

7 EFFECTS ASSESSMENT

7.1 STUDY AREAS

7.1.1 Biophysical

Table 7-1 describes the LSA, RSA and temporal boundaries for each biophysical component. It also presents summary justifications for the selection of those areas. A detailed justification for each study area is presented in the corresponding section describing the receiving environment. The maps illustrating spatial limits are presented in corresponding sections.

This document presents the results of the biophysical effects assessment in compliance with the federal and provincial guidelines. All results apply to both jurisdictions simultaneously, with the exception of the Air Quality component. The Air Quality data discussed in this chapter derives from the data presented in the federal report (Volume 2 Supporting Study E). A unique subsection (7.3.2.2.2) is provided which presents the Air Quality results in compliance with the EPR guidelines.

Table 7-1 Summary of the LSA and RSA for the Various Components of the Receiving Environment

COMPONENT	LSA	RSA	JUSTIFICATION
Greenhouse Gas Emissions	A 30 km radius centered on the Howse Project	The climate region of central Ungava	<u>Local</u> : Data availability, as this radius encompasses the Schefferville A climate station. <u>Regional</u> : Includes the entire Central Ungava climate region
Air Quality	Area of 340 km ² centered on the Howse Project	Area of 520 km ² centered on the Howse Project	<u>Local</u> : Modelling carried out for projects similar to ELAIOM confirmed that dust emissions, the most important effect on air quality, are most often limited to a 10-km radius. <u>Regional</u> : Include the towns of Schefferville and Kawawachikamach, and the Matimekush-Lac John community.
Noise	Mapping of the DSO3 and Howse Mine study area	5-km radius centered on the Howse Project	<u>Local</u> : Includes noise sensitive areas near the Howse Mine, Irony Mountain, and near Pinette, Rosemary, Elross, and Triangle Lakes <u>Regional</u> : Project noise is not expected to be above background levels at approximately 5 kilometres from the Howse Mine
Light	Area of 25 km ² of the Howse Project	Area of 625 km ² of the Howse Project	<u>Local</u> : distance at which artificial lighting from the project could be visible <u>Regional</u> : Includes the nearest towns where artificial lighting and permanent lighting is prevalent and also additional mining pits of the whole DSO project, where artificial lighting is almost non-existent
Geology	Howse sector	Labrador Trough	<u>Local</u> : Direct effect on geology is limited to the sector to be mined. <u>Regional</u> : The Labrador Trough was selected as the BRSA because several other mining projects are proposed there and the geology is similar.

COMPONENT	LSA	RSA	JUSTIFICATION
Hydrogeology	Elross/ Goodream/ Burnetta creek watersheds	Howells River watershed and Schefferville area	<u>Local</u> : Direct effects will be confined to watersheds within which the Project is located. <u>Regional</u> : Elross and Goodream streams flow into the Howells River, and a large quantity of data on similar subwatersheds of Howells River is available for comparison with the LSA.
Geomorphology	Elross/ Goodream/ Burnetta creek watersheds	Labrador Trough and Northeastern Québec- Labrador	<u>Local</u> : Potential direct effects on surficial deposits are restricted to the immediate footprints of ground disturbance, whereas potential indirect effects are farther-reaching <u>Regional</u> : The Howells River Valley has topography, surficial deposits and climate similar to the Howse Project and can be compared.
Permafrost	1-km radius centered on the Howse Project	Howells River watershed	<u>Local</u> : Direct effects will be confined to the Howse footprint. <u>Regional</u> : encompasses areas of previous and proposed mining-related disturbance (e.g., open pits, waste rock piles, etc.). The full extent of any cumulative effects is included within this region of historic mining operations.
Hydrology	Pinette/ Goodream/ Burnetta creek watersheds	Howells River watershed and regional area	<u>Local</u> : Direct effects will be confined to watersheds within which the Project is located. <u>Regional</u> : Pinette, Burnetta and Goodream creeks flow into the Howells River, and a large quantity of data on similar subwatersheds of Howells River is available for comparison with the LSA. It also includes regional hydrometric stations.
Water quality	Pinette/ Goodream/ Burnetta creek watersheds	Howells River watershed	<u>Local</u> : Direct effects will be confined to watersheds within which the Project is located. <u>Regional</u> : Pinette, Burnetta and Goodream creeks flow into the Howells River, and a large quantity of data on similar subwatersheds of Howells River is available for comparison with the LSA.
Anthropogenically altered landscapes	Elross/ Goodream/ Burnetta creek watersheds	TEM projects carried out regionally (DSO and Howse)	<u>Local</u> : Direct effects will be confined to watersheds within which the Project is located. <u>Regional</u> : Limits of the regional studies carried out in the Schefferville vicinity.
Terrestrial ecosystems	Elross/ Goodream/ Burnetta creek watersheds	TEM projects carried out regionally (DSO and Howse)	<u>Local</u> : Direct effects will be confined to watersheds within which the Project is located. <u>Regional</u> : Limits of the regional studies carried out in the Schefferville vicinity.

COMPONENT	LSA	RSA	JUSTIFICATION
Caribou - Migratory Tundra ecotype	15-km radius surrounding the Howse sector	Québec-Labrador Peninsula	<u>Local</u> : Corresponds to the limits of caribou perception <u>Regional</u> : Corresponds to the range of migratory caribou.
Boreal Forest ecotype	15-km radius surrounding the Howse sector	Eastern Québec and Labrador territory occupied by caribou of sedentary ecotype	<u>Local</u> : Corresponds to the limits of caribou perception <u>Regional</u> : Corresponds to the range of Boreal Forest caribou
Other large mammals	20-km radius surrounding the Howse sector	100-km radius surrounding the Howse sector	<u>Local</u> : Black bear can travel several km per day. <u>Regional</u> : A 100-km radius was deemed sufficient, since it corresponds to the limit of the Project's zone of influence on large mammals.
Furbearers	Howse Project footprint	5-km radius surrounding the Howse Project footprint	<u>Local</u> : Corresponds to sectors that will likely be directly affected by disturbances associated with Project activities. <u>Regional</u> : It is unlikely that the Project will affect furbearers living more than 5 km from the Howse Project.
Other small mammals	Howse Project footprint	5-km radius surrounding the Howse Project footprint	<u>Local</u> : Corresponds to sectors that will likely be directly affected by disturbances associated with Project activities. <u>Regional</u> : It is unlikely that the Project will affect small mammals living more than 5 km from the DSO3 and Silver Yards sectors (explanations in Section 5.4.3.3).
Micromammals	Howse Project footprint	n/a	<u>Local</u> : The ranges of micromammals are limited to between 0.5 and 2.0 ha, corresponding to the Howse Project footprint <u>Regional</u> : No need to define an RSA; micromammals do not move outside the mining operations sectors.
Chiroptera	Howse Project footprint	Howells River Valley	<u>Local</u> : Corresponds to sectors that will likely be directly affected by disturbances associated with Project activities. <u>Regional</u> : Corresponds to the only habitat located close by.
Herpetofauna	Howse wetlands and Elross/Goodream/Burnetta Creek watersheds	5-km radius surrounding the Howse sector	<u>Local</u> : Local effects will be confined to the watersheds within which the Project will take place. <u>Regional</u> : It is unlikely that the Project will affect herpetofauna living more than 5 km from DSO3/Silver Yards.
Avifauna	Elross/ Goodream/ Burnetta creek watersheds	30-km radius surrounding the Project area	<u>Local</u> : Corresponds to sectors potentially directly affected by disturbances associated with Project activities which is considered as being limited to the watersheds within which the Project takes places (e.g. Triangle Lake, Pinette Lake and Burnetta Creek watersheds). <u>Regional</u> : A 30-km radius takes into account recent avian studies and databases from the past 10 years and yields an accurate

COMPONENT	LSA	RSA	JUSTIFICATION
			representation of the regional avian communities
Aquatic Fauna	Pinette/ Goodream/ Burnetta creek watersheds	Howells River watershed and the Schefferville area	<p><u>Local</u>: Fish populations that may be directly affected by the Project are confined to the watersheds within which the Project takes place.</p> <p><u>Regional</u>: Pinette, Burnetta and Goodream streams flow into the Howells River, and a large quantity of data on similar subwatersheds of Howells River is available for comparison with the LSA.</p>

7.1.2 Socioeconomic

The LSA was defined to include the populations that are closer to the Howse Project. The nearest populations to the project site are found in the Schefferville area and Kawawachikamach. The Town of Schefferville and Matimekush-Lac John, an Innu community, are located approximately 25 km from the Howse Property, and 2 km from the Labrador border. The Naskapi community of Kawawachikamach is located about 15 km northeast of Schefferville.

The RSA was defined according to the region of influence of the Howse Project. This area includes:

- In Labrador, Labrador West (Labrador City and Wabush), as well as the IN and the NCC;
- In Québec, the City of Sept-Îles, and the Innu of Uashat and Mani-Utenam (ITUM). As discussed in Chapter 4, however, ITUM is considered within the LSA for land-use and harvesting activities.

7.2 VC SELECTION

In addition to following the CEAA guidelines and those criteria defined under Section 5 of CEAA (CEAA, 2012), the following table (Table 7-2) was used to guide the selection of the VCs. This table answers the question:

The component was specifically highlighted as valued in the consultation process or in focus groups organized for the land-use and ATK study.

Table 7-2 Summary of First Nation Concerns for Each Component Identified Under the Howse EIS

COMPONENT	HIGHLIGHTED AS VALUED	CONCERNS RAISED	STAKEHOLDER GROUP	DATES	NUMBER OF MENTIONS
Climate	No	<ul style="list-style-type: none"> No concerns raised during the land-use and ATK study or in the comments on the preliminary EIA. 			
Air quality	Yes	<ul style="list-style-type: none"> Dust is considered as an important issue (from mine and roads) and its effects on air quality, water quality and health is a preoccupation Dust from the mining activities and from trucks is a preoccupation. Areas around mining sites are avoided for berry harvesting because of dust. Dust travels a long way. Travels on lakes. Could be better controlled. A lot of dust the summer (dry period). Absence of data on existing air quality in town. Cumulative effects of dust from mining operations is a concern Presence of dust in the lakes. Rehabilitation is important because community feels open pits can be dangerous and remain a source of dust. Dust in Schefferville from trucks. Human health problems related to dust. 	NIMLJ NNK UASHAT IN of Labrador	Fall 2014	24
Noise	Yes	<ul style="list-style-type: none"> Effects of noise made by helicopters, planes, train, trucks and blasting on resources, which leave the area was mentioned as an issue. The effects of vibrations are a preoccupation. Noise from machinery is a source of disturbance. Noise can be heard from far away and it drives the animals away. 	NNK NIMLJ IN of Labrador	Fall 2015	6
Light	Yes	<ul style="list-style-type: none"> Lights on top of trucks are unnecessary left open at night and disturb the community Effects of lights on the population and the wildlife 	NNK NIMLJ IN of Labrador	Fall 2015	3
Geology	No	<ul style="list-style-type: none"> No concerns raised during the land-use and ATK study or in the comments on the preliminary EIA. 			

COMPONENT	HIGHLIGHTED AS VALUED	CONCERNS RAISED	STAKEHOLDER GROUP	DATES	NUMBER OF MENTIONS
Hydrogeology	Yes	<ul style="list-style-type: none"> Contamination surface water and particularly of the Howells River via groundwater is a major concern. Surface water systems and groundwater systems being interlinked, effects on the Howells River is of special concerns 	NIMLJ UASHAT	Fall 2014.	2
Geomorphology	No	<ul style="list-style-type: none"> No concerns raised during the land-use and ATK study or in the comments on the preliminary EIA. 			
Permafrost	Yes	<ul style="list-style-type: none"> Permafrost is a major carbon store in the form of carbon dioxide and methane. 	NNK		
Hydrography	No	<ul style="list-style-type: none"> No concerns raised during the land-use and ATK study or in the comments on the preliminary EIA. 			
Water quality	Yes	<ul style="list-style-type: none"> Water pollution and the protection of fish is an important preoccupation. Some are worried of accidental spills polluting lakes or running off in water systems Dust is considered as an important issue and its effects on water quality and health is a preoccupation Contamination of lakes and watercourses is a preoccupation. Contamination of surface water and particularly of the Howells River via groundwater is a major concern. Water contamination would also affect the wildlife and fish populations. Some are preoccupied and want to be informed on the way water will be cleaned up if there is contamination. It is important to the community that young Innu still have the possibility to go down the Howells River in the future. 	NNK NIMLJ UASHAT IN of Labrador	Fall 2014	10
Terrestrial ecosystems, wetlands, vegetation	Yes	<ul style="list-style-type: none"> Major concerns are for wildlife, trees, the environment and ecosystems. Disturbances to vegetation and trees by industrial activities were mentioned as a preoccupation. There are concerns on the monitoring of the environment by mining companies Mining activities break up the land (cumulative effects is a concern) There is concern animals will move further away because of new mining activities 	NNK NIMLJ UASHAT IN of Labrador	Fall 2014	7

COMPONENT	HIGHLIGHTED AS VALUED	CONCERNS RAISED	STAKEHOLDER GROUP	DATES	NUMBER OF MENTIONS
		<ul style="list-style-type: none"> ▪ People depend on hunting and fishing for food supply and they apprehend they will need to go further for hunting (food supply). ▪ Respect of the environment is a preoccupation. ▪ Mining haul roads are too large and affect the environment 			
Caribou	Yes	<ul style="list-style-type: none"> ▪ Effects on fish, animals, and waterfowl are of concern because these resources are used for subsistence. ▪ Mining operations (including blasting) affect the caribou. The caribou was present before mining activities (cumulative effects is a concern). ▪ Any mining activities should be stopped in presence of caribou. ▪ Rehabilitation is a concern. Caribou may fall in open pits. ▪ Absence of caribou has an effects on culture, people have to go further away to find caribou. ▪ There is also concern about this contamination affecting wildlife. 	NNK NIMLJ IN of Labrador	Fall 2014	15
Other large mammals	Yes	<ul style="list-style-type: none"> ▪ Effects on fish, animals, and waterfowl are of concern because these resources are used for subsistence. ▪ There is also concern about this contamination affecting wildlife. 	NIMLJ IN of Labrador	Fall 2014	3
Furbearers and small mammals	Yes	<ul style="list-style-type: none"> ▪ Effects on fish, animals, and waterfowl are of concern because these resources are used for subsistence. ▪ There is also concern about this contamination affecting wildlife. 	NIMLJ IN of Labrador	Fall 2014	3
Chiroptera	No	<ul style="list-style-type: none"> ▪ No concerns raised during the land-use and ATK study or in the comments on the preliminary EIA. 			
Herpetofauna	No	<ul style="list-style-type: none"> ▪ No concerns raised during the land-use and ATK study or in the comments on the preliminary EIA. 			
Avifauna	Yes	<ul style="list-style-type: none"> ▪ Effects of helicopters on Canada Goose. ▪ Canada Goose don't frequent the mine sites. ▪ Nesting area are threatened ▪ Effects on fish, animals, and waterfowl are of concern because these resources are used for subsistence. 	NIMLJ IN of Labrador	Fall 2014	7
Aquatic fauna	Yes	<ul style="list-style-type: none"> ▪ There are concerns that access for fishing will become difficult. ▪ The mining activities being practiced on the same routes that are used for hunting/fishing, there are worries that they will lose access to these areas. 	NNK NIMLJ IN of Labrador	Fall 2014	8

COMPONENT	HIGHLIGHTED AS VALUED	CONCERNS RAISED	STAKEHOLDER GROUP	DATES	NUMBER OF MENTIONS
		<ul style="list-style-type: none"> ▪ Effects on fish, animals, and waterfowl are of concern because these resources are used for subsistence. ▪ Potential risk for the fish. 			
Anthropogenically-altered landscapes	Yes	<ul style="list-style-type: none"> ▪ Restoration of landscapes during mine rehabilitation and closure ▪ Kauteitnat ▪ Kauteitnat is an observation point and an important landmark in the region. ▪ The mountain is considered as a nice area that should become a park but protection has never been discussed, ▪ The site is used to sight caribou. ▪ Kauteitnat a lot of history, particularly geological history. ▪ There is a will to protect the mountain. People are concerned the mountain will eventually be exploited. ▪ There is a fear that the final objective is to eventually mine the Kauteitnat Mountain. ▪ Blasting near Kauteitnat should be avoided. ▪ Elders are very attached to Kauteitnat 	NNK NIMLJ UASHAT IN of Labrador	Fall 2014	11