

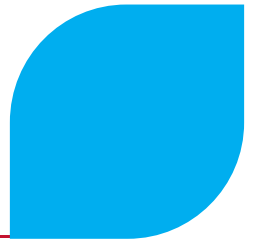
Kiggavik Project Final Environmental Impact Statement

Tier 1 Appendix 1D
Supporting Environmental Assessment
Lists and Tables

September 2014

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Kiggavik Project Final Environmental Impact Statement

Tier 1 Appendix 1DI
Valued Components

September 2014

History of Revisions

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

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Abbreviations

NIRB	Nunavut Impact Review Board
VC.....	Valued Component
VEC	Valued Environmental Component
VSEC.....	Valued Socio-Economic Component

1 Valued Components

1.1 Introduction

Valued Components (VCs) are defined as broad components of the biophysical and socio-economic environments that, if altered by the Project, would be of concern to regulators, Inuit, resource managers, scientists, and public stakeholders.

1.2 Valued Environmental Components

Valued Environmental Components (VECs) for the biophysical environment typically represent major components or aspects of the physical and biological environment that might be altered by the Project and are widely recognized as important for ecological reasons.

Criteria for selection of VCs include:

- Do they represent a broad environmental, ecological or human environment component that may be altered by the Project?
- Are they vulnerable to the environmental effects of the Project and other activities in the region?
- Have they been identified as important issues of concerns of Inuit or stakeholders, or in other assessments in the region?
- Were they identified by the NIRB, Inuit organizations or departments within the territorial or federal government?

Key indicators (KIs) are species, species groups, resources or ecosystem functions that represent components of the broader VCs. They are selected using the same criteria as described above for VCs. For practical reasons, KIs are often selected where sufficient information is available to assess the potential Project residual environmental effects and cumulative environmental effects.

For each VC or KI, one or more measurable parameters are selected to quantitatively or qualitatively measure the Project environmental effects and cumulative environmental effects. Measurable parameters provide the means of determining the level or amount of change to a VC or KI. The degree of change in the measurable parameter is used to characterize project-related and cumulative environmental effects, and evaluate the significance of these effects. Thresholds or standards are identified for each measurable parameter, where possible, to assist in determining significance of the residual environmental effect.

The VCs and environmental effects assessed for the Kiggavik Project are provided in Table 1.2-1 below.

Table 1.2-1 Valued Environmental Components Used in the Environmental Effects Assessment for the Kiggavik Project

Environmental Component	Valued Component	Environmental Effects Assessed
Atmospheric Environment	Ambient Air Quality	Change in ambient air quality
	Climate Change	Potential to affect climate change
	Noise	Increased noise levels
	Vibration	Perceptible vibration levels
Aquatic Environment	Groundwater	Change in groundwater quantity; change in surface water receptor quality
	Surface Hydrology	Change in water quantity
	Water Quality	Change in water quality
	Sediment Quality	Change in sediment quality
	Aquatic Organisms and Fish Habitat	Change in abundance and distribution of aquatic organism; change in quality or distribution of fish habitat
	Fish Populations	Change in abundance and distribution of fish populations; change to fish health
Terrestrial Environment	Terrain	Change in permafrost and terrain stability; change in landforms
	Soils	Change in soil quality; change in soil quantity
	Vegetation	Change in vegetation abundance and community diversity; change in vegetation quality
	Wildlife	See Table 1.2-2
Marine Environment	Marine Mammals	Change in mortality risk; change in behaviours
	Marine Fish	Changes in behaviour
Human Health	Mine Site Worker	Worker exposure to hazardous substances and radiation
	Member of the Public	Exposure to criteria air contaminants; exposure to radioactivity and other constituents of potential concern

1.2.1 Wildlife Valued Environmental Components and Key Indicators

Wildlife was identified as a VEC for the Kiggavik Project's Environmental Impact Statement (EIS) in the NIRB (2011) guidelines. This VEC was broken down into different four primary species groups. From these primary species groups, key indicators were selected to represent different attributes of the broader VEC. A description of the VEC groupings, key indicators, and the environmental effects assessed for wildlife are provided below.

Table 1.2-2 The Wildlife Valued Environmental Components and Key Indicators Used in the Environmental Effects Assessment for the Kiggavik Project

Environmental Component	Valued Component	Valued Component Grouping	Key Indicators	Environmental Effects Assessed
Terrestrial Environment	Wildlife	terrestrial wildlife and their habitat	Caribou	Change in habitat; change in mortality; change in movement; change in health
			Muskox	
			Wolves	Change in habitat; change in health
		migratory birds and their habitat	Lapland Longspur	Change in habitat; change in health
			Long-tailed Duck	
			Shorebirds	
		raptors and their habitat	Peregrine Falcon	Change in habitat; change in productivity; change in health
		species at risk	Short-eared Owl	Change in habitat; change in health
			Grizzly Bear	Change in health
			Wolverine	

1.3 Valued Socio-Economic Components

Valued Socio-Economic Components (VSECs) are typically defined as being components of the socio-economic environment – such as employment, language retention and access to adequate social services – that are important to people's wellbeing and quality of life.

For a socio-economic component to qualify as valued for the Kiggavik Project's effects assessment, the component must be known (or be reasonably expected) to occur in the project's area of influence, there must be a reasonable expectation that the component could be meaningfully

affected by the Project and people must articulate in some way that value is in fact assigned to the component. Engagement results were used to identify some VSECs.

VSECs identified for purposes of the socio-economic assessment are listed by major socio-economic component in Table 1.3-1 below.

Table 1.3-1 Valued Socio-Economic Components Used in the Environmental Effects Assessment for the Kiggavik Project

Socio-Economic Component	Valued Component	Socio-Economic Effects Assessed
Socio-Economics	Community Economies	Employment
		Education and training
		Contracting Opportunities
		Economic Growth and Diversification
		Incomes
		Population Change
	Traditional Culture	Harvesting
		Food Security
		Language
		Values and Knowledge
		Cultural Heritage Sites
	Individual, Family and Community Well-being	Health
		Family Function
		Savings
		Public Security
		Public Health and Safety
		Social Cohesion and Participation
	Public Infrastructure and Services	Social Infrastructure and Services
		Policing
		Housing
Other Infrastructure and Services		
Institutional Capacity and Governance		

Table 1.3-1 Valued Socio-Economic Components Used in the Environmental Effects Assessment for the Kiggavik Project

Socio-Economic Component	Valued Component	Socio-Economic Effects Assessed
	Non-traditional Land Use and Land Use Planning	Mining
		Commercial Harvesting
		Tourism
		Land Use in Baker Lake
	Economy of Nunavut	Economic Effects
		Fiscal Effects
Heritage	Heritage Resources	Archaeological Resources

2 References

NIRB (Nunavut Impact Review Board). 2011. Guidelines for the Preparation of an Environmental Impact Statement for AREVA Resources Canada Inc.'s Kiggavik Project (NIRB File No. 09MN003). 108 pgs.