Kiggavik Project
Environmental Impact Statement

Tier 1 Appendix 1F
Social and Ecological Context

September 2014

History of Revisions

Revision Number	Date	Details of Revisions
01	December 2011	Initial release Draft Environmental Impact Statement (DEIS)
02	April 2012	Revised DEIS – to address comments received from the Nunavut Impact Review Board as part of their conformity determination released on January 18, 2012
03	September 2014	FINAL Environmental Impact Statement

Foreword

The enclosed document forms part of the Kiggavik Project Final Environmental Impact Statement (FEIS) submission, presenting potential environmental and social impacts to determine if the Project should proceed and if so, under what terms and conditions. The submission has been prepared for the Nunavut Impact Review Board by AREVA Resources Canada Inc. to fulfill the requirements of the "Guidelines for the Preparation of an Environmental Impact Statement for AREVA Resources Canada Inc.'s Kiggavik Project (NIRB File No. 09MN003)", to include new material or clarity provided during the review of the Draft Environmental Impact Statement, and to address company commitments and direction from the Nunavut Impact Review Board as outlined in the "Preliminary Hearing Conference Decision Concerning the Kiggavik Project (NIRB File No. 09MN003)".

The FEIS submission consists of a number of documents, as shown in the attached road map. These documents have been categorized into tiers, as follows:

- **Tier 1** document (Volume 1) provides a plain language summary of the Final Environmental Impact Statement.

- **Tier 2** documents (Volumes 2 to 10) contain technical information and provide the details of the assessments of potential Project environmental effects for each environmental compartment. Tier 2 Volume 11 contains executive, popular, and volume summaries in Inuktitut.

- The Tier 2 documents each have a number of technical appendices, which comprise the **Tier 3** supporting documents. These include the environmental baseline reports, design reports, modelling reports and details of other studies undertaken to support the assessments of environmental effects. Management plans are provided as Tier 3 documents.

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1 Introduction

1.1 Purpose of Ecological and Social Context

In the Guidelines for the Preparation of an Environmental Impact Statement for AREVA Resources Canada Inc.'s Kiggavik Project (NIRB 2011), NIRB outlined attributes that must be taken into consideration in determining the significance of environmental effects, as well as a number of other relevant attributes that should be considered, as appropriate, in the environmental assessment. Ecological or socio-economic context/value was included as one of the latter attributes.

Unlike effects characterization attributes such as geographic scope, duration and magnitude, which are used to describe and quantify environmental effects, ecological and social context is intended to provide a broader view of the landscape within which Project effects and cumulative effects may occur. The social and ecological context provides an integrated perspective of past and current Inuit use and values and ecological information (IQ, community information and western science) for terrestrial, freshwater, coastal and marine environments.

The discussion of context enhances the assessment in two primary ways.

While the assessment concludes that ecosystem integrity is maintained and, therefore, the broader land-based economy would not be compromised, the social and ecological context enhances the assessment by continuing discussion past the assessment conclusion to contemplate the potential of the proposed project area to contribute to the land-based economy relative to the wage-based economy. It is the vision of Nunavummiut and their leaders to have both economies thrive. The proposed project area, like all of Nunavut, has been used historically and recently to support the land-based economy. The information and figures contained in this appendix are based on the knowledge on regional and local land use shared by Kivalliqmuit with AREVA. The social and ecological context described in this appendix; it provides a view of the relative importance of the landscape with respect to land use, importance, and preference to Inuit. The information is provided to demonstrate AREVA's understanding of the broader region, and communicate this information to decision makers.

The second potential enhancement to the assessment is the use of the relative importance of the landscape, based on land use, importance, and preference to Inuit, in developing regional monitoring programs that include project-specific environmental and socio-economic effects monitoring. This understanding of local land use and preferences also can be integrated into larger regional and cumulative effects monitoring programs as a positive, independent contribution to address perceptions of risk.

AREVA will support initiatives to build the Nunavut General Monitoring Plan to meet its objectives in the *Nunavut Land Claims Agreement* and continue engaging the residents of Baker Lake and Chesterfield Inlet to incorporate land use and IQ in the design and implementation of related monitoring initiatives or programs. This might include addition of monitoring efforts in areas with, or times of, higher harvesting activity to compliment project and cumulative environmental effects monitoring conducted by AREVA and through the Nunavut General Monitoring Plan, respectively. This would help ensure that:

- the effectiveness of project mitigation and environmental protection measures are demonstrated and leading to adaptive management, as required (refer to environmental effects monitoring in Tier 2 Volumes 4 to 7 and associated Tier 3 Management Plans);
- proponent project effect monitoring efforts contribute to the larger cumulative effects monitoring initiative (refer to Tier 3 Technical Appendix 2T Environmental Management Plan for discussion on how project effects monitoring can lead into regional cumulative effects monitoring); and
- Inuit land use and community preferences are layered into and influence regional monitoring locations (the foundation for this work is provided in this Technical Appendix).

This layered approach to monitoring, as outlined above, will achieve quality monitoring while building capacity and independent oversight.

1.2 Objective of this Appendix

This appendix is intended to describe how the ecological and social context was developed for the terrestrial and marine components of the assessment in particular. This includes a discussion of the information sources used; the process for integration of information from various sources, including the use of Inuit Qaujimajatuqangit (IQ); the methodology used to develop various map depictions of ecological and Inuit information; and the use of ecological and social context in the environmental assessment. It is not is intended to provide a comprehensive analysis of Inuit land use or values.

As described below, IQ, community information and western science were integrated to develop the ecological and social context for use in the assessment of environmental effects on the terrestrial and marine ecosystems, including use of these areas by Inuit.

The following discussion provides a focused summary of:

- traditional and contemporary land use informed by literature review, hunter harvest information from the Nunavut Wildlife Management Board and project-specific studies, engagement, IQ workshops, interviews, archaeology, and homeland visits;
- Inuit views and values informed by engagement, IQ, and relevant guidelines and regional policies and plans; and

- information on protected, recognized, special and disturbed areas.

This information forms the basis for the social and ecological context for the environmental assessment for the proposed Kiggavik Project at both a regional and local level. Further information on the integration of IQ and engagement into the assessment is presented in Volume 3 Public Engagement and Inuit Qaujimajatuqangit.

1.3 The Role of Inuit Qaujimajatuqangit and Land Use in Environmental Assessment

Incorporation of local and community-based knowledge and ecological knowledge (both traditional and contemporary) is integral to the Nunavut Impact Review Board (NIRB) regulatory framework. Use of this information helps to ensure that the core values of Nunavummiut are fully considered and integrated into an environmental impact assessment (EIS) for a proposed development. This is consistent with the primary objectives of the NIRB under Section 12.5.2 of the *Nunavut Lands Claims Agreement*, and reflects broad concerns regarding the social and economic sustainability of natural resource-based livelihoods in Nunavut.

The incorporation of IQ and engagement and its role in environmental assessments (EA) is featured predominantly in the NIRB's guiding principles related to public participation, collection of Inuit traditional knowledge and application of the precautionary principle. This recognizes Inuit traditional knowledge and its value system as an essential element of environmental assessment, and as a broad lens through which environmental effects can be better understood and mitigated with respect to the ecological and socio-economic landscape. The ecological and social context provides insight to the acceptability of Project effects and their significance from the perspective of local Inuit residents and Inuit communities.

The NIRB requires that an environmental assessment must include determination of significance for residual environmental effects based on specific criteria that describe the direction or nature, magnitude and complexity, duration and frequency, geographic extent, reversibility and probability of occurrence of the effect in addition to other 'relevant attributes', collectively referred to as ecological and social context in this EA. Considerations and influences in describing ecological and social context include:

- past and existing environmental conditions, trends and environmental sensitivities of the area(s) likely to be affected by the project;
- the historical, cultural and archaeological significance of the geographic area likely to be affected by the project;
- the size of the affected human populations, and the size of the affected wildlife populations and related habitat;

- the extent of the effects of the project on regional human populations and wildlife populations, including the extent of the effects on Inuit harvesting activities;
- the potential for cumulative adverse effects given past, present and future relevant events;
- the effects on ecosystem function and integrity;
- the effects on the capacity of resources to meet present and future needs; and
- the values attached to the affected VEC or VSEC by those who identified them (NIRB 2011).

Context is presented largely in this appendix as it applies to the Project as a whole.

IQ and information on land use play an integral role throughout the assessment beyond the description of environmental and social context. There are three primary paths for IQ and land use to contribute to significance determinations and influence environmental assessment conclusions (Figure 1.3-1):

1. A key information source to support the environmental assessment with respect to baseline conditions, past and current trends in fish and wildlife populations, and Inuit land use and values (e.g. predominantly traditional ecological knowledge or IQ-baseline but also includes IQ-land use and IQ-principles);

2. Informing the discussion and quantification of the significance criteria, including characterization of the ecological and social context (e.g. IQ-land use and IQ-principles); and

3. Acknowledgement and discussion of agreements and discrepancies within or between IQ and western science in combination with knowledge gaps or other limitations when evaluating confidence in significance determinations.

The first path, integration of IQ and engagement information in the environmental assessments, occurs in parallel with use of western scientific knowledge. Together, these knowledge bases inform each environmental assessment stage including selection of valued components, understanding baseline conditions, identifying potential project-environment interactions, identification of mitigation measures, characterization of environmental effects, determination of significance, assessment of certainty and identification of needs for follow-up and monitoring (details are provided in Tier 2 Volume 3 Part 2 IQ).

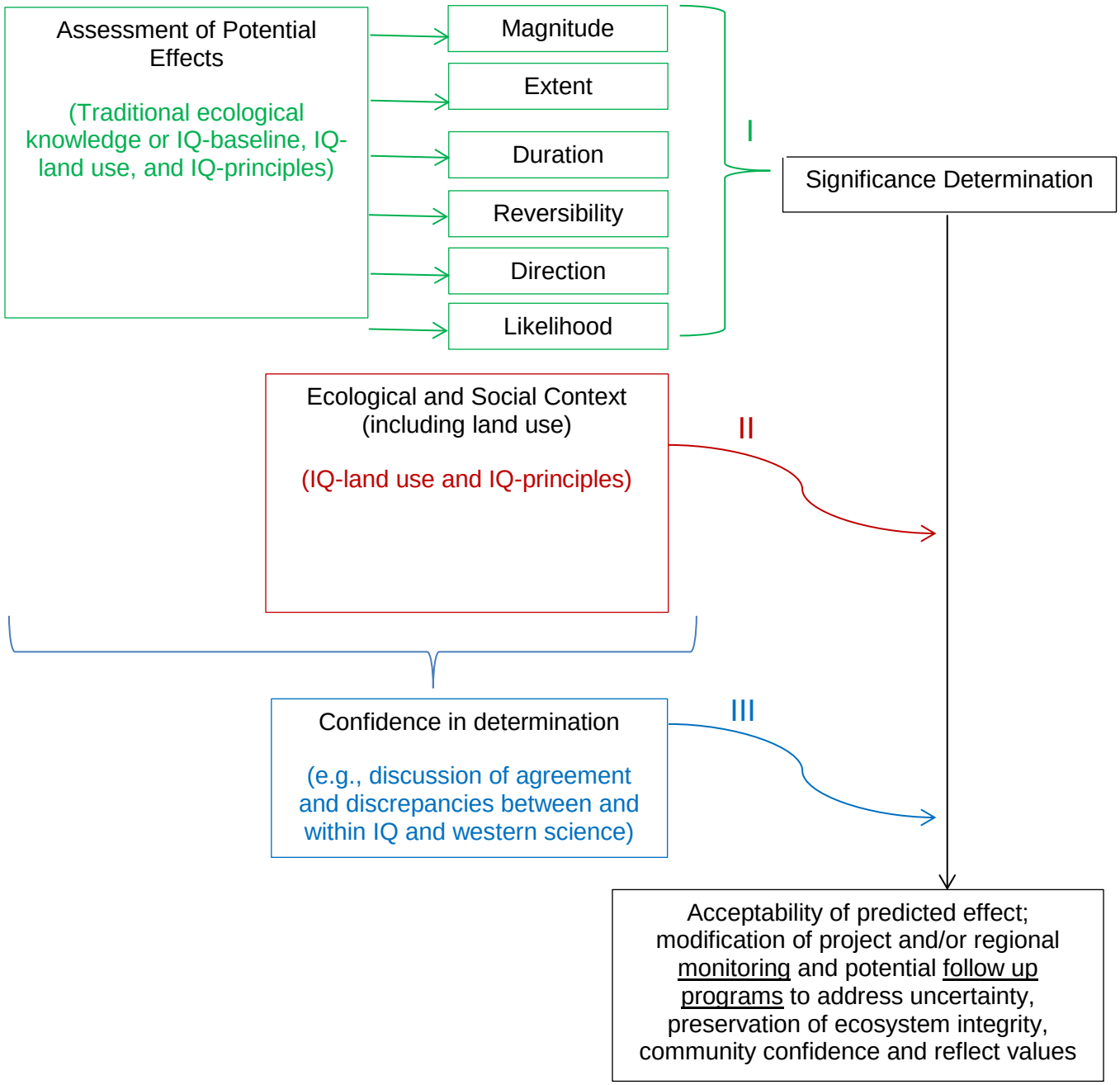


Figure 1.3-1 Three Primary Pathways for IQ and Land Use to Contribute to Environmental Assessment Conclusions

Figure 1.3-2 provides examples of how IQ has been integrated into the Final Environmental Impact Statement (FEIS) for the Kiggavik Project. For example, IQ relevant to potential Project effects was used to inform the assessment of environmental effects following application of planned mitigation (i.e., residual effects), and then identify whether adverse residual effects may have sufficient magnitude, extent, frequency, duration, and reversibility to result in changes to a component that are beyond an acceptable limit in protecting and ensuring the maintenance of ecological integrity (i.e., a significant environmental effect). The consideration of social and ecological context in the assessment also helps guide the application of the precautionary principle in determining the extent and type of mitigation and monitoring to confidently conclude significance determinations for maintenance of ecosystem integrity.

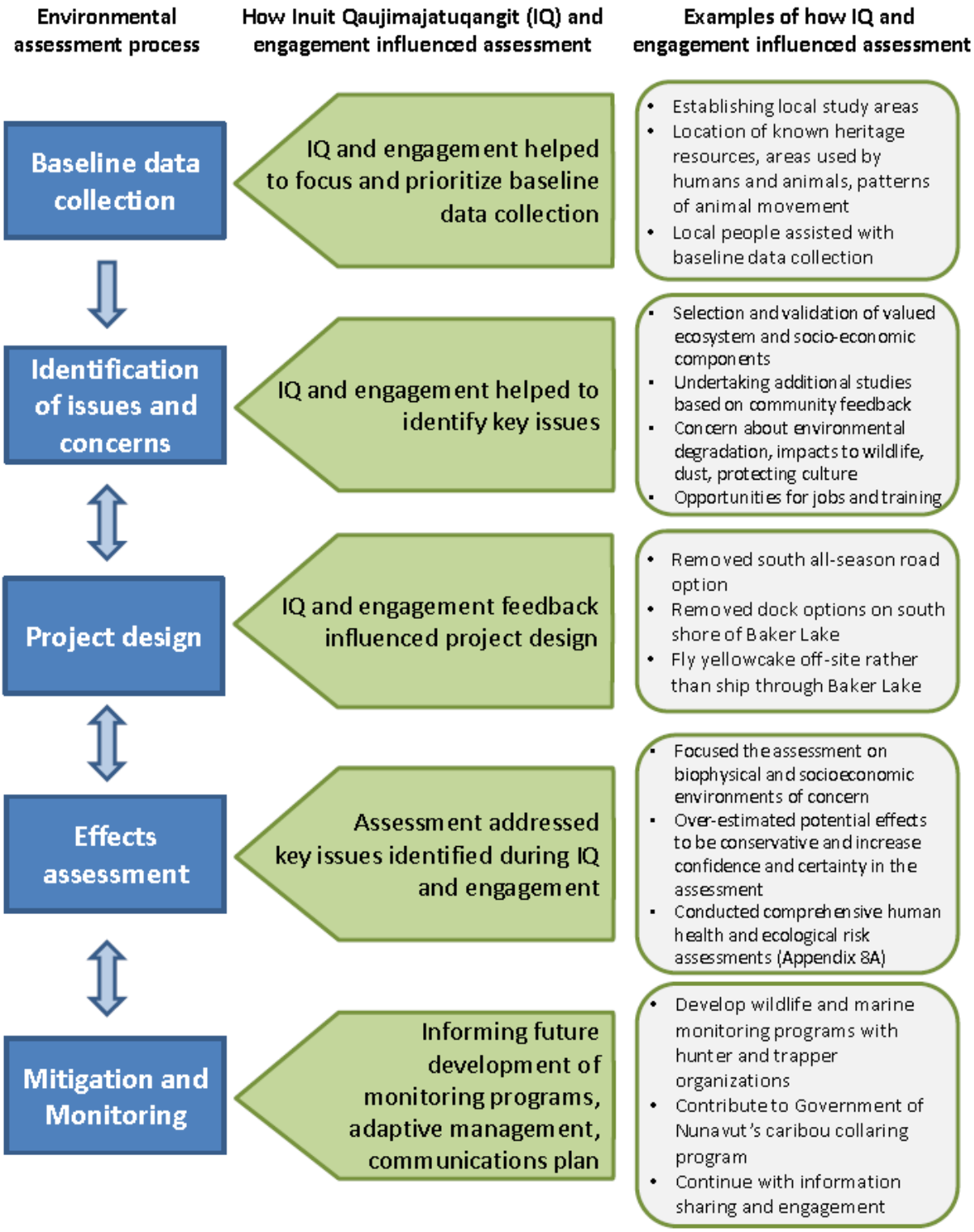


Figure 1.3-2 Incorporation of IQ and engagement data into the Environmental Impact Statement

The second path, use of IQ and information from engagement activities and other sources to inform and characterize the social and ecological context, provides a perspective of potential environmental effects relative to past and current use of the land, freshwater and marine areas by the Inuit and well as past and current ecological trends. The ecological and social context is AREVA's interpretation of the IQ and other information shared with AREVA primarily by Inuit in Baker Lake and Chesterfield Inlet with additional information provided by other Kivalliq communities. As noted in Section 1.1, this perspective is intended to enhance the assessment by providing a view of the relative importance of the landscape with respect to land use, importance, and preference to Inuit. Ecological and social context is not an assessment of potential effects to individuals or communities, including any potential changes to land use; these are comprehensively discussed and assessed in Tier 2 Volume 9, Socio-Economic Environment and Community.

The third path, information agreement or disagreement, helps inform certainty in the assessment of environmental effects. It is not only an examination of the similarities and differences *between* western science and IQ but also an evaluation of how knowledge is supported *within* each knowledge system. Agreement within and between IQ, community information and western science can increase certainty, whereas discrepancies within and between knowledge systems can represent uncertainty. Where there is uncertainty, additional measures such as mitigation or monitoring can be used to increase confidence that predicted effects will remain acceptable.

Criteria for the determination of significance (e.g. direction, magnitude and extent) are systematically applied to evaluations of significance. Discussions of context and possible range or disagreement of views using both western science and IQ, further guides the application of the precautionary principle through mitigation and monitoring beyond that deemed appropriate to confidently conclude significance determinations for the maintenance of ecosystem integrity.

2 Methodology

2.1 Information Sources

Information from the IQ interviews, homeland visits, and community engagement was used by AREVA to better understand the use of the land in the Kivalliq region by Inuit, as well as other Inuit values for the land and the environment (e.g., cultural and spiritual values, family traditions). In addition to this knowledge base, AREVA also reviewed published information (such as Riewe, 1992) to gain an appreciation of historical land use patterns.

Through these various knowledge bases, information was provided on a wide range of land uses and social and cultural values. Land use knowledge collected during project-specific IQ interviews and workshops includes the following items for Baker Lake and Chesterfield Inlet.

Baker Lake Land Use:

- Archaeological sites
- Cabin areas
- Caching
- Camp areas
- Caribou hunting
- Fishing areas
- Goose hunting areas
- Grave sites
- Grizzly bear hunting areas
- Human travel routes
- Muskox hunting areas
- Ptarmigan hunting areas
- Spiritually-significant sites
- Tent rings and sod houses
- Waterfowl hunting areas
- Wolf hunting

Chesterfield Inlet Land Use:

- Archaeological areas and grave sites
- Cabin and camping areas
- Beluga hunting areas
- Fishing areas
- Human travel routes
- Polar bear hunting areas

- Seal hunting areas
- Stone weirs
- Walrus hunting areas
- Waterfowl hunting areas

AREVA also compiled Information on recent land use and potential future land use designations (e.g., hamlets, industrial use, disturbed sites).

Knowledge on wildlife and fish populations, important habitat areas, habitat use, and migration and travel routes, including seasonal and long-term changes in these aspects was also provided through IQ and community engagement. Western science and land use plans provided additional information.

To inform the development of the social and ecological context for the environmental assessment, social and ecological information were examined from both a regional and local perspective; specifically:

- The Kiggavik region, including the marine transportation routes from Chesterfield Inlet through Hudson Bay;
- The Baker Lake area from Baker Lake west to Qumaniq (Aberdeen and Schultz) Lake; and
- The Chesterfield Inlet area, including the coastal areas from Whale Cove well to the north of the hamlet of Chesterfield Inlet.

The geographic distribution of these uses and values on the landscape was mapped for the Kiggavik region and the Baker Lake and Chesterfield Inlet areas. Detailed maps for each of these land uses or values (or groups of these uses and values) are provided in Sections 3, 4, and 5.

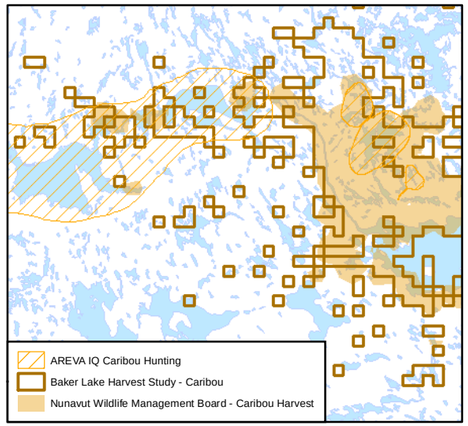
2.2 Integrating IQ and Other Knowledge

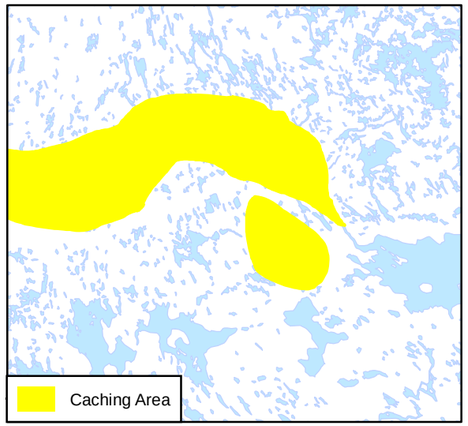
While each map and the associated information provides details on specific uses or values and, in some cases, seasonality of use, they do not provide an integrated view of all of these uses in combination with social and cultural values and ecological sensitivities. To provide a broader and integrated landscape view, AREVA considered a relative importance approach, similar to that presented at the Nunavut Mining Symposium by the Qikiqtani Inuit Organization (QIA) in spring 2014 for the Lancaster Sound National Marine Conservation Area. As a variation to the relative importance presented by the QIA, AREVA layered only that IQ that described land use. The application of relative importance is different for the two projects and to achieve the purpose required for the QIA, they layered all available IQ, including land use, species distribution, and landscape features such as ocean currents and glacier calving areas in the relative importance figures.

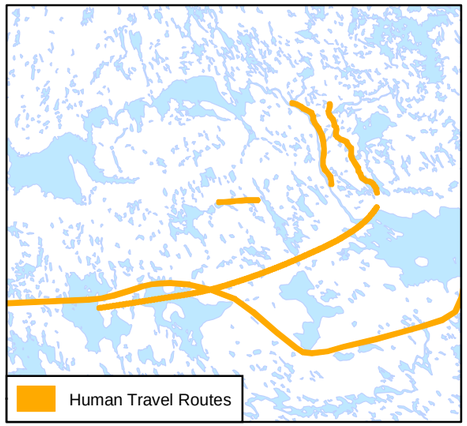
The meaning and holders of IQ was discussed with the Baker Lake Elders in September 2013 (BL EL Sep 2013). Based on input from that meeting, AREVA identified pathways for integration of IQ-baseline, IQ-land use, and IQ-principles. AREVA understands that while IQ is holistic, it is made up of many types of knowledge.

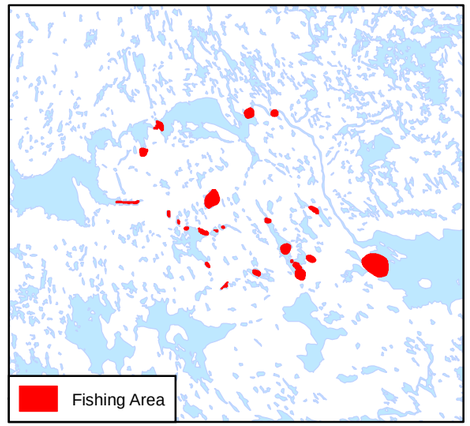
Rather than layer all types of IQ information with each other, and then present this information in discreetly from western science, AREVA developed figures that layer and directly compare western science-baseline with IQ-baseline. Environmental baseline information and IQ-land use are then presented together, primarily as context, to provide a view of what aspects of the landscape are important to a particular species and what aspects of the landscape are important for Inuit to access that species. These ecologically and socially important landscape areas may align or differ.

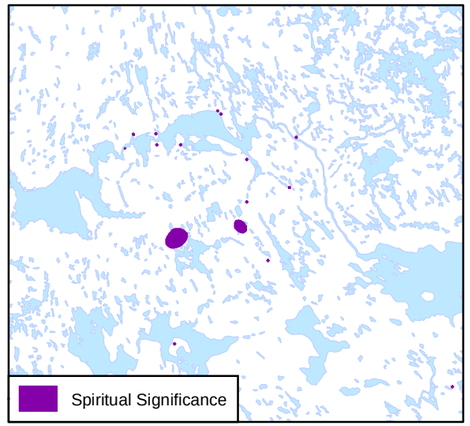
The methodology for creating figures of relative importance to support discussion of context is described below. Figures 2.2-1 and 2.2-2 demonstrate how spatial information on Inuit land uses and values were layered to develop maps of relative importance, and provide a listing of the individual layers used.

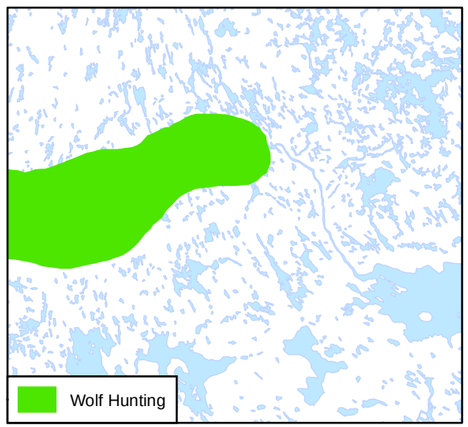


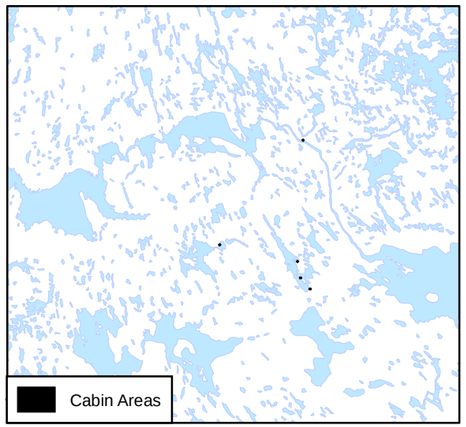


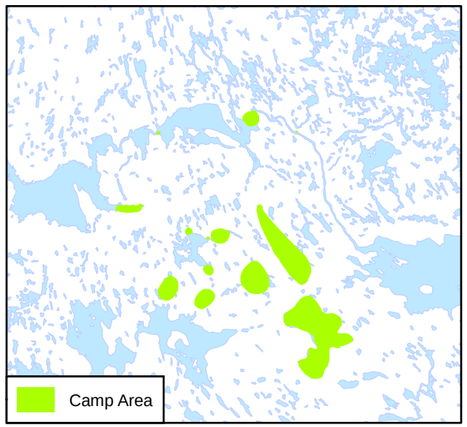


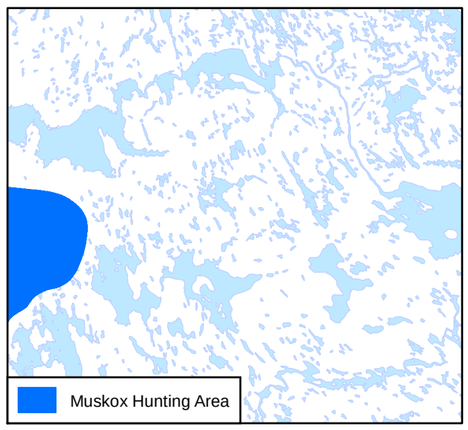


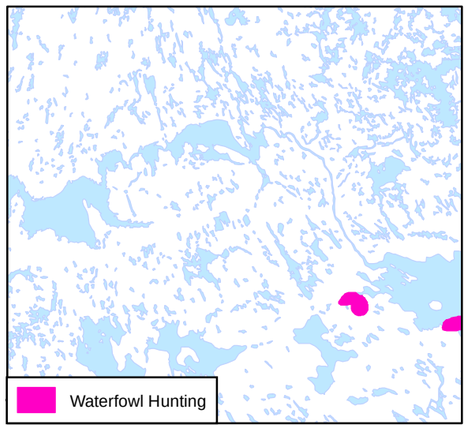


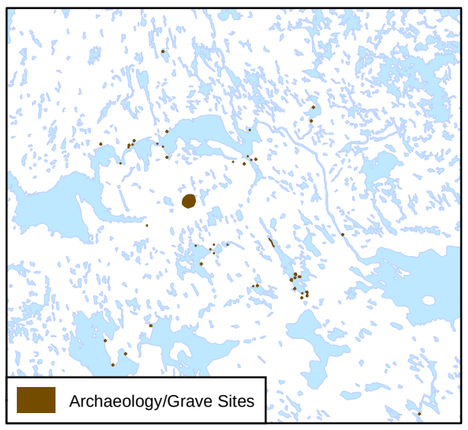


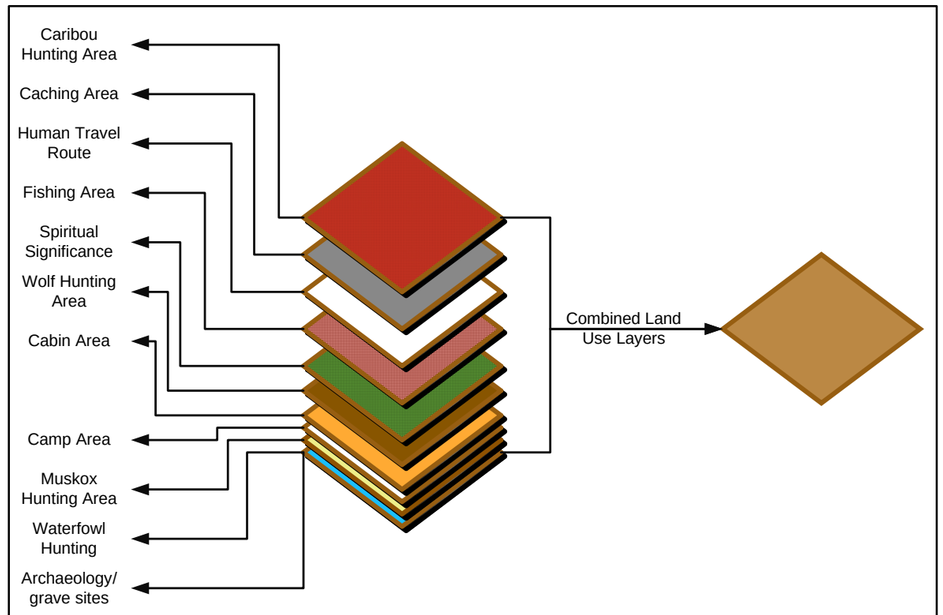












Selected IQ vector layers were converted to a raster format. Raster data is a cell-based grid format. Each cell or pixel represents a specified area of the real world.The relative land use data was given a cell size that represents 1000m2. All layers with overlapping cells would be added by the value attributed to the particular cell. Each category or land use type was given a value of 1 (Caribou data includes 3 sources each with a value of 1). The process results in a figure based on layered density of land use.

Projection: NAD 1983 UTM Zone 14N
Compiled: TL Drawn: TL
Date: 9/15/2014 Scale: 1:2,400,000
Data Sources: *AREVA 2014. Kiggavik Environmental Impact Statement. Tier 3, Technical Appendix 3B: IQ Documentation. Natural Resources Canada, Geobase®, Nation Topographic Database,*

File:Q:\SHEQ\GIS\KIGGAVIK\2014\EIS\Volume 1 - Main Document\Maps\Volume 1 - Tier 1\Appendix 1F\Maps\MXD\Figure 2.2-1 Illustration of Land Use Areas and Values_BL....mxd

FIGURE 2.2-1
ILLUSTRATION OF LAND USE AREAS AND VALUES IN THE BAKER LAKE LOCAL AREA LAYERED TO DEVELOP A MAP OF RELATIVE IMPORTANCE
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KIGGAVIK PROJECT

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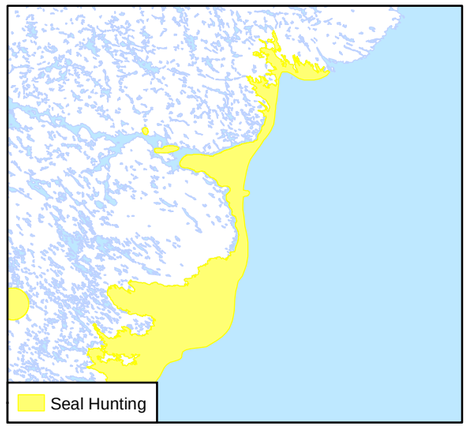

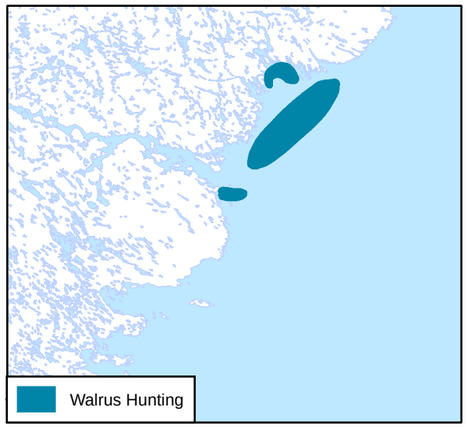

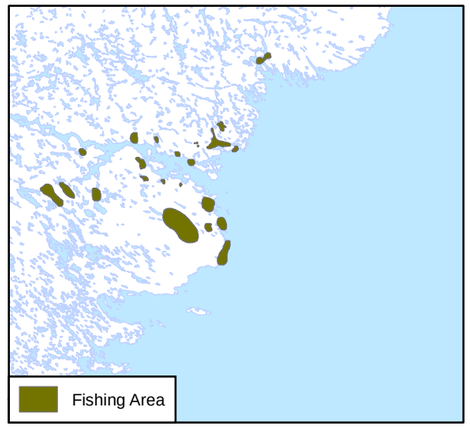

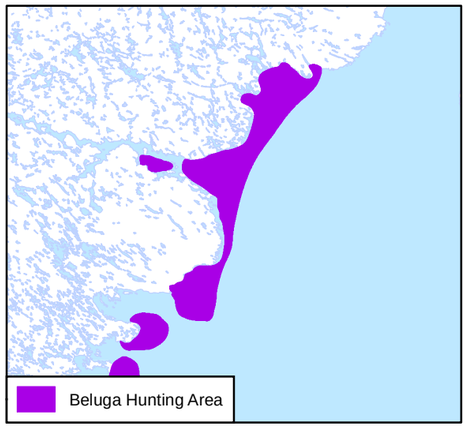

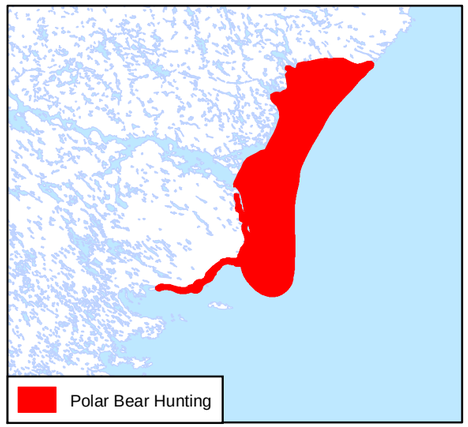

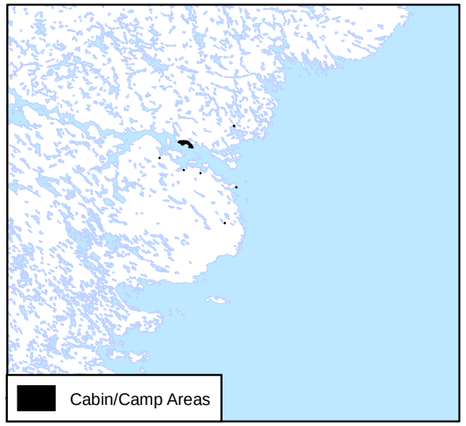

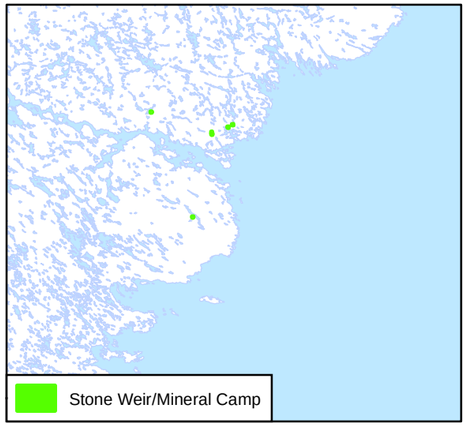

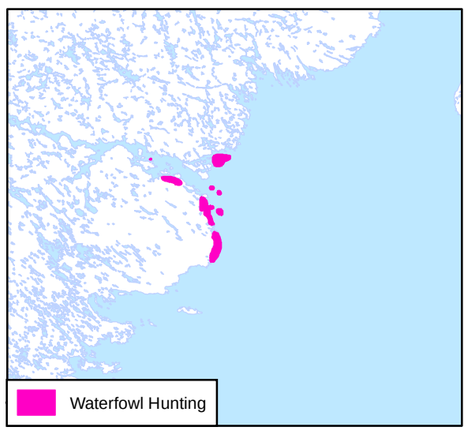

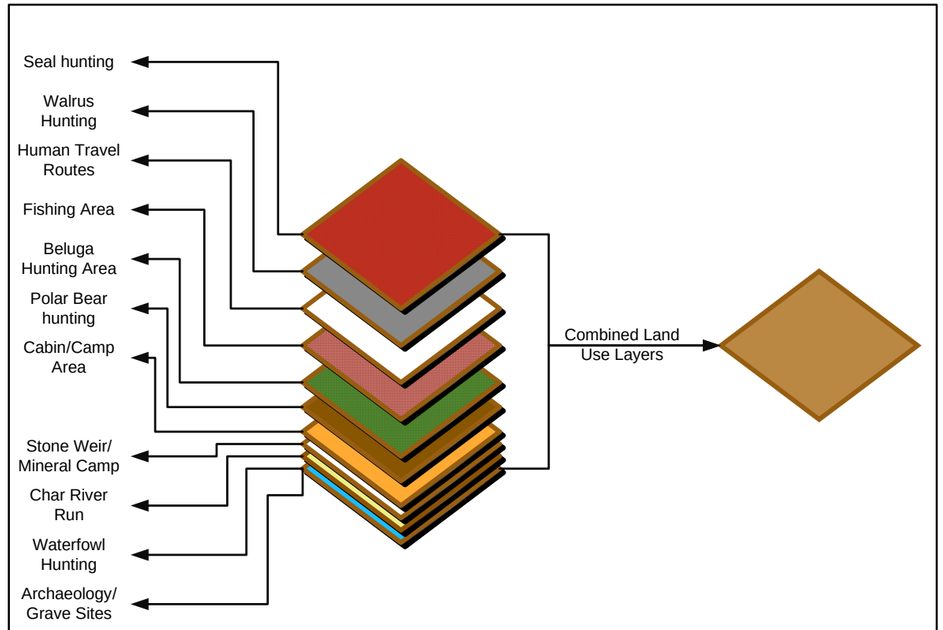

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Projection: NAD 1983 UTM Zone 14N
Compiled: TL Drawn: TL
Date: 9/15/2014 Scale: 1:4,000,000
Data Sources: *Natural Resources Canada, Geobase®, Nation Topographic Database, AREVA Resources Canada Inc., AREVA 2014 IQ*

FIGURE 2.2-2
ILLUSTRATION OF LAND AND MARINE USE AND VALUES IN THE CHESTERFIELD INLET LOCAL AREA LAYERED TO DEVELOP A MAP OF RELATIVE IMPORTANCE

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File:Q:\SHEQ\GIS\KIGGAVIK\2014\EIS\Volume 1 - Main Document\Maps\Volume 1 - Tier 1\Appendix 1F\Maps\MXD\Figure 2.2-2 Illustration of Land Use Areas and Values_CI....mxd

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To develop the maps of relative importance (these individual maps are referred to by Geographical Information Systems (GIS) analysts as vector layers), information for land use, as described above, was used to convert information to a raster or cell format. For the purpose of developing the maps of relative importance, each cell (or pixel) on the map represents an area of 1000m^2 in the real world.

A way to visualize this is to look at a specific area used for caribou hunting. Each 1000m^2 cell within the caribou hunting area would be designated as being important to Inuit for hunting caribou. For example, in Figure 2.2-3, Land Use Type 1 could be the caribou harvesting area represented by a raster grid. In reality, the actual hunting area for caribou might be several kilometres wide and several kilometres long, so it would be represented by thousands of these individual raster cells. Raster cells within the caribou hunting area would get a score of one (Figure 2.2-3). Areas outside of the caribou hunting area would get a score of zero (Figure 2.2-3). However, note that cells inside and outside the caribou hunting area might be equally as important for other land uses, of high value to Inuit for cultural or spiritual reasons, or ecologically sensitive for a particular species.

Now imagine many layers of information, each representing a different Inuit land use, social or cultural value (these are shown as coloured layered squares in Figures 2.2-1 and 2.2-2). If you were to look at the same cell in all of the data layers, essentially the same 1000m^2 spot on the ground in real life, you would see that that cell has been designated as being used by Inuit for certain activities, having value to Inuit. Each land use layer is considered equally with a consistent rank of one (Figure 2.2-3). Some areas on the landscape, each represented by a single cell, may have many uses or values, and some may have very few. In the example in Figure 2.2-3, the same individual blue raster cell has a ranking of 1 for each the three land use types shown.

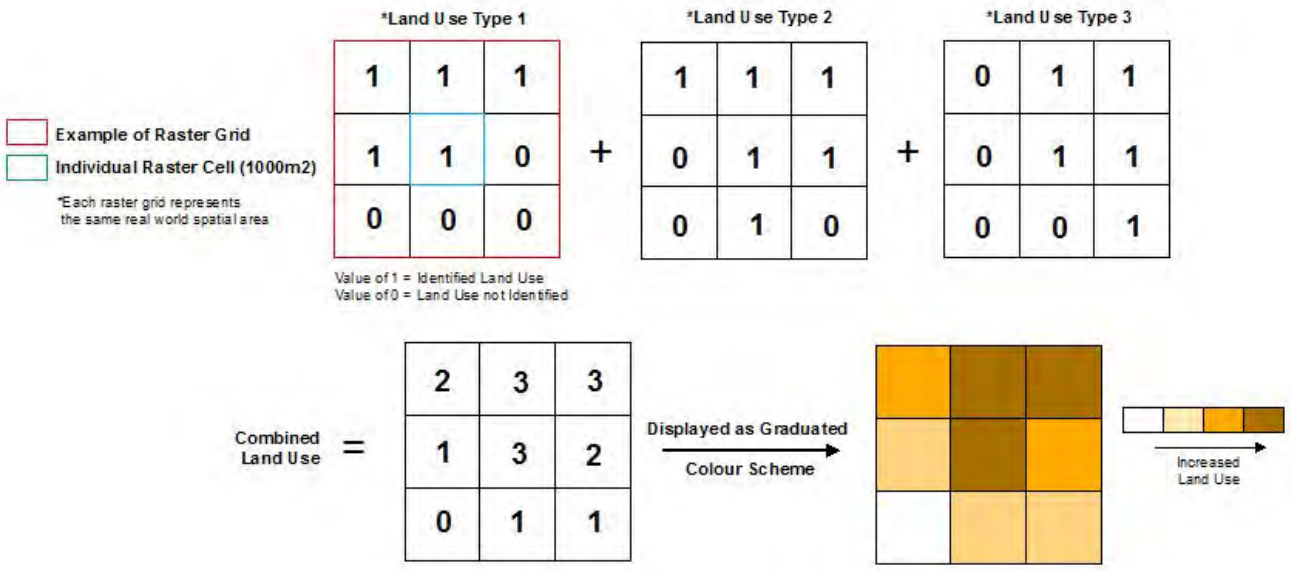

Figure 2.2-3 Illustration of How to Convert Areas to a Raster Format for Relative Importance Layering

To provide an indication of the relative importance of each spot on the ground (i.e., a single raster cell), the GIS analyst prepared maps of relative importance for the Kivalliq region, the Baker Lake local area and the Chesterfield Inlet local area. Cells that had high total scores, indicating they were identified by the Inuit and others as being used for multiple traditional land use activities, of high social or cultural value, were shaded the darkest colour, while cells that had progressively lower total scores, were shaded increasingly lighter shades on the maps (Figure 2.2-3).

In interpreting the social context for the assessment, areas that were predominantly the darkest colours were considered to have a higher relative importance than areas with a lighter shade. This does not mean a lighter shaded area is not important but rather than there are fewer land uses for that particular spot on the ground.

2.3 Application of the Social and Ecological Context

Maps of relative importance were developed for the Baker Laker local area and the Chesterfield Inlet local area. These are provided in Sections 4 and 5 of this appendix. The maps incorporate all of the IQ shared with AREVA for these areas, as well as other information from the communities (e.g., community engagement, homeland visits).

Beyond the assessment conclusions that the land-based economy is not compromised with the development of Kiggavik, these figures show areas, in a relative importance format, for land use and

values near the Project. These figures and discussion enhance the assessment and provide AREVA's understanding of the cultural landscape (as an extension of information provided in Tier 2 Volumes 3 and 9) in addition to the Project and ecological landscape described and the interactions assessed in Tier 2 Volumes 2 and 10 and Tier 2 Volumes 4 to 7, respectively.

AREVA will work collaboratively with Baker Lake and Chesterfield Inlet Inuit in the development and implementation of monitoring plans and contribute to the Nunavut General Monitoring Plan initiatives to integrate IQ and land use information into regional monitoring programs. This will strengthen both the project and regional monitoring in identifying appropriate changes in project activities or mitigation (i.e., adaptive management).

3 Social and Ecological Context for Nunavut and the Kivalliq Region

3.1 Historical Changes in Land Use

Inuit land use throughout the Kivalliq region has evolved over the past 60 years. The most notable changes occurred with the relocation of Inuit to the inland community of Baker Lake and coastal communities during the 1950s and the establishment of residential schools (Tier 3, Volume 9, Technical Appendix 9A Socio-economic Baseline). Inuit no longer occupy traditional sites year round and many use camps closer to communities on a seasonal basis. Although harvesting patterns have changed, Inuit continue to use the land without bounds throughout the Kivalliq region to harvest a range of species throughout the year (EN-RI HTO Nov 20121; BL NIRB April 20102; EN-BL OH Nov 20133; IQ-RIJ 20114 IQ-JT Consulting 20115).

3.2 Important Areas on a Territorial and Regional Scale

To appreciate how the proposed Kiggavik Project will interact with the landscape during construction, operations and following decommissioning, it is valuable to consider the proposed Kiggavik Project in relation to territorially and regionally important areas. This section provides a spatial description of important social and ecological areas in relation to the Kiggavik Project. Local land use and ecological sensitivities are described in Sections 4 and 5 for the Baker Lake and the Chesterfield Inlet local areas.

[1] RI HTO Nov 2012: *We hunt everywhere.*

[2] BL NIRB April 2010: *Community members, especially hunters travel everywhere on the land by ATVs/Honda.*

[3] EN-BL OH Nov 2013: *We hunt everywhere. My husband was born on the land and uses the whole area around Baker Lake. We have taught our sons to use the land this way as well.*

[4] IQ-RIJ 2011: *All over, no limit to where we can go, it depends where the caribou are. Sometimes we will go all the way down to the tree line. How far you go depends on how much gas you can take. When I was young you could go everywhere, but now we have a lot more limit because of the equipment we use to go hunting, motorized vehicles actually limits how far away you can travel versus dog teams. Mining companies come from the south looking for minerals. Inuit travel to find food and hunt. This is a similarity between Inuit and mining companies.*

[5] IQ-JT Consulting 2011: *Elders claimed that while they have cabins and regular camping spots they hunt all over and change their land use regularly.*

A generalized map of Nunavut is provided in Figure 3.2-1 and a map of the Kivalliq Region is provided in Figure 3.2-2; this includes:

- Disturbed Areas – depicting areas with previous and current human activity including an operating mine site and its associated access road, municipalities, and shipping routes that supply both mine operations and communities more locally and regionally, barge traffic in Chesterfield Inlet, and shipping routes for marine traffic within Hudson Bay, and Hudson Strait.
- Protected Areas - including national and territorial parks, sanctuaries, and caribou calving grounds. Areas are generally undisturbed by human development activity but many have or currently experience human activity largely in the form of time on the land, tourism, or research.
- Recognized Areas –include the Thelon, Kazan, and Soper Heritage Rivers.

Legend

Important Ecosystem Areas

- National Wildlife Area
- Key bird Habitat
- Migratory Bird Sanctuary
- Protected Area

*Calving Grounds**

- Beverly
- Qamanirjuaq
- Core Caribou Calving and post-calving areas
- Core Caribou Calving and Post-Calving Areas with High Mineral Potential

Important Social Areas

- Historical Sites
- National Historic Sites of Canada
- National Parks Awaiting Full Establishmen
- Heritage Rivers
- Territorial Parks

Development

- Proposed Kiggavik Site
- Communities
- Existing Mine
- Existing Roads

Shipping Route

- Proposed Barge Route
- Proposed Shipping Route

References

Campbell, M. W., J.G. Shaw, C.A. Blyth. 2012. Kivalliq Ecological Land Classification Map Atlas: A Wildlife Perspective.Government of Nunavut, Department of Environment. Technical Report Series # 1-2012. 274 pp.

Nunavut Planning Commission. 2014. Nunavut Land Use Plan. Draft.

Projection: Canada_Lambert_Conformal_Conic
Compiled: TL Drawn:TL
Date: 9/23/2014 Scale: 1:7,000,000
Data Sources: *Natural Resources Canada, Geobase®, Nation Topographic Database, AREVA Resources Canada Inc.*

FIGURE 3.2-1
IMPORTANT SOCIAL AND ECOLOGICAL AREAS IN NUNAVUT

ENVIRONMENTAL IMPACT STATEMENT
APPENDIX 1F

150 0 150
Kilometers

File:Q:\SHEQ\GIS\KIGGAVIK\2014\EIS\Volume 1 - Main Document\Maps\Volume 1 - Tier 1\Appendix 1F\Maps\MXD\Figure 3.2-1 Important Social and Ecological Areas in Nunavut.mxd

KIGGAVIK PROJECT

AREVA

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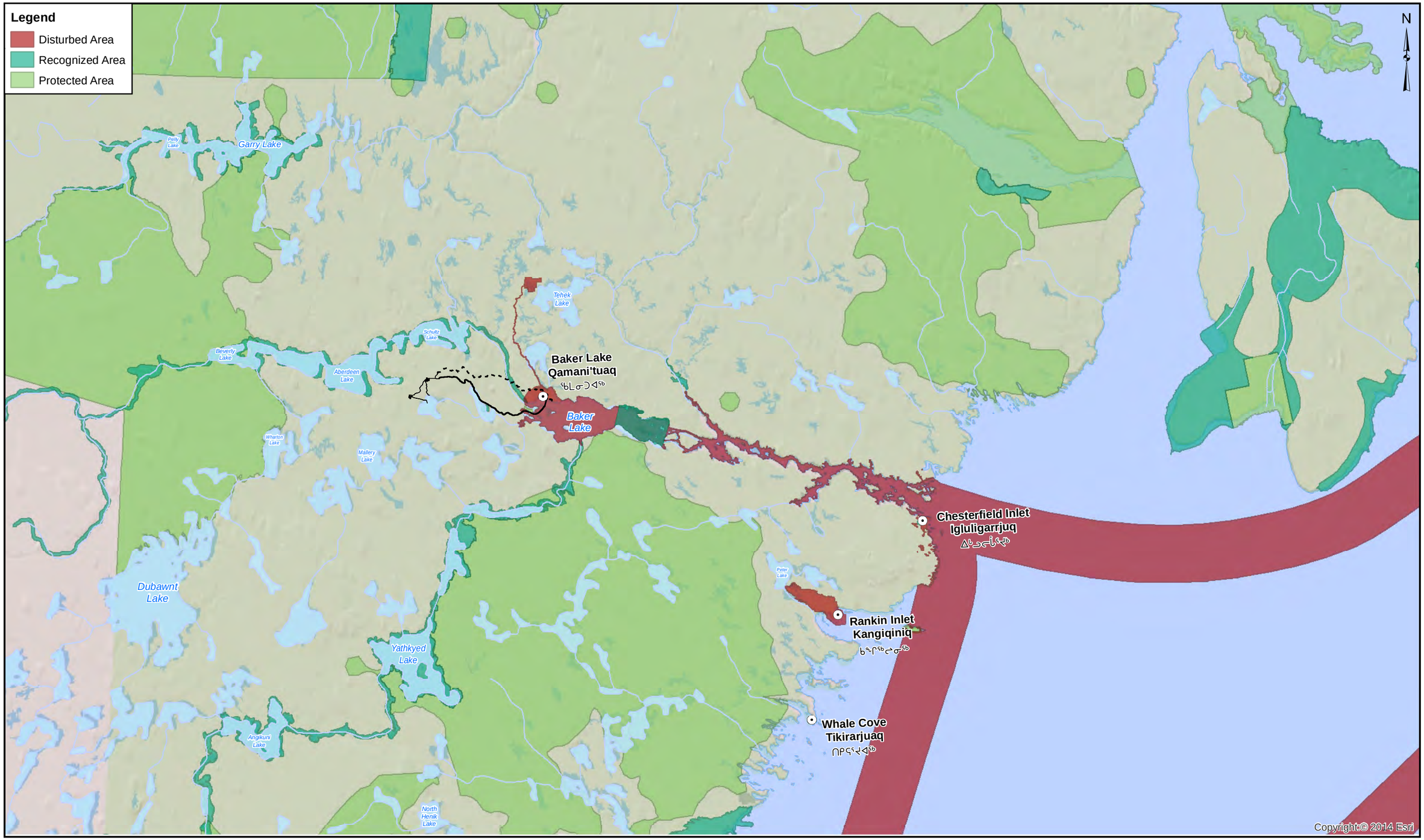

Projection: NAD 1983 UTM Zone 14N
Compiled: TL Drawn: TL
Date: 9/23/2014 Scale: 1:2,500,000
Data Sources: *Natural Resources Canada, Geobase®, Nation Topographic Database, AREVA Resources Canada Inc.*

FIGURE 3.2-2
IMPORTANT SOCIAL AND ECOLOGICAL AREAS IN THE KIVALLIQ REGION

ENVIRONMENTAL IMPACT STATEMENT
APPENDIX 1F

50 0 50
Kilometers

KIGGAVIK PROJECT

AREVA

File: Q:\SHEQ\GIS\KIGGAVIK\2014\EIS\Volume 1 - Main Document\Maps\Volume 1 - Tier 1\Appendix 1F\Maps\MXD\Figure 3.2-2 Important Social and Ecological Areas in the Kivalliq Region.mxd

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3.2.2 Ecologically Sensitive Areas

Within the Kivalliq Region, ecologically sensitive areas include caribou calving grounds and designated wildlife sanctuaries (Figure 3.2-1 and 3.2-2). The Beverly and Qamanirjuaq caribou calving grounds are about 125 to 130 and 90 to 95 km away from Kiggavik mine sites, respectively (See Tier 2, Volume 6 for a full discussion). The closest wildlife sanctuary to the Kiggavik Project is the Thelon Wildlife Sanctuary (approximately 90km). The closest marine sanctuaries to the proposed shipping route are the East Bay and Harry Gibbons marine bird sanctuaries at approximately 70 and 80km, respectively.

3.2.3 Other Protected and Designated Areas

Land areas are also regionally designated for a combination of ecological and social considerations including federal and territorial parks and Heritage Rivers (Figure 3.2-2). Federal parks are selected as representative natural areas protected for public understanding, appreciation, and enjoyment and Nunavut's territorial parks are selected primarily for utility and being on the land. Nunavut parks include prime hunting, fishing, and camping locations and places of historical significance. The nearest territorial Park to the proposed Project is Inuujaarvik Territorial Park, about 65 km to the east. Heritage Rivers are nominated by communities for recognition and promotion of their natural, archaeological, and heritage values and to promote tourism. The Thelon River was originally nominated as a Canadian Heritage River based on its part in history and the Inuit culture, and on the unique wilderness recreation experience it offers (Nunavut Parks 2008).he proposed Kiggavik mine site lies outside of all these areas with the exception of a potential access road crossing of the Thelon River using a cable ferry and ice road (the mine and mine infrastructure and associated environmental interactions remain outside the Thelon watershed). As discussed in detail in the Thelon River attachment to Tier 3, Technical Appendix 9A and non-traditional land uses in Volume 9 Socio-Economic Environment and Community, this crossing is consistent with the management of the Thelon as a Heritage River.

3.2.4 Developed Areas

While much of the Kivalliq region is undeveloped, some areas are currently used for or have previous human development (Figure 3.2-2). These areas include hamlets, the Meadowbank and Meliadine Projects, and associated access roads an infrastructure.

Shipping and barging routes in Hudson Bay and Chesterfield Inlet are currently used to supply hamlets, operating mines and advanced exploration projects (Figure 3.2-2).

3.3 Draft Nunavut Land Use Plan

Regionally, land uses vary to achieve a balance of conservation and development to best encourage self-reliance and social and cultural well-being. The Nunavut Planning Commission (NPC) is responsible under the *Nunavut Land Claims Agreement* to write and implement regional or territorial land use plans. The Kivalliq Region has a land use plan approved in 2000 and at the time of final environmental impact statement preparation, the NPC had completed a draft of a territorial wide land use plan (Nunavut Planning Commission 2014). While this plan is not yet finalized and approved, based on the most recent draft, the proposed and anticipated land use designations, including areas for economic development, are shown in Figure 3.3-1 and Figure 3.3-2.