

KIGGAVIK PROJECT

Project Proposal

Appendix I

Non-Technical Project Summary

Non-Technical Project Summary (English)

Non-Technical Project Summary (Inuktitut)



Non-Technical Project Description

AREVA Resources Canada Inc. (AREVA) has submitted a Project Proposal and permit applications for the development of the Kiggavik Project (the Project). The Project is located in the Kivalliq region of Nunavut, approximately 80 km west of Baker Lake, where potentially economic uranium deposits have been identified. The Project includes properties on Inuit Owned Land and Crown Land.

The proposed Project would conduct uranium mining and milling activities for approximately 20 years and employ a total of 400 to 600 people. Employees would work a fly-in/fly-out rotational schedule so that only about half of the employees would be on site at a time. Upon completion of activities, the Project site would be closed and reclaimed as close as practical to its natural state. Site closure monitoring would continue until site stability is demonstrated to the satisfaction of regulators and communities.

The Project includes the development of four open pit mines (East Zone, Center Zone, Main Zone and Andrew Lake) and one underground mine (End Grid). The ore would be mined using excavating equipment and then trucked to an ore stockpile. The ore would then be directed to the mill to produce between 2,000 and 4,000 tonnes of uranium concentrate, termed yellowcake, per year. Clean waste rock from the mines would be used as construction material or placed on the land in designated areas. Mineralized waste rock would be temporarily placed on the land during operation and then backfilled in the mined-out open pits after mining is complete. Tailings resulting from the extraction of uranium from the rock would be treated and deposited below ground in mined-out open pits. Water used for milling activities would be recycled as much as possible. Water that is discharged would be treated to meet regulatory discharge limits for protection of the environment.

Reagents, fuel and supplies would be barged to a storage facility near Baker Lake and then transported to Kiggavik via truck on a 90 km access road. An airstrip would be constructed on site for the transport of both employees and materials. The airstrip would also be used to transport drums of uranium concentrate by air to southern Canada. A limited number of concentrate drums may be shipped by barge during the open water season.

The Project would also include construction of an accommodation complex for employees, warehouse and maintenance facilities, fuel tanks, explosives storage, water treatment plants, administration buildings, and haul roads.

AREVA continues to gather baseline environmental data and traditional knowledge in the Project area to improve Project design and to evaluate the potential effects of the Project on the people, environment and wildlife of the Kivalliq. AREVA is a major uranium producer in Canada and is

committed to regulatory compliance and public consultation to ensure that potential environmental effects are minimized and that the Project benefits the people of the region.

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KIGGAVIK PROJECT

Project Proposal

Appendix II

Nunavut Impact Review Board Forms

NIRB Part 1 Form (English)

NIRB Part 1 Form (Inuktitut)

NIRB Part 2 Form (English)



PART 1 FORM PROJECT PROPOSAL INFORMATION REQUIREMENTS

For more information about the Nunavut Impact Review Board (NIRB) please visit our web site <http://nirb.nunavut.ca/> or to access NIRB documents, project screenings, and project reviews please visit the Nunavut Impact Review Board ftp site <http://ftp.nunavut.ca/nirb>.

IMPORTANT!

Please be advised that your application will not be processed until the Sections 1 - 9 are completed in their entirety, in both English and Inuktitut (+ Inuinnaqtun, if in the Kitikmeot).

SECTION 1: APPLICANT INFORMATION

1. Project Name Kiggavik

2. Applicant's full name and mailing address:

AREVA Resources Canada Inc.
PO Box 9204, 817-45th Street West
Saskatoon, SK S7K 3X5

Phone: (306) 343-4500
Fax: (306) 343-4640
Email: diane.martens@areva.ca

3. Primary contact's full name and mailing address:

Diane Martens
Same address as above

Phone: (306) 343-4500
Fax: (306) 343-4640
Email: diane.martens@areva.ca

SECTION 2: AUTHORIZATION NEEDED

1. Indicate all authorizations associated with the project proposal:

<input checked="" type="checkbox"/>	Regional Inuit Association (RIA)
<input checked="" type="checkbox"/>	Nunavut Water Board (NWB)
<input checked="" type="checkbox"/>	Nunavut Planning Commission (NPC)
<input checked="" type="checkbox"/>	Indian and Northern Affairs Canada (INAC)
<input checked="" type="checkbox"/>	Department of Fisheries and Oceans (DFO)
<input checked="" type="checkbox"/>	Community Government & Services (CG&S)
<input checked="" type="checkbox"/>	Nunavut Research Institute (NRI)
<input checked="" type="checkbox"/>	Department of Culture, Language, Elders, and Youth (CLEY)

<input type="checkbox"/>	Canadian Launch Safety (CLS)
<input checked="" type="checkbox"/>	Environment Canada (EC)
<input checked="" type="checkbox"/>	Government of Nunavut (GN)
<input type="checkbox"/>	Department of National Defense (DND)
<input checked="" type="checkbox"/>	Hamlet
<input type="checkbox"/>	Parks Canada (PC)
<input type="checkbox"/>	Canadian Wildlife Service (CWS)
<input checked="" type="checkbox"/>	Other (please specify): Canadian Nuclear Safety Commission (CNSC) Please refer to Project Proposal 1.3 – Required Permits, Approvals and Licenses for greater detail and a list of potentially required authorizations.



2. List the active permits, licenses, or other authorizations related to the project proposal, and their expiry date(s):

- KIA Land Use License KVL306C02 expires January 2, 2009
- INAC Land Use Permit N2006C0037 expires April 9, 2009
- NWB License 2BE-KIG0812 Type "B" expires December 31, 2012

Above permit/licenses are for exploration activities and will continue to be renewed regularly to reflect on-going exploration activities.

3. List the pending permits, licenses, or other authorizations related to the project proposal:

For development the following are required:

- Positive NPC conformity decision
- KIA Land Use License
- INAC Land Use Permit,
- NWB Type "A" Water License

Additional submissions that are not required to initiate the regulatory process pursuant to the NLCA will be submitted to the appropriate agencies in due course. Please refer to Project Proposal 1.3 – Required Permits, Approvals and Licenses for greater detail and a list of potentially required authorizations.

Some additional submissions include:

- A Commissioner's land lease if municipal land locations are chosen after site evaluation in the draft EIS. This lease will require authorization from the GN-Dept. of Community and Government Services and the Hamlet.
- NRI authorization for on-going environmental and socioeconomic studies.
- An application for authorization from DFO under the *Fisheries Act* will be submitted shortly after Project Submission so the DFO authorization process can occur concurrently with the review process.

4. Has this project or any components of this project been previously screened or reviewed by NIRB?

☐ X YES

☐ NO

If YES, indicate the previous project name and NIRB File No.

Screening of Kiggavik exploration activities occurred in April 2007 – NIRB file 06AN085



SECTION 3: PROJECT PROPOSAL DESCRIPTION

1. Indicate the type of project proposal (check all that apply)^(1,2):
(See Appendix A for Project Type Definitions)

1	All-Weather Road/Access Trail	X	9	Site Cleanup/Remediation	<input type="checkbox"/>
2	Winter Road/ Winter Trail	X	10	Oil and Natural Gas Exploration/Activities	<input type="checkbox"/>
3	Mineral Exploration	<input type="checkbox"/>	11	Marine Based Activities	X
4	Advanced Mineral Exploration	<input type="checkbox"/>	12	Scientific/International Polar Year Research*	<input type="checkbox"/>
5	Mine Development /Bulk Sampling	X	13	Harvesting Activities*	<input type="checkbox"/>
6	Pits and quarries	X	14	Tourism Activities*	<input type="checkbox"/>
7	Offshore Infrastructure (port, break water, dock)	X	15	Other ⁽²⁾ :	<input type="checkbox"/>
8	Seismic Survey	<input type="checkbox"/>			<input type="checkbox"/>

Please note:

- All project types listed above, except those marked with an asterisk (*), will also require the Proponent to submit a **Part 2 Project Specific Information Requirement (PSIR) Form**. The NIRB application process will not be considered complete without the Part 2 PSIR Form.
- Please be advised that in order to complete the NIRB process, the NIRB may request additional information at any time during the process.
- If "Other" is selected, contact NIRB for direction on whether a Part 2 PSIR Form is required.

2. If Project Type 3, 4 or 5 was selected above, please indicate the mineral of interest that is being extracted. Include a brief description.

<input type="checkbox"/>	Base Metals (zinc, copper, gold, silver, etc)
<input type="checkbox"/>	Diamonds
<input checked="" type="checkbox"/>	Uranium: minerals include pitchblende and coffinite
<input type="checkbox"/>	Other: _____

- 3a. If Project Type 13, 14 or 15 was selected above, complete the table and questions below.

Transportation Type	Quantity	Proposed Use	Length of Use
<i>E.g. Helicopter</i>	<i>1</i>	<i>Site to site pick ups and drop offs</i>	<i>6 days</i>

- 3b. Describe any docks, piers, air strips or related structures that are to be used in conjunction with the proposed project activities. **Please note:** the building of new structures may require a Part 2 Form.



3c. If a temporary camp site is to be established, describe the proposed structures in detail and indicate the type and source of power for the camp site if applicable.

4. Personnel

Total No. of personnel on site = (A)	600 (total Project personnel)	Total No. of days on-site = (B)	183 (each person spends half of year on site)	Total No. of Person days (A) x (B) = 109,800 per year
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5. Timing

Period of operation: from 2012 to 2038
Proposed term of authorization: from 2012 to 2040

6a. Region (check all that apply):

☐ North Baffin ☒ Kivalliq ☐ Kitikmeot ☐ Transboundary: _____
☐ South Baffin ☐ National Park

6b. Describe the location of the proposed project activities in a regional context, noting the proximity to the nearest communities and any protected areas.

The Project is located approximately 80 km west of the community of Baker Lake and 100 km east of the Thelon Wildlife Sanctuary. Major lakes in the area include Baker, Princess Mary, Aberdeen, Schultz, and Judge Sissons Lakes. The nearest critical wildlife area is located approximately 40 km northwest of the Kiggavik site. There will be transportation infrastructure located near the community of Baker Lake.

6c. Discuss the history of the site if it has been used for any project activities in the past.

The Kiggavik area has been explored periodically by airborne survey and diamond drilling since 1974. Feasibility and environmental studies were conducted between 1986 and 1990 by Urangesellschaft Canada Ltd, culminating in a mine development proposal in 1989 that was delayed indefinitely in 1990. Exploration and environmental studies for the current proposal have been on-going since 2007.

6d. Indicate if there are any known archaeological/palaeontological historical sites in the area.

There are a number of archaeological sites in the area, please refer to the Project Proposal Section 6.3 for details of these sites. There are no known palaeontological sites in the area.

7. Land Status (check all that applies):

☒ Crown ☒ Commissioners' ☒ Municipal
☒ Inuit Owned Surface Lands ☒ Inuit Owned Sub-Surface Lands

8a. Co-ordinates:

Min Lat (degree/minute)	<u>64°3.84' N</u>	Min Long (degree/minute)	<u>95°47.31' W</u>
Max Lat (degree/minute)	<u>64°32.292' N</u>	Max Long (degree/minute)	<u>97°55.89' W</u>

NTS Map Sheet No: 056D04, 056D05, 066A01, 066A02, 066A05 – 066A08, 066A11



(Please ensure that maps of the project are attached (1:50,000 if available, 1:250, 000 **Mandatory**) available from Natural Resources Canada)

8b. If the project proposal includes a **camp**, please provide the coordinates of the camp location

Min Lat (degree/minute)	<u>64°26.861' N</u>	Min Long (degree/minute)	<u>97°38.716' W</u>
Max Lat (degree/minute)	<u>64°27.213' N</u>	Max Long (degree/minute)	<u>97°39.634' W</u>

If different from above for the camp:

NTS Map Sheet No: 66A05

Please ensure that maps of the project are attached (1:50,000 if available, 1:250, 000 **Mandatory**) available from Natural Resources Canada

Please note that additional location information may be required in a subsequent Project Specific Information Requirement (PSIR) submission. This may take the form of a digital Geographic Information Systems (GIS) file.

SECTION 4: NON-TECHNICAL PROJECT PROPOSAL DESCRIPTION

Please include a non-technical description of the project proposal, no more than 500 words, in English and Inuktitut (+Inuinnaqtun, if in the Kitikmeot). The project description should outline the following:

- The project activities, their necessity and duration;
- Method of transportation;
- Any structures that will be erected (permanent/ temporary);
- Alternatives considered; and
- Long-term developments, the projected outcome of the development for the area and its timeline.

IMPORTANT: IF THE PROPOSED ACTIVITIES REQUIRE SUBMISSION OF A NIRB PART 2 PSIR FORM, PLEASE COMPLETE SECTION 8 ONLY, OTHERWISE CONTINUE ON WITH SECTION 5.

SECTION 5: MATERIAL USE

1. List equipment to be used (including drills, pumps, aircraft, vehicles, etc.):

Equipment type and number	Size – dimensions	Proposed use

2a. Detail fuel and hazardous material use:

Fuel	Number of Containers and Capacity of Containers	Total Amount of Fuel (in Litres)	Proposed Storage Methods
Diesel			
Gasoline			
Aviation fuel			
Propane			
Other			



Hazardous Materials and Chemicals		Total Amount of Hazardous Materials and Chemicals (in Litres)	

2b. Describe the proposed Spill Prevention Plan.

3a. Detail the anticipated daily water consumption rates

Daily amount (m³)	Proposed water retrieval methods	Proposed water retrieval location

3b. Have you applied for a water License with the Nunavut Water Board?

☐ YES

☐ NO

If yes, what class of licence?

☐ Class A Water Licence

☐ Class B Water Licence

SECTION 6: WASTE DISPOSAL AND TREATMENT METHODS

1. List the types of waste associated with the proposed project activities:

Type of waste	Projected amount generated	Method of Disposal	Additional treatment procedures
Sewage (human waste)			
Greywater			
Combustible wastes			
Non-Combustible wastes			
Overburden (organic soil, waste material, tailings)			
Hazardous waste			
Other:			

2. Describe the proposed Waste Management Plan.



SECTION 7: COMMUNITY INVOLVEMENT & REGIONAL BENEFITS

1. List the community representatives that have been contacted and provide the minutes of the meetings if available:

Community	Name	Organization	Date Contacted

SECTION 8: GENERAL QUESTIONS

1. Will you be disturbing any known archaeological sites?

☒ YES

☐ NO

SECTION 9: APPLICANT SIGNATURE

Please sign and date your application:

Signature

Title

Date

Frédéric Guérin General Manager, Kiggaish-Sissu November 14, 2008



APPENDIX A Project Type Definitions

Access Trail: A project proposal with the objective of providing vehicular access to an area of interest involving minimal alteration to the terrain.

Advanced Exploration: A project proposal with the objective of identifying size, grade, and physical characteristics of a mineral occurrence and to assess the economic and technical feasibility of developing the mineral deposit into a producing mine

All-Weather Road: A project proposal with the objective of road construction for use in all seasons.

Bulk Sampling: A project proposal with the objective of extracting of large samples of mineralized material involving hundreds to thousands of tonnes. Samples are selected as representative of the potential mineral deposit being sampled. May involve crushing/milling (on small-scale)

Harvesting activities: A project proposal with the objective of harvesting animals, marine mammals and/or fish from their natural habitats by means of hunting or trapping for traditional and commercial use.

Marine Based Activities: Any activity occurring in the marine environment, such as vessel use associated with land-based activities or disposal at sea.

*Please note that normal community re-supply or individual ship movements not associated with land-based project proposals shall not be screened by NIRB (Section 12.12.2 of NLCA).

Mine Development: A project proposal with the objective of extracting broken rock with mineralization of sufficient grade and tonnage to sustain commercial mining operations (ore). Mining a body of ore can be achieved by either open pit and/or underground development. Mine development may involve milling. Milling involves treatment of the extracted ore through a combination of mechanical and chemical processes to selectively recover the valuable mineral.

Mineral Exploration: A project proposal with the objective of exploring an area to find geological anomalies. It involves site reconnaissance (ground and/or air) to locate broad and fiscal mineral deposits.

Offshore Infrastructure: A project proposal with the objective of building off loading facilities constructed off the shoreline and connected to the mainland of the marine or freshwater environment. Examples include a jetty, dock, or port facility.

Oil and Gas Exploration/Activities: A project proposal that includes 1) exploration, such as seismic or geological mapping, 2) drilling of oil and gas wells, 3) construction and operation of a pipeline, a gas processing plant or any oil and gas facility within Nunavut.

Pits and Quarries: A project proposal with the objective of pitting, which involves the extraction of granular material (i.e. sands and gravels) and quarrying, which involves the removal of consolidated rock (i.e. bedrock, frozen soil).

Scientific Research: A project proposal with the objective of implementing a series of site activities comprised of observation of phenomena, measurement and collection of data necessary for scientific investigation in designated areas within a limited time period.

Seismic Survey: A project proposal with the objective of conducting a survey to map the depths and contours of rock strata by timing the reflections of sound waves released from the surface. Survey site locations may be offshore (not within 12 nautical miles of any coast), near shore, and extended onshore.

Site Cleanups: A project proposal with the objective of site cleanups (includes DEW line site cleanups), which focuses on the remediation of chemically contaminated soils, stabilization of landfills and dumps, demolition/disposal of infrastructure and debris and monitoring after cleanup is completed.



Tourism Activity: A project proposal with the objective of conducting travel predominantly for recreational, sport or leisure purposes within a designated area and limited time period.

Winter Road: A project proposal with the objective of building a road for winter use by leveling and compacting surface snow and ice. Winter road is removed at end of season.

Winter Trail: A project proposal with the objective of building a trail for winter use by a single pass of a tracked vehicle using a blade, if necessary.



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Δ'Γ'Δ'Δ'Γ'

Frederic Guerin

General Henry Keggwile
Ρ'Γ'Δ'Δ'σ'

November 14, 2008
Δ'Δ'Γ'



SCREENING PART 2 FORM PROJECT SPECIFIC INFORMATION REQUIREMENTS (PSIR)

1. SUBMISSIONS

The Proponent must submit all information pertaining to the Project as a whole. The information requirements below are designed for the purpose of environmental assessment and are not limited to the scope of a single permit or license application.

IMPORTANT: Please be advised of the following:

1. NIRB does not accept references to an ftp site as a submission.	Noted.
2. The Proponent must provide NIRB with 1 (one) electronic copy and 1 (one) hardcopy of the required information in English.	Hard copy and CD enclosed.
3. All maps should be legible, and should include grids, be of appropriate scale, indicate the scale, include latitude and longitude references, title, legend and a north arrow. To the extent possible, avoid hand-drawn demarcations; and,	Noted.
4. Please complete all required information in each section below. If the required information is not applicable to the project proposal, please indicate this in the response with "n/a". If the request has been provided in a different section or report, please note the section or report where the response can be found.	All Section, Table, and Figure references below refer to the Project Proposal submitted with this application. Additional detail will be included in the draft Environmental Impact Statement (DEIS), currently under development.

2. GENERAL PROJECT INFORMATION REQUIREMENTS

Project Coordinates and Maps

1. The preferred method for submitting project coordinates information is through the use of a Geographic Information System (GIS) compatible digital file. Although an ESRI ArcView 3.x shape file (in decimal degrees) is the preferred interchange format, the NIRB has the capacity to receive over 100 GIS and CAD related formats, including MapInfo and AutoCAD, provided proper format and projection metadata is also submitted. The NIRB requires coordinates for the project proposal which reflect the entire project area as defined by: <ul style="list-style-type: none">the area/sites of investigation;the boundaries of the foreseen land use permit/right-of-way area(s) to be applied for;the location of any proposed infrastructure or activity(s); and,the boundaries of the mineral claim block(s) where proposed activities will be undertaken.	Data in enclosed CD
2. Map of the project site within a regional context indicating the distance to the closest communities.	Data in enclosed CD
3. Map of any camp site including locations of camp facilities.	Data in enclosed CD
4. Map of the project site indicating existing and/or proposed infrastructure, proximity to water bodies and proximity to wildlife and wildlife habitat.	Data in enclosed CD

Project General Information

5. Discuss the need and purpose of the proposed project.	Section 1.2.3
6. Discuss alternatives to the project and alternatives to project components, including the no-go alternative. Provide justification for the chosen option(s).	Section 1.2.4
7. Provide a schedule for all project activities.	Section 2.1.2
8. List the acts, regulations and guidelines that apply to project activities.	Section 1.5 (Table 1.2)
9. List the approvals, permits and licenses required to conduct the project.	Section 1.5 (Table 1.1)

DFO Operational Statement (OS) Conformity

10. Indicate whether any of the following Department of Fisheries and Oceans (DFO) Operational Statement (OS) activities apply to the project proposal: <ul style="list-style-type: none"> ▪ Bridge Maintenance ▪ Clear Span Bridge ▪ Culvert Maintenance ▪ Ice Bridge ▪ Routine Maintenance Dredging ▪ Installation of Moorings Please see DFO's OS for specific definitions of these activities available from either NIRB's ftp site at http://ftp.nunavut.ca/nirb/NIRB_ADMINISTRATION/ or DFO's web-site at http://www.dfo-mpo.gc.ca/canwaters-eauxcan/index_e.asp	Section 1.5.1
11. If any of the DFO's OS apply to the project proposal, does the Proponent agree to meet the conditions and incorporate the measures to protect fish and fish habitat as outlined in the applicable OS? If yes, provide a signed statement of confirmation.	Appendix IV

Transportation

12. Describe how the project site will be accessed and how supplies will be brought to site. Provide a map showing access route(s).	Section 2.9 and Figure 2.24
13. If a previous airstrip is being used, provide a description of the type of airstrip (ice-strip/all-weather), including its location. Describe dust management procedures and provide a map showing location of airstrip.	n/a
14. If an airstrip is being constructed, provide the following information: <ul style="list-style-type: none"> a. Discuss design considerations for permafrost b. Discuss construction techniques c. Describe the construction materials, type and sources, and the acid rock drainage (ARD) and metal leaching (ML) characteristics (if rock material is required for airstrip bed). d. Describe dust management procedures. e. Provide a map showing location of proposed airstrip. 	Section 2.8.3
15. Describe expected flight altitudes, frequency of flights and anticipated flight routes.	Sections 2.8.3, 2.9.6, and 2.9.7

Camp Site

16. Describe all existing and proposed camp structures and infrastructure	Sections 1.2.1 and 2.8.7
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17. Describe the type of camp: a. Mobile b. Temporary c. Seasonal d. Permanent e. Other	The existing exploration camp is seasonal whereas the proposed camp would be permanent.
18. Describe the maximum number of personnel expected on site, including the timing for those personnel.	Section 2.8.7

Equipment

19. Provide a list of equipment required for the project and discuss the uses for the equipment.	Section 2
20. If possible, provide digital photos of equipment.	n/a

Water

21. Describe the location of water source(s), the water intake methods, and all methods employed to prevent fish entrapment. Provide a map showing the water intake locations.	Section 2.7.1
22. Describe the estimated rate of water consumption (m ³ /day).	Section 2.7.1
23. Describe how waste water will be managed. If relevant, provide detail regarding location of sumps, including capacity of sumps and monitoring.	Section 2.7.2, 2.7.3, 2.7.4
24. If applicable, discuss how surface water and underground water will be managed and monitored.	Sections 2.3.3.4, 2.3.4.3, and 2.7

Waste Water (Grey water, Sewage, Other)

25. Describe the quantities, treatment, storage, transportation, and disposal methods for the following (where relevant): <ul style="list-style-type: none"> ▪ Sewage ▪ Camp grey water ▪ Combustible solid waste ▪ Non-combustible solid waste ▪ Bulky items/scrap metal ▪ Waste oil/hazardous waste ▪ Contaminated soils/snow ▪ Empty barrels/ fuel drums ▪ Any other waste produced 	Section 2.7
26. If the project proposal includes a landfill or landfarm, indicate the locations on a map, provide the conceptual design parameters, and discuss waste management and contact-water management procedures.	To be included in DEIS.

Fuel

27. Describe the types of fuel, quantities (number of containers, type of containers and capacity of containers), method of storage and containment. Indicate the location on a map where fuel is to be stored, and method of transportation of fuel to project site.	Sections 2.8.1, 2.9.
28. Describe any secondary containment measures to be employed, including the type of material or system used. If no secondary containment is to be employed, please provide justification.	Sections 2.8.1, 2.9.
29. Describe the method of fuel transfer and the method of refuelling.	Sections 2.8.1, 2.9.

Chemicals and Hazardous Materials*

**included but not limited to oils, greases, drill mud, antifreeze, calcium or sodium chloride salt, lead acid batteries and cleaners*

30. Describe the types, quantities (number of containers, the type of container and capacity of containers), method of storage and containment. Indicate the location on a map where material is to be stored, and method of transportation of materials to project site.	Sections 2.5.2, 2.7.6, 2.9.
31. Describe any secondary containment measures to be employed, including the type of material or system used.	Sections 2.7.6, 2.9
32. Describe the method of chemical transfer.	Section 2.5

Workforce and Human Resources/Socio-Economic Impacts

33. Discuss opportunities for training and employment of local Inuit beneficiaries.	Section 7.5
34. Discuss workforce mobilization and schedule, including the duration of work and rotation length, and the transportation of workers to site.	Section 2.9.7, schedule to be included in DEIS.
35. Discuss, where relevant, any specific hiring policies for Inuit beneficiaries.	Section 7.5

Public Involvement/ Traditional Knowledge

36. Indicate which communities, groups, or organizations would be affected by this project proposal.	Sections 3, 7.5
37. Describe any consultation with interested Parties which has occurred regarding the development of the project proposal.	Section 3
38. Provide a summary of public involvement measures, a summary of concerns expressed, and strategies employed to address any concerns.	Section 3
39. Describe how traditional knowledge was obtained, and how it has been integrated into the project.	Section 4
40. Discuss future consultation plans.	Sections 3, 4

3. PROJECT SPECIFIC INFORMATION

The following table identifies the project types identified in Section 3 of the NIRB, Part 1 Form. Please complete all relevant sections.

It is the proponent's responsibility to review all sections in addition to the required sections to ensure a complete application form.

Project Type	Type of Project Proposal	Information Request
1	All-Weather Road/Access Trail	Section A-1 and Section A-2
2	Winter Road/Winter Trail	Section A-1 and Section A-3
3	Mineral Exploration	Section B-1 through Section B-4
4	Advanced Mineral Exploration	Section B-1 through Section B-8
5	Mine Development/Bulk Sampling	Section B-1 through Section B-12
6	Pits and Quarries	Section C
7	Offshore Infrastructure(port, break water, dock)	Section D
8	Seismic Survey	Section E
9	Site Cleanup/Remediation	Section F
10	Oil and Natural Gas Exploration/Activities	Section B-3 and Section G
11	Marine Based Activities	Section H
12	Municipal and Industrial Development	Section I

SECTION A: Roads/Trails

A-1 Project Information

1. Describe any field investigations and the results of field investigations used in selecting the proposed route (e.g. geotechnical, snow pack)	Section 2.9.5
2. Provide a conceptual plan of the road, including example road cross-sections and water crossings.	Section 2.9.5, water crossings are under development.
3. Discuss the type and volume of traffic using the road/trail (i.e. type of vehicles and cargo and number of trips annually).	Section 2.9.5
4. Discuss public access to the road.	Section 2.9.5
5. Describe maintenance procedures.	Section 2.9.5

A-2 All-Weather Road/Access Trail

6. Discuss road design considerations for permafrost.	Section 2.9.5
7. Describe the construction materials (type and sources for materials), and the acid rock drainage (ARD) and metal leaching (ML) characteristics of the construction materials.	Section 2.9.5
8. Discuss construction techniques, including timing for construction activities.	Section 2.9.5
9. Indicate on a map the locations of designated refuelling areas, water crossings, culverts, and quarries/borrow sources.	Section 2.9.5, additional detail to be included in DEIS.
10. Identify the proposed traffic speed and measures employed to ensure public safety.	Section 2.9.5
11. Describe dust management procedures.	Section 2.9.5

A-3 Winter Road/Trail

12. Describe the surface preparation, including the use of snow berms or compaction, and any flooding. If flooding is to be used, provide the location of the water source on a map.	Section 2.9.5.2
13. Describe the operating time period.	Section 2.9.5.2
14. Identify the proposed traffic speed and measures employed to ensure public safety.	Section 2.9.5.2
15. Discuss whether the selected route traverses any fish-bearing water bodies.	Section 2.9.5.2

SECTION B: Mineral Exploration /Advanced Exploration /Development**B-1 Project Information**

1. Describe the type of mineral resource under exploration.	Section 2.2
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B-2 Exploration Activity

2. Indicate the type of exploration activity: <ul style="list-style-type: none"> ▪ Bulk Sampling (underground or other) ▪ Stripping (mining shallow bedded mineral deposits in which the overlying material is stripped off, the mineral removed and the overburden replaced) ▪ Trenching ▪ Pitting ▪ Delineation drilling ▪ Preliminary Delineation drilling ▪ Exploration drilling ▪ Geophysical work (indicate ground and/or air) ▪ Other 	Section 2.3
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3. Describe the exploration activities associated with this project: <ul style="list-style-type: none"> ▪ Satellite remote sensing ▪ Aircraft remote sensing ▪ Soil sampling ▪ Sediment sampling ▪ On land drilling (indicate drill type) ▪ On ice drilling (indicate drill type) ▪ Water based drilling (indicate drill type) ▪ Overburden removal ▪ Explosives transportation and storage ▪ Work within navigable waters ▪ On site sample processing ▪ Off site sample processing ▪ Waste rock storage ▪ Ore storage ▪ Tailings disposal ▪ Portal and underground ramp construction ▪ Landfilling ▪ Landfarming ▪ Other 	Sections 2.3, 2.4, and 2.6.
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B-3 Geosciences

4. Indicate the geophysical operation type: <ul style="list-style-type: none"> a. Seismic (please complete Section E) b. Magnetic c. Gravimetric d. Electromagnetic e. Other (specify) 	n/a
5. Indicate the geological operation type: <ul style="list-style-type: none"> a. Geological Mapping b. Aerial Photography c. Geotechnical Survey d. Ground Penetrating Survey e. Other (specify) 	n/a
6. Indicate on a map the boundary subject to air and/or ground geophysical work.	n/a
7. Provide flight altitudes and locations where flight altitudes will be below 610m.	To be provided in DEIS.

B-4 Drilling

Note: Current AREVA exploration activities have received the required authorizations from Indian & Northern Affairs Canada, the Nunavut Water Board and the Kivalliq Inuit Association.

8. Provide the number of drill holes and depths (provide estimates and maximums where possible).	n/a
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9. Discuss any drill additives to be used.	n/a
10. Describe method for dealing with drill cuttings.	n/a
11. Describe method for dealing with drill water.	n/a
12. Describe how drill equipment will be mobilized.	n/a
13. Describe how drill holes will be abandoned.	n/a
14. If project proposal involves uranium exploration drilling, discuss the potential for radiation exposure and radiation protection measures. Please refer to the <i>Canadian Guidelines for Naturally Occurring Radioactive Materials</i> for more information.	n/a

B-5 Stripping/ Trenching/ Pit Excavation

15. Discuss methods employed. (i.e. mechanical, manual, hydraulic, blasting, other)	Section 2.3
16. Describe expected dimensions of excavation(s) including depth(s).	Section 2.3
17. Indicate the locations on a map.	Figures 2.2 and 2.3
18. Discuss the expected volume material to be removed.	Section 2.3 and 2.4
19. Discuss methods used to determine acid rock drainage (ARD) and metal leaching (ML) potential and results.	Section 2.4

B-6 Underground Activities

20. Describe underground access.	Section 2.3.4.2
21. Describe underground workings and provide a conceptual plan.	Section 2.3.4.2
22. Show location of underground workings on a map.	Figure 2.3
23. Describe ventilation system.	Section 2.3.4.2
24. Describe the method for dealing with ground ice, groundwater and mine water when encountered.	Section 2.3
25. Provide a Mine Rescue Plan.	To be included with DEIS.

B-7 Waste Rock Storage and Tailings Disposal

26. Indicate on a map the location and conceptual design of waste rock storage piles and tailings disposal facility.	Figures 2.2, 2.3, 2.4 and 2.5.
27. Discuss the anticipated volumes of waste rock and tailings.	Sections 2.4.4, 2.6
28. Discuss methods used to determine acid rock drainage (ARD) and metal leaching (ML) potential and results.	Sections 2.4 and 2.6

B-8 Stockpiles

29. Indicate on a map the location and conceptual design of all stockpiles.	Figures 2.2, 2.3
30. Describe the types of material to be stockpiled. (i.e. ore, overburden)	Sections 2.3, 2.4
31. Describe the anticipated volumes of each type of material to be stockpiled.	Sections 2.3, 2.4
32. Describe any containment measures for stockpiled materials as well as treatment measures for runoff from the stockpile.	Sections 2.3, 2.4
33. Discuss methods used to determine acid rock drainage (ARD) and metal leaching (ML) potential and results.	Sections 2.3, 2.4

B-9 Mine Development Activities

34. Indicate the type(s) of mine development activity(s): <ul style="list-style-type: none">▪ Underground▪ Open Pit▪ Strip Mining▪ Other	Section 2.3
35. Describe mine activities. <ul style="list-style-type: none">▪ Mining development plan and methods▪ Site access▪ Site infrastructure (e.g. airstrip, accommodations, offshore infrastructures, mill facilities, fuel storage facilities, site service roads)▪ Milling process▪ Water source(s) for domestic and industrial uses, required volumes, distribution and management.▪ Solid waste, wastewater and sewage management▪ Water treatment systems▪ Hazardous waste management▪ Ore stockpile management▪ Tailings containment and management▪ Waste rock management▪ Site surface water management▪ Mine water management▪ Pitting and quarrying activities (please complete Section C)▪ Explosive use, supply and storage (including on site manufacturing if required)▪ Power generation, fuel requirements and storage▪ Continuing exploration▪ Other	Section 2
36. Describe the explosive type(s), hazard class, volumes, uses, location of storage (show on map), and method of storage.	Section 2.3.3

B-10 Geology and Mineralogy

37.	Describe the physical nature of the ore body, including known dimensions and approximate shape.	Section 2.2
38.	Describe the geology/ mineralogy of the ore deposit	Section 2.2
39.	Describe the host rock in the general vicinity of the ore body.	Section 2.2
40.	Discuss the predicted rate of production.	Section 2.3
41.	Describe mine rock geochemical test programs which have been or will be performed on the ore, host rock, waste rock and tailings to determine acid generation and contaminant leaching potential. Outline methods and provide results if possible.	Sections 2.3, 2.4, 2.6

B-11 Mine

42.	Discuss the expected life of the mine.	Section 2.3
43.	Describe mine equipment to be used.	Section 2.3
44.	Does the project proposal involve lake and/or pit dewatering? If so, describe the activity as well as the construction of water retention facilities if necessary.	Sections 2.3.3.4, 2.3.4.3
45.	Discuss the possibility of operational changes occurring during the mine life with consideration for timing. (e.g. open pit to underground)	Section 2.3
46.	If project proposal involves uranium mining, consider the potential for radiation exposure and radiation protection measures. Particular attention should be paid to <i>The Nuclear Safety and Control Act</i> .	Noted. Design optimization is on-going and will be detailed in the DEIS.

B-12 Mill

47.	If a mill will be operating on the property in conjunction with mining, indicate whether mine-water may be directed to the mill for reuse.	Sections 2.5, 2.7
48.	Describe the proposed capacity of the mill.	Section 2.5
49.	Describe the physical and chemical characteristics of mill waste as best as possible.	Section 2.6
50.	Will or does the mill handle custom lots of ore from other properties or mine sites?	There is potential for additional developments in the area, however, these are not included in the current study.

SECTION C: Pits and Quarries

1.	Describe all activities included in this project. <ul style="list-style-type: none"> ▪ Pitting ▪ Quarrying ▪ Overburden removal ▪ Road use and/or construction (please complete Section A) ▪ Explosives transportation and storage ▪ Work within navigable waters ▪ Blasting ▪ Stockpiling ▪ Crushing ▪ Washing ▪ Other 	Section 2
2.	Describe any field investigations and the results of field investigations used in determining new extraction sites.	Section 2.2
3.	Identify any carving stone deposits.	Section 5.4
4.	Provide a conceptual design including footprint.	Figures 2.2 and 2.3
5.	Describe the type and volume of material to be extracted.	Sections 2.2, 2.3
6.	Describe the depth of overburden.	Sections 2.2, 2.3, 5.4
7.	Describe any existing and potential for thermokarst development and any thermokarst prevention measures.	Section 2.3, additional detail to be provided in DEIS
8.	Describe any existing or potential for flooding and any flood control measures.	Sections 2.3.3.4, 2.3.4.3
9.	Describe any existing or potential for erosion and any erosion control measures.	Sections 2.3.3, 2.3.4
10.	Describe any existing or potential for sedimentation and any sedimentation control measures.	To be included in DEIS
11.	Describe any existing or potential for slumping and any slump control measures.	Sections 2.3, 5.4
12.	Describe the moisture content of the ground.	To be included in DEIS
13.	Describe any evidence of ice lenses.	Section 2.2, 2.3, 5.4
14.	If blasting, describe methods employed.	Section 2.3
15.	Describe the explosive type(s), hazard class, volumes, uses, location of storage (show on map), and method of storage.	Sections 2.3, 2.8.5
16.	Discuss methods used to determine acid rock drainage (ARD) and metal leaching (ML) potential and results.	Section 2.4
17.	Discuss safety measures for the workforce and the public.	Section 7

SECTION D: Offshore Infrastructure

D-1 Facility

1. Describe any field investigations and the results of field investigations used in selecting the site (i.e. aerial surveys, bathymetric surveys, tidal processes, shoreline erosion processes, geotechnical foundation conditions)	Section 2.9.4
2. Provide a conceptual plan, profile description and drawing(s) indicating shoreline, facility footprint, tidal variations, required vessel draft, keel offset, deck height freeboard	To be included in DEIS
3. Discuss how anticipated loads on the seabed foundation and on the offloading platform will be incorporated into the design.	To be included in DEIS
4. Describe how vessels will manoeuvre around the facility. (e.g. pull alongside or in front)	Section 2.9.4
5. Discuss the anticipated life of the facility.	Approximately 25 years (construction, operation, and decommissioning periods)

D-2 Facility Construction

6. Describe the types of material used for construction (i.e. granular or rock, steel piling or sheet piling, concrete). If material is granular, consider acid rock drainage potential, metal leaching potential, percentage of fines, size.	To be included in DEIS
7. Describe dredging activities.	To be included in DEIS
8. Indicate source of granular or rock material used in construction.	To be included in DEIS
9. List quantities of the various types of material used in construction.	To be included in DEIS
10. Describe construction method(s).	To be included in DEIS
11. Indicate whether a site engineer will be on-site to inspect construction.	A site engineer and local observers oversee all construction activities
12. If proposed construction method involves dumping of fill into water, discuss measures for mitigating the release of suspended solids.	To be included in DEIS

D-3 Facility Operation

13. Describe maintenance activities associated with the facility (e.g. dredging, maintenance to account for potential settlement of facility,)	To be included in DEIS
14. Discuss whether the public will have access to the facility(s) and describe public safety measures.	Public access is not proposed at this time.
15. Describe cargo and container handling, transfer and storage facilities.	Section 2.9.4

16.	Indicate whether fuel will be transferred from barges at this site and describe the method of that fuel transfer.	Section 2.9.4
17.	Discuss frequency of use.	Section 2.9

D-4 Vessel Use in Offshore Infrastructure

18. Please complete Section H

SECTION E: Seismic Survey

E-1 Offshore Seismic Survey

<ol style="list-style-type: none"> 1. Indicate whether the survey is 2D or 3D at each site 2. Describe the type of equipment used, including: <ul style="list-style-type: none"> ▪ Type and number of vessels including length, beam, draft, motors, accommodation capacity, operational speeds when towing and when not towing ▪ Sound source (type and number of airguns) ▪ Type and number of hydrophones ▪ Number, length, and spacing of cables/ streamers 3. On a map, indicate the grid, number of lines and total distance covered at each site. 4. Indicate the discharge volume of the airguns, the depth of airgun discharge, and the frequency and duration of airgun operation at each site. 5. Discuss the potential for dielectric oil to be released from the streamer array, and describe proposed mitigation measures. 6. Indicate whether additional seismic operations are required for start-up of operations, equipment testing, repeat coverage of areas. 7. Indicate whether air gun procedures will include a “ramping up” period and, if so, the proposed rate of ramping up. 8. Indicate whether the measures described in the <i>Statement of Canadian Practice for Mitigation of Noise in the Marine Environment</i> will be adhered to for this project. 	n/a
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E-2 Nearshore/ Onshore Seismic Survey

<ol style="list-style-type: none"> 9. For each site, indicate whether nearshore and onshore surveys will be conducted during the ice season or once the ice has melted 10. Describe how nearshore and onshore areas will be accessed. 11. Describe the survey methods to be used (e.g. explosive charge, vibration, air or water gun, other) 12. Describe equipment to be used 13. If applicable, indicate number, depth and spacing of shot holes 14. Describe explosive wastes including characteristics, quantities, treatment, storage, handling, transportation and disposal methods. 	n/a
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E-3 Vessel Use in Seismic Survey

Please complete Section H	n/a
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SECTION F: Site Cleanup/Remediation

<ol style="list-style-type: none">1. Describe the location, content, and condition of any existing landfills and dumps (indicate locations on a map).2. Identify salvageable equipment, infrastructure and/or supplies.3. Provide a list of all contaminants to be cleaned up, anticipated volumes and a map delineating contaminated areas. This includes buildings, equipment, scrap metal and debris, and barrels as well as soil, water (surface and groundwater) and sediment.4. Describe the degree of pollution/contamination, and list the contaminants and toxicity.5. Describe technologies used for clean-up and/or disposal of contaminated materials. Include a list of all the physical, chemical and biological cleanup/ remediation methods, operational procedures, and the dosage/frequency of reagents and bacterial medium.6. Identify and describe all materials to be disposed of off site, including the proposed off site facilities, method of transport and containment measures.7. Discuss the viability of landfarming, given site specific climate and geographic conditions.8. Describe the explosive types, hazard classes, volumes, uses, location of storage (indicate on a map), and method of storage (if applicable).9. If blasting, describe the methods employed.10. Describe all methods of erosion control, dust suppression, and contouring and re-vegetation of lands.11. Describe all activities included in this project.<ul style="list-style-type: none">▪ Excavation (please complete Section B-5)▪ Road use and/or construction (please complete Section A)▪ Airstrip use and/or construction▪ Camp use and/or construction▪ Stockpiling of contaminated material▪ Pit and/or quarry (please complete Section C)▪ Work within navigable waters (please complete Section H)▪ Barrel crushing▪ Building Demolition▪ Other	n/a
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SECTION G: Oil and Natural Gas Exploration/Activities

G-1 Well Authorization

<p>1. Identify the location(s) of the well centre(s) by latitude and longitude. Attach a map drawn to scale showing locations of existing and proposed wells.</p> <p>2. Indicate if the site contains any known former well sites.</p> <p>3. Include the following information for each well:</p> <ul style="list-style-type: none">a. Well nameb. Surface locationc. Proposed bottomhole locationd. Ground elevation (in metres)e. Spacing area (in units)f. Identify the well type:<ul style="list-style-type: none">i. Productionii. Injectioniii. Disposaliv. Observationv. Storagevi. Experimentalvii. Other (specify)g. Identify the well classification:<ul style="list-style-type: none">i. Exploratory wildcatii. Exploratory outpostiii. Developmenth. Drilling operation (deviation):<ul style="list-style-type: none">i. Verticalii. Directionaliii. Horizontaliv. Slanti. Objective Zones (copy chart style below) <table border="1" data-bbox="321 1276 1377 1411"><thead><tr><th>Objective Formation</th><th>Fluid (oil/gas/water)</th><th>Depth (mTVD)</th><th>Core (Y/N)</th></tr></thead><tbody><tr><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td></tr></tbody></table> <ul style="list-style-type: none">j. Proposed Total Depth in mTDV and mMD.k. Formation of Total Depthl. Sour well? (yes or no)<ul style="list-style-type: none">i. If Yes: Maximum H₂S concentration in mol/kmol Emergency planning zone radius in kmm. Blowout Prevention (Well Class I – VI)n. Deviation Surveys<ul style="list-style-type: none">i. Will be run at intervals less than 150m? (yes or no)o. Wireline logs<ul style="list-style-type: none">i. Will run logs in hole for surface casing? (yes or no)ii. Will run a minimum of 2 porosity measuring logs? (yes or no)	Objective Formation	Fluid (oil/gas/water)	Depth (mTVD)	Core (Y/N)													n/a
Objective Formation	Fluid (oil/gas/water)	Depth (mTVD)	Core (Y/N)														

G-2 On-Land Exploration

Note: Current AREVA exploration activities have received the required authorizations from Indian & Northern Affairs Canada, the Nunavut Water Board and the Kivalliq Inuit Association.

<ol style="list-style-type: none"> 4. Indicate if the site contains any known: <ol style="list-style-type: none"> a. Waste Dumps b. Fuel and Chemical Storage Areas c. Sump Areas d. Waste Water Discharge Locations 5. Attach maps drawn to scale showing locations of existing and proposed items identified in (2) above, as well as all proposed: <ol style="list-style-type: none"> a. Sumps b. Water sources c. Fuel and chemical storage facilities d. Drilling mud storage areas e. Transportation routes 6. If utilizing <i>fresh water</i>, estimate maximum drawdown and recharge capability of the river or lake from which water will be drawn. 7. Indicate if permafrost is expected to be encountered under: <ol style="list-style-type: none"> a. Camp Facilities b. Well Site c. Access Routes d. Sumps e. Other: _____ 8. Indicate any potential for encountering artesian aquifers or lost circulation within the surface hole (to casing depth). 9. Will drilling wastes contain detrimental substances (including, but not limited to, oil-based or invert mud and high salinity fluids)? If yes, indicate the substances and estimated volumes. 10. Indicate methods for disposal of drilling wastes: <ol style="list-style-type: none"> a. Sump b. Down Hole (requires NEB approval) c. On-Site Treatment (provide plan) d. Off-Site (give location and method of disposal) 11. If a sump is being used, attach the following information: <ol style="list-style-type: none"> a. scale drawings and design of sumps b. capacity in cubic metres c. berm erosion protection d. soil permeability and type e. recycling/reclaiming waters f. surface drainage controls g. abandonment procedures 12. Attach the proposed or existing contingency plan which describes the course of action, mitigative measures and equipment available for use in the event of system failures and spills of hazardous materials. 13. Attach an outline of planned abandonment and restoration procedures. 	<p>n/a</p>
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G-3 Off-Shore Exploration

14. Will drilling wastes contain detrimental substances (including, but not limited to, oil-based or invert mud and high salinity fluids)? If yes, indicate the substances and estimated volumes. 15. Attach the proposed or existing contingency plan which describes the course of action, mitigative measures and equipment available for use in the event of system failures and spills of hazardous materials. 16. Attach an outline of planned abandonment and restoration procedures. 17. Please complete Section H	n/a
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G-4 Rig

18. Type of Rig. Draw works, make and model 19. Derrick/Mast make and model 20. H.P. available to draw-works	n/a
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SECTION H: Marine Based Activities

H-1 Vessel Use

<ol style="list-style-type: none">1. Describe the purpose of vessel operations.2. List classes and sizes of vessels to be used.3. Indicate crew size.4. Indicate operating schedule.5. Provide a description of route to be traveled (include map).6. Indicate whether the vessel will call at any ports. If so, where and why?7. Describe wastes produced or carried onboard including the quantities, storage, treatment, handling and disposal methods for the following:<ol style="list-style-type: none">a. Ballast waterb. Bilge waterc. Deck drainaged. Grey and black watere. Solid wastef. Waste oilg. Hazardous or toxic waste8. List all applicable regulations concerning management of wastes and discharges of materials into the marine environment9. Provide detailed Waste Management, Emergency Response and Spill Contingency Plans10. Does the vessel(s) possess an Arctic Pollution Prevention Certificate? If yes, indicate the date of issue and the name of the classification society.11. Describe the source of fresh water and potable water12. Indicate whether ice-breaking will be required, and if so, approximately where and when? Discuss any possible impacts to caribou migration, Inuit harvesting or travel routes, and outline proposed mitigation measures.13. Indicate whether the operation will be conducted within the Outer Land Fast Ice Zone of the East Baffin Coast. For more information on the Outer Land Fast Ice Zone, please see the Nunavut Land Claims Agreement (NLCA), Articles 1 and 16.14. Indicate whether Fisheries or Environmental Observers will be onboard during the proposed project activities. If yes, describe their function and responsibilities.15. Describe all proposed measures for reducing impacts to marine habitat and marine wildlife (including mammals, birds, reptiles, fish, and invertebrates).	<p>Sections 2.9 and 7.2.6. Note that AREVA intends to use a qualified contractor for shipping activities and therefore the indicated level of detail is not currently available.</p>
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H-2 Disposal at Sea

<ol style="list-style-type: none">1. Provide confirmation you have applied for a <i>Disposal at Sea</i> permit with Environment Canada2. Provide a justification for the disposal at sea3. Describe the substance to be disposed of, including chemical and physical properties4. Indicate the location where the disposal is to take place5. Describe the frequency of disposals (disposals per day/week or month)6. Describe the route to be followed during disposal and indicate on a map.7. Indicate any previous disposal methods and locations8. Provide an assessment of the potential effects of the disposal substance on living marine resources9. Provide an assessment of the potential of the disposal substance, once disposed of at sea, to cause long-term physical effects.10. Describe all mitigation measures to be employed to minimize the environmental, health, navigational and aesthetic impacts during loading, transport and disposal.	n/a
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SECTION I: Municipal and Industrial Development

<ol style="list-style-type: none">1. Describe the business type, including public, private, limited, unlimited or other.2. Describe the activity (e.g. development of quarry, development of hydroelectric facility, bulk fuel storage, power generation with nuclear fuels or hydro, tannery operations, meat processing and packing, etc.).3. Describe the production process or service provision procedures.4. Describe the raw materials used in this activity, the storage and transportation methods. If hazardous materials are included in raw materials, products or by-products; include safety regulations methodology.5. Provide detailed information about the structure and/or building in which the activity will be conducted.6. List the PPE (personal protective equipment) and tools to be used to protect personal health and safety.7. Describe the firefighting equipment that are or will be installed.8. Describe the noise sources, noise level in work area, technical measurements that will be adopted to abate the noise levels and regulatory requirements for noise abatement and noise levels.9. Describe the type of gaseous emission that will be produced during this activity. Include the allowable thresholds and mitigation measures.10. Describe odours that the activity might release and include corresponding allowable threshold. Describe mitigation measures if thresholds are exceeded.11. Describe radiation sources that might be emitted during the activity. Include type and source and include mitigation measures. Also describe preventative measures for human exposure (i.e. PPE).12. Discuss the employee safety and environment protection training program.13. If the activity involves a bulk fuel storage facility, include drawings showing the bulk fuel storage facility location in proximity to natural water courses, high water marks, etc.14. If the activity involves the development of a new quarry or expansion of an existing quarry, complete Section C.	<p>Sections 2.9.4 and 7.</p> <p>Additional detail will be included in the DEIS</p>
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4. DESCRIPTION OF THE EXISTING ENVIRONMENT

Describe the existing environment, including physical, biological and socioeconomic aspects. Where it is appropriate, identify local and regional study areas.

Please note that the detail provided in the description of the existing environment should be appropriate for the type of project proposal and its scope.

The following lists are intended as a guide only.

Physical Environment

Please note that a description of the physical environment is intended to cover all components of a project, including roads/trails, marine routes, etc

<ul style="list-style-type: none">▪ Proximity to designated environmental areas, including parks; heritage sites; sensitive areas, including sensitive marine habitat areas (recreational areas; sport and commercial fishing areas; breeding, spawning and nursery areas; known migration routes of living ;marine resources; and areas of natural beauty, cultural or historical history and; other) and protected wildlife areas; and other protected areas.▪ Eskers and other unique landscapes (e.g. sand hills, marshes, wetlands, floodplains).▪ Evidence of ground, slope or rock instability, seismicity.▪ Evidence of thermokarsts▪ Evidence of ice lenses▪ Surface and bedrock geology.▪ Topography.▪ Permafrost (e.g. stability, depth, thickness, continuity, taliks).▪ Sediment and soil quality.▪ Hydrology/ limnology (e.g. watershed boundaries, lakes, streams, sediment geochemistry, surface water flow, groundwater flow, flood zones).▪ Tidal processes and bathymetry in the project area.▪ Water quality and quantity.▪ Air quality.▪ Climate conditions and predicted future climate trends.▪ Noise levels.▪ Other physical Valued Ecosystem Components (VEC) as determined through community consultation and/or literature review.	Section 5
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Biological Environment

<ul style="list-style-type: none"> ▪ Vegetation. ▪ Wildlife, including habitat and migration patterns. ▪ Birds, including habitat and migration patterns. ▪ Species of concern as identified by federal or territorial agencies, including any wildlife species listed under the <i>Species at Risk Act</i> (SARA), its critical habitat or the residences of individuals of the species. ▪ Aquatic (freshwater and marine) species, including habitat and migration/spawning patterns. ▪ Other biological Valued Ecosystem Components (VEC) as determined through community consultation and/or literature review. 	Sections 5.10, 5.11, 5.12
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Socioeconomic Environment

<ul style="list-style-type: none"> ▪ Proximity to communities. ▪ Archaeological and culturally significant sites (e.g. pingos, soap stone quarries) in the project and adjacent areas. ▪ Palaeontological component of surface and bedrock geology. ▪ Land and resource use in the area, including subsistence harvesting, tourism, trapping and guiding operations. ▪ Local and regional traffic patterns. ▪ Human Health, broadly defined as a complete state of wellbeing (including physical, social, psychological, and spiritual aspects). ▪ Other Valued Socioeconomic Components (VSEC) as determined through community consultation and/or literature review. 	Section 6
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5. IDENTIFICATION OF IMPACTS AND PROPOSED MITIGATION MEASURES

1. Please complete the attached Table 1 – Identification of Environmental Impacts, taking into consideration the components in Appendix A. Identify impacts in Table 1 as either positive (P), negative and mitigable (M), negative and non- mitigable (N), or unknown (U).	Attached
2. Discuss the impacts identified in the above table.	Section 7
3. Discuss potential socioeconomic impacts, including human health.	Sections 7.3 and 7.5
4. Discuss potential for transboundary effects related to the project.	Section 7.6
5. Identify any potentially adverse effects of the project proposal on species listed under the <i>Species at Risk Act</i> (SARA) and their critical habitats or residences, what measures will be taken to avoid or lessen those effects and how the effects will be monitored.	Sections 5.11, 5.12, 7.2
6. Discuss proposed measures to mitigate all identified negative impacts.	Section 7

7. CUMULATIVE EFFECTS

Discuss how the effects of this project interact with the effects of relevant past, present and reasonably foreseeable projects in a regional context.	Section 8
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8. SUPPORTING DOCUMENTS

<p>Where relevant, provide the following supporting documents:</p> <ul style="list-style-type: none">▪ Abandonment and Decommissioning Plan▪ Existing site photos with descriptions▪ Emergency Response Plan▪ Comprehensive Spill Prevention/Plan (must consider hazardous waste and fuel handling, storage, disposal, spill prevention measures, staff training and emergency contacts)▪ Waste Management Plan/Program▪ Monitoring and Management Plans (e.g. water quality, air pollution, noise control and wildlife protection etc.)▪ If project activities are located within Caribou Protection Areas or Schedule 1 Species at Risk known locations, please provide a Wildlife Mitigation and Monitoring Plan	Sections 2.10, 10
<p>In addition, for Project Type 9 (Site Cleanup/Remediation), please provide the following additional supporting documents:</p> <ul style="list-style-type: none">▪ Remediation Plan including cleanup criteria and how the criteria were derived.▪ Human Health Risk Assessment of the contaminants at the site.	n/a

TABLE 1 - IDENTIFICATION OF ENVIRONMENTAL IMPACTS

Proponent Notes: It has been assumed that all impacts are relative to the pre-development condition, rather than relative to the condition of the previous Project phase. Unknown effects also refer to effects whereby there are both positive and negative interactions and the overall balance is currently unclear.

KIGGAVIK PROJECT

Project Proposal

Appendix III

Kivalliq Inuit Association and Community Resolutions

Kivalliq Inuit Association Resolution

Hamlet of Arviat Resolution

Hamlet of Baker Lake Resolution

Hamlet of Chesterfield Inlet Resolution

Hamlet of Coral Harbour Resolution

Hamlet of Rankin Inlet Resolution

Hamlet of Repulse Bay Resolution

Hamlet of Whale Cove Resolution

**Kivalliq Inuit Association
Special Board Meeting
January 9 & 10, 2007**

Motion # BM 07-01-15

Re: AREVA Resources Canada Inc.

Be it resolved that: The Kivalliq Inuit Association supports the efforts by AREVA Resources Canada Inc. to enter into the environmental assessment process for advancing the Kiggavik-Sissons uranium property West of Baker Lake. This support is conditional on and subject to all regulatory requirements.

Moved by: Joe Aupaluktuq
Seconded by: Bernard Putulik Sr.

Unanimous

Motion Carried

Subject: Motion 111/2007

1 ***Motion #111/2007***

Moved by: Councillor, Ranahan

Seconded by: Councillor, Kuksuk

Be It Resolved that Arviat Hamlet supports AREVA Resources to proceed to a full environmental review process.

-Carried-

Areva

Resolution 172/06/12/07

Moved by Councillor McLean

Seconded by Councillor Kadjuk

“Whereas, Areva Resources Canada has been re-examining the feasibility of advancing the Kiggavik-Sissions uranium property, west of Baker Lake, and;

Whereas, Areva Resources Canada has opened an office in Baker Lake and proposed establishment of a Baker Lake Liaison Group, and;

Whereas, Nunavut Tunngavik Incorporated (NTI) has developed a draft consultation document and draft Uranium policy, and;

Whereas, the Nunavut Planning Commission is planning to conduct information sessions on uranium development, pursuant to requirements of the Kivalliq Regional Land Use Plan;

Be it resolved that the Hamlet of Baker Lake:

1. Supports efforts by Areva resources Canada to inform and consult with organizations and residents of Baker lake on its plans for this property, and

2. supports Areva Resources plans to advance this property, subject to:

*Areva Resources satisfying residents of Baker Lake that any exploration and development activities will meet the highest standards for protection of the environment and human health.

*Areva Resources satisfying the residents of Baker Lake that any exploration and development activities for maximum economic and social benefits to the community.

3. Supports Nunavut Tunngavik Incorporated efforts to develop a policy on uranium.

4. Supports Nunavut Planning Commission efforts to clarify the conditions in the Kivalliq Land Use Plan respecting uranium development.” Carried.



CHESTERFIELD INLET, N.U. X0C 0B0

PHONE 898-9951

Resolution # 069/08

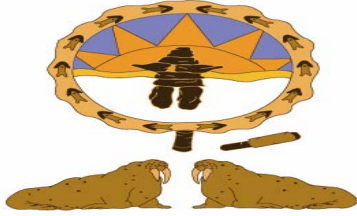
Whereas, Areva Resources Canada has been re-examining the feasibility to advancing the Kiggavik-Sissions uranium property, west of Baker Lake;

Be it resolved that the Hamlet of Chesterfield Inlet:

Supports Areva Resources to advance this property, subject to:

- Areva Resources satisfying the residents of the Kivalliq region that any exploration and development activities will meet the highest standards for protection of the environment and human health;
- Areva Resources satisfying the residents of Chesterfield Inlet that any exploration and development activities for maximum economic and social benefits to the community.

"Carried Unanimously"



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X0C 0C0

ᐱᐱᐱᐱ: 867 - 925 - 8867

ᐱᐱᐱᐱ: 867 - 925 - 8233

ᐱᐱᐱᐱᐱᐱᐱ:

HAMLET OF CORAL HARBOUR

P.O. BOX 30

CORAL HARBOUR, NUNAVUT

X0C 0C0

PHONE: 867 - 925 - 8867

FAX: 867 - 925 - 8233

E-MAIL: munch@qiniq.com

May 8, 2008

Motion No. 122/08

Moved By: Marvin Dion

Seconded By: Joseph Angootealuk

Whereas *Nunavut Tunngavik Incorporated* (NTI) has drafted a draft consultation document and draft Uranium Policy, and ;

Whereas the *Nunavut Planning Commission* is planning to conduct information sessions on Uranium development pursuant to requirements of the *Kivalliq Regional Land Use Plan*;

BE IT RESOLVED THAT THE HAMLET OF CORAL HARBOUR;

1. Supports the efforts by *Areva Resources Canada* (and any other uranium project to consult with stakeholders (Council, organizations, businesses, and residents) on their plans for the property, and
2. Supports *Areva Resources Canada* to move forward with this project ensuring that the highest standards in environmental protection as well as health and safety will be met while maximizing the economic and social benefits to the community.
3. Supports *Nunavut Tunngavik Incorporated* efforts to develop a policy on Uranium.
4. Supports *Nunavut Planning Commission* efforts to clarify the conditions in the *Kivalliq Land Use Plan* respecting Uranium development and exploration.
5. Supports the regulatory process that states “**any future proposal to mine Uranium must be approved by the people of the region**”.

Mayor and Hamlet Council of Coral Harbour

Resolution # 526-06

Moved By Councillor Merritt

Seconded By Councillor Kanayok

Be it resolved that council supports efforts by Areva Resources to inform and consult with the residents of Rankin Inlet, and supports Areva Recourses plans to advance the Kiggavik/Sissons property provided that any exploration and development activities will provide for maximum economic and social benefits to the residents and community of Rankin Inlet.

“Carried Unanimously”

HAMLET OF REPULSE BAY

"ON THE ARCTIC CIRCLE"

Phone: (867) 462-9952 Fax (867) 462-4411

FAX TRANSMISSION SHEET

TO: John Hodgson

DEPARTMENT/AGENCY: KIA

No of Pages Including Cover:

4

Date: February 28, 2007

Phone No.: 645-2800

Fax No.: 645-2348

Re: Council Resolution

From:

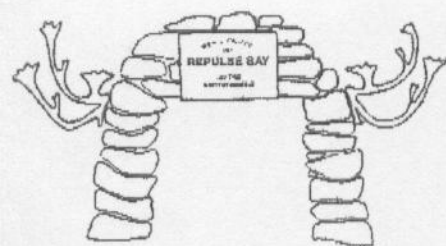
<input type="checkbox"/> Johnny Tagornak, Mayor	<input checked="" type="checkbox"/> Grant Scott, SAO saorepulse@qiniq.com
<input type="checkbox"/> Annie Angotingoar, Assistant SAO	<input type="checkbox"/> Elizabeth Kusugak, Finance Officer
<input type="checkbox"/> Roland Tungilik, Foreman	<input type="checkbox"/> Steven Kopak, Finance Officer Trainee
<input type="checkbox"/> Hugh Haqpi, Municipal Liaison Officer	<input type="checkbox"/> Dennis Kaunak, Maintenance
<input type="checkbox"/> Isaki Kidlapik, Acting Recreation Director	<input type="checkbox"/> Donna Tukurdjuk, Lands Officer
<input type="checkbox"/> Cyril Kusugak, DPW	<input type="checkbox"/> Godeliva Putulik, Community Outreach
<input type="checkbox"/> Jessie Nuluk, Post Mistress	<input type="checkbox"/> Other
<input type="checkbox"/> Urgent <input type="checkbox"/> For Review <input type="checkbox"/> Please Comment <input type="checkbox"/> Please Reply <input type="checkbox"/> FYI	

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Notes/ Comments:

John – this resolution was passed at the Regular Council Meeting held on February 27, 2007

**MUNICIPALITY OF REPULSE BAY**

P.O. BOX 10

REPULSE BAY, NUNAVUT X0C 0H0

TELEPHONE: (867) 462-9952 FAX: (867) 462-4411

February 27, 2007

Resolution No. 045-2007

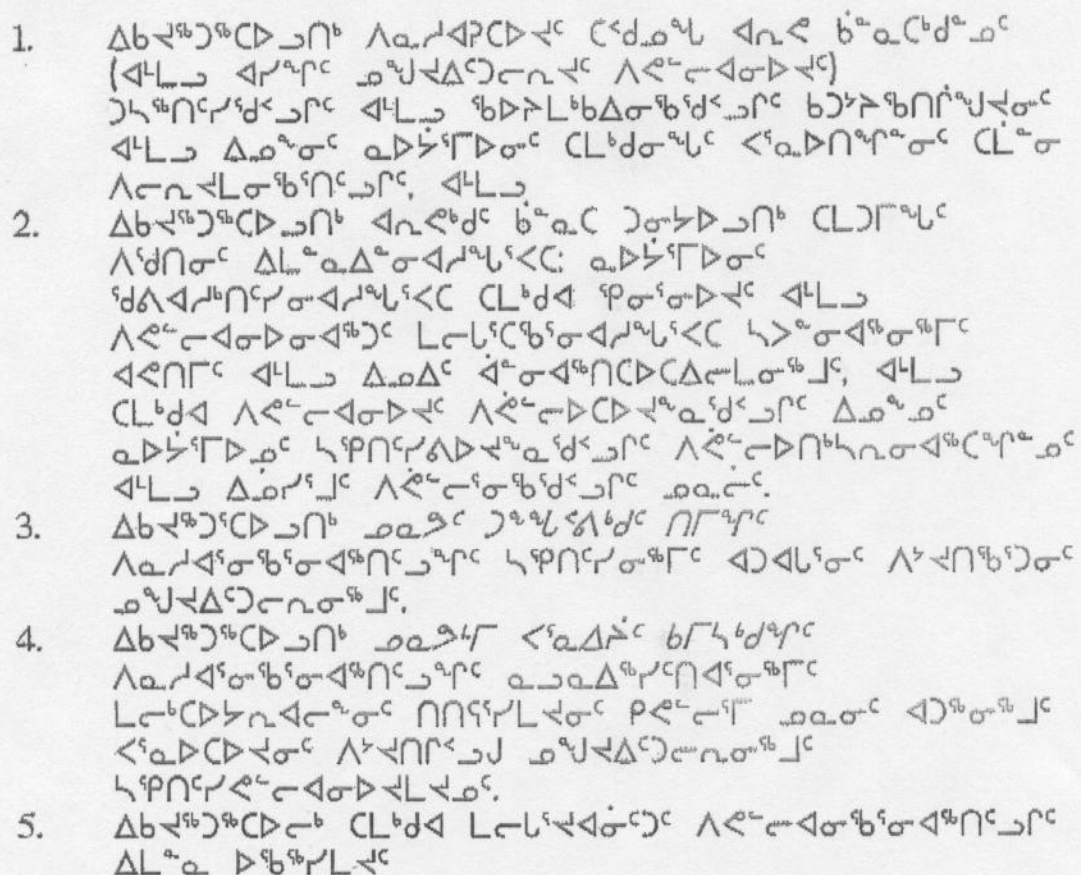
Moved By: John Kaunak
Seconded By: Richard Angotialuk

WHEREAS *Nunavut Tunngavik Incorporation (NTI)* has developed a draft consultation document and draft *Uranium Policy*, and;

WHEREAS the *Nunavut Planning Commission* is planning to conduct information sessions on Uranium development pursuant to requirements of the *Kivalliq Regional Land Use Plan*;

BE IT RESOLVED THAT THE HAMLET OF REPULSE BAY:

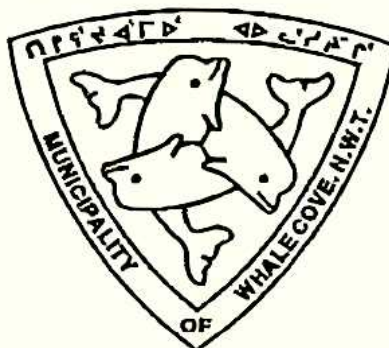
1. Supports efforts by *Areva Resources Canada* (and any other Uranium Project) to inform and consult with organizations and residents of Repulse Bay on their plans for the their property, and
2. Supports *Areva Resources Canada* to advance this property subject to: having them satisfy the residents of Repulse Bay that any exploration and development activities will meet the highest standards for protection of the environment and human health, and as well any Project will benefit the residents of Repulse Bay by providing maximum economic and social benefits to the community.
3. Supports *Nunavut Tunngavik Incorporated* efforts to develop a policy on Uranium.
4. Supports *Nunavut Planning Commission* efforts to clarify the conditions in the *Kivalliq Land Use Plan* respecting Uranium development.
5. Supports the regulatory process that states "any future proposal to mine uranium must be approved by the people of the region".



[illegible]

HAMLET OF WHALE COVE

POST OFFICE BOX 120
 WHALE COVE, NUNAVUT, X0C 0J0
 Telephone: (867) 896-9961 ~ Fax: (867) 896-9109



Facsimile Cover Sheet

From: []	Percy Kabloona	Mayor
[X]	Clayton Croucher	Senior Administrative Officer
[]	Mary Adjuk	Finance Officer
[]	Guy Enuapik	Works Foreman
[]	Susie Kritterdlik	Sec/Interpreter
[]	Mary Sammurtok	Community Economic Development Officer
[]	Irene Oklaga	Community Lands Officer
[]	Sharron Okalik	Community Liaison Officer
[]	Sheba Arualak	Recreation Co-ordinator
[]	_____	Other

Number of pages to follow: 1 Original to follow: Yes [] no [X]

Date: August 27/07

To: Bany McCallum

Fax Number: (306) 343-4640

Memo: Resolution

HAMLET OF WHALE COVE

POST OFFICE BOX 120
WHALE COVE, NUNAVUT, X0C 0J0
Telephone: (867) 896-8961 ~ Fax: (867) 896-9109



Resolution 175

Whereas , Areva Resources Canada has been re-examining the feasibility to advancing the Kiggavik-Sissions uranium property, west of Baker Lake;

Be it resolved that the Hamlet of Whale Cove:

Supports Areva Resources to advance this property, subject to:

- Areva Resources satisfying the residents of the Kivalliq region that any exploration and development activities will meet the highest standards for protection of the environment and human health;
- * Areva Resources satisfying the residents of Whale Cove that any exploration and development activities for maximum economic and social benefits to the community.

KIGGAVIK PROJECT
Project Proposal

Appendix IV

Department of Fisheries and Oceans Statement of Conformity



VIA COURIER

November 14, 2008

Joanne Rose
Area Licensing Administrator
Fisheries and Oceans Canada – Eastern Arctic Area
Building 1074, PO Box 358
Iqaluit, Nunavut X0A 0H0
Tel: (867) 979-8000
nunavuthabitat@dfo-mpo.gc.ca

Amy Liu
Habitat Management Biologist
Fisheries and Oceans Canada – Eastern Arctic Region
304-3027 Harvester Road
Burlington, Ontario
Tel: (905) 639-0122
amy.liu@dfo-mpo.gc.ca

Dear Ms. Rose and Ms. Liu:

**Re: Kiggavik Project Proposal
DFO Operational Statement of Conformity, Review and Authorization**

AREVA Resources Canada Inc. (AREVA) is proposing to develop a uranium ore mine and mill in the Kivalliq region of Nunavut, approximately 80 km west of the community of Baker Lake. Conformity to applicable Department of Fisheries and Oceans (DFO) Operational Statements and an *Authorization for Works or Undertakings Affecting Fish Habitat* will be required for the development of this uranium mine and mill. This letter serves to indicate that

1. AREVA agrees to meet the conditions and incorporate measures to protect fish and fish habitat as outlined in applicable DFO Operational Statements as they relate to the Kiggavik project.
2. Understanding that a prerequisite for issuance of a DFO authorization is the completion and positive result of an environmental assessment, AREVA is also writing to notify DFO that we will be seeking *Authorization for Works or Undertakings Affecting Fish Habitat* from DFO following the regulatory review process under the *Nunavut Land Claim Agreement (NLCA)*.

The following Nunavut specific DFO Nunavut Operational Statement activities may apply to the Kiggavik Project:

- Bridge Maintenance
- Clear Span Bridges
- Culvert Maintenance
- Ice Bridges and Snow Fills
- Moorings

AREVA agrees to meet the conditions and incorporate measures to protect fish and fish habitat as outlined in the applicable DFO Operational Statements.

Understanding that aspects of the proposed Kiggavik Project may not fit under the Nunavut specific DFO Operational Statements, AREVA is providing DFO with the enclosed project proposal for project review. Upon review, AREVA anticipates that DFO will require AREVA to apply for and receive a *Schedule VI Authorization for*

AREVA Resources Canada Inc.

P.O. Box 9204 — 817 - 45th Street West — Saskatoon, SK S7K 3X5 — CANADA
Tel: 1 (306) 343-4500 — Fax: 1 (306) 653-3883 — Web Site: www.avevaresources.ca



Works or Undertakings Affecting Fish Habitat to remain in compliance with the *Fisheries Act*. AREVA has initiated the Nunavut impact review process and is hopeful to receive a Nunavut Impact Review Board (NIRB) Project Certification in 2012. While appreciating that DFO authorization cannot be granted until receipt of a NIRB Project Certificate, AREVA would like to initiate negotiations early in the review process to allow for an expedited process following the issuance of a NIRB Project Certificate. AREVA looks forward to working with DFO to avoid, minimize and compensate for fish habitat loss.

Please note that a copy of this application has been forwarded to the Nunavut Planning Commission (NPC) and NIRB in a separate package as it fulfils DFO Operational Statement Conformity requirements 10 and 11 of the General Project Information Requirements of NIRB's Part 2 Screening Form.

We are available to provide any further information required for consideration of this proposed project. Please feel free to contact myself or Diane Martens at (306) 343-4042 or diane.martens@areva.ca.

Yours truly,

A handwritten signature in blue ink, appearing to read 'Frederic Guerin', with a long horizontal flourish extending to the right.

Frederic Guerin, Ph.D
General Manager, Kiggavik-Sissons
AREVA Resources Canada Inc.
Tel: (306) 343-4631
Fax: (306) 343-4640
frederic.guerin@areva.ca
AREVA group

Cc:
Brian Aglukark (NPC)
Stephanie Autut (NIRB)
ARC

KIGGAVIK PROJECT
Project Proposal

Appendix V

Selected Environmental Data

Table AV.1	Flood Magnitude and Frequency Analysis for Qinguq Creek (1970 to 1994).....	AV-1
Table AV.2	Flow Duration Analysis for Qinguq Creek.....	AV-1
Table AV.3	Summary of Aquatic Baseline Information.....	AV-2
Table AV.4	2007 Sediment Chemistry Data from Lakes in the Kiggavik Project Area.....	AV-4
Table AV.5	Fish Species Distribution in the Kiggavik and Baker Lake Areas.....	AV-5
Table AV.6	Physical Characteristics of Lakes in the Study Area.....	V-6
Table AV.7	Biotic Indices Summary for the Benthic Invertebrate Communities.....	AV-7
Table AV.8	Fish likely to be found in Chesterfield Inlet (adapted from Fishbase 2006).....	AV-8
Table AV.9	Soil Chemistry Results.....	AV-9
Table AV.10	Chemical Analysis of Vegetation Samples Collected from Kiggavik.....	AV-10
Table AV.11	Chemical Analysis of Vegetation Samples Collected from Sissons	AV-12

Table AV.1 Flood Magnitude and Frequency Analysis for Qinguq Creek (1970 to 1994)

Exceedance Probability	Approximate Return Interval (yr)	Discharge (m³/s)
0.99	1.01	9.4
0.95	1.05	16.8
0.9	1.11	22.1
0.8	1.25	29.8
0.5	2	48.3
0.2	5	70.3
0.1	10	82.3
0.05	20	92.1
0.02	50	102.6
0.01	100	109.2

Table AV.2 Flow Duration Analysis for Qinguq Creek

Frequency of Exceedance	Daily Discharge (m³/s)
1%	39.2
2%	26.3
5%	12.0
10%	6.2
20%	2.6
30%	0.7
40%	0

Table AV.3 Summary of Aquatic Baseline Information Collected from the Kiggavik Project Area Between 1975 and 2007

Watershed	Siamese	Kavisilik		Willow										
Water body	Siamese Lake	Kavisilik Lake	Skinny Lake	Escarpment Lake	Felsenmeer Lake	Meadow Lake	Drum Lake	Lin Lake	Scotch Lake	Jaegar Lake	Sik Sik Lake	Pointer Lake	Rock Lake	Willow Lake
Water Quality		1980	1986, 1988, 1989, 2007	1986, 1988, 1989	1986	1986	1986	1979	1979, 1980, 1986, 1988	1979, 1980, 1988, 1989	1979, 1986, 2007	1979, 1980, 1986, 1988 ^(e) , 1989, 1991, 2007		2007
Sediment Chemistry			1986, 2007	1986	1986			1986	1979, 1988	1979, 1988	2007	1979, 1988, 1991, 2007		1986, 2007
Phytoplankton									1979	1979, 1989		1979, 1989, 1991		
Zooplankton									1979	1979, 1989, 1991		1979, 1989, 1991		
Benthic Invertebrate Community		1980	1989 ^(b)						1979, 1980	1989 ^(b)	2007	1979, 1980, 1989 ^(b) , 1990, 2007		2007
Bathymetry ^(a)		1979-1986	1979-1986	1979-1986	1979-1986	1979-1986	1979-1986	1979-1986	1979-1986	1979-1986, 2007	1979-1986	1979-1986, 2007	1979, 1980, 1986	1979-1986, 2007
Fish Community		1986	1986	1986	1986		1980	1986	1986	1980, 2007	2007	1979, 1986, 1988, 2007		1980, 2007
Fish Chemistry					1986			1986				1988		1986

Table AV.3 Summary of Aquatic Baseline Information Collected from The Kiggavik Sissons Project Area between 1975 and 2007 (Continued)

Watershed	Caribou					Boulder	Sissons	Lower										Squiggly	Baker
Water body	Ridge Lake	Cirque Lake	Crash Lake	Fox Lake	Caribou Lake	Boulder Lake	Judge Sissons Lake	Lower Lake	Bear Island Lake	Shack Lake	Andrew Lake	Cigar Lake	End Grid Lake	Smoke Lake	Knee Lake	Lunch Lake	Mushroom Lake	Squiggly Lake	Baker Lake
Water Quality	1986, 1988, 1989, 1991, 2007	1986, 1989, 2007	1979, 1980, 1986, 2007	2007	1986		1979, 1980, 1986, 1988, 1989, 1991	2007		1990, 2007	2007	1991	2007	1990	1990	1990	1991	1980	1975, 1979, 1980, 1989
Sediment Chemistry	1986, 2007	1986, 2007	1988, 2007	2007	1986	1986	1979, 1986, 1988, 1991	1990 ^(c) , 2007		1990, 1991, 2007	2007		2007	1990		1990			
Phytoplankton	1989, 1991	1989					1979, 1989, 1990, 1991	1990, 1991	1990	1990		1990, 1991		1990			1990, 1991		1975
Zooplankton	1989	1989					1979, 1989, 1991	1990	1990	1990		1990, 1991		1990	1990	1990	1990, 1991		1975
Benthic Invertebrate Community	1989, 2007 ^(b)	2007	2007	2007			1979, 1980	1990 ^(d) , 2007		1990 ^(d) , 2007	2007	1990	2007	1990	1990 ^(d)	1990 ^(d)	1990	1980	1975
Bathymetry ^(a)	1979-1986, 2007	1979-1986, 2007	1979-1986, 2007	1979-1986, 2007	1979-1986		1979-1986	2007		2007	2007		2007	1990				1979-1986	
Fish Community	1986, 2007	1986, 2007	1980, 2007	1980, 2007	1986		1979, 1986	1990, 2007	1990	1990, 2007	1990, 2007	1990	2007	1990	1990	1990	1990	1980	1975
Fish Chemistry	1986				1986		1980	1990			1990	1990					1990		1989

Notes:
a = Bathymetry surveys conducted in 1979, 1980, and 1986.
b = Samples were collected in the outlet in 1989.
c = Sediment samples collected 1km upstream of Lower Lake in unnamed pond.
d = Benthic invertebrate samples collected in lakes in inlet streams in 1990.
e = water quality samples also collected in Pointer lake tributary.
Source: BEAK 1990 and 1992; Golder 2008a.

Table AV.4

2007 Sediment Chemistry Data from Lakes in the Kiggavik Project Area

Parameter	Units	Sediment Quality Guidelines		Willow Lake Sub basin					Lower Lake Sub basin								Caribou Lake Sub basin								Kavisilik Lake Sub basin
				Willow Lake	Sik Sik Lake		Pointer Lake		Lower Lake		Shack Lake		Andrew Lake		End Grid Lake		Fox Lake		Crash Lake		Cirque Lake		Ridge Lake		Skinny Lake
		ISQG	PEL	WIL-SD2	SSL-SD1	SSL-SD2	PRL-SD1	PRL-SD2	LWL-SD1	LWL-SD2	SHL-SD1	SHL-SD2	ANL-SD1	ANL-SD2	EGL-SD1	ENL-SD2	FXL-SD1	FXL-SD2	CRL-SD1	CRL-SD2	CQL-SD1	CQL-SD2	RDL-SD1	RDL-SD2	SKL-SD1
Nutrients																									
Nitrite+Nitrate nitrogen	µg/g	-	-	9	10	10	10	9	7	10	5	4	5	4	4	8	10	10	9	8	10	10	20	20	5
Ammonia as nitrogen	µg/g	-	-	30	140	90	60	70	100	100	6	10	7	20	10	30	80	60	40	80	120	70	120	100	120
Phosphorus, total	µg/g	-	-	710	990	1,000	940	1040	920	950	350	350	270	240	290	330	840	800	460	530	820	730	2520	1130	1420
Metals																									
Aluminium	µg/g	-	-	10,300	29,400	22,400	14,100	18,900	19,500	18,000	5,000	4,300	4,100	4,100	6,000	7,200	20,100	20,500	13,900	21,500	32,000	17,100	20,800	24,200	21,200
Arsenic	µg/g	5.9	17.0	5.3	11	9.7	6.5	7.4	7.8	7.3	2.7	1.5	1.3	2.4	2	2.8	6.6	5.9	8.4	8.6	10	5	31	8.2	8.7
Barium	µg/g	-	-	180	360	290	140	310	240	200	76	68	54	58	62	83	280	290	230	320	470	280	480	440	330
Beryllium	µg/g	-	-	0.9	1.6	1.3	0.8	1.1	1.2	1	0.3	0.3	0.3	0.3	0.3	0.4	1	1.1	0.8	1.2	2.3	1.3	1.5	1.6	2.3
Boron	µg/g	-	-	<1	30	15	9	28	<1	2	8	<1	<1	<1	<1	1	1	24	<1	28	35	18	<1	10	<1
Cadmium	µg/g	0.6	3.5	<0.1	0.2	0.2	<0.1	0.2	0.2	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.2	<0.1	0.2	0.2	0.6	<0.1	<0.1	<0.1	0.3
Chromium	µg/g	37.3	90.0	23	39	37	34	37	40	44	8.7	8.6	6.2	6.6	10	12	40	47	31	27	44	31	27	43	29
Cobalt	µg/g	-	-	4.3	8.8	7.5	5.2	5.4	8.9	7.8	3.1	1.9	1.8	1.5	2.8	2.8	5.6	5.8	7.6	7.1	11	4.6	7.1	6.6	5.4
Copper	µg/g	35.7	197	9.6	44	24	19	33	19	25	120	8.9	21	130	4.7	20	30	44	12	32	58	47	29	45	62
Iron	µg/g	-	-	15000	34,700	23,200	15,900	15,400	27,600	26,400	5,500	5,800	5,700	5,200	6,200	8,800	12,300	12,600	15,900	16,700	24,500	14,400	52,800	26,800	32,900
Lead	µg/g	35.0	91.3	8.3	14	11	10	14	11	11	11	4	4	13	2.7	4.7	16	16	6.3	9.5	17	13	12	14	16
Manganese	µg/g	-	-	150	390	260	140	160	280	230	52	54	43	51	60	83	140	150	140	170	330	160	480	280	200
Mercury	µg/g	0.17	0.486	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Molybdenum	µg/g	-	-	0.4	0.5	0.5	0.6	0.7	0.5	0.6	0.2	<0.1	<0.1	0.2	<0.1	0.4	0.7	0.4	1	1.4	8.2	2.5	5.9	2.9	1.7
Nickel	µg/g	-	-	16	40	32	19	29	34	32	14	7.2	7.1	11	9.3	12	31	32	24	30	48	23	29	33	23
Selenium	µg/g	-	-	<0.1	0.4	0.3	0.5	0.4	0.2	0.2	1.3	0.4	0.3	1.2	<0.1	0.2	0.3	0.3	<0.1	0.2	0.9	0.3	0.4	0.5	0.8
Silver	µg/g	-	-	<0.1	0.6	<0.1	<0.1	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.8	<0.1	<0.1	<0.1	0.2	<0.1	0.3	<0.1	0.2	0.2	0.2
Strontium	µg/g	-	-	110	240	230	170	190	200	170	44	50	38	37	39	49	140	120	70	99	160	110	150	140	99
Titanium	µg/g	-	-	320	610	550	450	570	670	660	200	180	150	170	190	240	380	390	180	360	410	310	270	340	230
Uranium	µg/g	-	-	1.9	3.3	2.7	1.9	2.7	2.9	2.5	1.1	0.9	0.8	0.7	0.9	1.9	2.1	2.2	1.6	2.2	5.6	2	2.2	2.5	5.5
Vanadium	µg/g	-	-	22	45	41	29	34	40	41	9.6	9.2	8.2	8.4	11	15	30	32	25	30	44	27	34	38	27
Zinc	µg/g	123	315	45	120	69	62	76	83	100	410	29	74	440	13	70	83	130	51	110	150	130	76	100	170
Radionuclides																									
Radium-226	Bq/g	-	-	0.03	0.05	0.04	0.06	0.04	0.04	0.04	0.03	<0.01	0.02	0.02	<0.01	0.02	0.04	0.04	0.04	0.05	0.07	0.03	0.06	0.04	0.1
Lead-210	Bq/g	-	-	0.02	0.12	0.06	0.07	0.08	0.17	0.12	<0.02	<0.02	<0.02	0.02	<0.02	0.03	0.12	0.06	0.05	0.12	0.13	0.12	0.1	0.12	0.24
Polonium-210	Bq/g	-	-	0.06	0.09	0.09	0.08	0.08	0.11	0.11	0.02	0.01	0.02	0.02	0.02	0.05	0.15	0.06	0.03	0.09	0.14	0.09	0.08	0.14	0.28
Thorium-230	Bq/g	-	-	0.04	0.06	0.05	0.05	0.06	0.07	0.07	0.04	<0.02	0.03	0.02	<0.02	0.02	0.03	0.05	0.04	0.04	0.09	0.05	0.06	0.06	0.09

Notes: µg/g = Micrograms per gram; Bq/g = Becquerel per gram; < = less than; - = not available.
ISQG = Interim Sediment Quality Guidelines (CCME 2002); PEL = Probable Effect Levels (CCME 2002).
Shaded values are over the ISQG guidelines; bolded values are over the PEL levels.
Source: Golder (2008a)

Table AV.5 Fish Species Distribution in the Kiggavik and Baker Lake Areas From 1975 to 2007 (Note: * = no field information; Source = BEAK 1990 and 1992; Golder 2008a)

Fish Species	Longnose Sucker	Lake Cisco	Lake Whitefish	Round Whitefish	Arctic Grayling	Lake Trout	Arctic Char	Ninespine Stickleback	Burbot	Slimy Sculpin	Fourhorn Sculpin
	<i>Catostomus catostomus</i>	<i>Coregonus artedii</i>	<i>Coregonus clupeaformis</i>	<i>Prosopium cylindraceum</i>	<i>Thymallus arcticus</i>	<i>Salvelinus namaycush</i>	<i>Salvelinus alpinus</i>	<i>Pungitius pungitius</i>	<i>Lota lota</i>	<i>Cottus cognatus</i>	<i>Myoxocephalus quadricornis</i>
Lower Lake Sub Basin											
Andrew Lake					X	X			X		
Lower Lake		X			X	X					
Bear Island Lake					X	X					
Shack Lake					X	X					
Cigar Lake		X		X	X	X					
End Grid Lake					X						
Smoke Lake		X			X						
Knee Lake					X	X					
Lunch Lake		X		X	X	X					
Mushroom Lake		X		X	X	X					
Judge Sissons Lake Sub Basin											
Judge Sissons Lake		X		X	X	X		X	X	X	
Boulder Lake Sub Basin											
Boulder Lake*											
Willow Lake Sub Basin											
Pointer Lake		X		X	X	X		X			
Escarpment Lake				X	X	X					
Felsenmeer Lake				X	X	X					
Meadow Lake											
Drum Lake					X						
Lin Lake					X						
Scotch Lake				X		X		X		X	
Jaegar Lake											
Sik Sik Lake								X			
Rock Lake*											
Willow Lake					X	X		X			
Caribou Lake Sub Basin											
Caribou Lake					X	X					
Ridge Lake						X					
Cirque Lake					X			X			
Crash Lake					X						
Fox Lake					X	X					
Lower Lake Sub Basin											
Siamese Lake*											
Kavisilik Lake Sub Basin											
Skinny Lake		X		X	X	X					
Kavisilik Lake		X		X	X	X					
Squiggly Lake Sub Basin											
Squiggly Lake				X	X	X	X		X		
Baker Lake Sub Basin											
Baker Lake	X	X	X	X	X	X	X	X	X	X	X

Table AV.6 Physical Characteristics of Lakes in the Study Area

Lake Name	Maximum Water Depth (m)	Mean Water Depth (m)	Surface Area (ha)	Lake Volume (m ³)	Drainage Area (km ²)	No. of Fish Species
Lower Lake Sub Basin						
Andrew Lake	NA	0.2	54	12.6 x 10 ⁴		3
Lower Lake	1.0	0.4	49	21.2 x 10 ⁴		3
Bear Island Lake	1.0	0.5	36.5	18.3 x 10 ⁴		2
Shack Lake	1.0	0.6	60	38.2 x 10 ⁴		2
Cigar Lake	NA	1.5	113	169 x 10 ⁴		4
End Grid Lake						1
Smoke Lake	1.3	1.3	63.5	81.8 x 10 ⁴		2
Knee Lake	1.0	0.2	34.9	5.8 x 10 ⁴		2
Lunch Lake	NA	0.6	77.8	46.7 x 10 ⁴		4
Mushroom Lake	8.0	2.6	40.0	104 x 10 ⁴		4
Judge Sissons Lake Sub Basin						
Judge Sissons Lake	20	4.6	9,550	4.4 x 10 ⁸	680	7
Boulder Lake	*					*
Willow Lake Sub Basin						
Pointer Lake	2.9	1.5	374	5.6 x 10 ⁶	82	5
Escarpment Lake	8	2.2	13	2.8 x 10 ⁵	2.4	3
Felsenmeer Lake	6	2	20.8	4.2 x 10 ⁵	1.4	3
Meadow Lake	2	0.8	14	1.2 x 10 ⁵	4.1	-
Drum Lake	2	1.3	25	3.3 x 10 ⁵	5.4	1
Lin Lake	NA	1.3	48	6.3 x 10 ⁵	7.6	1
Scotch Lake	6	3.5	201	7.1 x 10 ⁶	19	4
Jaeger Lake	4.0	1.6	281	4.6 x 10 ⁶	56	1
Sik Sik Lake	2	0.8	16	1.3 x 10 ⁵	2.4	1
Rock Lake	NA	1.4	26.9	37.7 x 10 ²		
Willow Lake	2	1.4	55	7.7 x 10 ⁵	104	3
Caribou Lake Sub Basin						
Caribou Lake	2	1.4	341	4.9 x 10 ⁶	80	2
Ridge Lake	6	2.3	16.7	3.8 x 10 ⁵	2.3	1
Cirque Lake	4	2.6	5.6	1.5 x 10 ⁵	1.1	2
Crash Lake	2	1.1	8.1	8.7 x 10 ⁴	14	1
Fox Lake	2	1.7	128	2.2 x 10 ⁶	29	2
Siamese Lake Sub Basin						
Siamese Lake	*		2,750		85	*
Kavisilik Lake Sub Basin						
Skinny Lake	12	3.1	197	6.1 x 10 ⁶	122	4
Kavisilik Lake	12	4.2	564	2.4 x 10 ⁷	156	4
Squiggly Lake Sub Basin						
Squiggly Lake	14	6	638	3.8 x 10 ⁷	56	5
Baker Lake Sub Basin						
Baker Lake		15	189,000	2.8 x 10 ¹⁰	230,000	11

Note: * = no field survey information; NA = not applicable; – = no fish; Compiled from BEAK 1987, BEAK 1990, BEAK 1992, Watters 1989

Table AV.7 Biotic Indices Summary for the Benthic Invertebrate Communities

Sub Basin	Waterbody	# of Taxa	Density #/m ²	SDI
Willow	Willow Lake	8-16	273-810	0.4-0.43
	Sik Sik Lake	17-20	3560-4405	0.43-0.67
	Pointer Lake	13-15	3319-3603	0.38-0.59
Caribou	Fox Lake	12-14	2466-12259	0.53-0.74
	Crash Lake	6	534-1422	0.41-0.55
	Cirque Lake	8	11741-112224	0.06-0.49
	Ridge Lake	13-17	948-5293	0.5-0.53
Lower	Lower Lake	14-21	3578-6853	0.37-0.66
	Shack Lake	9-10	431-1233	0.11-0.56
	Andrew Lake	6-8	509-802	0.32-0.68
	End Grid Lake	7-8	198-784	0.16-0.23

Notes: # = number; m² = square meters; SDI = Shannon-Weaver Diversity Index

Source: Golder 2008a

Table AV.8 Fish likely to be found in Chesterfield Inlet (adapted from Fishbase 2006)

Common Name	Scientific Name	Likely found	Habitat type	Status
arctic cod	<i>Boreogadus saida</i>	Mouth of Chesterfield Inlet; along the Hudson Bay coast	demersal; oceanodromous; brackish; marine; depth range 0 – 1383 m	not listed
arctic sculpin	<i>Myoxocephalus scorpioides</i>	Mouth of Chesterfield Inlet; along the Hudson Bay coast	demersal; brackish; marine; depth range 0 – 275 m; rocky bottoms among algae	not listed
arctic char	<i>Salvelinus alpinus</i>	Chesterfield Inlet; Baker Lake; Hudson Bay	benthopelagic; anadromous (Ref. 51243); freshwater; brackish; marine; depth range 30 – 70 m	listed under IUCN
fourhorn sculpin: marine form	<i>Trigloopsis quadricornis</i> or <i>Myoxocephalus quadricornis</i>	Hudson Bay	marine	not listed
banded gunnel	<i>Pholis fasciata</i>	Hudson Bay	demersal; marine; depth range 0 – 94 m	not listed
whitefish	<i>Coregonus nasus</i>		demersal; anadromous ; freshwater; brackish; marine;	not listed

Table AV.9 Soil Chemistry Results for Soil Samples Collected from Sissons and Kiggavik Lease Areas, 2007

Analyte	Units	CCME Guidelines ^(a)	Sissons Lease Area											Kiggavik Lease Area												
			Mineral Soil ^(b)						Peat					Mineral Soil ^(b)						Peat						
			DL	SIS1	SIS2	SIS3	Mean	SD	DL	SIS1PE	SIS2PE	Mean	SD	DL	KIG1	KIG2	KIG3	Mean	SD	DL	KIG1PE	KIG2PE	KIG3PE	Mean	SD	
Basic Soil Chemistry																										
pH	pH units	6 to 8	0.07	5.47	4.85	6.45	5.59	0.81	N/A	N/A	N/A	N/A	N/A	0.07	4.86	4.96	4.97	4.93	0.06	N/A	N/A	N/A	N/A	N/A	N/A	
SAR	--	12	0.05	0.1	0.1	0.2	0.1	0.1	N/A	N/A	N/A	N/A	N/A	0.05	0.05	0.1	0.1	0.1	0.0	N/A	N/A	N/A	N/A	N/A	N/A	
Specific conductivity	µS/cm	4000	1	478	588	477	514	64	N/A	N/A	N/A	N/A	N/A	1	592	594	463	550	75	N/A	N/A	N/A	N/A	N/A	N/A	
Saturation	%	N/A	0	29	26.4	19.1	24.8	5.1	N/A	N/A	N/A	N/A	N/A	0	38	30.8	32.7	33.8	3.7	N/A	N/A	N/A	N/A	N/A	N/A	
Other																										
Calcium	mg/L	N/A	1	76	79	68	74	6	N/A	N/A	N/A	N/A	N/A	1	100	100	75	92	14	N/A	N/A	N/A	N/A	N/A	N/A	
Chloride	mg/L	N/A	1	10	11	8	10	2	N/A	N/A	N/A	N/A	N/A	1	13	10	11	11	2	N/A	N/A	N/A	N/A	N/A	N/A	
Magnesium	mg/L	N/A	1	21	28	18	22	5	N/A	N/A	N/A	N/A	N/A	1	22	22	27	24	3	N/A	N/A	N/A	N/A	N/A	N/A	
Potassium	mg/L	N/A	1	4	4	6	5	1	N/A	N/A	N/A	N/A	N/A	1	8	3	6	6	3	N/A	N/A	N/A	N/A	N/A	N/A	
Sodium	mg/L	N/A	1	4	4	6	5	1	N/A	N/A	N/A	N/A	N/A	1	3	4	4	4	1	N/A	N/A	N/A	N/A	N/A	N/A	
Sulfate	mg/L	N/A	2	51	50	59	53	5	N/A	N/A	N/A	N/A	N/A	2	85	87	71	81	9	N/A	N/A	N/A	N/A	N/A	N/A	
Metals																										
Aluminum	µg/g	N/A	20	7300	19700	7300	11433	7159	5-50	4400	37200	20800	23193	20	9400	11100	10300	10267	850	50	22600	32000	28200	27600	4729	
Antimony	µg/g	40	0.2	<0.2	<0.2	<0.2	<0.2	0.0	0.1	<0.1	<0.1	<0.1	0.0	0.2	<0.2	<0.2	<0.2	<0.2	0.0	0.1	<0.1	<0.1	<0.1	<0.1	0.0	
Arsenic	µg/g	12	0.1	2.9	7	2.1	4.0	2.6	0.05	1.2	3.8	2.5	1.8	0.1	5.5	4.8	4.9	5.1	0.4	0.05	2.3	3.4	3.8	3.2	0.8	
Barium	µg/g	2000	0.5	84	130	60	91	36	5-50	260	560	410	212	0.5	300	210	240	250	46	50	760	910	750	807	90	
Beryllium	µg/g	8	0.1	0.5	1	0.5	0.7	0.3	0.01	0.4	0.83	0.62	0.30	0.1	0.6	0.7	0.8	0.7	0.1	0.01	0.69	0.87	2.1	1.22	0.77	
Boron	µg/g	—	1	<1	6	<1	2.0	3.4	1	10	41	26	21.9	1	<1	<1	<1	<1	0.0	1	24	41	54	40	15	
Cadmium	µg/g	22	0.1	<0.1	<0.1	<0.1	<0.1	0.0	0.01	0.31	0.76	0.54	0.32	0.1	<0.1	<0.1	<0.1	<0.1	0.0	0.01	0.81	0.89	0.48	0.73	0.22	
Chromium	µg/g	87	0.5	9.6	44	16	23.2	18.3	0.5	4.6	30	17.3	18.0	0.5	25	21	25	23.7	2.3	0.5	24	23	31	26	4.4	
Cobalt	µg/g	300	0.2	3.4	8.9	2.9	5.1	3.3	0.01	1.3	4	2.7	1.9	0.2	5.4	4.1	6.4	5.3	1.2	0.01	2	3.3	2.5	2.6	0.7	

Table AV.9 Soil Chemistry Results for Soil Samples Collected from Sissons and Kiggavik Lease Areas, 2007

Analyte	Units	CCME Guidelines ^(a)	Sissons Lease Area											Kiggavik Lease Area											
			Mineral Soil ^(b)						Peat					Mineral Soil ^(b)						Peat					
			DL	SIS1	SIS2	SIS3	Mean	SD	DL	SIS1PE	SIS2PE	Mean	SD	DL	KIG1	KIG2	KIG3	Mean	SD	DL	KIG1PE	KIG2PE	KIG3PE	Mean	SD
Copper	µg/g	91	0.5	4.8	18	6.2	9.7	7.3	0.05-5	11	96	54	60	0.5	16	7.7	19	14.2	5.9	5	96	80	42	73	28
Iron	µg/g	N/A	20	9400	25000	10600	15000	8681	5-50	8000	11700	9850	2616	20	15800	11900	16600	14767	2515	50	5700	11800	9800	9100	3110
Lead	µg/g	600	0.1	4.8	5.4	4.8	5.0	0.3	0.01-1	0.74	8	4.37	5.13	0.1	16	7.4	8.9	10.8	4.6	1	8	13	85	35	43
Manganese	µg/g	na	0.5	110	280	100	163	101	0.1-10	11	210	111	141	0.5	200	140	230	190	46	10	150	150	70	123	46
Mercury	µg/g	50	0.05	<0.5	<0.5	<0.5	<0.5	0.00	0.05	0.1	0.05	0.08	0.04	0.05	<0.5	<0.5	<0.5	<0.5	0.0	0.05	0.12	0.08	0.07	0.09	0.03
Molybdenum	µg/g	40	0.1	0.2	0.2	0.2	0.2	0.0	0.1	0.7	0.8	0.75	0.07	0.1	0.4	0.2	6.9	2.5	3.8	0.1	1.5	1.1	2	1.5	0.5
Nickel	µg/g	50	0.1	9.7	34	9.3	17.7	14.1	0.05-5	7.4	25	16.2	12.4	0.1	17	15	16	16.0	1.0	5	19	24	25	23	3.2
Selenium	µg/g	10	0.1	<0.1	<0.1	<0.1	<0.1	0.0	0.05	0.37	0.62	0.50	0.18	0.1	<0.1	<0.1	<0.1	<0.1	0.0	0.05	0.76	0.61	0.49	0.62	0.14
Silver	µg/g	40	0.1	<0.1	<0.1	<0.1	<0.1	0.0	0.01	0.06	0.25	0.16	0.13	0.1	<0.1	0.4	<0.1	0.2	0.2	0.01	0.22	0.22	0.11	0.18	0.06
Strontium	µg/g	N/A	0.5	61	74	55	63	10	5	47	62	55	10.6	0.5	75	99	73	82	14	5	110	80	70	87	21
Thallium	µg/g	1	0.2	<0.2	<0.2	<0.2	<0.2	0.00	0.05	<0.05	0.38	0.20	0.25	0.2	<0.2	<0.2	<0.2	<0.2	0.0	0.05	0.28	0.34	0.25	0.29	0.05
Tin	µg/g	300	0.1	<0.1	<0.1	<0.1	<0.1	0.00	0.05	<0.05	<0.05	<0.05	0.00	0.1	<0.1	<0.1	<0.1	<0.1	0.0	0.05	<0.05	<0.05	0.12	0.06	0.05
Titanium	µg/g	N/A	0.5	300	410	230	313	91	5	54	280	167	160	0.5	350	340	320	337	15	5	350	310	390	350	40
Uranium	µg/g	N/A	0.1	0.7	0.8	0.7	0.7	0.1	0.01-1	0.65	4	2.33	2.37	0.1	1	1	1.6	1.2	0.3	1	5	6	6	6	0.6
Vanadium	µg/g	130	0.1	16	47	17	27	18	0.1-10	4.3	30	17.2	18.2	0.1	25	21	24	23	2	10	20	20	40	27	12
Zinc	µg/g	360	0.5	14	35	16	22	12	0.5-50	6.2	50	28	31	0.5	38	21	26	28	9	0.5	25	35	19	26	8.1
Radionuclides																									
Lead-210	Bq/g	N/A	0.02	<0.02	<0.02	<0.02	<0.02	0.00	0.005-0.006	0.01	0.08	0.05	0.05	0.02	<0.02	<0.02	<0.02	<0.02	0.00	0.005-0.006	0.04	0.13	<0.006	0.058	0.065
Polonium-210	Bq/g	N/A	0.005	0.02	0.02	0.02	0.020	0.000	0.001-0.002	0.016	0.058	0.037	0.030	0.005	0.03	0.02	0.03	0.027	0.006	0.001	0.058	0.47	0.004	0.177	0.255
Radium-226	Bq/g	N/A	0.01	0.03	0.02	0.05	0.03	0.02	0.001-0.005	0.048	0.09	0.069	0.030	0.01	0.07	0.04	0.06	0.06	0.02	0.005	0.06	0.14	0.06	0.09	0.05
Thorium-230	Bq/g	N/A	0.02	0.04	0.04	0.02	0.03	0.01	0.01-0.002	0.017	0.049	0.033	0.023	0.02	0.06	0.03	0.05	0.05	0.02	0.01	0.06	0.05	0.06	0.06	0.01

Notes: N/A = not available; DL = detection limit; SD = standard deviation; µg/g = micrograms per gram; Bq/g = Becquerel per gram; mg/L = milligram per liter; µS/cm = microSiemens per cm; % = percent; < = less than
a = CCME 2006 - Canadian Environmental Quality Guidelines for soil in industrial land use areas
b = CCME guidelines only apply to mineral soils data

Table AV.10 Chemical Analysis of Vegetation Samples Collected from the Kiggavik Lease Area, 2007

Analyte	Units	Kiggavik Lease Area																	
		Lichen						Willow						Dwarf Birch					
		DL	KIG1L	KIG2L	KIG3L	Mean	SD	DL	KIG1WI	KIG2WI	KIG3WI	Mean	SD	DL	KIG1BI	KIG2BI	KIG3BI	Mean	SD
Metals																			
Aluminum	µg/g	5	220	140	170	177	40	5	13	15	21	16	4	5	25	36	24	28	7
Antimony	µg/g	0.1	<0.1	<0.1	<0.1	<0.1	0.0	0.1	<0.1	<0.1	<0.1	<0.1	0.0	0.1	<0.1	<0.1	<0.1	<0.1	0.0
Arsenic	µg/g	0.05	0.08	0.12	0.12	0.11	0.02	0.05	<0.05	<0.05	0.13	0.060	0.061	0.05	<0.05	<0.05	<0.05	<0.05	0.0
Barium	µg/g	5	97	23	73	64	38	5	160	87	110	119	37	5	140	110	94	115	23
Beryllium	µg/g	0.01	<0.01	<0.01	0.02	0.01	0.009	0.01	<0.01	<0.01	<0.01	<0.01	0.0	0.01	<0.01	<0.01	<0.01	<0.01	0.0
Boron	µg/g	1	2	2	3	2.3	0.6	1	15	15	19	16.3	2.3	1	10	11	10	10	0.6
Cadmium	µg/g	0.01	0.28	0.1	0.22	0.20	0.09	0.01-1	5	4.1	3.1	4.07	0.95	0.01	0.35	0.14	0.1	0.20	0.13
Chromium	µg/g	0.5	<0.5	<0.5	<0.5	<0.5	0.0	0.5	<0.5	<0.5	<0.5	<0.5	0.0	0.5	<0.5	<0.5	<0.5	<0.5	0.0
Cobalt	µg/g	0.01	0.26	0.04	0.15	0.15	0.11	0.01	0.53	0.66	0.89	0.69	0.18	0.01	0.35	0.06	0.35	0.25	0.17
Copper	µg/g	0.05	1.7	1.2	3	2.0	0.9	0.05-5	12	4.4	7.3	7.9	3.8	0.05	4.9	4.3	5.9	5.0	0.8
Iron	µg/g	5	100	83	140	108	29	5	33	23	28	28	5	5	23	33	24	27	6
Lead	µg/g	0.01	1	0.37	0.71	0.69	0.32	0.01	0.2	0.11	0.19	0.17	0.05	0.01	0.09	0.21	0.11	0.14	0.06
Manganese	µg/g	10	310	60	220	197	127	10	390	300	430	373	67	10	560	100	140	267	255
Mercury	µg/g	0.05	0.09	0.1	0.08	0.09	0.01	0.05	<0.05	<0.05	<0.05	<0.05	0.0	0.05	<0.05	<0.05	<0.05	<0.05	0.0
Molybdenum	µg/g	0.1	<0.1	<0.1	0.9	0.33	0.49	0.1	<0.1	<0.1	0.5	0.20	0.26	0.1	<0.1	<0.1	0.2	0.1	0.09
Nickel	µg/g	0.05	0.81	0.21	0.73	0.58	0.33	0.05	1.4	0.6	1.7	1.23	0.57	0.05	2.4	0.83	1.7	1.64	0.79
Selenium	µg/g	0.05	<0.05	0.06	<0.05	0.04	0.02	0.05	<0.05	<0.05	<0.05	<0.05	0.0	0.05	<0.05	<0.05	<0.05	<0.05	0.0
Silver	µg/g	0.01	<0.01	0.03	<0.01	0.01	0.01	0.01	0.05	<0.01	<0.01	0.02	0.03	0.01	<0.01	<0.01	0.01	0.007	0.003
Strontium	µg/g	5	24	6.4	25	18.5	10.5	0.05-5	46	35	47	43	6.7	5	13	16	15	15	1.5
Thallium	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	0.0	0.05	<0.05	<0.05	<0.05	<0.05	0.0	0.05	<0.05	<0.05	<0.05	<0.05	0.0
Tin	µg/g	0.05	0.07	<0.05	<0.05	0.040	0.026	0.05	<0.05	<0.05	<0.05	<0.05	0.0	0.05	<0.05	<0.05	0.06	0.04	0.02
Titanium	µg/g	5	5	4.5	10	6.5	3.0	0.05-5	0.33	0.49	49	16.61	28.05	0.05	0.79	1.4	2.8	1.7	1.0
Uranium	µg/g	0.01	0.01	0.02	0.02	0.02	0.01	0.01	<0.01	<0.01	<0.01	<0.01	0.0	0.01	<0.01	<0.01	<0.01	<0.01	0.0
Vanadium	µg/g	0.1	0.2	0.2	0.5	0.30	0.17	0.1	<0.1	<0.1	1.8	0.6	1.0	0.1	<0.1	<0.1	<0.1	<0.1	0.0
Zinc	µg/g	0.5	44	25	35	35	10	50	380	120	300	267	133	50	150	120	170	147	25
Radionuclides																			
Lead-210	Bq/g	0.005	0.5	0.41	0.58	0.50	0.09	0.001	0.076	0.095	0.11	0.094	0.017	0.001	0.086	0.12	0.16	0.12	0.04
Polonium-210	Bq/g	0.001	0.38	0.4	0.47	0.42	0.05	0.0002-0.0003	0.066	0.1	0.12	0.095	0.027	0.0002-0.0003	0.085	0.1	0.13	0.11	0.02
Radium-226	Bq/g	0.0002-0.0008	0.014	0.016	0.006	0.0120	0.0053	0.0003	0.014	0.007	0.0028	0.0079	0.0057	0.0002-0.0004	0.0055	0.0019	0.0055	0.0043	0.0021
Thorium-230	Bq/g	0.0006-0.002	0.0008	0.001	0.002	0.0013	0.0006	0.0007	0.001	0.001	0.0007	0.0009	0.0002	0.0004	<0.0004	0.001	0.002	0.0011	0.0009

Table AV.10 Chemical Analysis of Vegetation Samples Collected from the Kiggavik Lease Area, 2007

Analyte	Units	Kiggavik Lease Area																	
		Blueberry Foliage						Blueberry Fruit					Carex						
		DL	KIG1BB	KIG2BB	KIG3BB	Mean	SD	DL	KIG1BY	KIG2BY	KIG3BY	Mean	SD	DL	KIG1CA	KIG2CA	KIG3CA	Mean	SD
Metals																			
Aluminum	µg/g	5	44	28	36	36	8.0	0.05	6.5	6.6	26	13.0	11.2	0.05-5	10	8.6	27	15	10
Antimony	µg/g	0.1	<0.1	<0.1	<0.1	<0.1	0.0	0.1	<0.1	<0.1	<0.1	<0.1	0.0	0.1	<0.1	<0.1	<0.1	<0.1	0.0
Arsenic	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	0.0	0.05	<0.05	<0.05	<0.05	<0.05	0.0	0.05	<0.05	<0.05	<0.05	<0.05	0.0
Barium	µg/g	5	55	57	59	57	2.0	5	21	27	26	25	3	5	97	88	87	91	6
Beryllium	µg/g	0.01	<0.01	<0.01	<0.01	<0.01	0.0	0.01	<0.01	<0.01	<0.01	<0.01	0.0	0.01	<0.01	<0.01	0.02	0.01	0.01
Boron	µg/g	1	9	9	11	10	1.2	1	15	29	25	23	7.2	1	9	8	9	9	0.6
Cadmium	µg/g	0.01	0.8	0.59	0.57	0.65	0.13	0.01	0.31	0.36	0.16	0.28	0.10	0.01	0.02	0.08	0.02	0.04	0.03
Chromium	µg/g	0.5	<0.5	<0.5	0.6	0.4	0.2	0.5	<0.5	<0.5	0.6	0.4	0.2	0.5	<0.5	<0.5	0.6	0.37	0.20
Cobalt	µg/g	0.01	0.06	0.06	0.05	0.06	0.01	0.01	0.02	0.02	0.06	0.03	0.02	0.01	0.1	0.04	0.05	0.06	0.03
Copper	µg/g	0.05	9.1	9.1	9.6	9.3	0.3	0.05	3.1	4.9	4	4.0	0.9	0.05	2.8	3.4	3.5	3.2	0.4
Iron	µg/g	5	37	22	23	27	8.4	5	12	15	30	19	10	5	120	32	110	87	48
Lead	µg/g	0.01	0.06	0.06	0.08	0.07	0.01	0.01	0.01	<0.01	0.05	0.02	0.02	0.01	0.03	0.04	0.06	0.04	0.02
Manganese	µg/g	10	640	480	640	587	92	10	220	230	150	200	44	10	560	390	40	330	265
Mercury	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	0.0	0.05	<0.05	<0.05	<0.05	<0.05	0.0	0.05	<0.05	<0.05	<0.05	<0.05	0.0
Molybdenum	µg/g	0.1	<0.1	<0.1	0.6	0.2	0.3	0.1	<0.1	0.1	1.5	0.6	0.8	0.1	1.7	0.6	4.8	2.4	2.2
Nickel	µg/g	0.05	1.2	2.1	2.9	2.1	0.9	0.05	1.9	1.4	1.6	1.6	0.3	0.05	0.27	0.43	0.44	0.38	0.10
Selenium	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	0.0	0.05	<0.05	<0.05	<0.05	<0.05	0.0	0.05	<0.05	<0.05	<0.05	<0.05	0.0
Silver	µg/g	0.01	<0.01	<0.01	<0.01	<0.01	0.0	0.01	<0.01	<0.01	<0.01	<0.01	0.0	0.01	<0.01	0.01	0.09	0.035	0.048
Strontium	µg/g	0.05-5	8.2	11	12	10	2.0	0.05	4.8	5.1	7.2	5.7	1.3	5	20	15	14	16	3.2
Thallium	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	0.0	0.05	<0.05	<0.05	<0.05	<0.05	0.0	0.05	<0.05	<0.05	<0.05	<0.05	0.0
Tin	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	0.0	0.05	<0.05	<0.05	<0.05	<0.05	0.0	0.05	<0.05	<0.05	<0.05	<0.05	0.0
Titanium	µg/g	0.05-5	0.64	0.37	14	5.00	7.79	0.05	0.06	0.1	0.79	0.32	0.41	0.05	0.24	0.3	2.7	1.08	1.40
Uranium	µg/g	0.01	<0.01	<0.01	<0.01	<0.01	0.0	0.01	<0.01	<0.01	<0.01	<0.01	0.0	0.01	<0.01	<0.01	<0.01	<0.01	0.0
Vanadium	µg/g	0.1	<0.1	<0.1	0.3	0.13	0.14	0.1	<0.1	<0.1	<0.1	<0.1	0.0	0.1	<0.1	<0.1	<0.1	<0.1	0.0
Zinc	µg/g	0.5-50	70	49	70	63	12	0.5	25	23	20	23	3	0.5-50	100	50	31	60	36
Radionuclides																			
Lead-210	Bq/g	0.001	0.078	0.12	0.057	0.085	0.032	0.001-0.002	0.002	<0.002	0.011	0.005	0.006	0.001	0.058	0.014	0.007	0.026	0.028
Polonium-210	Bq/g	0.0003	0.058	0.11	0.045	0.071	0.034	0.0003-0.0005	0.0041	0.003	0.009	0.0054	0.0032	0.0002	0.037	0.017	0.012	0.022	0.013
Radium-226	Bq/g	0.0002	0.0039	0.0056	0.0023	0.0039	0.0017	0.0002-0.0005	0.0006	<0.0005	0.002	0.0010	0.0009	0.0002-0.0004	0.0036	0.0076	0.0019	0.0044	0.0029
Thorium-230	Bq/g	0.0004-0.0005	0.0005	0.0006	<0.0004	0.0004	0.0002	0.0004-0.001	<0.0004	<0.001	0.001	0.0006	0.0004	0.0005-0.0009	<0.0009	<0.0005	<0.0007	0.0004	0.0001

Notes: DL = detection limit; SD = standard deviation; µg/g = micrograms per gram; Bq/g = becquerel per gram; < = less than

Table AV.11 Chemical Analysis of Vegetation Samples Collected from the Sissons Lease Area, 2007

Analyte	Units	Sissons Lease Area																	
		Lichen						Willow						Dwarf Birch					
		DL	SIS1L	SIS2L	SIS3L	Mean	SD	DL	SIS1WI	SIS2WI	SIS3WI	Mean	SD	DL	SIS1BI	SIS2BI	SIS3BI	Mean	SD
Metals																			
Aluminum	µg/g	5	440	380	130	317	164	0.05-5	8.6	16	16	14	4	0.05-5	34	11	32	26	13
Antimony	µg/g	0.1	<0.1	<0.1	<0.1	<0.1	0.0	0.1	<0.1	<0.1	<0.1	<0.1	0.0	0.1	<0.1	<0.1	<0.1	<0.1	0.0
Arsenic	µg/g	0.05	0.2	0.08	0.06	0.11	0.08	0.05	<0.05	<0.05	<0.05	<0.05	0.0	0.05	<0.05	<0.05	<0.05	<0.05	0.0
Barium	µg/g	5	52	49	28	43	13	5	91	79	70	80	11	5	88	69	68	75	11
Beryllium	µg/g	0.01	<0.01	<0.01	<0.01	<0.01	0.0	0.01	<0.01	<0.01	<0.01	<0.01	0.0	0.01	<0.01	<0.01	<0.01	<0.01	0.0
Boron	µg/g	1	3	3	2	2.7	0.6	1	15	14	21	17	3.8	1	12	9	9	10	1.7
Cadmium	µg/g	0.01	0.11	0.08	0.13	0.11	0.03	0.01	1.7	2.1	1.6	1.80	0.26	0.01	0.08	0.2	0.18	0.15	0.06
Chromium	µg/g	0.5	0.6	<0.5	<0.5	0.37	0.2	0.5	<0.5	<0.5	<0.5	<0.5	0.0	0.5	<0.5	<0.5	<0.5	<0.5	0.0
Cobalt	µg/g	0.01	0.13	0.3	0.11	0.18	0.10	0.01	0.97	0.39	1	0.79	0.34	0.01	0.23	0.44	0.53	0.40	0.15
Copper	µg/g	0.05	2.3	2.2	2.6	2.4	0.2	0.05	7.6	6.7	6	6.8	0.8	0.05	4.9	4.4	5	4.8	0.3
Iron	µg/g	5	310	250	78	213	120	5	25	22	30	26	4	0.05-5	33	23	26	27	5
Lead	µg/g	0.01	2.5	0.53	0.3	1.11	1.21	0.01	0.06	0.05	0.07	0.06	0.01	0.01	0.2	0.04	0.11	0.12	0.08
Manganese	µg/g	10	240	160	370	257	106	10	400	350	430	393	40	10	130	300	410	280	141
Mercury	µg/g	0.05	0.06	0.07	0.08	0.07	0.01	0.05	<0.05	<0.05	<0.05	<0.05	0.0	0.05	<0.05	<0.05	<0.05	<0.05	0.0
Molybdenum	µg/g	0.1	0.2	<0.1	<0.1	0.10	0.09	0.1	<0.1	<0.1	<0.1	<0.1	0.0	0.1	<0.1	<0.1	<0.1	<0.1	0.0
Nickel	µg/g	0.05	0.94	0.99	0.69	0.87	0.16	0.05	1	0.57	1.1	0.89	0.28	0.05	1.2	1.7	2.2	1.7	0.5
Selenium	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	0.0	0.05	<0.05	<0.05	<0.05	<0.05	0.0	0.05	<0.05	<0.05	<0.05	<0.05	0.0
Silver	µg/g	0.01	0.03	0.13	<0.01	0.06	0.07	0.01	<0.01	<0.01	<0.01	<0.01	0.0	0.01	0.03	<0.01	<0.01	0.01	0.01
Strontium	µg/g	0.05	8	6.7	6.4	7.0	0.9	0.05-5	29	20	26	25	4.6	0.05-5	13	5	8.2	8.7	4.0
Thallium	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	0.0	0.05	<0.05	<0.05	<0.05	<0.05	0.0	0.05	<0.05	<0.05	<0.05	<0.05	0.0
Tin	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	0.0	0.05	<0.05	<0.05	<0.05	<0.05	0.0	0.05	<0.05	<0.05	<0.05	<0.05	0.0
Titanium	µg/g	0.05-5	11	5	3.2	6.40	4.08	0.05	0.3	0.31	0.36	0.32	0.03	0.05	1.1	0.35	0.71	0.72	0.38
Uranium	µg/g	0.01	0.33	0.02	0.01	0.12	0.18	0.01	<0.01	<0.01	<0.01	<0.01	0.0	0.01	0.01	<0.01	<0.01	0.01	0.0
Vanadium	µg/g	0.1	0.8	0.4	0.2	0.5	0.3	0.1	<0.1	<0.1	<0.1	<0.1	0.0	0.1	<0.1	<0.1	<0.1	<0.1	0.0
Zinc	µg/g	0.5-50	26	60	29	38	19	50	120	290	130	180	95	0.5-50	120	56	100	92	33
Radionuclides																			
Lead-210	Bq/g	0.005-0.006	0.29	0.26	0.32	0.29	0.03	0.001	0.09	0.088	0.079	0.086	0.006	0.0009-0.001	0.14	0.11	0.12	0.12	0.02
Polonium-210	Bq/g	0.001-0.002	0.31	0.15	0.29	0.25	0.09	0.0003	0.088	0.06	0.064	0.071	0.015	0.0002-0.0003	0.13	0.071	0.11	0.10	0.03
Radium-226	Bq/g	0.0002	0.0059	0.0024	0.0034	0.0039	0.0018	0.0003	0.0022	0.0012	0.0021	0.0018	0.0006	0.0002	0.0025	0.0027	0.005	0.0034	0.0014
Thorium-230	Bq/g	0.0004-0.0005	0.0031	<0.0005	0.0004	0.0013	0.0016	0.0006	<0.0006	<0.0006	<0.0006	<0.0006	0.0	0.0004	0.0006	0.0005	0.0008	0.0006	0.0002

Table AV.11 Chemical Analysis of Vegetation Samples Collected from the Sissons Lease Area, 2007

Analyte	Units	Sissons Lease Area																	
		Blueberry Foliage						Blueberry Fruit						Carex					
		DL	SIS1BB	SIS2BB	SIS3BB	Mean	SD	DL	SIS1BY	SIS2BY	SIS3BY	Mean	SD	DL	SIS1CA	SIS2CA	SIS3CA	Mean	SD
Metals																			
Aluminum	µg/g	5	86	100	48	78	27	5	16	63	12	30	28	0.05-5	38	14	3.4	18	18
Antimony	µg/g	0.1	<0.1	<0.1	<0.1	<0.1	0.0	0.1	<0.1	<0.1	<0.1	<0.1	0.0	0.1	<0.1	<0.1	<0.1	<0.1	0.0
Arsenic	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	0.0	0.05	<0.05	<0.05	<0.05	<0.05	0.0	0.05	<0.05	<0.05	<0.05	<0.05	0.0
Barium	µg/g	5	58	110	57	75	30	5	13	18	20	17	4	5	69	52	35	52	17
Beryllium	µg/g	0.01	<0.01	<0.01	<0.01	<0.01	0.0	0.01	<0.01	<0.01	<0.01	<0.01	0.0	0.01	<0.01	<0.01	<0.01	<0.01	0.0
Boron	µg/g	1	9	11	15	12	3.1	1	16	60	14	30	26	1	15	8	5	9	5.1
Cadmium	µg/g	0.01	0.58	0.52	0.43	0.51	0.08	0.01	0.19	0.19	0.18	0.19	0.01	0.01	0.03	0.03	0.06	0.04	0.02
Chromium	µg/g	0.5	<0.5	<0.5	<0.5	<0.5	0.0	0.5	0.6	<0.5	<0.5	0.4	0.2	0.5	<0.5	<0.5	<0.5	<0.5	0.0
Cobalt	µg/g	0.01	0.49	0.22	0.36	0.36	0.14	0.01	0.04	0.06	0.04	0.05	0.01	0.01	0.17	0.02	0.07	0.09	0.08
Copper	µg/g	0.05	6.3	6.7	7.8	6.9	0.8	0.05	4.3	4.9	7	5.4	1.4	0.05	1.9	4.4	3.6	3.3	1.3
Iron	µg/g	0.05-5	34	31	35	33	2	5	17	16	13	15	2	5	300	91	16	136	147
Lead	µg/g	0.01	0.16	0.09	0.05	0.10	0.06	0.01	<0.01	0.04	0.01	0.02	0.02	0.01	0.11	0.03	0.02	0.05	0.05
Manganese	µg/g	10	880	900	1300	1027	237	10	140	310	290	247	93	10	160	150	390	233	136
Mercury	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	0.0	0.05	<0.05	<0.05	<0.05	<0.05	0.0	0.05	<0.05	<0.05	<0.05	<0.05	0.0
Molybdenum	µg/g	0.1	0.2	<0.1	<0.1	0.10	0.09	0.1	0.3	<0.1	0.2	0.2	0.1	0.1	3.5	1.2	0.2	1.6	1.7
Nickel	µg/g	0.05	4.1	3.4	2.1	3.2	1.0	0.05	1.2	1.9	1	1.4	0.5	0.05	0.52	0.24	1.2	0.65	0.49
Selenium	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	0.0	0.05	<0.05	<0.05	<0.05	<0.05	0.0	0.05	<0.05	<0.05	<0.05	<0.05	0.0
Silver	µg/g	0.01	0.01	<0.01	0.04	0.02	0.02	0.01	<0.01	<0.01	<0.01	<0.01	0.0	0.01	<0.01	0.02	0.02	0.02	0.01
Strontium	µg/g	0.05	7.2	9	7.3	7.8	1.0	0.05	2.5	2.4	3.4	2.8	0.6	0.05	22	8.1	5	11.7	9.1
Thallium	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	0.0	0.05	<0.05	<0.05	<0.05	<0.05	0.0	0.05	<0.05	<0.05	<0.05	<0.05	0.0
Tin	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	0.0	0.05	<0.05	<0.05	<0.05	<0.05	0.0	0.05	<0.05	<0.05	<0.05	<0.05	0.0
Titanium	µg/g	0.05	0.54	0.76	0.76	0.69	0.13	0.05	0.07	0.33	0.17	0.19	0.13	0.05	0.45	0.25	0.11	0.27	0.17
Uranium	µg/g	0.01	<0.01	<0.01	<0.01	<0.01	0.0	0.01	<0.01	<0.01	<0.01	<0.01	0.0	0.01	0.24	<0.01	<0.01	0.08	0.14
Vanadium	µg/g	0.1	<0.1	<0.1	<0.1	<0.1	0.0	0.1	<0.1	<0.1	<0.1	<0.1	0.0	0.1	<0.1	<0.1	<0.1	<0.1	0.0
Zinc	µg/g	0.5	39	51	32	41	10	0.5	21	21	19	20	1	0.5	20	49	22	30	16
Radionuclides																			
Lead-210	Bq/g	0.001	0.16	0.1	0.11	0.12	0.03	0.001-0.002	0.003	0.005	<0.002	0.003	0.002	0.001	0.072	0.069	0.054	0.065	0.010
Polonium-210	Bq/g	0.0003	0.1	0.08	0.087	0.089	0.010	0.0003-0.0005	0.0036	0.002	0.002	0.0025	0.001	0.0002	0.058	0.042	0.038	0.046	0.011
Radium-226	Bq/g	0.0002	0.0042	0.0044	0.0046	0.0044	0.0002	0.0005-0.002	0.004	0.001	0.0005	0.0018	0.0019	0.0004	0.052	0.002	0.012	0.022	0.026
Thorium-230	Bq/g	0.0004-0.0005	0.0006	0.0005	<0.0005	0.0005	0.0002	0.0004-0.001	<0.001	<0.001	<0.0004	0.0004	0.0002	0.0007-0.0008	0.002	<0.0008	<0.0007	0.0009	0.0009

Notes: DL = detection limit; SD = standard deviation; µg/g = micrograms per gram; Bq/g = becquerel per gram; < = less than

KIGGAVIK PROJECT

Project Proposal

Appendix VI

Selected Socioeconomic Data

Table AVI.1	Selected Household Characteristics, 2006
Table AVI.2	Selected Education Statistics, 2006
Table AVI.3	Selected Employment and Income Statistics, 2006
Table AVI.4	Selected Harvest Activity Statistics, 2001
Table AVI.5	Selected Health Statistics
Table AVI.6	Existing Mineral Explorations and Mining Developments in the Kivalliq Region

Table AVI.1 Selected Household Characteristics, 2006

Characteristics	Baker Lake	Chesterfield Inlet	Rankin Inlet	Arviat	Whale Cove	Coral Harbour	Repulse Bay	Keewatin	Nunavut
Population in 2006	1,728	332	2,358	2,060	353	769	748	8,348	29,474
Population in 2001	1,507	345	2,177	1,899	305	712	612	7,557	26,745
2001 to 2006 population change (%)	14.7	-3.8	8.3	8.5	15.7	8.0	22.2	10.5	10.2
Average household size	3.8	3.2	3.6	4.5	3.9	3.9	5.6	4.0	3.7
Median age of the population	22.0	24.0	23.9	19.5	19.1	18.9	18.9	21.1	23.1
Dwellings requiring major repair (%)	26.7	45.0	13.0	28.6	38.9	20.5	35.7	24.8	20.2
Percent of female lone-parent families	29.6	29.4	25.7	29.1	31.3	26.5	20.6	27.1	27.6
Median income in 2005, all families (\$)	39,360	51,072	66,133	37,248	36,736	38,144	28,224	42,368	49,270
Median income in 2005, lone parent families (\$)	21,312	21,376	27,296	17,984	24,384	21,632	10,592	21,248	22,576
Mother tongue English	34.6	14.1	28.6	6.6	2.9	5.9	6.0	18.6	26.5
Mother tongue French	0.6	0.0	0.6	0.5	0.0	0.0	0.0	0.4	1.3
Mother tongue other	65.4	87.5	70.7	93.0	97.1	94.8	93.3	81.0	72.2
Lived at same address 1 year ago (%)	88.5	91.9	83.0	94.1	83.8	88.7	90.3	88.3	84.3
Lived at same address 5 years ago (%)	68.4	62.1	56.7	75.7	51.7	64.9	67.5	65.4	57.8
Aboriginal identify population	90.7	90.8	83.7	93.2	95.8	95.5	95.3	90.4	85.0

Source: Statistics Canada 2002a

Table AVI.2 Selected Education Statistics, 2006

Characteristics	Baker Lake			Chesterfield Inlet			Rankin Inlet			Arviat		
	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female
Total population 15 years and over												
No certificate; diploma or degree	66.4	64.1	68.9	59.5	57.1	59.1	53.4	52.8	53.9	70.9	70.7	70.2
High school certificate or equivalent	10.3	10.3	10.4	9.5	9.5	9.1	14.4	11.3	17.5	9.3	8.9	9.7
Apprenticeship or trades certificate or diploma	6.7	10.3	2.8	4.8	9.5	0.0	6.7	11.3	1.3	4.0	6.5	1.6
College; CEGEP or other non-university certificate or diploma	10.3	9.4	10.4	19.0	14.3	22.7	13.7	12.6	14.9	8.5	7.3	9.7
University certificate or diploma below the bachelor level	0.0	0.0	0.0	0.0	0.0	0.0	2.9	3.1	2.6	2.0	1.6	1.6
University certificate; diploma or degree	6.3	5.1	7.5	4.8	0.0	9.1	8.9	8.2	9.7	5.7	5.7	6.5
Total population aged 15 to 24												
No certificate; diploma or degree	93.9	94.4	93.3	75.0	80.0	83.3	77.6	81.4	69.8	86.4	87.5	85.4
High school certificate or equivalent	6.1	5.6	6.7	16.7	40.0	33.3	17.6	16.3	20.9	11.1	10.0	12.2
Apprenticeship or trades certificate or diploma	0.0	0.0	0.0	16.7	0.0	33.3	0.0	0.0	0.0	0.0	0.0	0.0
College; CEGEP or other non-university certificate or diploma	0.0	0.0	0.0	0.0	0.0	0.0	4.7	0.0	7.0	2.5	0.0	4.9
University certificate or diploma below the bachelor level	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
University certificate; diploma or degree	0.0	0.0	0.0	0.0	0.0	0.0	2.4	0.0	4.7	0.0	0.0	0.0
Total population aged 25 to 34												
No certificate; diploma or degree	63.0	56.5	66.7	45.5	40.0	50.0	40.5	44.7	40.0	60.3	66.7	56.3
High school certificate or equivalent	8.7	8.7	12.5	0.0	40.0	0.0	18.9	13.2	22.9	12.7	10.0	15.6
Apprenticeship or trades certificate or diploma	8.7	13.0	0.0	18.2	40.0	0.0	5.4	10.5	0.0	4.8	6.7	6.3
College; CEGEP or other non-	8.7	13.0	8.3	27.3	0.0	33.3	17.6	18.4	20.0	12.7	10.0	12.5

Characteristics	Baker Lake			Chesterfield Inlet			Rankin Inlet			Arviat		
	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female
university certificate or diploma												
University certificate or diploma below the bachelor level	0.0	0.0	0.0	0.0	0.0	0.0	5.4	7.9	5.7	3.2	0.0	6.3
University certificate; diploma or degree	8.7	8.7	12.5	0.0	0.0	0.0	10.8	7.9	14.3	9.5	10.0	6.3
Total population aged 35 to 64												
No certificate; diploma or degree	46.4	43.1	51.1	58.8	44.4	55.6	41.8	38.9	46.4	62.1	59.6	63.8
High school certificate or equivalent	13.4	15.7	11.1	11.8	0.0	0.0	11.3	8.3	13.0	6.3	8.5	4.3
Apprenticeship or trades certificate or diploma	10.3	15.7	6.7	0.0	22.2	0.0	12.1	19.4	2.9	7.4	12.8	4.3
College; CEGEP or other non-university certificate or diploma	17.5	15.7	22.2	23.5	22.2	33.3	18.4	16.7	20.3	12.6	12.8	12.8
University certificate or diploma below the bachelor level	2.1	0.0	0.0	0.0	0.0	0.0	2.8	2.8	2.9	3.2	0.0	4.3
University certificate; diploma or degree	9.3	7.8	8.9	11.8	0.0	22.2	13.5	13.9	14.5	8.4	8.5	10.6

Source: Statistics Canada 2007

Table AVI.2 (cont'd) Selected Education Statistics, 2006

Characteristics	Whale Cove			Coral Harbour			Repulse Bay			Keewatin			Nunavut		
	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female
Total population 15 years and over															
No certificate; diploma or degree	73.8	76.2	76.2	66.3	63.6	70.2	80.0	78.3	79.5	10.1	9.0	11.0	57.3	56.1	58.6
High school certificate or equivalent	4.8	0.0	9.5	7.6	6.8	6.4	2.2	0.0	4.5	10.8	9.8	11.8	10.9	10.6	11.2
Apprenticeship or trades certificate or diploma	7.1	9.5	0.0	10.9	18.2	4.3	7.8	10.9	4.5	6.4	5.6	7.1	7.0	10.5	3.2
College; CEGEP or other non-university certificate or diploma	9.5	9.5	9.5	8.7	9.1	8.5	5.6	6.5	4.5	26.5	27.1	26.0	14.2	13.1	15.3
University certificate or diploma below the bachelor level	0.0	0.0	0.0	3.3	4.5	4.3	0.0	4.3	0.0	0.2	0.4	0.4	1.6	1.5	1.8
University certificate; diploma or degree	0.0	0.0	0.0	3.3	4.5	4.3	3.3	4.3	4.5	0.0	0.0	0.0	9.0	8.1	10.0
Total population aged 15 to 24															
No certificate; diploma or degree	85.7	85.7	100.0	83.9	85.7	77.8	97.1	100.0	100.0	12.8	9.9	15.4	79.9	81.3	78.3
High school certificate or equivalent	0.0	0.0	0.0	9.7	14.3	11.1	0.0	0.0	0.0	14.0	13.2	13.8	13.6	12.6	14.7
Apprenticeship or trades certificate or diploma	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.1	6.6	11.4	1.9	2.3	1.5
College; CEGEP or other non-university certificate or diploma	0.0	0.0	0.0	0.0	0.0	0.0	5.7	11.1	0.0	93.4	87.6	97.6	3.7	3.0	4.2
University certificate or diploma below the bachelor level	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18.9	31.4	7.3	0.2	0.0	0.4
University certificate; diploma or degree	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.5	4.1	4.9	0.9	0.9	1.1
Total population aged 25 to 34															
No certificate; diploma or degree	55.6	75.0	33.3	50.0	45.5	50.0	80.0	72.7	80.0	na	na	na	46.0	47.3	44.9
High school certificate or equivalent	0.0	0.0	0.0	10.0	0.0	20.0	0.0	0.0	0.0	na	na	na	13.7	13.1	14.4
Apprenticeship or trades certificate or diploma	22.2	0.0	0.0	15.0	27.3	0.0	10.0	18.2	0.0	na	na	na	7.7	12.0	3.5
College; CEGEP or other non-	22.2	0.0	33.3	10.0	18.2	20.0	10.0	0.0	0.0	na	na	na	18.2	16.4	20.0

Characteristics	Whale Cove			Coral Harbour			Repulse Bay			Keewatin			Nunavut		
	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female
university certificate or diploma															
University certificate or diploma below the bachelor level	0.0	0.0	0.0	10.0	0.0	0.0	10.0	0.0	0.0	na	na	na	2.2	1.8	2.4
University certificate; diploma or degree	22.2	0.0	0.0	0.0	0.0	20.0	10.0	0.0	0.0	na	na	na	12.2	9.3	14.8
Total population aged 35 to 64															
No certificate; diploma or degree	72.2	66.7	66.7	56.8	52.9	63.2	62.5	58.8	66.7	na	na	na	46.0	42.0	50.2
High school certificate or equivalent	0.0	0.0	0.0	5.4	0.0	0.0	6.3	11.8	0.0	na	na	na	8.5	8.8	8.0
Apprenticeship or trades certificate or diploma	11.1	0.0	22.2	13.5	23.5	10.5	15.6	17.6	0.0	na	na	na	10.2	15.5	4.5
College; CEGEP or other non-university certificate or diploma	11.1	0.0	0.0	10.8	11.8	15.8	12.5	0.0	13.3	na	na	na	19.8	18.6	21.1
University certificate or diploma below the bachelor level	0.0	0.0	0.0	8.1	11.8	10.5	6.3	0.0	0.0	na	na	na	2.4	2.3	2.6
University certificate; diploma or degree	11.1	22.2	0.0	5.4	11.8	10.5	6.3	0.0	0.0	na	na	na	13.1	12.7	13.5

Source: Statistics Canada 2007

Table AVI.3 Selected Employment and Income Statistics, 2006

Characteristics	Baker Lake			Chesterfield Inlet			Rankin Inlet			Arviat		
	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female
Participation rate	59.2	61.5	55.1	74.4	71.4	77.3	71.7	72.3	71.4	49.8	52.5	47.6
Unemployment rate	18.9	25.0	11.9	15.6	26.7	11.8	10.2	11.3	9.1	13.0	15.6	8.5
Median earnings, persons 15 years and over (\$)	15,019	15,328	13,984	20,032	20,288	18,240	32,736	34,688	32,026	26,048	31,168	22,976
Median income, persons 15 years and over (\$)	15,904	15,232	16,512	21,184	22,848	19,648	26,389	26,176	26,880	15,200	14,688	16,096
Composition of total income (100%)												
Earnings, as % of total income	79.6	86.0	71.1	82.8	82.8	82.7	90.4	93.6	88.4	81.2	87.6	74.8
Government transfers, as % of total income	19.4	12.4	26.7	12.3	11.6	13.8	7.5	5.0	10.4	17.3	10.7	23.8
Other money as % of total income	1.2	0.8	1.7	5.3	8.1	2.7	1.8	2.0	1.5	1.2	1.3	1.1

Characteristics	Whale Cove			Coral Harbour			Repulse Bay			Keewatin			Nunavut		
	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female
Participation rate	47.6	50.0	47.6	66.7	71.1	62.5	61.1	63.8	54.5	61.7	63.7	59.5	65.3	67.9	62.6
Unemployment rate	10.0	18.2	20.0	19.4	18.8	20.0	34.5	36.7	33.3	15.7	18.9	12.3	15.6	17.8	13.0
Median earnings, persons 15 years and over (\$)	24,992	21,824	26,048	10,784	10,965	10,496	11,982	11,992	11,840	23,232	24,040	21,909	26,848	29,235	24,973
Median income, persons 15 years and over (\$)	16,352	15,328	19,520	14,029	12,480	15,104	10,912	11,264	10,464	17,440	16,832	17,760	20,982	22,552	20,047
Composition of total income (100%)															
Earnings, as % of total income	80.7	92.8	72.6	74.9	78.1	70.3	71.7	80.8	62.3	84.1	88.9	78.9	86.5	90.0	82.3
Government transfers, as % of total income	17.1	10.4	26.1	21.1	14.8	26.8	26.3	16.7	36.3	14.2	9.2	19.6	11.2	7.4	15.8
Other money as % of total income	0.1	0.1	0.1	3.6	4.3	2.9	1.9	1.8	2.0	1.8	2.0	1.6	2.3	2.6	1.9

Source: Statistics Canada 2007

Table AVI.4 Selected Harvest Activity Statistics, 2001

Characteristics	Baker Lake	Arviat	Chesterfield Inlet	Coral Harbour	Rankin Inlet	Repulse Bay	Whale Cove	Nunavut
adult population (15 and over)	850	990	190	370	990	320	170	16,823
% of adults who hunted in the past 12 months	53	64	63	65	45	72	59	58
% of those who hunted for food	96	97	92	96	100	100	100	98
% of adults who fished in the past 12 months	62	70	79	73	66	78	71	67
% of those who fished for food	91	97	87	96	94	100	100	94
% of adults who gathered wild plants (berries, sweet grass, etc.) in the past 12 months	55	57	79	43	49	75	47	51
% of those who gathered wild plants for food	91	95	87	100	92	96	88	91
% of adults who trapped in the past 12 months	8	15	na	16	na	25	na	9

Source: Statistics Canada 2002a

Table AVI.5 Selected Health Statistics

Characteristic	Baker Lake	Chesterfield Inlet	Rankin Inlet	Whale Cove	Arviat	Coral Harbour	Repulse Bay	Kivalliq	Nunavut
adult population (15 and over)	850	190	990	170	990	370	320	3,880	16,823
% of adults who say their health is:									
excellent or very good	51	37	66	59	81	46	53	62	57
good	28	53	26	24	15	38	44	28	33
fair or poor	20	na	na	18	na	16	na	7	10
% of adults who saw or talked on telephone about physical, emotional or mental health in past 12 months to:									
family doctor or general practitioner	41	42	29	18	21	38	34	31	34
nurse	72	68	71	65	64	62	66	68	58
dentist or orthodontist	28	37	44	24	34	30	41	35	39
other health professional	49	68	54	41	30	43	50	46	38
long-term health conditions (diagnosed by a professional)									
% of adults with one or more long-term health conditions	41.7	31.6	28.7	37.5	30.6	36.1	25.8	35.6	30.3

Source: Statistics Canada 2002a

Table AVI.6 Existing Mineral Explorations and Mining Developments in the Kivalliq Region

• Project	• Location	• Operator, Partner	• Commodities
Greyhound Property	50 km north of Baker Lake	Intrepid Mines Ltd., Aura Silver Resources Inc.	copper, lead, zinc, silver
Keewatin Project	120 km southwest of Arviat	Tri Origin Exploration Ltd., BHP Billiton	copper, gold, silver, lead, zinc, uranium
Churchill, Churchill West	70 km north of Rankin Inlet	Shear Minerals Ltd., Stornoway Diamond Corporation, International Samuel Exploration Corp. (Churchill West only)	diamonds
Hyde	70 km southwest of Arviat	Stornoway Diamond Corporation	diamonds
Nanuq	225 km northeast of Baker Lake, 300 km north of Rankin Inlet	Peregrine Diamonds Ltd.	diamonds
Itza Lake Property	130 km northwest of Baker Lake	Stornoway Diamond Corporation, Bayswater Uranium Corp.	diamonds
Nanuq North	300 km northeast of Baker Lake	Peregrine Diamonds Ltd., Indicator Minerals Inc., Hunter Exploration Group	diamonds
Pitz Lake	40 km south of Baker Lake	Kennecott Canada Exploration Ltd.	diamonds
Aberdeen, Turqavik	120 west-northwest of Baker Lake (Aberdeen), 85 km northwest of Baker Lake (Turqavik)	Cameco Corporation, De Beers Canada Inc. (Aberdeen only)	uranium
Amer Lake; Hawk, Kam, JG (South Baker Project)	140 km north-northwest of Baker Lake	Uranium North Resources Ltd.	uranium
Baker Basin	60 km southeast of Baker Lake	Pacific Ridge Exploration Ltd., Kaminak Gold Corporation	uranium
Baker Property	50 km and 140 km west of Baker Lake	Uranium World Energy Inc., Majescor Resources Inc., De Beers Canada Inc.	uranium, diamonds
Bugs Claims	400 west of Arviat	Ur-Energy Inc., J.D. Charlton	uranium
Garry Lake	245 km northwest of Baker Lake	Uravan Minerals	uranium
Kiggavik North, Kiggavik South; Tanqueray Option	85 km west and northwest of Baker Lake; 40 km west of Baker Lake	Forum Uranium Corp., Superior Diamonds Inc., Tanqueray Resources (Tanqueray Option only)	uranium
North Thelon Permit Area 1 and Permit Area 2	175 km northwest and 220 km west-northwest of Baker Lake	Bayswater Uranium Corporation, Strongbow Exploration Inc.	uranium
Nueltin Lake	325 west-southwest of Arviat	Cameco Corporation	uranium
Thelon Basin	150 km northwest of Baker Lake	Titan Uranium Inc., Mega Uranium Ltd.	uranium
Rebel Permits, Yankee Permit	170 km west and 170 km northwest of Baker Lake	Hinterland Metals Inc.	uranium
Ruby Hill Property	200 km northwest of Baker Lake	Western Uranium Corporation	uranium
St. Tropez Claims	70 km west of Baker Lake	AREVA Canada Resources Ltd.	uranium
Southwest Kiggavik, Central Kiggavik, Itza Lake, Amer Lake East and West	135 km west and 140 km northwest of Baker Lake	Bayswater Uranium Corporation	uranium
Yathkyed	230 km south of Baker Lake	Kaminak Gold Corporation	copper, gold, uranium (IOGC)
Yathkyed Lake Property	300 km west of Rankin Inlet	Uranium North Resources Corp.	uranium
Churchill (K)	70 km north of Rankin Inlet	Kaminak Gold Corporation	gold
Kiyuk Lake	350 km southwest of Arviat	Newmont Canada Ltd.	gold
Matrix Gold	175 km west of Arviat	Kaminak Gold Corporation, Pacific Ridge Exploration Ltd.	gold
Maze Lake	45 km northwest of Whale Cove	Terrane Metals Corp., Laurentian Goldfields Ltd.	gold
Meadowbank	75 km north of Baker Lake	Agnico-Eagle Mines Ltd.	gold
Meliadine East	25 km northeast of Rankin Inlet	Comaplex Minerals Corp., Resource	gold

• Project	• Location	• Operator, Partner Capital Fund	• Commodities
Meliadine West	25 km northwest of Rankin Inlet	Comaplex Minerals Corp.	gold
Napajut Property	80 km west-northwest of Arviat	Exploratus Ltd.	gold
SY Gold	250 km west of Whale Cove	Corsa Capital Ltd., Kaminak Gold Corporation, Hunter Exploration Group	gold
Ferguson Lake Project	160 km south of Baker Lake	Starfield Resources Inc.	nickel, cobalt, copper, platinum, palladium
Mum Claims	75 km west of Baker Lake	Cascadia International Resources Ltd., Tanqueray Resources Ltd.	nickel, platinum, palladium
Rainbow Property	260 km west of Arviat	Pure Nickel Inc.	nickel, gold
Target 87	385 km west of Arviat	BHP Billiton	nickel, cobalt, copper, platinum, palladium

Source: INAC 2007.

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Appendix VII

Past, Present and Future Projects and Cumulative Effects

Table AVII-1 Past, Present, and Potential Future Projects within 300 km of the proposed Kiggavik Project and Potential Cumulative Effects¹

Project	Approximate Distance (km) from Kiggavik	Project Status	Estimated Operating Period	Potential Interaction with Kiggavik	Potential General Cumulative Effects
Town of Baker Lake	75	-	-	-	-
Agnico-Eagle Mines Ltd. (formerly Cumberland Resources Inc.) Meadowbank Gold Project	120	Construction	2010 - 2019	No physical interaction. Caribou ranges encompass both projects.	a) Increased noise, vehicle traffic, dust, effects on wildlife b) Increased shipping traffic, potential for spills, potential effects on marine wildlife
Nuna M&T Services Limited - Construction Camp for Tehek Lake Access Road all-weather road from Baker Lake to the Meadowbank Mining Site.	120	Potential Development		No physical interaction. Caribou ranges encompass both projects.	Increased noise, vehicle traffic, dust, effects on wildlife
Majescor Resources Incorporated. Mining exploration, Princess Mary Lake Area	40	Potential Development	-	No physical interaction. Caribou ranges encompass both projects.	Increased noise, vehicle traffic, dust, effects on wildlife
Mineral Exploration. Pitz Lake	65	Potential Development		No physical interaction. Caribou ranges encompass both projects.	Increased noise, vehicle traffic, dust, effects on wildlife
Cameco Corporation. Mineral exploration and campsite Qamanaarjuk Lake	72	Potential Development		No physical interaction. Caribou ranges encompass both projects.	Increased noise, vehicle traffic, dust, effects on wildlife
Cameco Corporation. Mineral exploration Aberdeen Lake	74	Potential Development		No physical interaction. Caribou ranges encompass both projects.	Increased noise, vehicle traffic, dust, effects on wildlife
DeBeers Canada Incorporated. Campsite & mining/exploration, Schultz Lake Area	52	Potential Development		No physical interaction. Caribou ranges encompass both projects.	Increased noise, vehicle traffic, dust, effects on wildlife
Forum Uranium Corporation. Mining exploration, Schultz	52	Potential Development		No physical interaction. Caribou ranges	Increased noise, vehicle traffic, dust, effects on

¹ Reference information acquired from the on-line Canadian Environmental Assessment Registry [http://www.ceaa-acee.gc.ca/050/index_e.cfm]

Lake Area.				encompass both projects.	wildlife
Winter Road. Baker Lake to Thom Lake	53	Potential Development		No physical interaction. Caribou ranges encompass both projects.	Increased noise, vehicle traffic, dust, effects on wildlife
Winter Fuel Haul Project - Baker Lake to Rankin Inlet	77+ (to Rankin Inlet)	Potential Development		No physical interaction. Caribou ranges encompass both projects.	Increased noise, vehicle traffic, dust, effects on wildlife
Potential Road from north shore port terminals		Potential Development		Linked to mine development, caribou ranges encompass both projects.	Increased noise, vehicle traffic, dust, effects on wildlife
Proposed Port Terminals (South Shore)	88	Potential Development		Linked to mine development, caribou ranges encompass both projects.	a) Increased noise, vehicle traffic, dust, effects on wildlife b) Increased shipping traffic, potential for spills, potential effects on marine wildlife
Potential Road from north shore port terminals		Potential Development		Linked to mine development, caribou ranges encompass both projects.	Increased noise, vehicle traffic, dust, effects on wildlife
Uravan Minerals Inc. Mining exploration, Garry Lake Area.	200	Potential Development		No physical interaction. Caribou ranges encompass both projects.	Increased noise, vehicle traffic, dust, effects on wildlife
Titan Uranium Inc. Mining Exploration Deep Rose Lake, Thelon project.	170	Potential Development		No physical interaction. Caribou ranges encompass both projects.	Increased noise, vehicle traffic, dust, effects on wildlife
Uranium North Resources Corp. Mining exploration and campsite, Amer Lake.	150	Potential Development		No physical interaction. Caribou ranges encompass both projects.	Increased noise, vehicle traffic, dust, effects on wildlife
Bayswater Uranium Corporation. Mining exploration- Amer Lake.	150	Potential Development		No physical interaction. Caribou ranges encompass both projects.	Increased noise, vehicle traffic, dust, effects on wildlife
Starfield Resources Incorporated. Winter Road: Churchill to Arviat, Arviat to Ferguson Lake, Ferguson Lake to Rankin Inlet	150	Potential Development		No physical interaction. Caribou ranges encompass both projects.	Increased noise, vehicle traffic, dust, effects on wildlife

Western Uranium Corp. Mining/Exploration & Campsite, Sand Lake Area	145	Potential Development		No physical interaction. Caribou ranges encompass both projects.	Increased noise, vehicle traffic, dust, effects on wildlife
Bayswater Uranium Corporation. Mining exploration. Nauyasuq Lake	125	Potential Development		No physical interaction. Caribou ranges encompass both projects.	Increased noise, vehicle traffic, dust, effects on wildlife
Ur-Energy Incorp. Mining exploration, Nowleye Lake Area	275	Potential Development		No physical interaction. Caribou ranges encompass both projects.	Increased noise, vehicle traffic, dust, effects on wildlife
Ur-Energy Incorp. Campsite, Nowleye River	285	Potential Development		No physical interaction. Caribou ranges encompass both projects.	Increased noise, vehicle traffic, dust, effects on wildlife
Kivalliq Energy Corp. Mining Exploration for the Angilak Project, Nowleye Lake	275	Potential Development		No physical interaction. Caribou ranges encompass both projects.	Increased noise, vehicle traffic, dust, effects on wildlife
Kennecott Canada Exploration Inc. Laughland Lk. Project, Snow Bunting Lake.	260	Potential Development		No physical interaction. Caribou ranges encompass both projects.	Increased noise, vehicle traffic, dust, effects on wildlife
Churchill West, 4579 Nunavut Ltd. Mineral Exploration, Chesterfield Inlet	285	Potential Development		No physical interaction. Caribou ranges encompass both projects.	Increased noise, vehicle traffic, dust, effects on wildlife
Comaplex Minerals Corp. Mining exploration, Meliadine lake.	295	Potential Development		No physical interaction. Caribou ranges encompass both projects.	Increased noise, vehicle traffic, dust, effects on wildlife
Comaplex Minerals Corp. Mining exploration - South of Meliadine Lake.	295	Potential Development		No physical interaction. Caribou ranges encompass both projects.	Increased noise, vehicle traffic, dust, effects on wildlife
Comaplex Minerals Corp. Mining exploration - East of Meliadine Lake.	295	Potential Development		No physical interaction. Caribou ranges encompass both projects.	Increased noise, vehicle traffic, dust, effects on wildlife
Comaplex Minerals Corp. Quarrying, Meliadine Lake Area.	295	Potential Development		No physical interaction. Caribou ranges encompass both projects.	Increased noise, vehicle traffic, dust, effects on wildlife
Newmont Mining Corp Mining Exploration, North Henik Lake.	290	Potential Development		No physical interaction. Caribou ranges	Increased noise, vehicle traffic, dust, effects on

				encompass both projects.	wildlife

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Appendix VIII

AREVA Resources Canada Inc. Policy Statements

Quality Policy

Health and Safety Policy

Radiation Protection Policy

Environmental Policy

Human Resources Policy

Economic Viability Policy

Social Policy

Training Policy

1 POLICIES

The policy statements contained in this manual have been established by ARC senior management. These policies have been adopted verbatim for the McClean Lake Operation and the IQMS.

1.1 Quality Policy

AREVA Resources Canada Inc. is committed to achieving objectives that continually improve the effectiveness of the quality management system and company's performance as a world leader in the production of natural uranium. Through procedural discipline and adherence to internationally recognized standards of quality, AREVA has established a quality system that applies to the entire organization and to its employees.

To meet this commitment, AREVA shall:

- implement and maintain an Integrated Quality Management System (IQMS);
- ensure that decisions are made and actions are taken with consideration for their effect on our ability to achieve and maintain the required level of quality;
- ensure that employees receive instruction and training as required for the implementation and maintenance of the IQMS;
- ensure business activities meet relevant and specific regulatory requirements for Quality Assurance.

This policy is made available to the public.

1.2 Health and Safety Policy

AREVA Resources Canada Inc. is committed to providing a healthy and safe work environment for all of its workers, and to ensuring that all work is performed in a safe and responsible manner that meets regulatory and company standards.

To meet this commitment, AREVA shall:

- comply with applicable laws and regulations;
- ensure the highest levels of safety to preserve the health and well-being of our employees and members of the public;
- develop internal objectives and targets to achieve continual improvement in health and safety performance;

- measure performance against established goals;
- ensure all employees and contractors fulfill their health and safety responsibilities;
- develop, implement, maintain and test emergency procedures;
- investigate reported incidents that result or could result in employee illness or injury;
- identify and address workplace risks and hazards;
- promote and maintain dialogue with stakeholders on health and safety issues.

This policy is made available to the public.

1.3 Radiation Protection Policy

AREVA Resources Canada Inc. is committed to maintaining radiation doses to its workers As Low As Reasonably Achievable (ALARA), social and economic factors considered.

To meet this commitment, AREVA shall:

- comply with applicable legislation;
- establish targets for worker doses and workplace radiological levels and measure performance against these targets;
- classify workers and assign appropriate dosimetry monitoring services to them;
- provide training to workers in radiation protection principles and practices;
- control the shipment of radioactive materials from the work sites;
- ensure the security of radioactive sources and nuclear substances.

This policy is made available to the public.

1.4 Environmental Policy

AREVA Resources Canada Inc. recognizes that continued economic and social development depend on a healthy environment and incorporates environmental considerations into all company activities to ensure sustainable development. AREVA is committed to continually improve approaches and technology to minimize the effects of its activities on the environment.

To meet this commitment, AREVA shall:

- comply with all applicable environmental legislation;
- minimize adverse environmental impacts of its activities by reducing consumption of natural

resources, controlling releases and optimizing waste management;

- prevent pollution by using processes, practices, materials or products that avoid, reduce or control pollution;
- deal proactively with environmental issues by identifying potential impacts and implementing mitigating actions and/or developing effective contingency plans;
- develop internal objectives and targets to achieve continual improvement;
- measure performance against established goals;
- conduct employee training, internal assessments and periodic reviews to ensure these operations and activities are conducted in compliance with documented procedures;
- communicate environmental requirements and corporate initiatives to employees and contractors to encourage their participation and compliance;
- involve the public, with particular focus on impact communities, in initial planning, ongoing operations and decommissioning of AREVA activities through an open and transparent public involvement program.

This policy is made available to the public.

1.5 Human Resources Policy

AREVA Resources Canada Inc. recognizes that its primary asset is its employees. AREVA has established general standard practices and policies that deal fairly and in a uniform manner with all employees, and strives to develop leadership, and other required employee skills, to meet the changing needs of the workplace. AREVA is committed to promoting work performance and job satisfaction among all employees.

To meet this commitment, AREVA shall:

- comply with applicable legislation;
- provide a respectful work place;
- communicate general practices and policies to all employees so that they are understood and applied;
- assist all departments in obtaining the specific training that is necessary for employees to work safely and effectively in their jobs;
- encourage managers and department heads to facilitate to the extent practical employee participation in training and opportunities in their career and personal development;
- provide avenues for employees who need assistance with substance abuse, family problems or other personal situations that impact their work performance;

- provide avenues for employees recuperating from illness or injury to have the opportunity to perform meaningful work to the extent practical under individual circumstances.

This policy is made available to the public.

1.6 Economic Viability Policy

AREVA Resources Canada Inc. is committed to being and existing as a profitable organization. AREVA has established and adheres to sound business principles and activities that will ensure sustainability through long term profitable growth.

To meet this commitment, AREVA shall:

- comply with applicable regulations and license agreements;
- develop internal objectives and targets to achieve long term profitable growth;
- measure performance against established goals;
- control costs and optimize programs;
- develop and maintain loss control practices;
- develop and deploy innovative technologies to increase our competitive advantage;
- focus on customer satisfaction.

This policy is made available to the public.

1.7 Social Policy

AREVA Resources Canada Inc. recognizes a responsibility to the people of Saskatchewan and is committed to their meaningful involvement in our operations.

To meet this commitment, AREVA shall:

- comply with applicable legislation;
- provide a healthy and safe workplace;
- provide employment and business opportunities to northern Saskatchewan residents as a first priority;
- offer educational and training opportunities to residents of northern Saskatchewan, to allow their increased involvement in our operations;
- participate in the economic and social development of communities in which our operations

have an impact and facilitate northern business development with a view to long term partnership;

- provide opportunities for dialogue with interested stakeholders and consider those views in our planning in order to build consensus, including support of publications;
- maintain and enhance participation of the Athabasca working group, environmental quality committee, community vitality partnership process and related groups.

This policy is made available to the public.

1.8 Training Policy

AREVA Resources Canada Inc. is committed to provide training to ensure employee are qualified and competent, on the basis of education, training and experience, to perform their work and deliver opportunities for personal and professional development.

In meeting this commitment, AREVA shall:

- ensure that training is defined, organized, directed and supported and serves the needs of the respective site or department, meeting all relevant regulatory requirements;
- ensure that training is flexible enough to respond to organizational, technological and regulatory changes;
- conduct job analyses to determine job performance requirements or competencies, which will serve as a basis for the design and development of training;
- ensure that training is successfully delivered by qualified and competent personnel employing instructional techniques that convey appropriate information;
- ensure that training is developed to consistently convey the knowledge and skills that are needed to meet the training objectives;
- ensure that trainees are assessed and receive prompt feedback on their effectiveness in meeting training objectives;
- ensure that a systematic method is used to evaluate the effectiveness of training and periodical review;
- provide training on radiation protection and environmental awareness in conjunction with a basic site orientation to contractors who work for or on behalf of the organization;
- maintain records on the training and qualification of personnel.

This policy is made available to the public.