavut – Department of Community and Government Services). 2011. Water Licence No. 3BM-BAK1015. Available at: ftp://ftp.nirb.ca/01-SCREENINGS/EXEMPT%20FROM%20SCREENING/2015/EX238-Hamlet%20of%20Baker-Type%20B/150417-EX238-Community%20Information-IA1E.pdf. Data cited by NIRB. Accessed July 27, 2015.

GN – CGS. 2015. Dry Cargo Re-supply Programme Activity Summary – Shipping Year 2014. Available at: http://www.gov.nu.ca/sites/default/files/2014_sealift_report_final_for_gn_use.pdf. Accessed July 22, 2015.

GN – DOH (Government of Nunavut – Department of Health). 2014. Excel tables: Nunavut Community Health Centre Visits 2003-2013. Data cited by the Nunavut Bureau of Statistics. Available at: http://stats.gov.nu.ca/en/Social%20health.aspx. Accessed September 21, 2015.

IDS (Interdisciplinary Systems Ltd.). 1978. Effects of Exploration and Development in the Baker Lake Area. Volume 1 – Study Report. Winnipeg, MB.

Kendrick, A., and M. Manseau. 2008. Representing Traditional Knowledge: Resource Management and Inuit Knowledge of Barren-Ground Caribou. Society and Natural Resources 21: 404-418. Available at: http://nricaribou.cc.umanitoba.ca/LandscapeEcology/wp-content/uploads/inuit_knowledge/literature_and_papers/Kendrick_Manseau_2008.pdf. Accessed October 9, 2015.

Kirmayer, L., Brass, G., Holton, T., Paul, K., Simpson, C., Tait, C. 2007. Suicide Among Aboriginal People in Canada. Prepared for The Aboriginal Healing Foundation.

Maksimowski, S. 2014. Well-being and Mining in Baker Lake, Nunavut: Inuit Values, Practices and Strategies in the Transition to an Industrial Economy. Master of Arts Thesis. University of Guelph. Guelph, ON. Available at: https://atrium.lib.uoguelph.ca/xmlui/bitstream/handle/10214/7853/Maksimowski_Sophie_201402_MA.pdf?sequence=1. Accessed October 13, 2015. Cited in Golder 2015. Agnico Eagle Mines: Meadowbank Division – Whale Tail Pit Project. Inuit Qaujimajatuqangit Baseline Report.

NBS (Nunavut Bureau of Statistics). 2014. Excel table: Nunavut Population Estimates by Region and Community, 2006 to 2014. Available at: http://stats.gov.nu.ca/en/Population%20estimate.aspx. Accessed September 21, 2015.

NBS. 2015. Excel table: 2015 Nunavut Food Price Survey, Comparison of Nunavut and Canada CPI Food Basket Items. Available at: http://www.stats.gov.nu.ca/en/Economic%20prices.aspx. Accessed September 17, 2015.

NEAS (Nunavut Eastern Arctic Shipping). 2015. Sailing Schedule. Available at: http://neas.ca/pdf/sailing_schedule.pdf. Accessed July 22, 2015.

NIRB (Nunavut Impact Review Board). no date. Inuit Qaujimajatuqangit. Available at: http://www.nirb.ca/inuit-qaujimajatuqangit. Accessed May 2016.

NIRB. 2004. Environmental Impact Statement (EIS) Guidelines for the Meadowbank Project. February 2004.

NIRB. 2006. Meadowbank Gold Mine Project Certificate [No.: 004]. December 2006.

NIRB. 2014. Public Information Meeting Summary Report for the NIRB's Monitoring of Agnico Eagle Mines Ltd.'s Meadowbank Gold Mine Project. NIRB No. 03MN107. September 4, 2014.

NIRB. 2015a. Public Information Meeting Summary Report, September 9-11, 2015. October 2015. Created for the NIRB's Monitoring of Agnico Eagle Mines Ltd.'s Meadowbank Gold Mine Site (NIRB File No. 03MN107). Available at: http://ftp.nirb.ca/03-MONITORING/03MN107-MEADOWBANK GOLD MINE/07-COMMUNITY CONSULTATIONS/2015/06-REPORT/151008-03MN107-Public Information Meeting Summary Report-OT2E.pdf. Accessed January 19 2016.

NIRB. 2015b. Screening Decision Report (NIRB File No. 11EN010).

NSSI (Nunavut Sealink and Supply Inc.). 2015. Schedules. Available at: http://www.arcticsealift.com/en/medias/2015_CALENDAR_list_of_municipalities.pdf. Accessed July 22, 2015.

Nunavut Bureau of Statistics and Statistics Canada. 2011. 2009/2010 Nunavut Housing Needs Survey. Available at: http://www.stats.gov.nu.ca/en/datatables.aspx. Accessed June 28, 2015.

Nunavut Government. 2001. Archaeological and Palaeontological Sites Regulations.

Nuttall, M.F. Berkes, B. Forbes, G. Kofinas, T. Vlassova and G. Wenzel. 2005. Hunting, herding, fishing and gathering: indigenous peoples and renewable resource use in the Arctic. In ACIA Arctic Climate Impact Assessment. Cambridge University Press. Cambridge, UK. p.649-690.

NCJ (Nunavut Court of Justice). 2015. A Statistical and Comparative Review of Court Operations in Nunavut 2014. Available at: http://www.nunavutcourts.ca/annualreports. Accessed August 13, 2015.

Pauktuutit Inuit Women of Canada and the University of British Columbia. 2014. The Impact of Resource Extraction on Inuit Women and Families in Qamani'tuaq, Nunavut Territory. Available at: http://pauktuutit.ca/wp-content/blogs.dir/1/assets/Final-mining-report-PDF-for-web.pdf. Accessed September 22, 2015.

Peterson, K. 2012. Community Experiences of Mining in Baker Lake, Nunavut. Master of Arts Thesis. University of Guelph. Guelph, ON. Available at: http://dspace.lib.uoguelph.ca/xmlui/bitstream/handle/10214/3548/KCRPetersonThesisFinal.pdf?sequence=11. Accessed October 7, 2015. Cited in Golder 2015. Agnico Eagle Mines: Meadowbank Division – Whale Tail Pit Project. Inuit Qaujimajatuqangit Baseline Report.

Prager, G. 2006. Meadowbank Gold Project 2005 Archaeological Investigations of a Proposed All-Season Road Final Permit Report. Consultant's report on file. Nunavut Department of Culture and Heritage. Iqaluit.

Prolog Canada Inc. 2011. The Northern Transportation Systems Assessment – Executive Summary. Available at: http://www.miningnorth.com/_rsc/site-content/library/ExecutiveSummary_E.pdf. Accessed July 22, 2015

RCMP (Royal Canadian Mounted Police). 2015. Find a detachment. Available at: http://www.rcmp.gc.ca/detach/en/find/NU. Accessed July 23, 2015.

Sly, P., Little, L., Freeman, R., McCullum, J. 2001. Updated State of Knowledge Report of the West Kitikmeot and Slave Geological Province.

Statistics Canada. 2011a. 2006 Profile of Aboriginal Children, Youth and Adults – Nunavut. Available at: http://www12.statcan.gc.ca/census-recensement/2006/dp-pd/89-635/P4.cfm?Lang=eng&age=3&ident_id=1&B1=0&geocode1=080&geocode2=000. Accessed September 17, 2015.

Statistics Canada. 2011b. 2006 Profile of Aboriginal Children, Youth and Adults – Baker Lake. Available at: http://www12.statcan.gc.ca/census-recensement/2006/dp-pd/89-635/P4.cfm?Lang=eng&age=3&ident_id=1&B1=0&geocode1=083&geocode2=000. Accessed September 17, 2015.

Statistics Canada. 2011c. 2006 Profile of Aboriginal Children, Youth and Adults – Arviat. Available at: http://www12.statcan.gc.ca/census-recensement/2006/dp-pd/89-635/P4.cfm?Lang=eng&age=3&ident_id=1&B1=0&geocode1=082&geocode2=000. Accessed September 17, 2015.

Statistics Canada. 2011d. 2006 Profile of Aboriginal Children, Youth and Adults – Coral Harbour. Available at: http://www12.statcan.gc.ca/census-recensement/2006/dp-pd/89-635/P4.cfm?Lang=eng&age=3&ident_id=1&B1=0&geocode1=087&geocode2=000. Accessed September 17, 2015.

Statistics Canada. 2011e. 2006 Profile of Aboriginal Children, Youth and Adults – Rankin Inlet. Available at: http://www12.statcan.gc.ca/census-recensement/2006/dp-pd/89-635/P4.cfm?Lang=eng&age=3&ident_id=1&B1=0&geocode1=097&geocode2=000. Accessed September 17, 2015.

Statistics Canada. 2011f. 2006 Profile of Aboriginal Children, Youth and Adults – Repulse Bay. Available at: http://www12.statcan.gc.ca/census-recensement/2006/dp-pd/89-635/P4.cfm?Lang=eng&age=3&ident_id=1&B1=0&geocode1=098&geocode2=000. Accessed September 17, 2015.

Statistics Canada. 2013a. Keewatin, REG, Nunavut (Code 6205) (table). National Household Survey (NHS) Profile. 2011 National Household Survey. Statistics Canada Catalogue no. 99-004-XWE. Ottawa. Released September 11, 2013. https://www12.statcan.gc.ca/nhs-enm/2011/dp-pd/prof/details/page.cfm?Lang=E&Geo1=CD&Code1=6205&Data=Count&SearchText=keewatin&SearchType=Begins&SearchPR=01&A1=All&B1=All&Custom=&TABID=1 (accessed June 30, 2015).

Statistics Canada 2013b. Baker Lake, HAM, Nunavut (Code 6205023) (table). National Household Survey (NHS) Profile. 2011 National Household Survey. Statistics Canada Catalogue no. 99-004-XWE. Ottawa. Released September 11, 2013. https://www12.statcan.gc.ca/nhs-enm/2011/dp-pd/prof/details/page.cfm?Lang=E&Geo1=CSD&Code1=6205023&Data=Count&SearchText=baker%20lake&SearchType=Begins&SearchPR=01&A1=All&B1=All&Custom=&TABID=1 (accessed July 8, 2015).

Statistics Canada. 2013c. Nunavut. (Code 62) (table). National Household Survey (NHS) Profile. 2011 National Household Survey. Statistics Canada Catalogue no. 99-004-XWE. Ottawa. Released September 11, 2013. http://www12.statcan.gc.ca/nhs-enm/2011/dp-pd/prof/index.cfm?Lang=E (accessed September 16, 2015).

Statistics Canada. 2014. Uniform Crime Reporting Survey. Data cited by the Nunavut Bureau of Statistics. Available at: http://www.stats.gov.nu.ca/en/Social%20crime.aspx. Accessed August 11, 2015.

Statistics Canada. 2015. Table 384-0038 – Gross Domestic product, expenditure-based, provincial and territorial, annual (dollars). http://www5.statcan.gc.ca/cansim/a47. Accessed December 28, 2015.

Stratos (Stratos Inc.). 2015. Meadowbank Gold Mine 2014 Socio-Economic Monitoring Report. Final Report. Submitted to Agnico Eagle December 17, 2015.

Tagalik, S. 2012. Inuit Qaujimajatuqangit: The Role of Indigenous Knowledge in Supporting Wellness in Inuit Communities in Nunavut. Available at: http://www.nccah-ccnsa.ca/docs/child%20and%20youth/Indigenous%20Knowledge%20in%20Inuit%20Communities%20(English%20-%20web).pdf. Accessed October 15, 2015.

Thorpe, N. 2000. Contributions of Inuit Ecological Knowledge to Understanding the Impacts of Climate Change on the Bathurst Caribou Herd in the Kitikmeot Region, Nunavut. Master of Science Thesis. Simon Fraser University. Burnaby, BC. Available at: http://www.nlc-bnc.ca/obj/s4/f2/dsk1/tape2/PQDD_0014/MQ61505.pdf. Accessed October 15, 2015.

Tischer, J.C. 2007. Archaeological Impact Assessment Cumberland Resources Meadowbank Mine All-Season Road and Borrow Sources Nunavut Permit 2006-027A. FMA Heritage Resources Consultants Inc. Consultant's report on file. Nunavut Department of Culture and Heritage. Iqaluit.

Tischer, J.C. 2010. Archaeological Impact Assessment 2010 Agnico Eagle Mines Limited Meadowbank Gold Project Nunavut Permit 10-022A. FMA Heritage Inc. Consultant's report on file. Nunavut Department of Culture and Heritage. Iqaluit.

Tischer, J.C. 2012. Archaeological Impact Assessment Agnico Eagle Meadowbank 2011 Exploration Studies, Nunavut Permit 11-015A. Stantec Consulting Ltd. Consultant's report on file. Nunavut Department of Culture and Heritage. Iqaluit.

Tischer, J.C. 2013. Archaeological Impact Assessment Agnico Eagle Meadowbank 2013 Exploration Studies, Permit Number Nunavut 13-015A Final Report. Stantec Consulting Ltd. Consultant's report on file. Nunavut Department of Culture and Heritage. Iqaluit.

Tischer, J.C. 2014. Archaeological Overview Amaruq Exploration Road. Stantec Consulting Ltd. Report on file at Agnico Eagle Mines Ltd.

Tischer, J.C. 2015. Archaeological Impact Assessment Meadowbank Mine 2014 Exploration Program Agnico Eagle Mines Ltd. Permit Number: Nunavut 14-017A Final Report. Stantec Consulting Ltd. Consultant's report on file. Nunavut Department of Culture and Heritage. Iqaluit.

Tischer, J.C. 2016. Archaeological Impact Assessment Agnico Eagle Mines: Meadowbank Division – Whale Tail Pit and Haul Road, and 2015 Exploration Activities. Agnico Eagle Mines Ltd. Permit Number: Nunavut 15-026A Final Report. Stantec Consulting Ltd. Consultant's report on file. Nunavut Department of Culture and Heritage. Iqaluit.

Webster, C. 2004. Cumberland Resources Ltd. Meadowbank Gold Project Baseline Archaeological Report Consultant's report on file. Nunavut Department of Culture and Heritage. Iqaluit.