Torngat Metals

AECOM

Strange Lake Rare Earth Mining Project

Detailed Project Description (DPD) Summary (Part G)

Submitted to:

Impact Assessment Agency of Canada (IAAC, Federal Government)

60697132

May 2024

Delivering a better world

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List of Acronyms and Abbreviations

ACOA: Atlantic Canada Opportunities Agency
ATV: All-terrain vehicle
BAT: Best Available Technology
BFS: Bankable feasibility study
BGGP: Bureau de gestion des grands projets
BOD: Biological oxygen demand
CCME: Canadian Council of Ministers of the Environment
CEAA: Canadian Environmental Assessment Agency
CEAEQ: Centre d'Expertise en Analyse Environnementale du Québec
CH4: Methane
CISSSCN: Centre intégré de santé et de services sociaux de la Côte-Nord
CLSC: Centre local de services communautaires
CNA : College of North Atlantic
CNSC: Canadian Nuclear Safety Commission
CO_2: Carbon dioxide
COSEWIC: Committee on the Status of Endangered Wildlife in Canada
CRGBA Culturally relevant gender-based analysis
dBA: Ambient noise level
DFO: Department of Fisheries and Oceans
Dy: Dysprosium
ECCC: Environment and Climate Change Canada
EBSAs: Ecologically and Biologically Significant Areas
EDO: Environmental Discharge Objectives
EIS: Environmental impact statement
EPA: Environment Protection Act
EPR: Environmental preview report
EQA Environmental Quality Act
ESG: Environmental, social and governance
ESIA: Environmental and Social Impact Assessment
ESIS: Environmental and Social Impacts Study
EV: Electric Vehicle
FAFH Fish and Fish Habitat
Fe Iron
FIBC: Flexible Intermediate Bulk Containers
GBA Plus : Gender-based Analysis Plus

GHG:	Greenhouse gas emissions
GSC:	Geological Survey of Canada
HFC:	Hydrofluorocarbon
HHERA:	Human Health and Environmental Risk Assessment
IAA	Impact Assessment Act
IAAC:	Impact Assessment Agency of Canada
IBA:	Impact and Benefit Agreement
IBA:	Important Bird Area
IDLP:	Innu Development Limited Partnership
IPD:	Initial Project Description
IESG :	Indigenous, environmental, social and governance
INSPQ:	Institut national de santé publique du Québec
IOCC:	Iron Ore Company of Canada
IPCC:	Intergovernmental Panel on Climate Change
IPS:	Indigenous Peoples Survey
ISAQ	Inventory of Archaeological Sites in Quebec
JBNQA:	James Bay and Northern Quebec Agreement
JBRHSSC	James Bay Regional Health and Social Services Centre
KEAC:	Kativik Environmental Advisory Committee
KEQC:	Kativik Environmental Quality Commission
KRG:	Kativik Regional Government
LIL:	Labrador Inuit Lands
LILCA:	Labrador Inuit Lands Claims Agreement
LISA:	Labrador Inuit Settlement Area
LOD:	Limit of detection
LOM:	Life of Mine
LQE:	Loi sur la qualité de l'environnement au Québec
LRC:	Limited radius count
MCC:	Ministère de la Culture et des Communications du Québec
MDDEFP:	Ministère du Développement durable, de l'Environnement, de la Faune et des Parcs (2012-2014)
MDDELCC:	Ministère du Développement durable, de l'Environnement et la Lutte contre les Changements climatiques (2014-2018)
MDDEP:	Ministère du Développement durable, de l'Environnement et des Parcs (2005-2012)
MELCC:	Ministère de l'Environnement, la Lutte contre les changements climatiques (2018-2022)
MELCCFP	Ministère de l'Environnement, de la Lutte aux Changements climatiques, de la Faune et des Parcs (2022-…)
MERN:	Ministère de l'Énergie et des Ressources naturelles (now MRNF)

MMDMER	Metal Mining and Diamond Mining Effluent Regulations
MOU:	Memorandum of understanding
MPMO:	Major Projects Management Office
MRC:	Regional County Municipality
MRNF:	Ministère des Ressources naturelles et des Forêts (formerly MERN)
MSSS :	Ministry of Health and Social Services
N_2O:	Nitrous oxide
NAPS:	National Air Pollution Surveillance
Nd:	Neodymium
NdFeB:	Alloy of neodymium, iron and boron
NEQA:	Northeastern Quebec Agreement
NG:	Nunatsiavut Government
NL:	Newfoundland and Labrador Government
NMEF:	Nunavik Mining Exploration Fund
NO_2:	Nitrogen dioxide
NORM:	Naturally Occurring Radioactive Materials
NRCan:	Natural Resources Canada
NTS:	National Cartographic Reference System
OEL:	Occasional effect level
PEA:	Preliminary Economic Assessments
PFC:	Perfluorocarbon
PFS:	Pre-Feasibility Study
Pr:	Praseodymium
QMEA:	Quebec Mineral Exploration Association
RDL:	Reported detection limits
REE:	Rare Earth Elements
RLS:	Réseau local de services
RRSSN:	Régie régionale de la santé et des services sociaux Nunavik
SARA:	Species at risk act
SACC	Strategic Assessment of Climate Change
Scope 1:	Direct greenhouse (GHG) emissions that occur from sources that are controlled or owned by an organization.
Scope 2:	Indirect GHG emissions from consumption of purchased electricity, heat, cooling or steam.
SEA:	Strategic Environmental Assessment
SECP:	Southeast Churchill Province
SF_6:	Sulfur hexafluoride
SLAC:	Strange Lake Alkaline Complex

SLBZ:	Strange Lake B-Zone
SM:	Suspended matter
SO_2:	Sulfur dioxide
SPA	Saguenay Port Authority
SS	Suspended solids
t	Tonne
t/d	Tons per day
Tb:	Terbium
TEK:	Traditional Ecological Knowledge
TEL:	Threshold effect level
TPM:	Total Particulate Matter
TSP:	Total Suspended Particles
TSS:	Total suspended solids
UDI:	Undetermined distance index
US:	United States
USDOE:	U.S. Department of Energy
VBA:	Voisey Bay Area
VEC:	Valuable Ecosystem Component
VOC:	Volatile Organic Compound
WC:	Water crossing

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Introduction

Torngat Metals Ltd. (hereinafter referred to as "**Torngat Metals**") is a private Canadian company headquartered in Montreal. The project is a rare earth elements mining project in the Strange Lake deposit in Quebec, located 235 km northeast of Schefferville and 125 km west of Vale's nickel-copper mine near Nain in Labrador. Guided by IESG standards, Torngat Metals aims to be recognized as a socially and environmentally responsible supplier of rare earths for the electric mobility, renewable energy, and other low-carbon footprint markets. Rare earths are essential to the decarbonization of our societies and to date over 85% of the market is controlled by China. The proposed mine and processing facilities will be key to the stabilization of the supply chain, ensuing North America controls its supply of rare earth. The deposit of Strange Lake contains large quantities of the four rare earth that produces the magnets necessary for electric vehicle (EV) motors. There are also eight other useful rare earth that are necessary for colours in smart phones and tablets, making flat screens possible and also key to medical equipment.

The following elements represent the components of the Strange Lake Rare Earth Mining Project (hereinafter referred to as "**Strange Lake Project**"):

- **Mine site** (Quebec, north of the 55th parallel). The construction, operation, closure and restoration of a new mining complex includes: Open-pit mining of the rare earth elements deposit (30 years of operation being considered), a concentration plant, related infrastructure (waste rock, low-grade and residues stockpiles, water management ponds and treatment facilities, permanent camp, office and warehouse buildings), an aerodrome.
- **Single Lane Access road** (approximately 160 km long). It extends between the mining site and the eastern coast of Labrador where port facilities will facilitate the transportation of concentrate by trucks to the barges. The first 18 kilometers from the mine site are located within the province of Quebec. Outside the mine site, the preliminary design includes a seasonal and private single lane access road of approximately 140 km. This road, depending on the design, will be located within the territory of the province of Newfoundland and Labrador, the region under Labrador Inuit Settlement Area (LISA) and LIL (Labrador Inuit Land). Two options are currently studied (Option A and Option C), with a different number of water crossings. The Option C presents two alignments based on either a mostly forestry road (C1) minimizing water crossings and minimizing impacts on land use or designing a complete forestry type (C2) low construction impact road.
- **Port facilities with storage and handling.** The concentrate will be placed in bags and those will be put into containers which will be transported by trucks from the mine to a storage and handling facility on the east coast of Labrador. Two sites are studied: using the existing port of Vale's nickel-copper mine in Anaktalak Bay, NL[1] (Option A), or build new port facilities in Voisey's Bay (Option C).
- **Transportation by container ships of the concentrate to a separation plant.** The concentrate will be transported in container ships to a pre-existing industrial port area in Sept-Îles, QC.
- **Rare earth separation plant.** This plant will separate rare earth elements into oxides and will be built in the "Parc industriel ouest – Jonction Arnaud" (also known as "Parc industriel Vigneault") of the Sept-Îles industrial port facility (QC).

Following the publication of the Initial Project Description (IPD) in September 2023 and the engagement and consultation activities conducted by the Impact Assessment Agency of Canada (IAAC), a Summary of Issues was published on the Canadian Impact Assessment Registry on December 23, 2023 (English version) and January 23, 2024 (French version). The description of how Torngat Metals intends to address each of the issues raised is presented in the document "Answers to Summary of Issues" available in Appendix A of the Detailed Project Description (DPD).

[1] Although the Vale mine site is named Voisey's Bay, its port is located in Anaktalak Bay, just to the north.

PART A – GENERAL INFORMATION

1 Project Name

The title of the project is “Strange Lake Rare Earth Mining Project”.

In this document, the short title “Strange Lake Project" is used to simplify the text.

2 Identification of Proponent and Representative

2.1 Proponent Identification

The promoter is **Torngat Metals Ltd.** (hereinafter named Torngat Metals), a Canadian exploration company currently focused on developing its main project, the Strange Lake property in northeastern Quebec. A current update statement has been made to formalize the corporate name change from Quest Rare Minerals Ltd. to Torngat Metals Ltd or Métaux Torngat Ltée.

Name of promoter:	**Torngat Metals Ltd.**
Address (head office):	625 Avenue du President Kennedy, suite 605 Montreal, Quebec H3A 1K2
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PART B – PLANNING PHASE RESULTS

3 Summary of the Results of Engagement Activities with any Jurisdiction or Other Party

As part of the Strange Lake Project, Torngat Metals (previously Quest Rare Minerals) has presented the project to various government stakeholders at the federal and provincial (Quebec and Newfoundland and Labrador) levels and to Indigenous governments (Nunavik and Nunatsiavut) since 2011. Several engagement activities have also been carried out with various stakeholders, mainly Indigenous groups from Quebec and Labrador (engagement activities carried out with Indigenous groups are presented in Section 4). Engagement activities have also been carried out with non-Indigenous stakeholders, such as government representatives, outfitters and businesses that may have an interest in participating in the project.

Table 3-1 provides a summary of government, and other stakeholder groups consulted to date, as well as the issues and concerns discussed with them.

Table 3-1: Government agencies and other stakeholders consulted between 2011 and 2024

Type of stakeholder	Date	Stakeholders	Issue / concern discussed
Federal government Initial project presentation, follow-up meetings and communications, environmental assessment process	2011 – 2024 (ongoing)	– Bureau de gestion des grands projets (BGGP) – Representatives of the Canadian Environmental Assessment Agency (CEAA) / Impact Assessment Agency of Canada (IAAC)[2] – Natural Resources Canada (NRCan) – Innovation, Science and Economic Development Canada – NSERC – Canadian Nuclear Safety Commission (CNSC) – Minister of Labour – Minister of Rural Economic Development – Atlantic Canada Opportunities Agency (ACOA) – Canada Infrastructure Bank	– Project seen as important for the Canadian Critical Minerals Strategy – Interest in understanding all the potential project benefits, including exploring potential strategic opportunities that the project could enable, e.g. foundation of rare earth industry and downstream supply chain; future opportunity for an access road to become a resource corridor and route for electricity transmission. – Project seen as potentially meeting criteria of multiple funding programs
Quebec government Initial project presentation, follow-up meetings and communications, environmental assessment process	2011 – 2024 (ongoing)	– Division des mines du ministère des Ressources naturelles – Ministère du Développement durable, de l'Environnement, de la Faune et des Parcs (MDDEFP) – Ministère de l'Environnement, de la lutte contre les changements climatiques, de la Faune et des Parcs (MELCCFP) – Secrétariat aux Affaires autochtones du Québec – Investissement Québec – Société du Plan Nord	– Project seen as important for the Quebec Plan for the Development of Critical and Strategic Minerals – Interest in understanding all the potential project benefits, including exploring potential strategic opportunities that the project could enable, e.g. foundation of rare earth industry and downstream supply chain – Project seen as potentially meeting criteria of multiple funding programs

[2] The meetings carried out with IAAC dealt specifically on the requirements of the federal impact assessment process, including the potential project effects.

Table 3-1: Government agencies and other stakeholders consulted since 2011 (Cont'd)

Type of stakeholder	Date	Stakeholders	Issue / concern discussed
Newfoundland and Labrador government Presentation of the proposed project; consultation plans; mobilization plans for Indigenous populations; environmental assessment process	2011 – 2024 (ongoing)	– Premier of Newfoundland and Labrador – Minister, Deputy Minister, Assistant Deputy Minister of Industry, Energy and Technology responsible for Mining and Mineral Development – Minister, Deputy Minister, Assistant Deputy Minister, and Director of the Department of Indigenous Affairs and Reconciliation; Labrador Affairs; Assistant Parliamentary Leader; Secretariat of Labrador Affairs – Executive Council – Director of Environmental Assessment and officials from the Department of Environment and Climate Change	– Project seen as important, and to have input into the Province's critical minerals strategy in development
Other non-Indigenous stakeholders	2014 – 2024	– Municipality of Schefferville – Outfitters – Businesses interested in participating in the project including Labrador North Chamber of Commerce, Indigenous business groups – Quebec Mineral Exploration Association (QMEA) – Other mining and metallurgical companies – Several universities and colleges, e.g. College of North Atlantic (CNA) – Building Trades Council – Senator of Newfoundland and Labrador; Chairman of the Fisheries and Oceans Committee – Newfoundland and Labrador Hydro	– Employment opportunities – Indigenous employment – Business and procurement – Innovation in mining (CNA) – Industrial participation in research projects – Opportunity to assess core samples (CNA) – Access to and availability of electricity

Consultation activities were also carried out as part of the site selection process for the separation plant. Three potential sites were initially identified: the industrial port zones of Sept-Îles, Baie-Comeau and Saguenay. Meetings have been held with the relevant authorities between November 2022 and mid-2023, which allowed for onsite meetings with site managers, local and administrative authorities in each region. Preliminary contacts were also made with some Indigenous representatives of Sept-Îles area, although not exhaustive at this preliminary stage. In July of 2023, Sept-Îles was designated as the preferred site and, at the end of 2023, an information and consultation plan has been developed and implemented concerning the Sept-Îles area.

Table 3-2 presents the stakeholders met concerning the implementation of a separation plant and summarize the issues and concerns discussed.

Table 3-2: Government agencies and other stakeholders consulted between November 2022 and April 2024 in relation with the implementation of a separation plant

Type of stakeholder	Date	Stakeholder	Issue / concern discussed
Federal government Initial project presentation, site selection, follow-up meetings and communications	March 2024	– Member of Parliament and deputy of Manicouagan	– Importance to keep the population informed on the project and conduct a robust consultation of the different types of stakeholders. – Address environmental and social issues such as water management, radioactivity and economic benefits.
Quebec government Initial project presentation, site selection, follow-up meetings and communications	November 2022 – 2024 (ongoing)	– Investissement Québec – Société du Plan Nord – Division des mines du ministère des Ressources naturelles – Member of Parliament and deputy of Duplessis	– Project seen as important for the Quebec Plan for the Development of Critical and Strategic Minerals – Interest in understanding all potential project benefits, including exploring potential strategic opportunities that the project could enable, e.g. foundation of rare earth industry and downstream supply chain – Project seen as potentially meeting criteria of multiple funding programs – Importance to keep the population informed about the project and conduct a robust consultation involving various types of stakeholders.
Local stakeholders – Sept-Îles Initial project presentation, site selection, follow-up meetings and communications	December 2022 – 2024 (ongoing)	– Développement Économique Sept-ïles – Port de Sept-Îles – City Council of Sept-Îles (Mayor, Councillors and General Manager) – Chamber of commerce of Sept-Îles and Uashat mak Mani-Utenam – Société de Développement Économique de Uashat Mak Mani-utenam (SDEUM) – Bureau de protection du territoire de Uashat mak Mani-Utenam – Cégep de Sept-Îles – Centre de formation professionnelle de Sept-Îles – Conseil régional de l'environnement Côte-Nord – Corporation de protection de l'environnement de Sept-Îles – FTQ Région Côte-Nord – Sept-Îles population (2 public assemblies in April 2024)	– Project is seen as potentially providing the type of significant economic development opportunity to meet their needs, as long as environmental and social concerns are addressed. – Importance to keep the population informed on the project and conduct a robust consultation of the different types of stakeholders. – Concerns regarding environmental and social issues such as water management, dust control, radioactivity (human health). – Discussion on the location of the plant and residue pile location – Concerns about the value of the property located nearby of the proposed plant and residue pile location. – Concerns about the housing shortage in Sept-Îles. – Concerns about the negative impacts of fly-in – fly-out. – Necessary dialogue with Indigenous groups. – Interest to develop the rare earth industry in Sept-Îles (expertise and high skills jobs).
Local stakeholders – Baie-Comeau Initial project presentation, site selection, follow-up meetings and communications	December 2022 and February 2023	– Innovation et développement Manicouagan (CLD) – Corporation de gestion du port de Baie-Comeau (CGPBC) – Ville de Baie-Comeau	– Project is seen as potentially providing the type of significant economic development opportunity to meet their needs, as long as environmental and social concerns are addressed

Table 3-3: Government agencies and other stakeholders consulted between November 2022 and April 2024 in relation with the implementation of a separation plant (Cont'd)

Type of stakeholder	Date	Stakeholder	Issue / concern discussed
Local stakeholders – Saguenay Initial project presentation, site selection, follow-up meetings and communications	November 2022 – mid-2023.	– Promotion Saguenay – Administration Portuaire du Saguenay	– Project is seen as potentially providing the type of significant economic development opportunity to meet their needs, as long as environmental and social concerns are addressed

As part of the environmental and social impact study, Torngat Metals plans to conduct additional information and consultation activities with institutional stakeholders, communities, non-governmental groups or associations, and other stakeholders affected by the project. Several stakeholders will therefore be consulted on over the coming weeks and months, in order to gather information and data required for impact analysis.

The following table presents a preliminary program to conduct consultation activities with the concerned non-Indigenous communities in Quebec and Labrador during the ESIA process.

Table 3-4: Consultation program with the concerned non-Indigenous communities in Quebec and Labrador

Projected Period	Stakeholder	Activity
Q2-Q3 2024	– Community associations representing or working with specific groups (GBA+, such as women, youth, elder, unemployed, etc.) in Sept-Îles, Schefferville, Fermont Labrador West and Goose Bay. – Environmental and citizen groups in Sept-Îles, Schefferville, Fermont Labrador West and Goose Bay. – Ongoing dialogue with key stakeholders such as local authorities.	Face to face meetings and focus groups to gather socio-economic data and identify expectations and concerns.
Q4 2024	– Population of Sept-îles, Schefferville, Fermont, Labrador West and Goose Bay	Community assemblies to present update on the project and the consultation findings, to identify additional community expectations and concerns, and potential avoidance and mitigation measures.
Q1 – Q2 2025	– Stakeholders met during the consultation phase.	Feedback on the results of consultation activities with all stakeholders prior to submission of the impact study.

Following the publication of the Initial Project Description (IPD) in September 2023 and the engagement and consultation activities conducted by the Impact Assessment Agency of Canada (IAAC), a Summary of Issues was published on the Canadian Impact Assessment Registry on December 23, 2023 (English version) and January 23, 2024 (French version). The description of how Torngat Metals intends to address each of the issues raised is presented in the document "Answers to Summary of Issues" available in Appendix A of the Detailed Project Description (DPD).

4 Summary of the Results of Engagement Activities with Indigenous Groups

Since 2022, Torngat Metals has restarted its formal consultation activities with the various governments and Indigenous groups. Meetings have been held with elected representatives, leaders and officials as well as the population of many Indigenous communities. The list of the engagement activities held with the Indigenous communities is presented in Appendix B of the DPD. Since Spring 2023, stakeholders and partners have access to a web platform providing project maps, database and reports, which ease the information disclosure in a transparent way.

The consulted Indigenous groups are as follows:

In Quebec

- The Nunavik Inuit, including the Makivvik Corporation, the Kativik Regional Government, as well as the northern village and landholding corporation of Kangiqsualujjuaq.
- The Naskapi Nation of Kawawachikamach.
- The Quebec Innu of Matimekush-Lac John and Ushat mak Mani-Utenam.

In Labrador

- The Nunatsiavut Inuit, including representatives of the Nunatsiavut Government legislative assembly, the Nunatsiavut Group of Companies, and the community of Nain, and various officials.
- The Labrador Innu, including the Innu Nation of Labrador political representative, as well as the communities of Sheshatshiu and Natuashish, and various officials.

Table 4-1 provides a summary of the consultation activities conducted with Indigenous groups to date, as well as their main issues and concerns discussed.

Table 4-1: Indigenous groups consulted since 2011 in Quebec and Labrador and main issues and concerns discussed

Indigenous group	Date	Indigenous entity	Issue / concern discussed
Nunavik Inuit (Quebec) Baseline studies on socio-economic aspects and traditional land use, information meetings and community engagement process, environmental assessment process	2012 – 2015	– Makivvik Corporation – Nunavik Mining Exploration Fund (NMEF) – Kativik Regional Government (KRG) – Municipal authorities of Kuujjuaq and Kangiqsualujjuaq – Landholding Corporations of Kuujjuaq and Kangiqsualujjuaq – KRG Sustainable Employment Service – Representatives from the Employment Sector of the Northern Communities of Kangiqsualujjuaq – Regional and local development service of KRG – School principals in Kuujjuaq and Kangiqsualujjuaq – Representatives from Health Centres in Kuujjuaq and Kangiqsualujjuaq	– Expectations in terms of business opportunities for registered Inuit businesses – Concerns regarding the environmental protection, notably the water quality and fishes of the George River – Concerns on the protection of the Inuit diet and way of life – Expectations on potential Impact and Benefits Agreement (IBA) – Expectations on training and job opportunities

Table 4-1: Indigenous groups consulted since 2011 in Quebec and Labrador and main issues and concerns discussed (Cont'd)

Indigenous group	Date	Indigenous entity	Issue / concern discussed
Nunavik Inuit (Quebec) Baseline studies on socio-economic aspects and traditional land use, information meetings and community engagement process, environmental assessment process	2023 (ongoing)	– Municipal authorities of Kuujjuaq and Kangiqsualujjuaq – Landholding Corporations of Kuujjuaq and Kangiqsualujjuaq – Community meetings with elders and land users in Kangiqsualujjuaq – Nunavik Research Center	– Expectations in terms of business opportunities for registered Inuit businesses – Concerns regarding the environmental protection, notably the water quality and fishes of the George River – Concerns on the protection of the Inuit diet and way of life – Concerns about the water and dust management. – Concerns regarding the radioactivity level and the potential contamination of the environment – Expectations on potential Impact and Benefits Agreement (IBA) – Expectations on training and job opportunities – Expectations regarding the Inuit participation in the decision making and the environmental monitoring of the project – Expectations on potential Impact and Benefits Agreement (IBA)
Naskapi Nation of Kawawachikamach Baseline studies on socio-economic aspects and traditional land use, information meetings and community engagement process	2011 – 2015	– Leaders of the Naskapi Nation Council of Kawawachikamach – Elders, land users and community members of Kawawachikamach (through a public meeting) – Public Works Department – Naskapi Nation Bureau – Naskapi Development Corporation – Naskapi Police Services	– Expectations in terms of job and business opportunities – Concerns regarding the environmental protection, notably the caribou – Expectations on potential Impact and Benefits Agreement (IBA)
Naskapi Nation of Kawawachikamach Baseline studies on socio-economic aspects and traditional land use, information meetings and community engagement process	2023 (ongoing)	– Leaders of the Naskapi Nation Council of Kawawachikamach – Elders, land users and community members of Kawawachikamach (through a public meeting)	– Expectations in terms of job and business opportunities – Concerns regarding the environmental protection, notably the caribou – Expectations on recognition of Naskapi interests in Labrador – Expectations on potential pre-development agreement (PDA) and Impact and Benefits Agreement (IBA) – Expectation to realize their own environmental studies – Expectations regarding the Naskapi participation in the decision making and the environmental monitoring of the project – Expectations about economic benefits and Naskapi financial participation to the project
Québec Innu Information meetings and community engagement process	2012 – 2015	– Matimekush-Lac John First Nation Council – Aventures Ashini – Friends of Mushuau-Nipi	– Expectations on recognition of Innu rights and interests in the project's area – Concerns about the mining practices in the region over the past decades

Table 4-1: Indigenous groups consulted since 2011 in Quebec and Labrador and main issues and concerns discussed (Cont'd)

Indigenous group	Date	Indigenous entity	Issue / concern discussed
Québec Innu Information meetings and community engagement process	2023 (ongoing)	– Matimekush-Lac John First Nation Council	– Expectations on recognition of Innu rights and interests in the project's area – Concerns about the mining practices in the region over the past decades – Expectations to build a strong partnership in terms of equity – Concerns about the radioactivity in the extracted material and the potential impact of the separation plant on the environment – Expectations for a robust consultation and social acceptability of the project.
Nunatsiavut Inuit (Labrador) Baseline studies on socio-economic aspects and traditional land use, information meetings and community engagement process, environmental assessment process	2011 – 2015	– Nunatsiavut government leaders and ministers – Nunatsiavut Secretariat – Nunatsiavut Department of Land and Natural Resources – Nunatsiavut Department of Education and Economic Development – Nunatsiavut Department of Health and Social Development – Nunatsiavut Department of Culture and Tourism – Nunatsiavut Affairs Department – Representatives from the Inuit community government of Nain – Community meetings with elders and members of the Inuit community of Nunatsiavut in Nain	– Realization of their own land use study in collaboration with the project – Concerns regarding the impacts on the Ikadlivik brook valley and its resources, notably the char – Concerns regarding the impacts of the projected road on the caribou – Expectations on business opportunities for the Inuit enterprises – Expectations on potential Impact and Benefits Agreement (IBA) – The Voisey's agreement to be seen as a model
Nunatsiavut Inuit Introduction of revised plans (since Quest); environmental assessment process and expectations; updated information on traditional land use; engagement process; port options in Voisey's Bay; sensitivities to char and caribou; opportunities for business, employment and public markets	2023 (ongoing)	– President, Ministers of Education and Economic Development; Language, Culture and Tourism; and Lands and Natural Resources, – Deputy Ministers and officials of Nunatsiavut Secretariat; Education and Economic Development; Language, Culture and Tourism; Lands and Natural Resources, – Nunatsiavut Group of Companies	– Expectation to update their land use study – Expectations for a consultation of the 5 Inuit communities – Concerns regarding the impacts on the Ikadlivik brook valley and its resources, notably the char – Concerns regarding the impacts of the projected road on the traditional way of life – Concerns about the open-up of the territory – Concerns regarding the impacts of the projected road on the caribou – Expectations on business opportunities for the Inuit enterprises – Expectations on potential Impact and Benefits Agreement (IBA) – The Voisey's agreement to be seen as a model – Concerns about the level of radioactivity and the environment contamination – Interest to take charge of the proposed road maintenance

Table 4-1: Indigenous groups consulted since 2011 in Quebec and Labrador and main issues and concerns discussed (Cont'd)

Indigenous group	Date	Indigenous entity	Issue / concern discussed
Innu Nation of Labrador Baseline studies on socio-economic aspects and traditional land use, information meetings and community engagement process	2012 – 2015	– Leaders of the Innu Nation of Labrador – Innu Development Limited Partnership (IDLP) – Innu Mikun – Mushuau Innu Band Council of Natuashish and Sheshatshiu Innu Band Council – Environment office of Innu Nation – Economic Development Advisors for the Mushuau and Sheshatshiu Innu First Nations – Sheshatshiu Innu First Nation's Community Health Department – Community meetings with land users and other members of the Natuashish and Sheshatshiu communities	– Expectations to be a partner in the construction and the maintenance of the proposed road – Expectations of business opportunities for Innu companies – Concerns on the potential impacts of the proposed road on caribou – Expectations on recognition of Innu interests in Quebec – Expectations on potential Impact and Benefits Agreement (IBA)
Innu Nation of Labrador Plans for the Voisey's Bay port; road design; overlap of Indigenous land claims; business, supply and employment opportunities for Labrador Innu; expectations for business participation; consultation plans for Innu communities	2023 (ongoing)	– Grand Chief of the Innu Nation of Labrador – IBA negotiators – Environmental Management and Analysis Branch of the Environment department – Land Rights Negotiator – Key Advisors	– Expectations of business opportunities for Innu companies and workforce. – Concerns on the potential impacts of the proposed road on caribou, water and fish populations. – Expectations on potential Impact and Benefits Agreement (IBA) – Concerns about the open-up of the territory

As part of the environmental and social impact study, Torngat Metals plans to conduct new information and consultation activities with the Indigenous authorities and communities affected by the project. The following table presents a preliminary program to conduct consultation activities with the concerned Indigenous communities in Quebec and Labrador during the ESIA process.

Table 4-2: Preliminary consultation program with the concerned Indigenous communities in Quebec and Labrador

Activity	Period	Group/Representative	Activity Type	Topic
Fall 2023 pre-consultation meetings	Q4 2023	Indigenous leadership and institutions: – Makivvik – Inuit of Kangiqsualujjuaq and Kuujjuaq (villages and LHC) – Nunavik research center – KRG – Naskapi Nation of Kawawachikamach – Innu council of Matimekush Lac-John – Innu Takuaikan Uashat mak Mani-Utenam – Nunatsiavut Government – Innu Nation	Face to face meeting with Indigenous leadership and administration	– Update on Strange Lake Project – Environmental and social impact assessment process – Indigenous participation in the social studies – Community consultation and liaison committee implementation – Torngat Metals procurement and training policies – Preliminary discussion on future agreements (PDA, funding of the local liaison committee, Indigenous participation in the preparation of the social studies)
Preparation of the ESIA consultation	Q1 2024	Indigenous leadership and institutions: – Makivvik – Inuit of Kangiqsualujjuaq and Kuujjuaq (villages and LHC) – Nunavik research center – KRG: Indigenous hunting, fishing and trapping support program, sustainable employment, regional and local development – Naskapi Nation of Kawawachikamach – Innu council of Matimekush Lac-John – Innu Takuaikan Uashat mak Mani-Utenam – Nunatsiavut Government: Education and economic development, Health and social development, Lands and Natural Resources. – Nunatsiavut villages authorities: Nain, Makkovik, Hopedale, Postville and Rigolet – Innu Nation – Environment office of Innu Nation – Natuashish and Sheshatshiu Councils	Face to face meetings	– Review of the Project Descriptions submitted to the Ministry of the Environment – Discussion on the consultation methodology

Table 4-2: Preliminary consultation program with the concerned Indigenous communities in Quebec and Labrador (Cont'd)

Activity	Period	Group/Representative	Activity Type	Topic
Realization of the ESIA consultation	Q2, Q3 and Q4 2024	Indigenous population: – Kangiqsualujjuaq – Kawawachikamach – Matimekush-Lac John – Uashat mak Mani-Utenam – Nain, Makkovik, Hopedale, Postville and Rigolet – Natuashish – Sheshatshiu	Community meetings	– Presentation of the consultation methodology – Update on the project – Indigenous expectations and concerns about the project
		Representatives, civil servants and other key informants of the above Indigenous communities	Individual face to face meetings	– Data collection to prepare the land use and the socio-economic studies: contemporary occupancy and land use; demographic and socio-economic profile (housing, education, health, employment, etc.) – Indigenous expectations and concerns about the project
Realization of the ESIA consultation	Q2, Q3 and Q4 2024	Specific groups (elders, youth, women, men and GBA Plus groups) of the above Indigenous communities	Focus groups	– Interview with specific groups of the community to have their point of view regarding the living conditions and quality of life within the community and to understand their aspirations and challenges – Indigenous expectations and concerns about the project
		Indigenous population: – Kangiqsualujjuaq – Kawawachikamach – Matimekush-Lac John – Uashat mak Mani-Utenam – Nain, Makkovik, Hopedale, Postville and Rigolet – Natuashish – Sheshatshiu	Household survey	– Socio-economic data collection on the Indigenous households – Indigenous expectations and concerns about the project

Following the publication of the Initial Project Description (IPD) in September 2023 and the engagement and consultation activities conducted by the Impact Assessment Agency of Canada (IAAC), a Summary of Issues was published on the Canadian Impact Assessment Registry on December 23, 2023 (English version) and January 23, 2024 (French version). The description of how Torngat Metals intends to address each of the issues raised is presented in the document "Answers to Summary of Issues" available in Appendix A of the Detailed Project Description (DPD).

5 Previous Studies and Programs

Numerous geological surveys were conducted in the Strange Lake area between 1967 and 2009. The first studies were carried out by the Geological Survey of Canada (GSC) in 1967 to establish a geological map of the Strange Lake and the George River area. Between the 1970s and 1980s, the *Ministère de l'Énergie et des Ressources* (MER) of Quebec carried out detailed mapping of the George River area. In 1979 and 1980, the GSC and the Newfoundland and Labrador Department of Natural Resources jointly completed a study identifying the strong geochemical dispersion pattern of the Strange Lake complex. During the 1980s, private companies have carried out detailed geological mapping and sampling to identify more accurately the Strange Lake alkaline complex and its mineralization: rare earth elements, zirconium, beryllium, niobium and yttrium. In the 1980s and 1990s, additional geological surveys, as well as metallurgical testing and economic studies concerning the mineral potential of the Strange Lake area were carried out by private companies, and government authorities.

In 2006, Freewest Resources Canada Inc. acquired 23 mining claims, including the Strange Lake rare earths mineralized area, for uranium exploration. The following year, the exploration program was subsequently transferred to its newly formed subsidiary, Quest Uranium Corporation. From this moment, the company had focused its efforts on the development of the rare earth deposit and its name is changed to Quest Rare Minerals Ltd. In 2009, Quest Rare Minerals Ltd. acquired a block of claims from Quebec prospectors to consolidate its property. From 2009 to 2012, Quest conducted an extensive exploration program, including detailed mapping and extensive drilling of the Strange Lake Alkaline Complex mineralized zones, particularly the area identified as the B-Zone, adjacent to Lac Brisson and located in Quebec.

Several mineral resource estimate reports as well as preliminary economic assessments (PEA) have been published, along with the field work. In 2010, Wardrop published a Technical Report on the mineral resource estimate on the Strange Lake B-Zone deposit (updated 2011) as well as a PEA. In 2012, Micon prepared a new estimate of the mineral resources of the deposit and published a pre-feasibiliy study (PFS) in December 2013, followed by a Preliminary PEA in 2014. This report was successively updated in 2014, 2017 and 2019. In the 2019 report, Micon presented a new interpretation of the deposit geological model, by Renaud Geological Consulting, also a signatory of the 2019 Micon report. In parallel to these activities, and until 2017, Quest conducted several metallurgical, beneficiation and preliminary separation test work. In July 2018, Quest changed its name to Torngat Metals Ltd. (Torngat Metals).

Several baseline studies were completed between 2011 and 2014 for the Strange Lake mine project on behalf of Torngat Metals Ltd. (formerly Quest Rare Minerals LTD). Table 5-1 presents the available reports. Those reports will either be updated with more recent data, or their validity will be re-confirmed.

Table 5-1: Reports completed between 2012 and 2014 as part of the PFS (Dec 2013) and PEA (Nov 2014)

Report Title	Project Component	Report Title	Project Component
Geochemistry Baseline	Mine Site	Surficial Geology, Geomorphology and Permafrost (Mine, Road and Port)	Northern Components
HHERA - Human Health and Ecological Risk Assessment	General	2013 Groundwater and Soil Technical Report - Mine	Mine Site
Landscape (Quebec & Labrador)	Northern Components	Surface Water Quantity (Hydrology)	Mine Site
Local Services Analysis	Northern Components	Government and Community Relations – Preliminary Communication and Engagement Plan	Northern Components
Mine and Port Site Potable Water Resources	Mine Site	Government and Community Relations – Stakeholder Mapping and Analysis - Mine Site, Road Corridor and Port Site	Northern Components
Asbestiform Amphibole Analysis (CO-16)	General	Government and Community Relations – Housing Infrastructure and temporary Accommodation Analysis - Mine Site, Road Corridor and Port Site	Northern Components
Weather - Environment Baseline Climate	Northern Components	Government and Community Relations – Local Services Analysis - Mine Site, Road Corridor and Port Site	Northern Components
Workforce and Recruitment Analysis	Northern Components	Government and Community Relations – Workforce and Recruitment Analysis – Mine Site, Road Corridor and Port Site	Northern Components
Consideration of Sustainable Development in the Strange Lake B-zone REE project (with a Sustainability Matrix)	General	Government and Community Relations – Preliminary Strategic Plan for Training of Aboriginal Workforce – Mine Site, Road Corridor and Port Site	Northern Components
2013 Nighttime Illumination – Technical Memorandum	General	Social Baseline Studies - *Land Use and Traditional Ecological Knowledge (TEK) – Mine Site, Road Corridor and Port Site*	Northern Components
Secular equilibrium and radioactive decay	General	Social Baseline Studies - *Archeological Inventory – Mine Site*, Strange Lake B-Zone	Mine Site
Consideration of Climate Change Adaptation in the Strange Lake B-Zone REE project	General	Social Baseline Studies - *Socio-Economic Profile, Northern Communities*	Northern Components
Mine Site Hydrogeology - Ground Water and Soil Investigation 2011-2012	Mine Site	Social Baseline Studies - *Landscape – Mine Site*, Strange Lake B-Zone	Mine Site
Ambient Air Quality, 2011	Mine Site	Social Baseline Studies - *Landscape – Road Corridor and Port Site*	Access Road
Background Noise Study, 2011	Mine Site	Semi-aquatic and Terrestrial Wildlife 2011-2013 -Biological Environment Baseline Surveys - **Amended Version**	Northern Components
Fluvial Geomorphology	Access Road	Social Baseline Studies - *Archeological Inventory – Road Corridor and Port Site* - **Amended Version**	Access Road

6 Applicable Strategic Assessments

The project is in line with the publication of the Canadian Strategy on Critical Minerals, as well as the Quebec Plan for the Valorization of Critical and Strategic Minerals. The Strange Lake Project is one of the rare earth deposits recognized as having global potential. See Section 7 *Project Rationale and Purpose* for more details.

As part of best practices during the impact assessment of designated projects, ECCC developed the *Strategic Assessment of Climate Change* (SACC) to protect the environment and communities, advance reconciliation with Indigenous people, while contributing to Canada's commitment to climate change. Strange Lake Rare Earth Mining Project will comply with SACC given as Torngat Metals is guided by IESG standards and aims to be recognized as a socially and environmentally responsible supplier of rare earths for the electric mobility, renewable energy, and other low-carbon footprint markets. Section 23 of the current document details the *Strategic Climate Change Assessment* including the greenhouse gas emissions (GHG), mitigation measures, net-zero plan, limitations and resilience to climate change. It is noteworthy that at the submission of the DPD, a *Statement on the Interim Administration of the Impact Assessment Act pending legislative amendments* was in place.

In Newfoundland and Labrador, Strategic environmental assessment (SEA) represents a broad-based approach to environmental assessment that examines the environmental effects on larger ecological setting, rather than a project or site-specific issues. According to the website, no SEA is currently assessed.

Finally, we are not aware of any ongoing strategic environmental assessment in Nunatsiavut.

PART C – PROJECT INFORMATION

7 Project Rationale and Purpose

The Strange Lake mining project aims to produce rare earth oxides (REO) for sale in North America, Europe, and Asia, focusing on the rare earth permanent magnet supply chain. The Strange Lake Alkaline Complex is a world-class rare earth deposit. The timing for the Strange Lake Rare Earth Mining Project now is ideal. Firstly, responsibly produced rare earths are urgently needed as part of the solution for climate change. Secondly, the timing is ideal since all the components for a responsible plan to bring the Strange Lake Project into production are ready and in place. In partnership with Indigenous communities, the plan is to implement innovations with world-leading technical and engineering partners, to maximize social, environmental and financial benefits, while reducing any negative impacts and risks. The focus will be on producing separated REO, specifically light rare earth oxides neodymium, praseodymium, and heavy rare earth oxides dysprosium and terbium. This project is crucial in diversifying the global supply of rare earths, particularly dysprosium and terbium, currently dominated by China.

Rare earth mining and refining for production are outlined in the Canadian Critical Minerals Strategy, which highlights rare earth elements as one of six prioritized minerals among 31 critical minerals. These minerals are essential for electric vehicles (EV) and renewable energy in the fight against climate change, as per the Quebec Plan for Critical and Strategic Minerals. The government of Newfoundland and Labrador's plan aligns with Canadian and Quebec strategies to maximize critical minerals' value. The US Department of Energy recognizes rare earth elements, like those targeted by the Strange Lake Project, as critical in the short to mid-term (see Figure 7-1AB). These initiatives aim to secure a stable supply of rare earth elements for various industries.

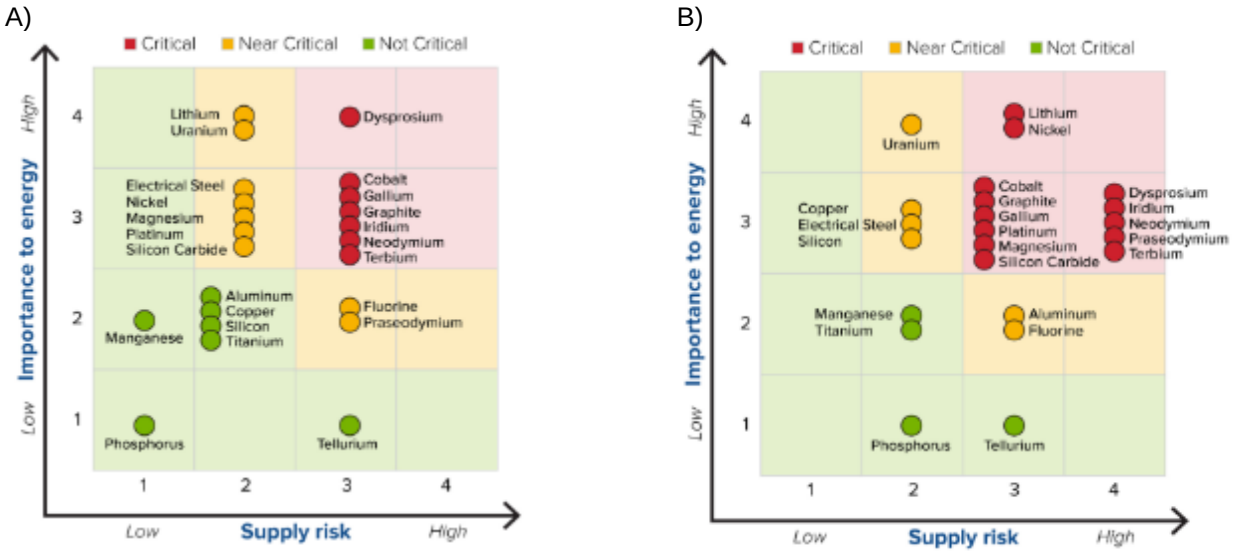

Figure 7-1 : A) Short-term (2020-2025) and B) Long-term (2025-2035 criticality matrix for key materials (from USDOE, 2023)

There are 15 rare earth elements (Table 7-1), plus two additional elements that are included due to their similar properties (yttrium and scandium). Rare earth are metallic elements that are not rare per se, but rare to be found in economically attractive deposits. In deposits, they are often found together, but in proportions unique to each deposit. They have valuable properties that make them essential in many applications. In fact, they are ubiquitous across many common products– everyone interacts with rare earth elements every day as demonstrated in Table 7-1.

Table 7-1 : Applications and example end uses in daily life of rare earth elements (REE) (from Project Blue, 2022)

Critial minerals	Applications	Example end uses	Critial minerals	Applications	Example end uses
La	NiMH batteries, phosphors, catalysts, alloying, ceramics	Smart phones, gasoline	**Tb**	Phosphors, lighting, X- rays, magnets	Electric vehicles, smart phones, wind turbines
Ce	Polishing powder, optical glass, pigments, ceramics, catalysts, mixed metal	Screens, gasoline	**Dy**	NdFeB magnets, ceramics, lasers, nuclear fuel, phosphors, ceramics	Electric vehicles, smart phones, wind turbines
Pr	Glass and ceramics, CAT scans, magnets	Electric vehicles, smart phones, wind turbines	**Ho**	Lasers, medical and dental tech, pigments	Medical equipment
Nd	NdFeB magnet, optical and lasers		**Er**	Ceramics, pigments, optics, lasers	Screens, smartphones
Pm	Radiation source, FCC catalysts	Petroleum products	**Tm**	Lasers, x- rays, ceramics	Medical equipment
Sm	SmCo magnet, electric motors	High temperature motors	**Yb**	Fibre optics and lasers, radiation for x-rays	Telecommunications, medical equipment
Eu	Computer and TV displays, medical tech, lasers, fluorescent lighting	Smart phones, vehicles	**Lu**	X-ray phosphors, baggage scanners, oil exploration	Medical equipment
Gd	MRI, CT and X- rays	Medical equipment, screens, smartphones			

Each rare earth element has unique applications and varying levels of demand, leading to oversupply of some elements and undersupply of others. Rare earth permanent magnets are crucial for various industries, including electric vehicles, drones, wind turbines, and industrial equipment. These magnets rely on rare earths such as neodymium, praseodymium, dysprosium, and terbium for high efficiency and performance. Dysprosium and terbium, in particular, are crucial for creating strong magnets that can withstand high temperatures during operation. However, these heavy rare earth elements are in limited supply, leading to challenges in matching supply with demand. Despite their higher prices, dysprosium and terbium remain a cost-effective solution for drive train motors in electric vehicles. As the demand for electric vehicles increases, the criticality of dysprosium and terbium also rises, highlighting the importance of establishing a secure supply chain for these elements. Efforts to find alternatives to these heavy rare earths may compromise efficiency, performance, and reliability, underscoring the competitive advantage of companies and countries that can secure a long-term supply of dysprosium and terbium.

China dominates the global dysprosium and terbium supply market, sourcing its materials from domestic mines as well as from Myanmar, a country under heavy sanctions. However, China still faces a supply deficit and has begun importing from other countries. The Northern Minerals project in Australia, though promising, is challenged and has Chinese ownership. To reduce dependence on China, the international community is looking for viable alternatives to meet the rising demand for rare earth materials in high-efficiency motors. Projects like the Strange Lake deposit in Canada offer a potential solution, with the capacity to produce significant quantities of critical rare earths essential for permanent magnets. The project focuses on sustainable sourcing and production practices, aiming to secure partnerships with customers in the U.S., Europe, and Japan to establish a diverse supply chain. Torngat Metals, the company behind the project, anticipates strong market demand and pricing forecasts, positioning itself to be competitive while meeting stringent environmental and social standards. Cerberus Capital Management has conducted thorough due diligence and confirmed the project's financial viability and alignment with ESG criteria.

8 Applicable Provisions

Under the schedule to the *Physical Activities Regulations* (SOR/2019-285; amended SOR/2021-25 & SOR/2023-60), the following physical activities will be undertaken by Torngat Metals, under Sections 18, 46 and 52: the construction, operation, decommissioning and abandonment of one of the following:

- 18 (d) a new metal mill, other than a uranium mill, with an ore input capacity of 5 000 t/day or more;
- 18 (e) a new rare earth element mine with an ore production capacity of 2 500 t/day or more;
- 46 (a) a new aerodrome with a runway length of 1,000 m or more
- 52 The construction, operation, decommissioning and abandonment of a new marine terminal designed to handle ships larger than 25 000 DWT.

Specifically, the project is composed of the following physical activities:

- New concentration plant with a maximum capacity of 17,000 tonnes of concentrate per day (QC).
- New Strange Lake rare earth mine with a maximum production capacity of initially 36,000 t/day (QC).
- New aerodrome with a 1,500 m runway (QC).
- New single lane access road (seasonal and private) from the mine site (QC) for transport of the concentrate by road to the port facilities on eastern coast of Labrador. Two variants are being studied:
  - Option A: the access road leads to the existing port of Vale's nickel-copper mine in Edwards Cove, Anaktalak Bay. It includes the construction and operation of a new container storage and handling facility near existing port facilities. Other additional infrastructures include: maintenance workshop, workers' camp, and fuel tanks (refueled from tanker vessel through a rigid pipeline).
  - Option C: the access road leads to Voisey's Bay. It includes the construction and operation of a floating dock with a possible capacity to serve ships of more than 25,000 DWT, and a new container storage and handling facility. Other additional infrastructures include: maintenance workshop, workers' camp, and fuel tanks (refueled as Option A).
- Port facilities (see options A and C above) for shipping concentrate to the Sept-Îles separation plant. By barge and self geared container ships to the existing port of Sept-Îles (QC).
- New rare earth separation plant with a capacity of 1,000 t/day, in an existing industrial port area in Sept-Îles, Quebec.

As it stands, the current project is not a component of a larger project. Under Section 7(1) of the IAA, subject to subsection (3), the proposed project elements may cause:

(a) a change to the following components of the environment that are within the legislative authority of Parliament: (i) *fish* and *fish habitat*, as defined in subsection 2(1) of the Fisheries Act, (ii) *aquatic species*, as defined in subsection 2(1) of the Species at Risk Act, (iii) *migratory birds*, as defined in subsection 2(1) of the Migratory Birds Convention Act, 1994, and (iv) any other component of the environment that is set out in Schedule 3 of the IAA;

(b) a change to the environment that would occur: (i) in a province other than the one in which the act or thing is done, or

(c) with respect to the Indigenous peoples of Canada, an impact — occurring in Canada and resulting from any change to the environment — on (i) physical and cultural heritage, (ii) the current use of lands and resources for traditional purposes, or (iii) any structure, site or thing that is of historical, archaeological, paleontological or architectural significance;

(d) any change occurring in Canada to the health, social or economic conditions of the Indigenous peoples of Canada; or

(e) any change to a health, social or economic matter within the legislative authority of Parliament that is set out in Schedule 3 (of the IAA).

The *Fisheries Act* prohibits the deposit of deleterious substances into waters frequented by fish, unless the deposit is authorized by regulations. The Metal and Diamond Mining Effluent Regulations (MDMER) are made pursuant to subsections 34(2), 36(5) and 38(9) of the Fisheries Act. They apply to facilities that have a flow rate of at least 50 m^3/day from all effluent discharge points. Environment and Climate Change Canada (ECCC) is responsible for the implementation and enforcement of Section 36 (3) of the *Fisheries Act* and the MDMER.

The project involves the construction of infrastructures that may disrupt drainage and modify fish habitat. For any project of this type, an amendment to Schedule 2 of the MDMER would be required. The MDMER also requires the development and implementation of a fish habitat compensation plan that meets all the requirements under Section 27.1 of the Regulations to offset the loss of fish habitat. Torngat Metals works on best management practices promoting alternatives for mine waste management that would exclude impacts on the aquatic environment. The assessment of those alternatives is completed using the criteria set out in the *Guidelines for the assessment of alternatives for mine waste disposal.*

In addition to respecting the Canadian laws and regulations, the Strange Lake Project will ensure that it respects those of Quebec, Newfoundland and Labrador, and the Nunatsiavut government as well as international standards in terms of environmental, social and governance (ESG) issues. Finally, its environmental follow-up/monitoring and restoration programs will be developed in such a way as to aim for carbon neutrality by 2050.

9 Project Description

9.1 Brief Description of the Project

The Strange Lake Rare Earth Mining Project is divided into three project phases: 1) Development and construction phase; 2) Operational exploitation phase (30-year operation); and 3) Closure and restoration phase.

During the 30-year operation phase, approximately 195 million tonnes of mining material will be extracted from an open pit, and between 2.25 to 6.0 million tonnes per year of crushed material will be fed to the onsite concentration plant. Between 150,000 to 200,000 tonnes per year of rare earth concentrate will then be produced by on-site concentration plant with a processing capacity of 17,000 tonnes of crushed material per day. The concentrate will be transported by a new road from the mine site to a port located on the eastern coast of Labrador. At this stage of the project's development, there are two roads and port options. One would be for the road to join the Vale's Port in Edwards Cove (Anaktalak Bay), so as to make use of these existing port facilities. The other would be to reach the head of Voisey's Bay (NL) where a new port facility with a floating dock would be built. The concentrate will then be shipped to a rare earth separation plant to be built in an existing industrial port area in Sept-Îles, Quebec. The concentrate will be fed to the separation plant at a maximum rate of 1,000 tonnes per day, which will produce between 2,800 and 3,200 tonnes per year of rare earth oxides (REO) (and 12,000 – 17,000 tonnes per year of balance of rare earth product concentrates). Map 9-1 illustrates the overall project and related activities for a better understanding of the project logistics. Project variants are summarized in Section 12.

9.2 Project Components at the Mine Site

The following sections provide a brief description of the major components of the project at the mine site. There are three different options (A, B and C) for developing the mine and related infrastructure. They will be evaluated and compared as part of the pre-feasibility and feasibility studies, as well as during the impact assessment, in order to select the one that will minimize potential impacts and enhance acceptability. The location of the northern project components (mine, road, port facilities) is shown on Map 9-2.

9.2.1 Mine Pit, Mining Plan and Geochemical Charaterization Program

The current mining plan is for a 30-year period. The higher-grade material will be processed in the first 18 years, while the lower-grade material will be stockpiled for further processing in the remaining 12 years. Three designs for the pit were considered. The chosen design maintains a minimum distance to Brisson Lake, targets the resource better, and minimizes waste rock. To determined if the mined material could harm the environment, a geochemical program has been developed. This will help minimizing impacts on receiving environment. The mineralized material will be taken to the primary crusher. Once crushed, the material will be transported by conveyor to the concentration plant. This plant will reduce the amount of concentrate shipped to the Rare Earth Separation plant in Sept-Îles.

The workers' camp will be made of modules and have enclosed walkways when possible. A protection zone will be established around Brisson Lake. The building will have storage areas, a locker room, laundry, medical and fire protection facilities, a laboratory, offices, conference rooms, etc. There will also be garages for maintenance, workshops, emergency vehicles, and storage for emergency response equipment. The explosives factory will be near the mine pit, at a safe distance from other buildings and activities.

9.2.2 Resource Pile

The low-grade resource mined will be stockpiled for processing after year 18 of the mine plan. The maximum total volume of waste rocks will be at 300,000 tonnes while the maximum total volume of the overburden stockpile is estimated at 12 million tonnes. Overburden and waste rock will be placed in separate piles. The waste rock will be used to backfill the open pit once mining is complete. Waste rocks that present no risks will also be used for the construction of dikes, roads and/or storage platforms. Testing completed indicate there is no real risk of acid rock drainage. Topsoil or other soil suitable for revegetation will be stockpiled for progressive site and residue stockpiles rehabilitation and remediation.

The residues will be filtered, dewatered and mixed with a cementing agent to form an inert dry residue. This residue will then be transported by truck and deposited in the residue stockpile where it will be covered progressively. A doubled waterproof lining and drainage layer will be installed below the stacked residues to drain any seepage. They could be progressively revegetated using the removed overburden from the pit. The dry stack will reach its maximal volume at the end of mine operation and estimated at 107.5 million tonnes. Runoff from the piles will be collected and sent to the concentration plant. Should the volume exceed the concentration plant need, or should the plant be in shutdown, the seepage will be directed to water management ponds. Additional geochemical and geotechnical studies will be conducted in order to inform the design of the mine residue stockpile area and the retention basin that will be used for sedimentation and/or retention for associated contact water treatment. To ensure the protection of the groundwater and to facilitate water treatment, the environmental design of the piles, will be developed based on the results of the geochemical characterization program, the *in situ* conditions and the Quebec's Directive 019.

9.2.3 Access/Haul Roads and Aerodrome

Access/haul roads will connect the mine to the various infrastructures within the site. These roads will be unpaved and will have ditches collecting runoff water.

The runway of the airfield is currently planned to be 1,500 m long by 30 m wide and would accommodate aircraft models such as the Bombardier Q400 and the CC-130H Hercules. The Q400 is the critical aircraft in terms of runway and taxiway width. The airfield facilities can be operational 24 hours a day. The new airfield will also include a building for airfield maintenance and a fuel storage facility. Two options were retained after a more in-depth examination of a multiplicity of factors. Subject to validation during future consultations and studies, the two preferred sites are the best option based on the following criteria: prevailing winds, environmental analysis, grading analysis, Runway Safety Area and Airspace analysis.

9.2.4 Water Supply and Treatment

The need for water is for the concentration plant, drinking water, and other water demands (sanitary needs). The main objective is to avoid pumping water from Lake Brisson. A water management pond will be built during construction to store water from precipitation and snow melt. Once the pit is dug, water from the pit and stockpiles will also be stored into this pond, or into a combination of ponds. The aim is to recycle and reuse as much water as possible and create a closed-loop system. Once the mine is operational, the water used to replenish the process will come from the residue seepage, the contact water collection ponds, stockpiles and from the pit. In the current state of project development, models are showing that there will be no need for fresh water from other source during the process, except drinking water. Details of the process will be presented in the ESIA.

The camp would use 250 L of potable water per person per day with Lake Brisson as a potential source of drinking water. The SG-1 esker, an underground water source, could be a second source. The drinking water will be monitored, and the required treatment will be established during the feasibility study. Drinking water will be analyzed and treated before use according to Health Canada and Quebec's Standards. A fire water tank will be connected to the fire protection system, with water coming from the water management pond.

A sewage treatment plant will be built for sanitary water. Treatments could include biological, sedimentation, and disinfection. Septic systems will treat the wastewater. Diffusers could also be used to dilute any releases into the lake. To use less water, greywater recycling are being considered. These would use water from sinks, showers, and laundry for non-potable purposes (toilet flushing, irrigation). Torngat Metals is looking at having the solid waste taken to another place for treatment, so only water would be left to treat. Another option is to add artificial wetlands to the water treatment process and use greywater for dust suppression.

MÉTAUX TORNGAT METALS

PROJET MINIER DE TERRES RARES DU LAC STRANGE
STRANGE LAKE RARE EARTH MINING PROJECT

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Composante du projet / Project Component

- Site potentiel des installations portuaires / Potential site for Port Facilities
- Mine et usine de concentration (Lac Brisson) / Mine and Concentration Plant (Lac Brisson)
- Site potentiel de l'usine de séparation des terres rares (Sept-îles) / Potential Site of the Rare Earth Separation Plant (Sept-Iles)
- Route maritime projetée / Potential Shipping Route

Route d'accès à une voie (Labrador) / Single Lane Access Road (Labrador)

- Option A
- Option C1
- Option C2

Autre / Other

- Frontière provinciale / Province Boundary

0 100 200 km

North America Lambert Conformal Conic

Source:
Données topographiques / Topographic Data: NRCan, (2022)

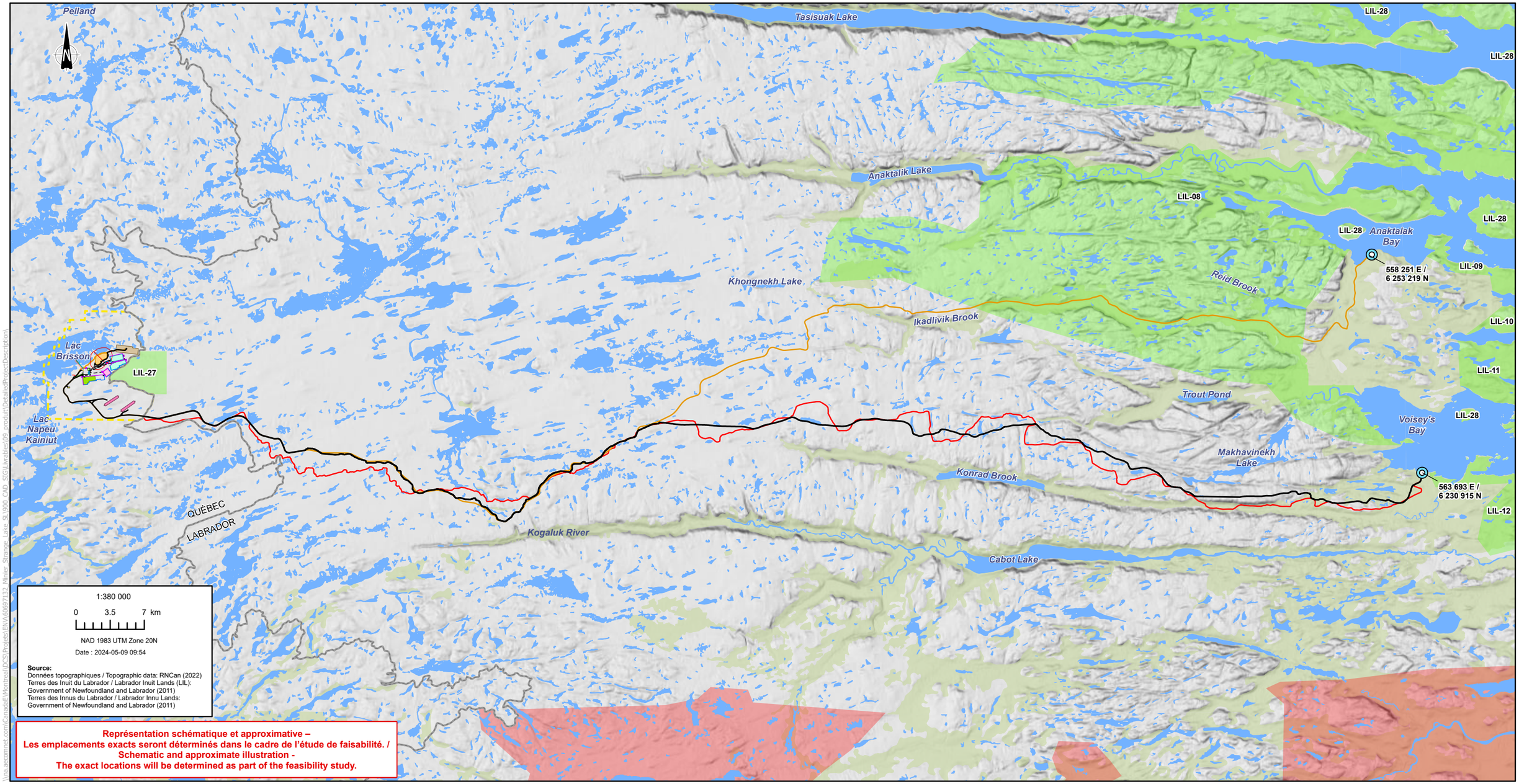
Carte 9-1
Carte globale du projet

Map 9-1
Overall Project Map

AECOM

MÉTAUX TORNGAT METALS

PROJET MINIER DE TERRES RARES DU LAC STRANGE
STRANGE LAKE RARE EARTH MINING PROJECT



Composante du projet / Project Component

- Limite de propriété / Property limit
- Site potentiel des installations portuaires / Potential site for Port Facilities
- Canalisation souterraine / Underground pipeline
- Convoyeur / Conveyor
- Point de rejet alternatif des eaux usées minières traitées / Alternative discharge point for treated contact and process wastewater
- Fossé d'eaux usées minières / Contact water ditch
- Fossé d'eaux de ruissellement du bassin versant / Non-contact water ditch
- Prise d'eau / Water intake piping
- Routes de service et de halage / Service and hauling roads)
- Tunnel d'accès / Access tunnel
- Émissaire des eaux usées minières traitées / Treated contact and process wastewater outlet
- Émissaire des eaux usées domestiques traitées / Treated domestic wastewater outlet
- Aire d'accumulation des résidus miniers / Mine residue stockpile area
- Aire d'entreposage de mort-terrain / Overburden stockpile
- Banc d'emprunt / Borrow pit
- Bassin de collecte d'eaux usées minières / Contact water collection pond
- Camp permanent des travailleurs / Permanent worker camp
- Halde de stérile / Waste rock
- Fabrication et stockage d'explosif / Explosive manufacturing and storage facilities
- Fosse minière / Mine pit
- Ressource à basse teneur / Low-grade stockpile
- Piste d'atterrissage potentielle / Potential airstrip
- Stockage de carburant / Fuel tank farm
- Site d'enfouissement / Landfill site
- Zone industrielle / Industrial area
- Usine de traitement des eaux / Effluent treatment plant
- Bassins d'entreposage des eaux / Water storage ponds

Route d'accès à une voie (Labrador) / Single Lane Access Road (Labrador)

- Option A
- Option C1
- Option C2

Autre / Other

- Frontière Québec et Labrador / Quebec and Labrador border
- Terres des Inuit du Labrador / Labrador Inuit Lands (LIL)

Terres des Innus du Labrador / Labrador Innu Land

- Catégorie I / Category I

Carte 9-2
Composantes du projet au Nord

Map 9-2
Project Components in the North

AECOM

A contact and process water treatment plant will be built on site. The water treatment and recirculation processes are being developed to create a closed loop system. All data and mitigation measures will be provided in the ESIA. To date, no discharge is anticipated during winter and dry summer months (no rain). If the plant is shut down for a long period of time, the water will go to the water management pond. Surface runoff, seepage from stockpiles and residue, and pit dewatering water will also go to the process plant for makeup water. However, it is possible during rain or spring melt, the combined surface runoff and pit dewatering water will exceed the plant's capacity, during those events the water will be directed to the water management pond and sporadic discharge may occur.

If necessary, controlled discharged will be considered. Three options are considered for the discharge location. The preferred option is to pump the water to the top of a hill and let it run down through a creek with wetland sections. Studies to date show that the creek has no fish downstream of the access road. If no fish are captured during the 2024 sampling, this scenario will be tested to evaluate its acceptability with the environmental authorities and the public. This will be evaluated in the ESIA. The two other options discharge in Lake Brisson, the preferred option of those two would be via a diffuser in a deeper area of the lake. All stormwater that has not been in contact with the mined material, residues or mine activities (non-contact water) will be diverted from the work areas by a network of non-contact drainage ditches.

9.2.5 Power and Fuel Supply

The power requirements for the mine and various building on site are estimated at 15 to 25 MW (most likely around 20 MW). Since there's no power grid nearby, Torngat Metals will build and operate an onsite power plant based on diesel generators. Fuel supply will be primarily by fuel tanker to the mine site where it will be stored in above ground tanks or self-contained storage tanks. Various options for the location of the tank farm are studied and compared as part of the pre-feasibility, feasibility and impact assessment studies. At this stage of project development, it is estimated that the tanks at both mine site and port facilities will have a total capacity of 120-150 million litres. Subject to validation by the feasibility and pre-feasibility studies, a tank will be installed at the airfield for the storage of aviation fuel. This fuel reserve is intended for emergencies.

In addition to the use of fuel, geothermal energy is also considered. Torngat Metals could also be interested in purchasing energy from third-party renewable energy projects, if such opportunities arise in the future.

9.2.6 Waste and Contaminated Soil Management

Waste reduction at source, recycling and recovery channels will be favoured. Recyclable materials will be compacted on site before being transported to markets using the same means of transportation as for supply. Hazardous and special waste will be stored on site in secure areas before being shipped to authorized facilities for treatment or disposal. A northern landfill might require accepting non-hazardous materials that can't be recycled or recovered. The landfill might be along the access road west of the mining facilities, but other options are being considered as part of the feasibility study and impact assessment. Torngat Metals will put up platforms to collect and eventually treat contaminated soil at the mine and near the port. These platforms will receive soil that has been contaminated by spills of petroleum products or chemicals. The need for such facilities stems from the remoteness of Torngat Metals' facilities from service providers in this field. The location and technical details of these facilities will be decided during the feasibility study and impact assessment.

9.2.7 Emergency Response

Medical and emergency response facilities will be in a multipurpose building near the workers' camp. An ambulance will be available and parked in a dedicated space. An infirmary will be set up in the workers' camp. There will be a storage area for environmental emergency equipment in case of a spill.

9.2.8 Construction

All shipping and related activities will be handled by a third party for both the construction and operation. The shipping route will be similar to the one used by ships accessing Vale's current port facilities. During construction, shipping will transport equipment, materials, and fuel. Recyclable materials, hazardous wastes, other materials, and

returning rental equipment will be shipped off-site periodically. Construction at the mine site will start with the completion of the access road, the water management pond and the airstrip in Quebec. Depending on the time required to build the road, an approach from multiple points could be considered.

Pending availability of the runway at the new aerodrome, a short temporary airstrip, along Brisson Lake, can currently be used by Twin Otter or smaller aircraft. A temporary dock could be set up on the shores of Brisson Lake to accommodate seaplanes in the summer. During construction of the access road, temporary worker camps might be established outside the mine site. Options on this subject will be examined as part of the feasibility study and impact assessment. However, once the mine is in operation, only one camp will be at the mine site and possibly a smaller one at the port facility.

The hauling roads will be built and extended as needed during pre-production and operation. They will connect the plant, the borrow pit and stockpile areas. Designs of the stockpile areas will be developed as part of the pre-feasibility and feasibility studies. Excavation at the mine site will begin with the construction of the various access roads, the development of the water treatment plant, the maintenance facility and the fuel storage area. A borrow pit will be first mined for sand and gravel required for works related to roads and preparation of the stockpiling area. Subsequently, the construction of the other buildings and facilities can be undertaken. Finally, the electrical and instrumentation work will be completed, and the commissioning of all systems will take place. A drainage system will be built to receive the runoff water drained within the various stockpile areas. Retention ponds will be located at the lowest elevation of each associated watershed and will avoid the mixing of water from different sources before the sampling points. A water treatment plant will be installed, as well as a network of pipelines to convey the contact water from the ponds to this system.

9.2.9 Operation and Maintenance

Mining will be operated by Torngat Metals with its own equipment and personnel. The mine will be operated over a period of 30 years. Mine operations will include drilling and blasting, material excavation, transportation to the processing area, transportation to the waste rock pile, and transportation to the low-grade stockpiles. The primary crushing and concentration plant will operate all year round. The concentrate will then be bagged in super-bags also known as Flexible Intermediate Bulk Containers (FIBC) and then placed in containers for shipping. The specification of those super-bags will be determined by ongoing tests and guided by *Canadians regulations and guidelines on transport of Naturally Occurring Radioactive Materials (NORM)*. To prevent flooding of the mining operations, pumping of water from and around the pit will be required. Water collection sumps will be installed to pump and direct the water to the treatment system if necessary. In case of groundwater flowing towards the pit, a network of dewatering wells will intercept it. This water could either be discharge in the environment or used as a source of water. First-aid and emergency response personnel will be on-site. When required, an air ambulance will take patients to a hospital in Happy Valley-Goose Bay. These same centers may also provide help in case of an environmental emergency.

9.2.10 Closure and Restoration

Torngat Metals will prepare a closure plan that meets the requirements of Quebec *Loi sur les mines* - Mining Act and the *Guidelines for preparing mine closure plans in Québec*. It is anticipated that the plan will be updated every five years. The closure strategy will be co-created through extensive consultations with local and regional Indigenous communities, aligning with their cultural, social, and ecological values. This plan will prioritize the protection of wildlife habitats, with a specific focus on caribou preservation, incorporating scientifically sound measures and sustainable practices. In addition, a Failure Mode Effect Assessment will be completed on the closure plan to highlight risks and what additional studies need to be completed in order to lower the risk. Furthermore, research initiatives will be designed to address specific concerns related to the mining project’s impact on the ecosystem, providing valuable insights into sustainable reclamation practices. Local communities will be involved in these research projects. Local communities feedback will be used, among other aspects, to inform revegetation strategies. It is anticipated that the end land use will be to provide wildlife habitats and that disturbed areas will return to their pre-mining condition, such that traditional uses of the site can resume. The duration of the post-operation and post-restoration monitoring programs will be in accordance with the *Guidelines for preparing mine closure plans in Québec.*

9.3 Single Lane Access Road (seasonal and private) Between the Mine and the Eastern Coast of Labrador

9.3.1 Access Road Options

The containers of concentrate must be transported to the separation plant, located in Sept-Îles, Quebec. Four access road options were considered. The selection of the options was based on minimising environmental impacts, minimising impacts on land use and financial aspect.

- Option A is the alignment from the mine site to the port of Vale, in Anaktalak Bay.
- Option B is a Quebec only access road and linked the mine site to the city of Schefferville.
- Option C is the alignment from the mine site to Voisey's Bay.
- Option D is the alignment from the mine to the Smallwood reservoir, where it would join the NF provincial road system.

Option B and D were not brought forward as they were associated with significant environmental impacts and significant impacts on land use. In contrast, Options A and C are both shorter, economically feasible, and with a lesser environmental impact. Options A and C would require new port facilities such as a container storage area to be implemented. The construction of a floating dock allowing handling on barges will also have to be put in place for option C. As the design is still under study, two alignments are still presented for Option C to outline a broader study area. Option C1 minimises impact on the environment, in terms of water crossing and is the farthest from known land use area, however, blasting would be required at several places in order to maintain an appropriate road slope. Option C2 would require some blasting (as with Option A) but would generally be a forestry type of road, however, the road would be close to known land use area, although not as close as Option A, and would require more water crossings. Consultations will inform which of the options is preferred by the local communities.

9.3.2 Construction

The single lane access road will be built to connect the mine site to port facilities on the eastern coast of Labrador, NL. The total length of the road will vary between 160 km and 188 km. The first 18 kilometres from the mine site will be located on the province of Quebec. Outside the mine site, the preliminary design envisions a seasonal access road with a single lane including the travel lane and the shoulders. This construction will follow a forestry road design, and follow the natural profile. A base layer of approximately 1 m will be put in place for the first 100km from the provincial border. This layer will provide support and shaped to slope to stabilize the road against lateral movements and erosion. The travel lane and shoulders will be topped with material to reduce dust. A ditch will be located on either side of the shoulders to facilitate drainage. Final road layout and design will be detailed as part of the pre-feasibility and feasibility studies. During the ESIA, all water crossings will be visited through aerial surveys, and some with ground surveys allowing appropriate measurements for habitat types and proper culvert sizing. During construction, permafrost will be protected. Reuse of material excavated at the mine site would be prioritized and any extra materials needed would be locally obtained.

9.3.3 Operation and Maintenance

Three main types of cargo will be shipped: concentrate, fuel and raw materials, general cargo, all mainly in containers except for fuel in tankers. During operation, the seasonal access road between the mine and port facility would be only available for the trucks during 3 to 5 of the winter months. For the rest of the year, only light vehicles and essential maintenance vehicles will use this road on a limited basis, such as for inspections and medivac.

It is envisaged to use truck with "pup" configuration in order to reduce the number of daily trips for both container and tanker loads. The preliminary estimate of the total traffic (containers and tankers) on the seasonal road is estimated to be between 5,000 to 10,000 trips, depending on whether pups are used or not. Thus, over 5 months of cold (150 days), an average of 33 to 66 trips per day is projected.

Safety huts and pullover/passing stations will be built along the road. Drivers will be able to use pullovers for rest periods.

Drivers will rest before any turnaround leg or stay either at accommodation on mine site or port facilities. Road weight limits will be adjusted seasonally, particularly in spring, to prevent damage. The road will be private, though Torngat Metals intends to follow the principles for load restrictions on public roads. To control traffic and relay weather conditions, all vehicles will be equipped with GPS tracking their maximum speed will be limited to 55 kmph. Dynamic Speed Limits (DSL) will be implemented to adapt to changing weather conditions (wind and snow etc.). Fuel will be transported by tanker trucks from the Port to the mine. Truck operations and road maintenance will be done either by Torngat Metals directly or contracted to a local Indigenous owned business. Torngat Metals is open to consider future modifications to the design of this road, if other users are interested in using the road.

9.4 Port Facilities, Container Storage and Handling Facilities and Transportation of the Concentrate to Sept-Îles

Containers of concentrate will be shipped by trucks from the mine to port facilities either in Anaktalak Bay (Option A) or in Voisey's Bay (Option C), then to the rare earth separation plant located in Sept-Îles by ship. The transport vessel will follow an existing shipping route along the Labrador coast. The container ships will make 5-10 trips per year from the Labrador coast to Sept-Îles during the open water period (June to October). Shipping is planned for both the construction and operation phases of the mine.

9.4.1 Port Facilities and Container Storage and Handling Facilities on Eastern Labrador Coast

Option A Single Lane Access Road – Vale's existing port facility

If access road Option A is chosen, the marine shipping route start at the existing Vale port located on the south shore of Anaktalak Bay, approximately 25 km southwest of the town of Nain. The Vale port is currently used year-round for industrial transportation of mineral concentrates. Agreement is not yet in place with Vale at the time of issuing the present document. Torngat Metals would lease space from the port owner and would fully comply with existing Indigenous agreements in force in relation with this port. Port operations will be contracted either directly by Torngat Metals, or port owner, or to local Indigenous owned businesses. The infrastructure upgrades at the port would include: container storage area, container crane, and other storage facilities. No work will be done in or near the water, and no terminal expansion or modification will be required.

Option C Single Lane Access Road- New port facilities in Voisey's Bay

If access road Option C is chosen, the shipping route would begin at the southwestern part of Voisey's Bay, which is located approximately 20 km south of Anaktalak Bay. New port facilities in Voisey's Bay would need the previously identified components for Vale's option, but also a floating dock. Actual layouts and alignments all subject to survey and access areas but would need to account for 10,000 to 12,000 containers storage area.

9.4.2 Transportation by Ships

Option A Single Lane Access Road – Vale's existing port facility & Option C Single Lane Access Road- New port facilities in Voisey's Bay

The current estimate of the number of shipments by container ships from the eastern coast of Labrador to Sept-Îles Port is the following:

- 5 to 10 shipments per year for concentrate/container shipments, 3 to 5 ships per year for fuel/tanker ships, for a total of 8 to 15 ships per year, during the summer period (during the open-water period, approximately June to October);
- 30 kt payload per shipment (approximately 1,000 containers per shipment).

The increase on maritime transportation will be considered in the cumulative effects of the project. The number of vessels related to this project could be up to 15 (concentrate/container ships + fuel/tanker ships) per year, in addition to current maritime traffic, which represents about 3 to 4.5%[3] of the total annual maritime traffic along the Labrador coast, and approximately 0.3%[4] of annual maritime traffic along the St. Lawrence River. Should Option C be carried forward, the new maritime route leading from the dock to the existing maritime route will undergo an environmental assessment. The transit time between both Ports would be approximately 10 days.

9.5 Rare Earth Separation Plant (Sept-Îles)

Torngat Metals plans to set up a rare earth Separation Plant in Sept-Îles to receive and process the concentrate produced at the mining site. The maximum daily capacity would be approximately 1,000 tonnes of concentrate per day and up to 200,000 tonnes of concentrate per year. It would produce between 2,800 and 3,200 tonnes of separated rare earth oxides (REO) per year, 12,000 to 17,000 tonnes of mixed rare earth carbonates per year. It will also produce 40,000 tonnes per year of ammonium nitrate (NH_4NO_3 77%) as a by- product, which can be sent to the fertilizer market. However, these capacities are preliminary and will be determined by the pre-feasibility and feasibility studies to be carried out for this facility. The separation plant and residue stockpile area would be built in the “Parc industriel ouest – Jonction Arnaud” (also known as “Parc Industriel Vigneault”) of the Sept-Îles industrial port facility (QC).

9.5.1 Receipt of Concentrate and Other Raw Materials at Port and Transport to Plant

There are two potential Port areas. Both can be used for freight and are linked to the Jonction-Arnaud industrial park by rail. At this stage, the preferred option would be Pointe-Noire (see Map 9-3). Torngat Metals will negotiate contracts with Sept-Îles Port authorities and the operator of the rail.

9.5.2 Separation Plant

Figure 9.1 presents the general layout of the plant site. The separation plant will include: freight offloading facility, concentrate and raw material storage areas, separation process areas, water treatment Plant, residue stockpile area (see next section), water management pond(s), as well as other buildings and parking spaces.

Three options are currently being considered for process water supply: the two preferred options are to draw water from the City of Sept-Îles stormwater and snowmelt, or from the discharge of the City of Sept-Îles wastewater treatment plant (aerated ponds). If these two options are not sufficient, the third option is to draw gradually water from the Rivière au Foin. Those options will be evaluated as part of the FS and ESIA). The inventory of water is established at 10,000 m. The aim is to recycle and reuse water and to have a closed process. Should there be a need for extra water, Torngat Metals would prioritise the stormwater of the town or the treated sewage effluent of the town. It is expected that drinking water needs would be supplied by the city of Sept-Îles.

No effluent discharges are expected during normal operations. Any effluent will be treated and returned into the process plant. However, a discharge point for treated water into the Rivière au Foin is provided for cases where surplus treated water cannot be stored and reused at 100%.

[3] According to Canadian Coast Guard data, between 335 and 482 ship transits per year have been recorded in the Strait of Belle Isle from 2019 to 2023.
[4] The average number of ships travelling on the St. Lawrence River is a dozen per day or 5,000 per year (St. Lawrence 2011-2026 Action Plan. (2017).

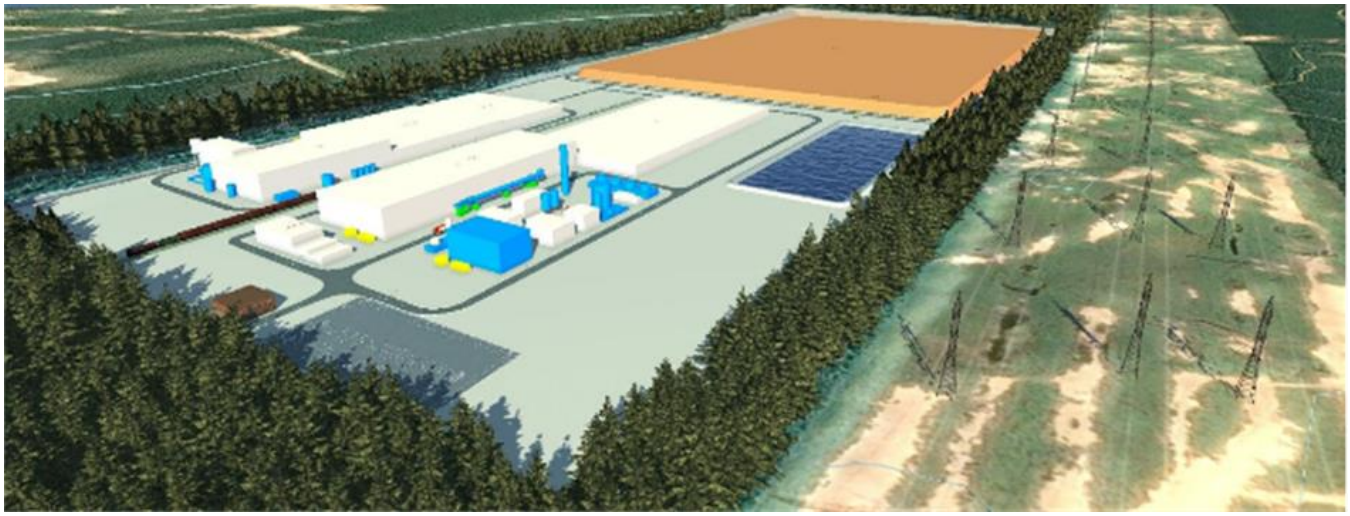


Figure 9-1 : Overview of the separation plant site and of the residue storage area in Sept-Îles

9.5.3 Process Residue Stockpile Area

The materials making up the residues will be removed in two stages. Metals oxides (iron, aluminum) will be separated, and the excess acid neutralized. Uranium will be removed in a dedicated ion exchange resin unit and mixed with the rest of the impurities and sent to residue storage. Different options for the residue storage location will be evaluated and compared as part of the prefeasibility and feasibility studies and in ESIA.

The residues could be permanently stored in a dry stockpile. Dry stacking is an increasingly common way to manage residue. This method involves dewatering and filtering to produce a dry cake, then cement powder is added to assist with binding and stability. Dry stacking allows for better water management, less risks of impact on the environment as well as the ability to progressively reclaim the residue storage facilities. The total surface area required for the storage is preliminarily estimated at 0.4 - 0,6 km^2. Residue storage facilities will be engineered to prevent seepage. This could consist of installing a doubled waterproof lining and drainage layer under the stockpile area.

In order to minimize the potential environmental impact, the dry residue will be covered progressively as they are accumulated. Daily visual inspection of the cover will confirm the integrity of the waterproof covering. Sensors will also monitor any seepage. Collection ditches will collect any seepage and direct it to a collection basin, for potential recycling in the process. However, a discharge point for excess treated water into the Au Foin River is provided in case of extreme weather event.

Additional geochemical and geotechnical studies will be conducted to inform the design of the residue area and the retention pond. Optimization of the separation process is underway. Characterization of the residue will be carried out in accordance with the *Directive pour la réalisation d'une étude d'impacts sur l'environnement* issued by the MELCCFP for the Sept-Îles separation plant and the *Guide de caractérisation des résidus miniers et du minerai*. The residues will be classified and managed according to *Directive 019*. Considering the concerns raised about the long-term management of residue, Torngat Metals is examining possible storage alternatives that would allow for future uses of the stored residues. Torngat Metals will explore and evaluate potential recovery methods. These methods must meet applicable regulatory requirements and must not compromise storage safety.

MÉTAUX TORNGAT METALS

PROJET MINIER DE TERRES RARES DU LAC STRANGE
STRANGE LAKE RARE EARTH MINING PROJECT

Composante du projet / Project Component

- Site potentiel de l'usine de séparation des terres rares / Potential Site of the Rare Earth Separation Plant

Chemin de fer / Railroad

- Iron Ore Company of Canada
- Chemin de fer Arnaud (SFP Pointe-Noire)

Autre / Other

- Zone industralio-portuaire de Sept-Îles / Sept-îles industrial port area
- Limite municipale / Municipal boundaries
- Usine de filtration / Filtration plant
- Prise d'eau de la ville de Sept-Îles / Water intake for the city of Sept-Iles

Source:
Données topographiques / Topographic Data: NRCan (2022)
Chemin de fer / Railroad: MRNF (2023)
Limite municipale / Municipal boundaries: MRNF (2023)
Prise d'eau de la ville de Sept-Îles / Water intake for the city of Sept-îles: EXP (2013)
Usine de filtration / Filtration plant: EXP (2013)
Zone industralio-portuaire de Sept-Îles / Sept-îles industrial port area:
Gouvernement du Québec (2018)

1:90 000

0 1 2 km

NAD 1983 UTM Zone 20N

Carte 9-3
Composantes de projet à Sept-Îles

Map 9-3
Project components in Sept-Îles

AECOM

9.6 Possible Activities under the Responsibility of Third Parties

Torngat Metals is very interested in projects that could add environmental and social benefits to its operations. However, since Torngat Metals does not have the expertise or control over the development of such projects, it has been decided not to include them as options in this project. Torngat Metals would still like to mention its interest in collaborating with potential third-party developers, particularly with respect to renewable energy generation and lower-impact alternative transportation methods. For renewable production at the mine site, Torngat Metals is open to proposals from third-party developers and, if appropriate, could become a partner in such a project. For transportation by hybrid airships, Torngat Metals is following closely the final stages of development of the technology. Should the technology become available and if its promoter has obtained all the necessary authorizations, Torngat Metals could evaluate this transport option to ship the containers of concentrate by cargo airship.

9.7 Health, Safety and Environmental Management Policy

Torngat Metals is committed to ensuring the health and safety of all personnel, contractors, suppliers and the communities and environment within which they operate. As part of their Health, Safety and Environmental Management initiatives, Torngat Metals will fulfil all statutory HSE requirements, including employer “duty of care” obligations. Torngat Metals’ Health and Safety Policy relies on the individual commitment of each employee to ensure that safety standards are upheld at all times. All Torngat Metals personnel, subcontractors and suppliers must adhere to the following guidelines:

- Site-specific training requirements,
- Emergency spill response,
- Incident response protocols,
- Evacuation procedures,
- Risk management practices,
- Safety commitments towards employees and community members,
- Regulatory compliance.

9.8 Employment and Workforce

9.8.1 Construction

The number of workers required for construction will be established after the prefeasibility and feasibility studies. Workforce details will be presented in the ESIA, based on the National Occupational Classification (NOC, 2021). Torngat will hire an EPC (Engineering, Procurement, Construction) Contractor to oversee all construction. The workforce for Torngat Metal corporate level during construction is estimated at 42 with a duration ranging between 13 and 25 months. Additionally, the estimated contract labor force for civil, structural steel, mechanical and platework, piping, electrical, instrumentation and control, will likely peak at 1,000 workers with a duration ranging between 12 to 24 months.

9.8.2 Operation

During the operation phase, it is estimated that the total workforce consist of 428 equivalent full-time workers, including full-time and part-time positions. It will be divided as follows: 203 workers in the North for the mine site, including road, supply chain and assay lab; 190 workers in Sept-Îles at the separation plant; and 35 workers for corporate functions. The average annual income is estimated to be $161,000.

9.8.3 Equity, Diversity and Inclusion

Torngat Metals understands having a diverse, equitable, and inclusive workforce is the best way to meet challenges, attract top talent, and accomplish the Company's business goals. Torngat Metals is committed to creating a fair and just working environments for all employees, particularly creating opportunities for groups that have been historically underrepresented. These groups include Indigenous peoples, women, people with disabilities, and visible minorities.

10 Production Process and Capacity

10.1 Life of the Mine and Mining Operations

The total amount of material mined over 30 years is estimated at 195,300,000 tonnes (dry basis). Mining will be carried 12 months per year. The amount of material mined annually could vary significantly, however, as the mining strategy is to mine as much material as possible in the first 18 years, in order to first process the resource containing a higher concentration of the desired elements (high-grade resource), and to stockpile the lower-grade resource for further processing in the remaining 12 years. Thus, it is currently planned that substantially all of the material will be mined during the first 18 years of mine operation, at a rate of 5.0 to 13.0 million metric tonnes per year.

The maximum quantity of material mined per day at any time over 30 years of operation will be of 36,000 tonnes.

The mined high-grade material coming out from the pit (first 18 years) or the low-grade material coming from the low-grade stockpile (last 12 years) will be trucked to the primary crusher where it will be crushed under dry conditions into rocks of less than 100 mm in diameter (dry comminution process). From there it will be conveyed (covered conveyor) to an enclosed dome stockpile, and then fed into the concentration plant.

10.2 Rare Earth Concentration Plant & Process (mine site)

The concentration plant would be fed with high grade resource for the first 18 years at a rate of between 2.25 and 3.0 million tonnes per year. For the remaining 12 years, the mill would be fed with lower grade stockpiled resource at an average rate of 6.0 million tonnes per year. The concentration processes that will be used in the concentration plant are currently being optimized. Although process variants are still under review and could alter the exact sequence of operations, the sorting and concentration processes will include the following main steps:

- Fine grinding (in a wet environment): In the primary crushing process, rocks will be ground to a fine size in a wet environment to prevent the release of fine particles. There is a possibility of adding an X-ray sorting step before the grinding process to separate rocks based on their atomic density. This option will be assessed in the feasibility study.
- Magnetic separation (wet): The milled product will undergo Wet High Intensity Magnetic Separation (WHIMS) to concentrate it. A Low Intensity Magnetic Separator (LIMS) removes iron particles, which will be discarded. The first stage of WHIMS will remove hematite and aegirine, which will also be discarded. The second stage of WHIMS will separate rare earths from non-magnetic materials like feldspath and quartz, which will also be discarded.
- Re-grinding: the concentrate intermediate product will then be re-ground to approximately 45 µm in a ball mill, to free the valuable elements from their gangue in order to assist in separation during the flotation process.
- Flotation: In the flotation process, a slurry will be pumped into flotation cells where it will be conditioned with chemicals and heated. The finely ground material will then be selectively floated in water using a foam formed by air injection. This selectivity will be achieved through precise dosing of reagents. The process will involve multiple operations before producing the final concentrate. At the present stage of the concentration process development, it is planned to use the following list of reagents:
  - Hydroxamate (e.g. Florrea 7510 2%) as collector
  - Na-metasilicate 10% as depressant
  - Mixture of polyglycols (e.g. Oreprep F549 1%)
- Decanting (thickening), filtration, packing: the fraction containing the final concentrate (>10% rare earth) will be decanted and filtered to 8-10% moisture before being packed in super-bags and stored for shipping.

The waste from magnetic separation and flotation processes will be mixed with cement and stored in a mine residue area. The water from these processes will be treated and reused to reduce freshwater consumption and prevent mine water discharge.

The concentration plant will be designed to operate 12 months per year at a design production rate of 150,000 to 200,000 tonnes of concentrate annually (dry basis), over the 30 years of the project.

The current plan for the concentrator involves prioritizing high-grade material for the first 18 years, with an average feed rate of 2.25 to 3.0 million tonnes per year. After that, the concentration plant will be expanded to process up to 6 million tonnes per year of low-grade material that has been stockpiled. It is estimated that in its expanded version, the concentration plant will have the capacity to process up to 17,000 tonnes per day of crushed material.

10.3 Rare Earth Separation Plant in Sept-Îles

Under the current plan, the feed rate of concentrate to the separation plant will vary between 150,000 to 200,000 tonnes per year depending on the rare earth content in the concentrate. It is estimated that the separation plant will have the capacity to process up to 1,000 tonnes per day of concentrate.

As for the Concentration Plant, the processes that will be used in the rare earth separation plant are currently being optimized. Although process variants are still under review and could significantly alter the exact sequence of operations, the processes will include the following main steps:

- Acid baking (sulfation) and calcination: this thermal separation will process produces a mixture of rare earths in the form of sulfates, while most of the other elements making up the concentrate ("gangue") will be broken down into oxides. Thorium will be in oxide form, while uranium and rare earth elements will remain in sulfate form. The resulting mixture, called "calcine," will be used in the next purification process (hydrometallurgical process). Heat exchangers will be used to recover heat and reduce power consumption. Sulphuric acid will be recovered and reused. Gas emissions will be treated, and the dust and gypsum collected will be disposed properly.
- Water leaching and rare earth separation (hydrometallurgical process): rare earth sulfates will be separated and purified through a process that involves different stages of precipitations at different pH and temperatures, as well as anion exchanges resins and dedicated solvent extraction steps. Gangue and impurities will be separated at various stages of this process, before being dehydrated, mixed with cement powder and sent to the dry stacking residue storage facility. The output of the water leaching process will be a pure rare earth sulfate solution. The rare earth sulfate solution will then be subject to different stages of precipitations at different pH and temperature and dedicated solvent extraction steps, during which the targeted Light Rare Earths will firstly be extracted, and then the targeted Heavy Rare Earths. During these steps, the rare earths sulfates will be transformed into less soluble rare earth oxides or carbonates. Ammonium nitrate will also be produced as a byproduct.

The final products to be sent to the market will be:

- Light Rare Earth:
  - Neodymium and Praseodymium (Nd and Pr) oxide 99,5 %
- Heavy and intermediate Rare Earths:
  - Dysprosium oxide (Dy_2O_3)
  - Terbium oxide (Tb_4O_7)
  - Heavy rare earth carbonates mixture
  - Mix of intermediate rare earth carbonates including Samarium (Sm) carbonate, Europium (Eu) carbonate and Gadolinum (Gd) carbonate)
- By-product: ammonium nitrate (used in fertilizer market) (NH_4NO_3 77%)

The wastewater and solid residues from the Sept-Îles separation plant will mainly come from the water leaching process. Wastewater will be treated and reused, while residues will be mixed with cement and stored. Atmospheric emissions will be minimal and will occur during the final stages of the purification process.

10.4 Materials Handling

Table 10-1 presents an estimate of the quantities of materials that will be generated by the project (mined material, low-grade, concentrate, waste rock and residues). However, this operating scenario is subject to change based on pilot tests.

Over the project exploitation period, a maximum daily extraction capacity of 36,000 tonnes is estimated. The maximum mill feed at the concentration plant is estimated at 17,000 tonnes/day. The maximum feed at the separation plant is estimated at 1,000 tonnes/day.

Table 10-1: Estimated quantities (dry tonnes) by type of material (30 years of operation) at the Mine, the Concentration Plant, and the Separation Plant sites

Project Site Component	Mining material type	Annual average – Low estimate	Annual average- High estimate	Annual average – Low estimate	Annual average – High estimate	Maximum per day at any time over 30 years	Total over 30 years (Mine life)
		Years: 0 to 18		Years: 19 to 30			
Mine Site and Concentration Plant	Mined material (tonnes)	5,000,000	13,000,000	0	0	36,000	195,300,000
	Mill feed (concentration plant) (tonnes)	2,250,000	3,000,000	6,000,000	6,000,000	17,000	113,250,000
	Overburden & Waste rocks from mining (tonnes) (1)	500,000	1 000,000	0	0	4,200	12,000,000
	Low grade material (tonnes) (stockpiled for future use as feed)	6,000,000	9,000,000	0	0	25,000	70,050,000
	Final Concentrate (tonnes)	150,000	200,000	200,000	200,000	1,000	5,725,000
	Concentrate % rare earth	10%	12%	8%	10%	n/a	n/a
	Mine residues (tonnes) (2)	2,350,000	2,800,000	5,800,000	5,800,000	16,000	107,525,000
Separation Plant (Sept-Îles)	Separation plant feed (tonnes)	150,000	200,000	200,000	200,000	1,000	5,725,000)
	Separated Rare Earth Oxides (tonnes) (3)	2,800	3,200	2,800	3,200	16	93,000
	Other Rare Earth products (4)	12,000	17,000	12,000	17,000	85	449,500
	Residuals (tonnes) (5)	135,200	179,800	135,200	179,800	899	4,882,500

(1): Total overburden: approximately 11,700,000 tonnes. Total waste rock: approximately 300 000 tonnes.

(2): Excluding 5-10% cement added.

(3): Quantity of the 4 rare earth oxides targeted (oxides of neodymium, praseodymium, dysprosium and terbium).

(4): Heavy rare earth carbonates mixture

(5): Excluding residues of chemicals used for processing and 5-10% cement added. The total mass including these would be approximately 10 to 15% higher.

10.5 Radionuclides

The radionuclides naturally found in the Strange Lake deposit are Thorium (Th-228, Th-230, Th-232) and Uranium (U-234, U-235, U-238). More precisely, natural thorium is almost exclusively Th-232 with a small amount of Th-230. Th-228 is a result of the disintegration of Th-232 to Ra-228 and then Ra-228 into Th-228. Descendants of Th-232 emit primarily alpha and beta rays and some gamma rays. U-235 and U-238 are subject to complex disintegration chains (10 and 13 descendants of radionuclides) emitting alpha, beta, and gamma rays before reaching the stable forms of Lead-206 and 208. These series of radionuclides (Th, U) naturally found in the surroundings of the mine site / Lake Brisson have been investigated in surface water in 2023, and their reference levels are available at Appendix F of the DPD.

The radionuclides found in the Strange Lake deposit are by definition "Naturally occurring radioactive materials (NORM)[5]". These NORM will not be modified at atomic level by either the concentration processes (concentration plant at the mine site), the acid baking process or the hydrometallurgical process. Therefore, the natural radioactivity of these elements won't be modified by the processes. Because of their atomic characteristics, both Thorium (Th) and Uranium (U) will mostly follow the rare earth elements in the various processes. Based on a very preliminary mass balance, the various quantities and concentration of Uranium and Thorium that will be at each of the main processing and transport steps are shown in the following table (Table 10-2). The ranges shown are based on the following:

- The highest Th and U concentrations/quantities is typically associated with the highest rare earths' grade of ore, which will be mainly extracted during the first 5 years of mine operation (Y1 to Y5).

The deleterious materials in the concentrate will be removed in two sequentially arranged impurity removal stages at the separation plant in Sept-Îles where oxides such as iron, aluminium will be separated, and the excess acid will be neutralized by magnesium oxide. Uranium will be removed in a dedicated ion exchange resin unit. All the radionuclides will be separated from the rare earths, which explains why the absolute quantities feed at the separation plant will go into the residues, as shown in the two columns at the right of the Table 10-2 (under "quantity ranges"). However, concentrations of Th and U in the residues are reduced compared to their concentration in the concentrate, due to the presence in residues of substances resulting from reactions with acids in the sulfation and hydrometallurgy processes, as well as by the addition of a cementing agent, as shown in the two center columns of the Table 10-2 (under "concentration ranges").

Table 10-2: Concentration and quantity of Naturally Occurring Radionuclides Materials (NORM) at each processing steps

Step	Concentration ranges (ppm)		Quantity ranges (tonne/year)	
	Th	U	Th	U
Material extracted	255 - 960	53 - 278	766 - 1025	159 - 297
Mine residue dry stockpile (concentration process residue – Mine site). Assumption: 5-10 % cement is added	186 - 355	40 - 167	296 - 407	88 - 139
Concentrate transported from mine to separation plant, in superbags and closed containers	1528 - 12632	280 - 1165	257 - 1078	47 – 100
Separation plant residue dry stockpile (Sept-Îles site). Assumption: 5-10 % cement is added	1287 - 10633	236 - 981	257 - 1078	47 - 100

[5] This term is consistent with the definition of the Canadian Guidelines for the Management of Naturally Occurring Radioactive Materials (NORM). NORM include radioactive elements found in the environment.

For disposal of Naturally Occurring Radioactive Material, Torngat will be working within the accepted limits set by Federal and Provincial Governments. Cement powder will be added to help with the stability of the residue and mitigate leaching. Residue storage facilities will be engineered to prevent seepage.

Determining the specific activity of radionuclides is crucial for assessing radiation exposure and ensuring safety of people and the environment. All methods for determining radionuclides will follow analytical best practises and will be carried out by an independent third party and certified analytical expert. Specific activity represents the activity per unit mass of a radionuclide and is usually given in units of becquerel per kilogram (Bq/kg) or curie per gram (Ci/g).

11 Project Schedule

Torngat Metals has developed a schedule outlining the duration and timing of key project phases including preparation, construction, operation, closure, and restoration, as well as environmental monitoring (post-operational, restoration phase) of the site. Following construction and start-up, the expected life of the mine is 30 years. No expansion is planned for the Torngat Metals project. Regular operations during this period will include maintenance, if necessary, replacement of certain original facilities.

The start dates for the construction phase have not been determined yet. However, they will be planned to minimize the project's environmental impacts. The start of the construction phase will also coincide with the reception of all the necessary authorizations, permits and funding. A list of the main steps is provided below (Table 11-1).

Table 11-1: Strange Lake Project Milestones and Dates

Key milestone	Scheduled dates
Submission of the Preliminary Information on the Strange Lake mining project, north of the 55th parallel) to the Kativik Environmental Quality Commission (KEQC) and the Quebec Ministère de l'Environnement, de la Lutte contre les changements climatiques, de la Faune et des Parcs (MELCCFP)	May 2023
Strange Lake Rare Earth Mining Project Guidelines /Decision Kativik	*10 October 2023*
Submission of the harmonized Initial Project Description and Registration document to IAAC, NG and NL	30 September 2023
Summary of Issues- ENGLISH VERSION	*23 December 2023*
Summary of Issues- FRENCH VERSION	*23 January 2024*
Submission of the Project Notice for a rare earth separation plant to the Quebec Ministry of Environment, Fight against Climate Change, Fauna and Parks (MELCCFP)	10 November 2023
Guidelines MELCCFP #3211-14-043	*23 November 2023*
Start of the Pre-Feasibility Study (PFS)	October 2023
Pre-Feasibility Study (PFS) completed	February 2025
Start of Feasibility Study (FS)	March 2025
Feasibility Study (FS) completed	2025
Submission of the Environmental and Social Impact Assessment (ESIA) reports to each of the authorities involved	2025
Decision by each of the authorities involved	2026-2027
Development and construction phases:	**2026-2028**
Detailed engineering, applications for certificates of authorization, obtaining certificates and construction work (in phases)	2026-2028
Operational phase (30-year operation)	**2028-2058**
Beginning of mining operations and start of mining processing	2028
Closure and restoration phase	**2058-2063**
Active Closure: Restoration, re-vegetation and environmental monitoring; Water Treatment in used until water quality has reached guidance	2058-2063
Passive Closure: periodical monitoring	2063-2073 (minimum duration)

12 Potential Alternatives

12.1 Alternatives for Carrying Out the Project

12.1.1 Size of the Pit and Mining Mode

The characteristics of Strange Lake B-Zone deposit allow for only one mining mode, open pit. Underground mining tunnels is not an option at Strange Lake due to fact that the rare earth elements are located close to the surface.

Three options for the size of the mining pit were considered so far as part of the ongoing prefeasibility study conducted by Torngat Metals. The option selected is the Economic Pit RF 1.0. This pit design maintains a minimum distance of 30 m from the high-water level of Brisson Lake. It also targets the resource more optimally and minimizes waste rock by limiting mining to the most concentrated areas.

12.1.2 Location of the Concentration Plant and Related Facilities on the Mine Site (industrial area)

Various sites are being studied for the location of the concentration plant. The site selection will be conducted as part of the technical studies (PFS, FS) and ESIA, and will be described in these reports. It will be based on economic, technical, environmental, social and health and safety criteria. In particular, the Indigenous communities concerned will be consulted to consider their knowledge as well as their concerns related to the territory affected.

12.1.3 Sorting and Concentration Processes (mine site)

The sorting and concentration processes that will be used are currently being optimized and some process variants are still under review. There is an option to include an X-ray sorting (dry process) upstream of the fine grinding. This step would help separate the rocks containing sufficient resource from the waste rocks (gangue), essentially made up of quartz. For now, the geochemical characterization program considers the rejected fraction from X-Ray sorting would be characterized separately, if applicable. The chosen option and its justification will be presented in the technical studies and the impact assessment.

12.1.4 Management Method and Location of the Mine Residue Stockpile (mine site)

The previous mine residue management methods included deposition in a tailings pond or dry stacking. The company has chosen to use only dry stacking due to its lower environment impact. The current preferred site for the mine residue stockpile is located within the Strange Lake alkaline complex and has been drilled to confirm the absence of mineral resources. However, this selection still needs to be validated through consultations, feasibility studies, and impact assessments.

12.1.5 Location of Final Discharge Points for Treated Water (mine water, sanitary wastewater)

The mine aims to have a water management strategy that focuses on reusing water and minimizing or eliminating discharges. Three potential discharge options have been considered, with the preferred option being to pump the water to the top of a hill and let it run down an intermittent creek with engineered wetland sections. The second option of direct discharge to Lake Brisson is not considered due to insufficient dilution, while the third option is to discharge in Lake Brisson using a diffuser. These options will be evaluated in the ESIA.

There are plans to discharge domestic wastewater and greywater at the mine site. Diffusers will be used for the sanitary discharge to dilute any releases into the lake. Greywater recycling systems are also being considered for non-potable purposes. There is also a possibility of transporting the solid waste generated by the treatment (sludge) for treatment elsewhere.

12.1.6 Water Withdrawal Sources (process water, drinking water)

The concentration plant is expected to require an average of 3,888 m^3/day of water. The primary goal is to avoid pumping water from Lake Brisson, to that effect, a water management pond will be built to store gradually a minimum of 500,000 m^3 of water. The aim is to have a closed-loop system where as much water as possible is treated and recycled. Potential sources of water include precipitation, snow melt, water from the pit, and water collection ponds. Environmental modelling will be done to assess potential sources and their impact on the environment.

12.1.7 Aerodrome with 1,500 m Runway (mine site)

Since 2011, seven potential locations have been considered for an aerodrome with a 1,500m runway at a the mine site. Several options were abandoned due to factors like prevailing winds and proximity to the border. After a thorough examination of various factors, two options were retained and are being compared based on safety, technical, and environmental criteria. They will be subject to validation during future consultations and studies, based on the following criteria:

- Prevailing winds – highest percentage of favourable prevailing winds.
- Environmental analysis – less potential impact on ecological systems and water resources.
- Grading analysis – no disturbance to topography in NL and a minimal limit of disturbance.
- Runway Safety Area and Airspace analysis – no impacts or penetrations to sensitive runway safety areas or surrounding airspace surfaces.

12.1.8 Renewable Energy Production (mine site)

Torngat Metals is exploring the use of geothermal energy and the possibility of purchasing energy from third-party renewable projects. The company is open to proposals and could potentially become a partner in these projects if they demonstrate environmental and social benefits. The feasibility and impact of these options will be evaluated in a study, while third-party propositions will be assessed separately by their proponents.

12.1.9 Single Lane Access Road Corridor Alignment and Port Facilities Options

The proposed road alignment in Labrador aims to minimize environmental impact. Two options are being considered: Option A, which connects to existing port facilities, and Option C, which connects to new port facilities. Option C is preferred due to its avoidance of a sensitive area. Two alignments are being studies for Option C: Option C1 requires blasting in some areas, but is located further away from hunting and fishing brooks. Option C2 is not as close to culturally important brooks as Option A, but could still be at distances of approximately 150m in certain areas.

Another variant of the access road (Option B), located entirely in Quebec and heading towards Schefferville, was rejected due to the need for a major bridge and potential impacts on wetlands and protected areas. This route was also longer requiring the need for relay camps. In addition, this road had a greater impact on land use and connected residential areas to areas that are presently difficult to reach and could promote more human development.

Option D, which involved linking the proposed mine site to the Smallwood reservoir, was rejected due to its significant environmental impacts, including water crossings and the need for relay camps. It would also have had a greater impact on land use and higher costs compared to other options. In additions, this road has a greater impact on land use and connected residential areas to areas that are presently difficult to reach and could promote more human development. Options A and C, in contrast, do not cross or are not close to inhabited areas.

Access road Options A and C, including alignments C1 and C2, will be evaluated in a feasibility study and impact assessment. The recommended option will be chosen based on environmental, social, technical, health and safety, and economic criteria. Indigenous communities will be consulted to consider their knowledge and concerns.

12.1.10 Mode of transportation of the Concentrate to the Rare Earth Separation Plant

Torngat Metals has considered using hybrid airship technology as an alternative form of transportation for shipping containers of concentrate from the mine site. However, since this technology is not yet available and not under the company's control, it has been decided not to include this option in the project. If the technology becomes available and obtains necessary authorizations, Torngat Metals will evaluate the option and ensure compliance requirements are met. The environmental and social impact of this option would be assessed independently by its proponent.

12.1.11 Location of the Rare Earth Separation Plant

The following alternative separation plant locations were considered:

- Bécancour: the “Parc industriel et portuaire de Bécancour” was the preferred location for the separation plant at the time of the PFS carried out by Quest Rare Minerals in 2013. This option is no longer considered in the current project due to the unavailability of suitable land, resulting from the use of this park for the development of the battery industry.
- Baie-Comeau: the site proposed in the industrial area was not chosen mainly due to the insufficient space for Torngat Metals needs and the more extensive work required to bring in utilities, electricity and rail link.
- Saguenay: the site proposed in the Port of Saguenay industrial area was considered very attractive when Torngat Metals was considering using natural gas to fuel its furnaces. As Torngat Metals opted to use 100% electric power supply for the separation plant, this site is less suited for that need, in addition to presenting more challenges in terms of integration into the environment.
- Sept-Îles – Pointe-Noire: this industrial area is reserved for large projects. Torngat Metals project is considered too small to tie down valuable real estate that could be used by larger projects, as the separation plant would receive 150,000 to 200,000 tonnes per year as opposed to over 24,000,000 for aluminum or iron ore projects. In areas where size is not an issue, the lands available can only be least and do not accept residues.

The “Parc industriel ouest – Jonction Arnaud” (also known as Parc industriel Vigneault) of the Sept-Îles industrial port facility is therefore advantageous over all the above sites for the following reasons:

- suitability of available space to needs;
- short-term availability of utilities;
- existing rail connection;
- easier access to electrical power.

The Jonction Arnaud site was also the site suggested by the local business community and the town of Sept Iles as being their preferred location for our project. Moreover, the site can support the deposition of residues.

12.1.12 Management Method and Location of the Separation Plant Process Residue Stockpile

Torngat Metals only considers dry stacking as a long-term storage option for process residue, as it is safer and requires less space than storing in a tailing pond. However, the company is open to exploring other storage alternatives that allow for future recovery of the residues, as long as they meet regulatory requirements and do not compromise safety. These options will be further developed and evaluated during a feasibility study and impact assessment.

In terms of location of the residue stockpile, the following were considered:

- Pointe-Noire: Torngat Metals can only rent space in Pointe Noire and landlords did not accept residues.
- Municipal landfill area: the potentially available space is reserved for future landfill expansion.

The preferred location for the residue stockpile area at Sept-Îles is beside the separation plant, on the eastern part of the lots 3 708 322 and 3 708 323, as well on an undivided plot of land. The fact that the site is adjacent to the plant offers several advantages, particularly in terms of integrated water management.

12.1.13 Separation plant - Process water withdrawal sources.

There are three possible sources of process water at Sept-Îles for building up the initial water reserve before starting the operation of the separation plant, and for occasional additions of make-up water during the operational phase:

- in Au Foin River: since this is a small watershed, draw would have to be very progressive;
- by drawing from the stormwater runoff or snowmelt water;
- trucked in from off-site: the preferred off-site location would be the at the treated water outlet of the municipal wastewater treatment plant.

These options will be evaluated as part of the feasibility study and impact assessment.

12.2 Project Alternatives

There is no alternative or economically viable alternative to developing a mine site in order to extract the Strange Lake rare earth deposit. The Strange Lake Project is the only feasible alternative to extract the rare earth minerals resources of this deposit.

PART D – LOCATION INFORMATION AND CONTEXT

13 Project Location

13.1 Geographical Coordinates

Mine site:

The Torngat Metals Strange Lake property is covered by maps from the National Topographic system map sheets (NTS: 24A08, 24A09, and 14D05). The project is located at the following geographical coordinates (decimal degrees, NAD83):

- B-Zone Deposit centroid: Latitude: 56.323 N; Longitude: - 64.166 W

Single Lane Access road (seasonal and private):

At the Québec-Labrador border, the road corridor correspond to 18+000 kilometric point, at coordinates 56.270274 N; -64.089263 W. The total alignment of the road corridor is approximately 160 km long, and ends on the eastern coast of Labrador (2 options), for which Option A is closer to Nain. It crosses Maps SNRC 24A08, 14D01, 14D02, 14D03, 14D04, 14D05, 14D06, 14D07, 14D08 and 14C04

- Start of the access road in Québec: Latitude: 56.332 N; Longitude: - 64.125 W
- End of the access road in Eastern Labrador
  - Option A: In Edwards cove, Anaktalak Bay: Latitude: 56.353 N; Longitude: - 62.095 W
  - Option C: In Voisey''s Bay: Latitude: 56.219 N; Longitude: - 61.974 W

Optimisation of the road corridor is still underway and is expected to be completed by Q3 2024.

Container storage and handling facilities on the eastern coast of Labrador:

- Option A Access Road: leading to existing port facility of Vale's Port (Edwards Cove)

The new container storage and handling facilities would be built in Edwards Cove (Anaktalak Bay), near the existing Vale's Port, in Labrador. The exact location is still to be determined in collaboration with Vale.

- Option C Access Road: leading to Voisey's Bay

New port facilities would be built in Voisey's Bay, south of the mining area operated by Vale, in Labrador. The exact location is still to be determined.

Rare earth separation plant:

The new separation plant will be built in the "Parc industriel ouest – Jonction Arnaud" (also known as "Parc Vigneault") of the Sept-Îles industrial port facility, on the north shore of the St-Lawrence River in the province of Quebec, at the following geographical coordinates (decimal degrees, NAD83):

- Separation plant site centroid: Latitude: 50.292 N; Longitude: - 66.385 W

13.2 Study Areas

In order to carry out the different surveys and evaluate the project's impact on the different Valued Ecosystem Components, three preliminary study areas have been elaborated for the northern components as well as the Sept-Îles components.

Three maps are avalaible in the Detailed Project Description (DPD) to understand the study areas for the project. These are:

- Preliminary Project and Local Study Area in the North;
- Preliminary Project and Local Study Area for the project components in Sept-Îles;
- Preliminary Regional Study Area.

The proposed project study area consists of a 200 m buffer zone around different components. For the northern components (mine site, road corridor, and container storage and handling facilities), the 200-meter buffer zone was established from the mining lease or the preferred road corridor. A larger buffer could be considered in certain area of the road, should the land use study or another component suggest it would be pertinent. As for the Sept-Îles components, the 200 m buffer was added to the lot limits, but this study area could be extended to include additional receptors. The project study area will be used to carry out most of the biophysical component's surveys.

The local study area for the northern components , which will be used for the land use study, corresponds to a 20 km buffer on either side of the road corridor, as well as a 50 km radius around the mining lease. This 50 km radius covers the flow of water between Lake Brisson and George River. It also covers the Lac de la Hutte Sauvage, including the Wedge Point site (located on the western shore of the lake), which is an area of great historical and cultural importance to the Quebec Innu. It is important to note that an Innu from Matimekosh operated an adventure tourism business in 2012-2013 at this location. This local study area will also be used for the caribou component as they travel long distances and it will cover historical caving sites. For the Sept-Îles components, a 1 km buffer zone was established from the lot limits. This study area will be used for the land use study, but this study area could be extended to include additional receptors.

The regional study area takes into consideration all the communities that will be impacted by the project. The socio-economic conditions, local capacity and workforce analysis will be carried out within the limits of the regional study area. The human health, quality of life and psychosocial impacts will also be analyzed using this regional study area. The regional study area is the same for the northern components and the Sept-Îles components.

These study areas are preliminary and will be reevaluated once the final footprint of the components is established and the impact assessment is initiated.

13.3 Official Land Description

13.3.1 Mine, Concentration Plant, Aerodome and Part of the Access Road Located in Quebec

All the mineral claims covering the B-Zone of the Strange Lake Project are owned in totality by Torngat Metals. The project is covered by 209 individual mineral claims in Québec and 63 "cells" in the Newfoundland and Labrador claims licence system. Those claims are covering a total area of approximately 9 994.65 ha (MICON, 2019). The mineral claims in Québec cover the B-Zone and a portion of the Main Zone REE deposits. The current Torngat Metals claims cover the known extent of the Lac Brisson Pluton also known as Strange Lake Alkaline Complex (SLAC). Mine facilities, concentration plant, aerodrome and Quebec's portion of the access road would be built on the land covered by these mineral claims.

13.3.2 Part of the Access Road Located in Newfoundland and Labrador, Container Handling and Storage Area and Port Facilities

Option A: This alignment passes through three types of land classification. From the provincial border for 138.5 km the access road is located within the limits of the Labrabor Inuit Settelment Area (LISA). Labrador Inuit Lands (LIL) are also crossed by the access road for 35.9 km. Finally, the access road enters the Voisey's Bay Area between km 156 and 157 for a distance of 14.4 km. This section of the road would be located within the Vale Inco surface lease.

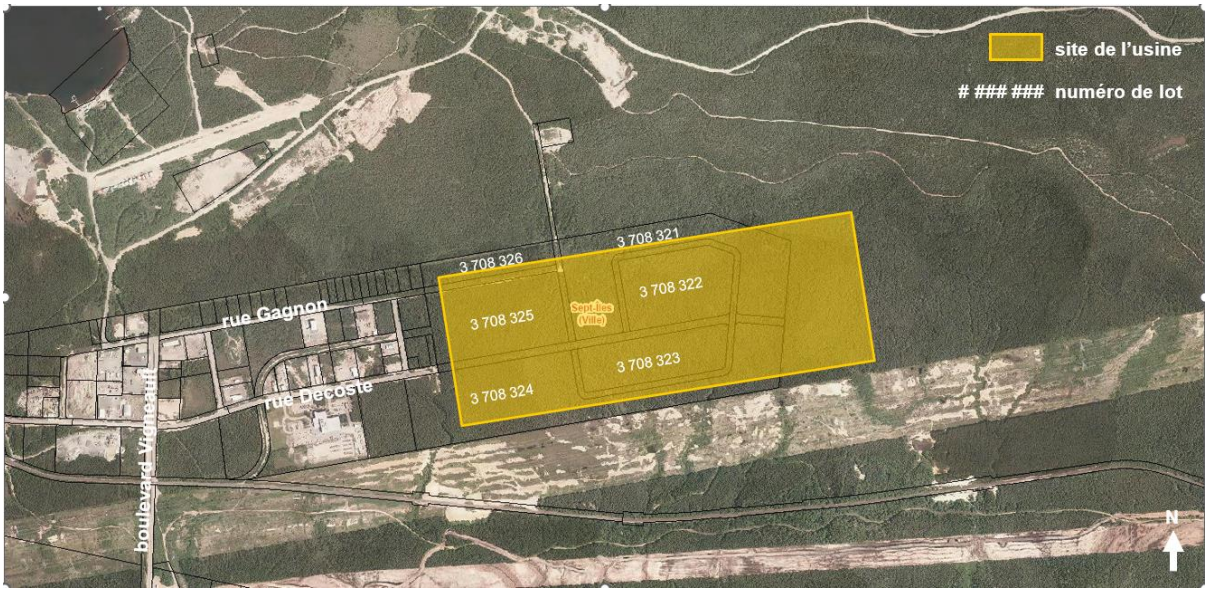
Option C (C1 and C2): Both alignments for Option C and the container handling and storage area and port facilities are located within the limits of the LISA for its entire length. The alignments are also partially located within the limits of the Labrador Innu Settlement Area of the Labrador Innu Land Claims Agreement-in-Principle (New Dawn Agreement). The length of the access road alignment C1 located within the Labrador Innu Settlement Area is about 39.2 km and for alignment C2 is about 43.62 km. The container handling and storage area and port facilities is also located in the Labrador Innu Settlement Area.

13.3.3 Separation Plant

The proposed rare earth separation plant will be located in the "Parc industriel ouest – Jonction Arnaud" (also known as "Parc Vigneault") in the industrial port facility of Sept-Îles (QC). The plant facilities and the process residue stockpile area would be build on the following lots in particular, as well on an undivided plot of land, as shown on the Figure 13-1:

- 3 708 322
- 3 708 323
- 3 708 324
- 3 708 325

These 4 lots are currently owned by the city of Sept-Îles. Discussion will be held with the city of Sept-Îles for a potential acquisition agreement conditional on project authorization.



Source : ministère des Ressources naturelles et des Forêts, 2023b | Adapted by AECOM

Figure 13-1 : Land on which the separation plant and residue stockpile area would be built

13.4 Proximity to Nearest Local Communities

There are no permanent inhabited buildings within the proposed mine site, road corridor, and handling and storage facilities in Edwards Cove/ Voisey's Bay port facilities. The closest non-Indigenous communities are Schefferville, located 235 km southwest of the mine site, and Northwest River, located around 345 km south of the proposed facilities. However, Nain is the closest community to these components, located 156 km east of the mine site and 26 km northeast of the Edwards Cove facilities/39 km from the Voisey's Bay port facility.

The situation is different concerning the proposed separation plant since it is planned to be located in the industrial port zone of the city of Sept-Îles. In this case, the closest inhabited area (a portion of the city of Sept-îles) is located less than 3 km south of the proposed separation plant site. In addition, the Sept-Îles detention facility is less than 2 km southwest of the proposed separation plant site.

13.5 Proximity to Indigenous Communities

The proposed mine site is located in Nunavik, a territory administered by the Kativik Regional Government, located in Kuujjuaq, which is located 325 km northwest of the proposed mine site. The closest communities from the proposed mine site are mainly Indigenous communities: Nain (NL); Natuashish (NL); Kawawachikamach (Qc); and Kangiqsualujjuaq (Qc).

The closest communities from the handling and storage facilities in Edwards Cove / Voisey's Bay port facilities are also Indigenous communities, including: Nain (NL); Natuashish (NL); Hopedale (NL); Postville (NL); and Makkovik (NL).

The closest Indigenous communities from the proposed separation plant in Sept-Îles are Uashat located 7 km to the south and Mani-utenam located 15 km to the southeast.

The lands involved by the present project are subject to different land agreements and/or land claims by Indigenous groups.

Nunavik Inuit (Quebec)

In 1975, Nunavik Inuit signed the James Bay and Northern Quebec Agreement (JBNQA), which led to the creation of 15 northern villages including Kujjuaq and Kangiqsualujjuaq. The signing of JBNQA also provided Nunavik Inuit with territorial rights on the lands concerned by the agreement. These lands are defined in the following groups:

- Category I lands are reserved exclusively for use by Inuit;
- Category II lands are considered public domain in Quebec but hunting, fishing and trapping rights are reserved for Inuit, while forestry, mining and tourism development authority is shared;
- Category III lands reserve some specific hunting and harvesting rights for Inuit, but all other uses are permitted under Quebec legislation concerning public lands.

According to the JBNQA, the proposed mine site and the Quebec portion of the corridor identified for the proposed seasonal road are located on Category III lands.

Naskapi Nation of Kawawachikamach

In 1975, the new Schefferville Naskapi Band decided to become involved in the negotiations leading to the signature of the James Bay and Northern Québec Agreement (JBNQA). The arrangement did not work and the JBNQA was signed without the band. In 1977, the Schefferville Naskapi began their own negotiations leading to the signature of the Northeastern Québec Agreement (NEQA) in January of 1978. Following this agreement, the community built a new village which was registered as the Naskapi village of Kawawachikamach in 1981. The Naskapi Nation of Kawawachikamach received some territorial rights on lands concerned by the agreement. These lands are defined as the following:

- Category I lands are reserved exclusively for the use of Naskapi;
- Category II lands are considered public domain in Quebec, but hunting, fishing and trapping rights are reserved for Naskapi, and forestry, mining and tourism development authority is shared;
- Category III lands reserve some specific hunting and harvesting rights for Naskapi, but all other uses are permitted under Quebec legislation concerning public lands.

According to the NEQA, the proposed mine site and the Quebec portion of the corridor identified for the proposed seasonal road are located on Category III lands. The Ungava Band, which became the Naskapi Nation of Kawawachikamach, is essentially using the territories concerned by the NEQA. It is, however, possible that some hunters travel to Inland Labrador for caribou hunting.

Quebec Innu

Unlike the Naskapi Nation of Kawawachikamach and the Nunavik Inuit, the Innu of Matimekush-Lac-John and Uashat mak Mani-Utenam have not signed any territorial agreement, and they are still engaged in an ongoing land claim process with the federal and provincial governments. The lands covered by this claim (the Nitassinan) include the proposed mine site, as well as the western portion of the corridor identified for the proposed seasonal road (essentially the Québec portion, but also a small part of the Labrador portion).

Nunatsiavut Inuit (Labrador)

The Labrador Inuit Lands Claims Agreement (LILCA), signed in 2005 between Canada, Newfoundland and Labrador and the Nunatsiavut Inuit Government, recognized the Nunatsiavut Inuit’s territorial rights in Northern Labrador. The agreement created two categories of land:

- The Labrador Inuit Settlement Area (LISA) includes land and ocean extending to Canada's territorial sea. It encompasses Labrador Inuit Lands and the five Inuit communities of Nain, Hopedale, Makkovik, Postville, and Rigolets. A portion of the northern part of the Settlement Area is designated as the Torngat Mountains National Park, which was upgraded from a park reserve in 2008.
- Labrador Inuit Lands (LIL) have smaller territory than LISA. Inuit have exclusive rights to 25% ownership in subsurface resources, quarry materials, and carving stone. LIL is mainly coastal, except Strange Lake peralkaline granite complex. IOC explored area in 1980s.

The mine site in Québec borders a Labrador Inuit Land. The proposed seasonal access road will cross a Labrador Inuit Settlement Area for Option C or Labrador Inuit Land for Option A, connecting to either Anaktalak Bay or Voisey's Bay. Harvesting rights for Innu and Inuit are recognized in the area.

Labrador Innu

In 2008, Innu Nation of Labrador signed the New Dawn Agreement with the Government of Newfoundland-and-Labrador. This land claim agreement in principle was endorsed by referendum by the Innu population in 2011. Three categories of land were identified and mapped:

- Labrador Innu Lands (Category I or CI) where the Innu have legal title, jurisdiction to make laws in relation to specific matters, and rights to resource royalty sharing and Impact and Benefit Agreements (IBAs) for land development.
- Labrador Innu Settlement Area (CII) on Crown Land gives Innu special rights for resource royalty sharing, environmental assessments, economic development, and major project consultation. Voisey's Bay road crosses Category II Lands.
- Category III Lands (CIII) are areas where the Innu are able to conduct their traditional hunting for migratory species of wildlife without the need for provincial government permits.
- Option A of the proposed seasonal road is located north of the New Dawn Agreement lands and joins the Voisey's Bay area where the Labrador Innu must be consulted. Option C crosses Category II lands covered by the New Dawn Agreement, requiring consultation with the Innu.

13.6 Proximity to Federal Lands

To our knowledge, there is no federal land within the project study area.

Labrador Inuit land (LIL)

The project may involves two Labrador Inuit Lands (LIL). First, the proposed mine site (in Quebec) borders on Labrador Inuit Land 4B-27. In addition, the corridor identified for the proposed seasonal road Option A crosses Labrador Inuit Land 4B-28, which lies west of Voisey's Bay and Anaktalak Bay. Only the first section, 4B-27 would apply to Option C.

14 Biophysical Environment Description

The description of the biophysical environment takes into account the data acquired during the 2011-2014 baseline studies, i.e. as part of the last pre-feasibility study, and from new data acquired in 2023. This data will be updated under a full-baseline study (2023-2025). The updated data will comply with the current regulatory and legislative frameworks.

For the baseline study, biophysical workplans, governmental departments of Quebec (Ministère de l'Environnement, de la Lutte aux changements climatiques, de la Faune et des Parcs, MELCCFP), Federal, NG and NL have been and will be contacted in order to assemble proper information on best timing for fieldwork assessments and inventories, such as for migratory birds, caribou, Arctic charr, and Indigenous land and resources uses. The DFO Québec Region and Labrador were contacted regarding the FAFH and meetings were held in 2023 and in 2024 to discuss our workplan for the project. The same approach was taken at the provincial level in 2023, with MELCCFP (FAFH, contamination).

Thus, each of the environmental components is treated in accordance with current guidelines, guidance documents and standards. These are presented under each of the subsections and relate in particular to the following authorities:

Federal

- Impact Assessment Agency of Canada (IAAC) / Agence d'évaluation d'impact du Canada (AEIC)
- Environment and Climate Change Canada / Environnement et Changement Climatique Canada (ECCC)
- Health Canada / Santé Canada
- Transport Canada / Transport Canada
- Natural Resources Canada / Ressources Naturelles Canada
- Department of Fisheries and Oceans / Pêches et Océans Canada

Provincial -*Québec*

- Ministère de l'Environnement, de la Lutte contre les changements climatiques, de la Faune et des Parcs (MELCCFP)
- Commission de la qualité de l'environnement Kativik (CQEK)
- Ministère des Ressources naturelles et des Forêts (MRNF)

Provincial -*Government of Newfounland and Labrador*

- Department of Environment and Climate Change, Environmental Assessment Division

Nunatsiavut Government

- Department of Lands and Natural Resources
- Nunatsiavut Research Centre

At the time of writing this document, engagement activities and data acquisition have started for wildlife (birds, water quality and water crossing fish habitat characterization along the access road in Quebec), and more surveys will be conducted in 2024 and 2025 for other components. A gap analysis was conducted prior to 2023 planning and data acquisition in order to comprehensively address each component and identify gaps from the baseline studies that were elaborated between 2011 and 2014. Data acquisition will continue throughout 2024 and 2025 in order to elaborate new baseline studies and align with the Feasibility Study report to be produced. The acquired data will also be incorporated into the ESIA for the project.

14.1 Physical Environment

The Stange Lake project in northern Quebec and Labrador is in the Taiga ecozone with a cold subarctic climate. The separation plant in Sept-Îles is located in the Boreal Shield ecozone with similar climate characteristics.

The Lac Brisson rare earth deposit is associated with the Lac Brisson Pluton in the Mistinibi-Raude Domain of the Churchill Province. The Strange Lake Alkaline Complex consists of granitic and pegmatite intrusions altered by hydrothermal fluids. The area has a rocky plateau located at an average elevation of 460 m with glacial landforms like roche moutonnée and drumlins, along with fluvio-glacial deposits. The separation plant in Sept-Îles will be located in an industrial zone. The mine site is in a discontinuous permafrost zone, requiring evaluation for infrastructure in permafrost regions. This includes considerations for climate change impact on design and location decisions. In 2011 and 2012, soil quality was assessed at the proposed mine site by analyzing 33 samples at depths of 0.3 to 0.5 m. Results showed uniform conditions, acceptable metal levels, and low radioisotope concentrations. Total hydrocarbons and other contaminants were below standards. Further soil characterization is planned in 2024-2025 at the mine site and at the separation plant.

Water is abundant in the northern Quebec and Labrador landscape, with lakes, wetlands, and tributaries draining over impermeable frozen substrates. The majority of the mine site area drains into Lake Brisson, leading to the Déat River watershed and the George River. Various watersheds, including Napeu Kainuit and others along the road corridor in Labrador, are crossed by the access road. Most water crossings are intermittent, with plans for culverts to be installed. Further studies on fish habitat will continue in 2024 and sediment sampling will be added at water crossings and near port facilities to assess human health and ecological risks. Sites will include sensitive habitats identified by communities. The area of the separation plant in Sept-Îles is crossed by the Au Foin River, a tributary of the Bay of Sept Îles. A complete investigation of the site will be completed as part of the impacts assessment. Bathymetric surveys conducted in July 2023 at Brisson Lake showed an average depth of 5.23 m, with depths ranging between 2 and 9 m. Modelling done in 2023 confirmed low water dispersion due to the lake's island configuration. An upcoming analysis will estimate contamination dilution in the Déat River watershed.

A groundwater assessment conducted in 2011-2012 identified three hydrostratigraphic units at the mine site. Groundwater elevation is close to the surface with varying hydraulic conductivity in overburden and till. The esker aquifer, with high hydraulic conductivity, offers a potential source of potable water. A fractured bedrock aquifer underneath the site has low permeability, with frozen groundwater in some areas restricting flow. Overall, the bedrock aquifer has limited yield due to decreasing fracture density with depth. Groundwater was sampled from 14 monitoring wells in 2011 and 25 in 2012, with pH ranging from 5.3 to 7.3. Electrical conductivities were low, total alkalinity varied from <1 to 89 mg/l, and total hardness ranged from 10 to 410 mg/l, classifying the groundwater as soft. Undifferentiated till with poor aquifer potential covers the site. Metal concentrations exceeded Quebec surface water criteria, radionuclides were detected, and rare earth elements were present, confirming the influence of the B-Zone ore body on groundwater quality. An additional groundwater characterization will be carried out at the separation plant and at the mine site to take account of the new footprint of the mine facilities. Water quality from historical 2011-2012 to 2023 sampling campaigns remained consistent, reflecting an oligotrophic environment with low hardness and neutral pH in a northern aquatic setting. Legacy contaminants like Hg and PAHs were undetectable. Rare earth elements, beryllium, thorium, and uranium, naturally present in the region, were found.

As for the air quality, baseline data was collected at the Strange Lake Mine Site in 2011, with no air ambient sampling along the road corridor in Labrador. The following pollutants were monitored: $PM_{2.5}$, PM_{10}, Total Suspended Particles (TSP), metals including a selection of eight rare earth elements ("particles"), SO_2, NO_2, volatile organic compounds (VOC), asbestos and radon. The air quality test results showed no anomalies and were typical of remote areas. An ambient air quality measurement campaign is planned for 2025 at the mine site and port facilities, aiming to complete the study. This study will establish initial contaminant concentrations for the northern components of the project. A baseline air quality monitoring plan will also be developed for the Separation plant site in compliance with Quebec regulations.

A background noise study conducted by AECOM in December 2012 at Strange Lake B-Zone included 24 hours of noise data, with max sound levels of 37.7 dBA in the day and 31.5 dBA at night. This study will be updated in 2024 and 2025, aiming to increase monitoring locations to capture accurate sound levels in larger study areas. Land use activities will be clarified through engagement with Indigenous groups to identify noise sensitive locations like campsites. Field work will monitor noise along the road segment between the site and the port storage facilities and at sensitive receptors determined by consultations with neighbouring communities near the planned sites.

In Sept-Îles, upcoming field work will include baseline noise monitoring at sensitive receptors located within appropriate distance from the planned plant site, such as residences, schools, healthcare facilities, etc. These sensitive receptors will be identified using aerial photography, site visits and consultations with neighbouring communities. Monitoring will be carried out in accordance with provincial guidelines and with current expected best industry practices.

14.2 Biological Environment

The 2024 field surveys will be complementary to the floristic surveys conducted in 2011 and 2012. For each site (northern project component, road corridor and the separation plant in Sept-îles), wetland survey will be conducted between July and September 2024. Plants of great interest to the communities will also be surveyed.

At the mine site, fishing efforts were conducted in August 2011 and August 2012, using several types of fishing gear. These efforts made it possible to establish that the fish community is composed of eight species (Arctic char, brook trout, lake trout, round whitefish, longnose sucker, burbot, lake chub and mottled sculpin). Fish community surveys will continue in 2024 and will cover all aquatic habitats in the project footprint (surrounding lakes and watercourses). Salmonid spawning was investigated again in early October 2023 (previously in 2012) through observations in the watercourses showing potential habitats along the access road. Spawning investigations at the mine site and access road in Québec will be performed again in 2024. In May-June 2024, investigations will be conducted to identify rainbow smelt spawning grounds and American eel habitat in Au Foin River. Summer surveys using various techniques will also study brook trout and the overall fish community.

Bird surveys (waterfowls, seabirds, raptors, passerines, game birds and shorebirds) were conducted in 2011 and 2012 at the mine site and along the access road corridor. Additional surveys were carried out in 2023 at the mine site and along the new access road corridor (Option A), with further data collection planned for 2024 and 2025 (along Option C). Songbird surveys will also be conducted for the separation plant in Sept-Îles.

The George River caribou population is the sole herd in the project area, monitored by wildlife managers and universities since the 1970s. Quebec and Labrador governments track their movements with radio collars. In June 2011, 62 caribou groups with 480 individuals were seen at the mine site, and in October 2012, five groups with 266 individuals were observed along the road corridor identified at that time.

Field surveys planned for 2023 were canceled by Torngat Metals at the request of the Caribou Working Group, in partnership with the Naskapi Nation of Kawawachikamach, to avoid disturbing the herd. Analysis will then only rely on existing telemetry data. Caribou protection is an important issue related to the Strange Lake mining project, given the value of this animal to Indigenous and non-Indigenous people in Quebec and Newfoundland and Labrador, and the recent decline in the George River migratory herd population.

The sensitive species with conservation status observed during the field studies led in 2011, 2012 and 2013 surveys were the Harlequin duck, the Golden eagle, the Peregrine falcon, the Bald eagle and the Short-eared owl. No specific wildlife surveys will be carried out for this component as part as the ESIA, but any incidental observations of species at risk will be compiled. Inventories for endangered plant species will be carried out in their potential habitats.

14.3 Marine Environment

The Marine Environment section provides information on the biophysical components along the maritime route from the Labrador coast to the Separation Plant in Sept-Îles. The projects' proposed maritime shipping route will sail from the Labrador coast to Sept-Îles five to ten times per year during the open water period only (approximately from June to October). Shipping is planned for both the construction and operation phases of the mine. As mentioned in Section 9, there are two proposed departure points linked to the two route options. Option A is to use the existing Port of Vale, located in Edwards Cove, in Anaktalak Bay south of Nain, Newfoundland, and Option C is to build new port facilities in Voisey's Bay, just south of Option A. The transport vessel will follow an existing shipping route along the Labrador coast, through the Strait of Belle Isle, along the north coast of the Gulf of St. Lawrence, through the Jacques-Cartier Strait north of Anticosti Island, and finally into the port of Sept-Îles, Quebec. No field surveys are planned for the existing port facilities in Sept-Îles or in Vale's Port (Option A). For Option C, which includes the construction of new port facilities a marine baseline program will begin in 2024 in order to gather up-to-date data in Voisey's Bay.

The proposed shipping route will cross two of the three ocean zones of Atlantic Canada: The Newfoundland and Labrador Shelves and the Gulf of St. Lawrence. The Northwest Atlantic is a habitat to a variety of species including commercially important fish, whales, and other marine life in diverse habitats. The marine route proposed for this project, from the Nain region of Labrador to Sept-Îles, Quebec, would therefore cross the critical habitats and ranges of the following nine (9) threatened or endangered aquatic species, identified in the Atlantic Canada Marine Planning Atlas, generated by Fisheries and Oceans Canada: the Spotted wolf; the Northern wolf, the Atlantic fin whale; the Atlantic blue whale; the Atlantic wolf; Atlantic Leatherback Turtle; Atlantic white shark; the North Atlantic right whale and the St. Lawrence Estuary Beluga.

In addition to these threatened or endangered aquatic species, other marine or anadromous species with precarious statuses that are likely to occur in bays, coastal, or marine environments along the proposed offshore route include the following: American eel; Leach's storm-petrel; Barrow's goldeneye; Harlequin duck; Atlantic salmon; polar bear; peregrine falcon; short-eared owl; Nelson's sharp-tailed sparrow; and yellow rail.

The proposed shipping route would begin in the Labrador Inuit Settlement Area (LISA) which is part of the Newfoundland and Labrador Shelf Bioregion, designated by the Nunatsiavut Government. The LISA Marine Management Zone is included in the *Imappivut* Management Plan, which addresses concerns about shipping, oil and gas exploration, fishing, and habitat conservation due to climate change. In addition, the proposed shipping route may cross 6 or 7 Ecologically and Biologically Significant Areas (EBSAs) depending on the precise route. EBSAs are areas in Canada's oceans that have been scientifically assessed and identified as having unique ecological or biological importance compared to the surrounding marine ecosystem.

Anaktalak Bay:

The Port of Vale is currently used year-round for industrial transportation of mineral concentrates extracted from the mining complex of Voisey's Bay Labrador Operations, located 10 km south of the port. Marine traffic is evidently lower on the Labrador Coast compared to the Gulf of St. Lawrence and Estuary. According to data from the Canadian Coast Guard, the Port of Vale has an average of 55 ship transits per year (departures + arrivals) between 2020 and 2023. In contrast, the Gulf of St. Lawrence has an average of approximately 4,770 transits per year, for the same period. In 2012, a marine baseline program field study was performed in Anaktalak Bay, as the previous Quest Rare Minerals was aiming the construction of port facilities in Edwards Cove to develop the Strange Lake Rare Earth project. No specific field surveys are currently planned for Edwards Cove in Anaktalak Bay if Option A for the access road is selected for this project. No additional surveys would be required at this time as the existing port in Edwards Cove is currently used by Vale. However, a desktop assessment for this specific area for the ESIA will be conducted. Once an agreement is signed with Vale for the use of its port and facilities, the licensed marine shipping company appointed by Torngat Metals will comply with the port's existing regulations, practices, and procedures, as well as any existing Indigenous agreements in force.

Voisey's Bay:

A Marine Baseline Program will occur in 2024 in Voisey's Bay. Besides baseline sampling, a literature review of all marine environmental studies completed in the vicinity of Voisey's Bay will be conducted. Information on Arctic char and Atlantic salmon stocks from studies conducted by DFO will also be reviewed. Any information on commercial fisheries conducted in or in proximity to Voisey's Bay will be summarized. Available traditional ecological knowledge including information on land use, transportation on sea and ice, and local resource use will also be evaluated and summarized. During the marine sampling field program, any incidental observations of marine mammals and seabirds will be recorded and reported. If colonies of marine birds are observed in the study area, an evaluation of the potential disturbance of marine activities (container transshipment, boat traffic) will be undertaken to evaluate the potential impacts and mitigate them.

Port of Sept-Îles area:

No studies or surveys are planned for the Port of Sept-Îles area at this time as there is currently sufficient information about various components of the environment and due to existing laws and regulations, as well as the Environmental Precautionary Measures and Practices and Procedures established by the port administration. In addition, on going monitoring with the *Observatoire de veille environnementale de la baie de Sept-Îles*, initiated by INREST in 2013, which has established a long-term monitoring system to collect and track data on various parameters in the bay of Sept-Îles. The licensed marine shipping company appointed by Torngat Metals will comply with the regulations and measures in place at the Sept-Îles Port Authority.

The bay of Sept-Îles and its archipelago are crucial for migrating bird species, providing diverse habitats for feeding, nesting, and breeding. This area is ecologically rich, supporting a wide variety of avian fauna. It is designated as an Important Bird Area (IBA) and a Waterfowl Concentration Area (WCAA), with specific islands serving as bird sanctuaries and heronries. The abundance of birds, including razorbills and gulls, exceeds global population thresholds. Various seabirds and waterfowl inhabit wet meadows, salt marshes, and aquatic grass beds, while shorebirds like the American Woodcock are also present. The archipelago hosts populations of several bird species, making it a significant conservation area. A diverse range of fish species, including winter flounder, capelin, mackerel, cod, and haddock, can be found in the bay of Sept-Îles and area. The environment supports high productivity with sediment and fresh water supply. Many fish species inhabit the eelgrass beds, while rainbow smelt spawn in various rivers and capelan utilize beaches for spawning. In terms of marine mammals, the port area is frequented mostly by minke whales and harbour porpoises. Occasional sightings of other species are possible, such as the white-sided dolphin and the white-beaked dolphin. The main pinniped species observed are harbour and grey seals, while harp seals can be seen on the pack ice in winter.

The Sept-Îles Port zone includes the following designated areas: The Sept-Îles Important Bird Aera (IBA), which includes a section of the city of Sept-Îles, the Bay of Sept Îles and its shoreline, the Sept Îles archipelago as well as the Checkley Plain; Île du Corossol Migratory Bird Sanctuary (MBS); the Sept-Îles Archipelago Reserve (creation in progress, an area of almost 20 km located at the mouth of the bay).

15 Socio-Economic and Human Health Description

15.1 Land Use and Traditional Ecological Knowledge

The development and operation of the Strange Lake mining project may result in changes to land and resource use. It could affect the activities of various Indigenous groups such as the Nunavik Inuit, the Naskapi Nation of Kawawachikamach, the Innu of Quebec, the Nunatsiavut Inuit and the Labrador Innu. The project could also have an impact on Indigenous and non-Indigenous businesses and organizations, including tourism businesses, outfitters, parks and mining companies.

A study of land use and Indigenous Knowledge was carried out between 2012 and 2013 as part of the Quest Rare Minerals project[6]. The study revealed that territories within or bordering the project study area were traditionally used by several Indigenous groups. It also showed that some groups still visit these territories. The use described was sporadic and of low intensity at the mine site area. The corridor identified for road construction was partly used by the Nunatsiavut Inuit and Labrador Innu. All the Indigenous groups met at the time (Nunavik Inuit, Naskapi Nation of Kawawachikamach, Nunatsiavut Inuit, Labrador Innu) expressed concerns about the effect of the project (mainly the presence and operation of the mine site and access road) on caribou. Concerns were also expressed about the potential effects of the project on the river's water quality.

In addition to the proposed mine site, seasonal access road and port facilities on the Labrador coast, a rare earth separation plant is planned for Sept-Îles, Quebec (Sept-Îles industrial port zone). The Innu of Uashat mak Mani-utenam are likely to carry out activities in the vicinity of the Sept-Îles industrial port zone. The city of Sept-Îles and the Sept-Rivières MRC (with jurisdiction over the Sept-Îles region) will also be affected by the project, as well as various Indigenous and non-Indigenous organizations and businesses operating in the vicinity of the planned separation plant. Since the establishment of a rare earth separation plant in Sept-Îles was not part of Quest Rare Minerals' initial project, no studies have been carried out concerning Indigenous Knowledge or land use by Indigenous groups in the region or concerning land use by Indigenous and non-Indigenous organizations or businesses.

A new land-use study for the various project components will be carried out in 2024 and 2025. In addition to documenting the current and projected use of the territory, the study will also cover knowledge of the territories concerned, as well as the plant and animal species found there.

Concerning Indigenous land use and Knowledge, the study will consist of interviews with local managers and land users who have a good knowledge of land use in each of the Indigenous communities concerned. These interviews will aim to provide a good description of current and projected use of the areas concerned by the Strange Lake Mining project (areas visited, activities carried out, resources used or harvested, length of stay, season or period of use, approximate number of users frequenting the area, activities planned for future years, etc.). The purpose of the interviews will also be to gather participants' expectations and concerns regarding the project. In addition, relevant information concerning Indigenous Knowledge (such as valued species and locations, etc.) will be collected during interviews.

All the information gathered during the land use and Indigenous Knowledge study will be used to assess the effects of the Strange Lake mining project and identify appropriate mitigation measures. For each of the Indigenous groups involved in the study, it is planned that the entire process will be overseen by a steering committee made up of representatives of the Indigenous group, representatives of Torngat Metals Ltd and representatives of AECOM's research team. The methodology employed, the subjects to be covered and the choice of informants to be interviewed will all be determined by these committees. Subsequently, the assessment of the project's impacts on land and resource use will also be presented to each of the committees. At the same time, improvement or mitigation measures designed to limit or eliminate the project's impacts will be developed, taking into account the issues raised

[6] This study was carried out by AECOM in most of the Indigenous communities concerned. However, in the case of Nunatsiavut, the land-use study was conducted by Chris Furgal, Agata Durkalec, Katie Winters et al. The results of the latter study were integrated into the AECOM study.

by the various informants met during the study, as well as the expectations and concerns raised during the study and during engagement activities held within the communities concerned. Improvement and mitigation measures will be developed in conjunction with the steering committees established with the various Indigenous groups concerned.

A study will also be conducted to document the non-Indigenous land use and occupation of the territories concerned by the various project components. This study will focus on current or planned activities likely to take place within and/or near the territories concerned. It will be based on available sources, such as the websites of businesses and organizations present or active in the areas concerned. Additional information will also be gathered through telephone interviews with representatives of the organizations and companies identified in the documentation. These interviews will help validate and refine the information gathered from the various sources consulted. They will also enable us to gather the expectations and concerns of companies and organizations in relation to the project.

15.2 Socio-Economic Conditions, Local Capacity Analysis, and Workforce Analysis

As part of the Quest Rare Minerals project, studies were conducted with different Indigenous and non-Indigenous communities that could potentially be affected by the project, aiming to describe their socio-economic conditions, local services, and workforce capacities. Several issues were raised during that time. For Indigenous communities, these issues included education levels, health, social problems, and economic characteristics such as limited employment opportunities, high unemployment rates, and low specialization levels. All Indigenous groups encountered shared common values related to the preservation of natural habitats and traditional harvesting activities. Non-Indigenous communities affected by the Strange Lake Project (namely Schefferville, Fermont, Sept-Îles) were experiencing an economic boom in the mining and/or resource sectors, leading to an increasing demand for accommodations, infrastructure, and municipal services.

Within the framework of the present project, a new documentary study will be carried out in 2024-2025 using available sources. This will provide up-to-date socio-economic information on the various communities involved, as well as an accurate description and assessment of their local services and workforce.Telephone interviews will also be conducted with key informants in the involved communities, as well as with government organisations to document specific topics such as education, health care and health issues, social services and social issues, housing, economic development, as well as the labour force situation and the ability of local businesses to meet the needs of Torngat Metals.

Data will be presented using GBA Plus, so that it is possible to subsequently assess how the project may affect population subgroups (women, youth, elderly, etc.) differently, and thus better target mitigation measures. To better understand the project's impact on Indigenous groups, the ESIA will also take into account the political, socio-economic and cultural realities of Indigenous women and people of diverse gender identities, using culturally relevant gender-based analysis (CRGBA). Unlike Gender-Based Analysis Plus (GBA Plus), CRGBA goes further and considers current historical issues, including the historical and ongoing effects of colonization, the legacy of residential schools, and intergenerational trauma among Indigenous people. These various analyses will make it possible to assess the social, economic, health and environmental effects, as well as the impacts on Indigenous peoples and other non-Indigenous population groups. The GBA Plus and CRGBA will ultimately make it possible to identify and mitigate the negative effects of the proposed project on these various population groups targeted by the project.

15.3 Human Health, Quality of Life and Psychosocial Impacts

Health status of the population is influenced by a set of factors related to both individuals and their physical, economic, political, and sociocultural environments. These factors are also known as "determinants of health" (MSSS, 2022). For Indigenous peoples, including the Inuit, health is a holistic concept that encompasses not only the absence of disease but also the "physical, spiritual, mental, economic, emotional, environmental, social, and cultural well-being of individuals, families, and communities".

An assessment of risks to human health and the environment was planned in 2013 for the Quest Rare Minerals project. The first step of this study was completed, which involved developing a conceptual model for the entire project, including the mine, a road, a port, and a refining plant. This conceptual model identifies potentially concerning contaminants (including radionuclides), identifies ecological and human receptors potentially exposed to project activities, and identifies exposure pathways for the selected receptors for risk assessment. This conceptual model, based on the Quest Rare Minerals project, will need to be updated according to the planned activities for Torngat Metals.

No study on quality of life and psychosocial impacts had been conducted as part of the Quest Rare Minerals project. A comprehensive study on human health, on quality of life and psychosocial impacts will be conducted as part of the current project.

The first step will be to establish the baseline using available data. The baseline study will describe the determinants of health using indicators that identify the main characteristics of the environment in which the various components of the Torngat Metals project will be inserted. Various characteristics, and therefore determinants of health, belonging to several fields (individual characteristics, living environments, systems and infrastructure and the overall context) will be documented in the impact study as reference conditions. It should be noted that some of these characteristics have already been discussed in Section 15.2 (Socio-economic Conditions, Local Capacity Analysis, and Workforce Analysis). The characteristics/determinants of health that will be documented transversally during the impact assessment process include, but are not limited to: the health status of the population (overall health, physical health and psychological health); individual characteristics (socio-economic characteristics, lifestyle habits and behaviours, including the consumption of country food where applicable); living environments (family environment, workplace environment, local community); systems and infratructure (health and social services, employment support and social solidarity, housing); and the overall context (socio-economic context, demographic context, environmental context).

A health profile of the different Indigenous and non-Indigenous communities that may be affected by the current project will be realised based on a review of available literature. This portrait will at least include all determinants listed in the paragraph above. For instance, among others, the social and health services available and the state of supply and demand for these services will be characterized using the most up-to-date data available. Meetings and interviews with key informants from the affected communities wil also be conducted to gather additional information. Health profiles will be presented using GBA Plus, as well as CRGBA, in the case of Indigenous communities. This will make it possible to assess the health and social effects of the project, both positive and negative, as well as the impacts on Indigenous peoples and other population groups. Women, girls, young people, the elderly and people with different sexual identities experience development projects differently. GBA Plus and CRGBA will help identify and mitigate the negative effects of the proposed project on these different population groups.

Impacts on human health and quality of life, as well as psychosocial impacts will be assesed on those aspects of the determinants of health for which concerns will be expressed during Torngat Metals's information and consultation activities. This will enable to identify relevant issues and assess the impacts on these issues, concerns, perceptions, and potential consequences (reactions and actions) of the population regarding the project.

15.4 Archaeology

Two archaeological inventories were conducted at the proposed mining site in 2011 and 2012 as part of the Quest Rare Minerals project. A cache dating back to the Maritime Archaic period was found at the boundary of the B-Zone mineral deposit, approximately 500 meters from the shore and 63 meters above the level of Lake Brisson (site HbDb-b). It was anticipated that this structure could be affected by the final phase of the proposed mining plan for the project.Two other site (HbDb-3 and HbDa-1) were also discovered near Lake Brisson. These two sites were not dated. Further work will be necessary to ensure that the new configuration of the mining site does not affect any potential archaeological resources. Therefore, an archaeological reassessment will be carried out, which may lead to an on-site archaeological inventory in 2024 and, if necessary, in 2025. Additionally, an archaeological excavation will be required at the HbDb-b site identified in 2012-2013 within the B-Zone mineral deposit at the mining site.

Several known archaeological sites are located near or within the corridor identified in 2011-2013 for the construction of a road, and in the area identified for the implementation of the handling and storage facilities in Edwards Cove (Option A), including:

- HbCv-01, HbCv-06 et HbCv-07 north of the Kogaluk River;
- HcCo-01, HcCo-02, HcCo-03, HcCo-01, HcCo-05 et HbCm-02 along the Ikadlivik Brook;
- HcCm-20, HcCm-21, HcCm-22, HcCm-23, HcCm-24, HcCm-26 et HcCm-30 near Little Reid Brook;
- HcCm-6, HcCm-7, HcCm-8, HcCm-9, et HcCm-10 along Edwards Cove.

Inventories carried out in 2011-13 along the road corridor and around Edwards Cove in 2012 did not identify any new archaeological sites (AECOM, 2014). However, a reassessment of the sites extended the extent of two known sites, HcCm-08 and HcCm-20. As with the mine site, additional work will be required to ensure that the new configuration of the proposed road (Option A) will not impact potential archaeological resources. An archaeological reassessment will therefore have to be carried out, possibly leading to an archaeological inventory in the field in 2024 and, if necessary, in 2025.

Since Option C of the access road and the possibility of new port infrastructure in Voisey's Bay were not part of the Quest Rare Minerals' project in 2011-13, no field surveys had been carried out in the areas now affected by these alignments. However, a recent review of the archaeological situation and potential was carried out by AECOM (2024) within a 2.5 km wide corridor on either side of Option C of the access road. The area considered also included the area identified (and its surroundings) for the construction of new port facilities in Voisey's Bay. No known archaeological sites were found in the corridor of Option C of the access road, nor in the area identified for the establishment of new port facilities in Voisey's Bay. However, areas considered to have a high archaeological potential have been identified on the shores of the Konrad and Toma brooks bordering Option C of the road and within the proposed port facilities area. Areas of medium to high archaeological potential were also identified in various locations within or near the corridor identified for Option C of the access road, notably around Toma Brook and the lakes that feed it, near Core Hill, in the upper portion of the Konrad Brook valley, in the vicinity of Kokoluk Pond (particularly on the eskers), as well as around Makhavinekh Lake and its watershed. An archaeological field assessment should be carried out in 2024 and, if necessary, in 2025 in the area affected by Option C of the access road and the Voisey's Bay port facilities. This will determine whether any archaeological resources are likely to be affected by this project variant.

Since the establishment of a separation plant in Sept-Îles was not part of Quest Rare Minerals' project, no archaeological study has yet been carried out on the site planned for the implementation of this plant. According to *the Inventaire des sites archéologiques du Québec*, there are no known archaeological sites on the site identified for the separation plant. An archaeological assessment will be carried out in 2024 concerning the identified site for the implementation of the plant, which may lead to an on-site archaeological inventory in 2024 and, if necessary, in 2025.

15.5 Landscape

Landscape studies were conducted in 2012-2013 regarding the Quest Rare Minerals project. The study conducted for the proposed mining site indicated that it is characterized by open, sparse, stunted vegetation covering a series of hills and depressions, providing observers with a wide field of vision over a hilly topography with little human development. This is the case in most viewpoints, especially when navigating the eastern part of Lake Brisson. The study also indicated that this landscape was infrequently used and therefore considered to have moderate intrinsic value for both Indigenous and non-Indigenous users.

The study in the area of the proposed road (Options A and C) and the surroundings of Eward's Cove indicated that the landscape within the corridor identified at the time exhibited variable sensitivity to the development of new infrastructure. Thus, the westernmost portion of the corridor had low resistance, mainly due to its low capacity for absorption and its monotonous landscape, despite the open panoramic views. The central portion of the corridor could present moderate sensitivity if the road was built on the plateau (due to the moderate visual value of the landscape) or high sensitivity if it was constructed in the valley of the Ikadlivik River (due to the high visual value of

the landscape and its interest among the Indigenous communities in this area). Finally, the easternmost portion of the corridor (roughly near Little Reid Brook and near Edwards Cove) exhibited moderate sensitivity due to its high visual accessibility and the moderate visual value of the landscape.

Since the configuration of the various project components is different from those planned for the Quest Rare Minerals project, and since the use of the areas concerned and their surroundings may have changed since the last study, a new landscape study is planned as part of the present project. This landscape study will also include the site of the proposed rare earth separation plant in Sept-Îles. The landscape study will be conducted once the design studies are sufficiently advanced to identify the viewpoints potentially affected.

15.6 Areas of Interest

There are no known protected areas within or immediately near the areas affected by the various project components. The Kuururjuaq National Park, Ulittaniujalik National Park, and the Pyramides Mountains National Park Reserve, are all located more than 200 kilometers north of the proposed mining site. In Addition, the Rivière-George territorial reserve for protected area purposes is located about 30 kilometers west of the proposed mining site. With an average width of 40 kilometers, this territory stretches for approximately 350 kilometers along the George River.

Several protected areas are located close to the site of the proposed separation plant in Sept-Îles. The closest are in Sept-Îles Bay, less than 3 km south of the planned site. These are the Bay of Sept Îles 4 and 5 waterfowl areas, and the Marais-de-la-Baie-de-Sept-Îles protected area reserve. Three biological refuges (09451R042, 09451R044 and 09451R048) are located north of the proposed plant site, at 5.05, 6.25 and 8.15 km respectively. In addition, the proposed Moisie River Aquatic Reserve and the Rivière-Moisie Protected Area Reserve are located approximately 11 km east of the proposed plant site.

PART E – FEDERAL, PROVINCIAL, TERRITORIAL, INDIGENOUS AND MUNICIPAL INVOLVEMENT AND EFFECTS

16 Project Funding

Torngat Metals has received a private investment in 2022 to complete the pre-feasibility study (PFS), the bankable feasibility study (FS) and the impact assessment. The Strange Lake Project under Torngat Metals is not depending on government agency funding; federal nor provincial funding.

17 Federal Lands

No federal land is located within the territories concerned by the Strange Lake Project.

18 Implication of Jurisdictions in the Project's Assessment

Given its scope and the location of its various components in the province of Quebec both north and south of the 55th parallel, as well as in the province of Newfoundland and Labrador on the Labrador Inuit Settlement Area (LISA) and Labrador Inuit Lands (LIL), the Strange Lake Rare Earth Mining Project is subject to various environmental assessment processes governed by the laws of the federal government, the Nunatsiavut government, the Government of Newfoundland and Labrador and the Government of Quebec. All jurisdictions have divisions and/or departments that lead the analysis and authorization/licensing process. The main jurisdictions are described in more detail in the following subsections.

A single registration document, the "Initial Project Description (IPD) for the Strange Lake Rare Earths mining project", dated September 2023, has been submitted to the responsible authorities of the Federal Government, the Nunatsiavut Government and the Government of Newfoundland and Labrador to initiate the environmental assessment processes in these three jurisdictions. Article 19 (f)[7] and Part 10 of the *Regulations regarding the review of initiatives on Labrador Inuit Lands* of the Environmental Review Regulations (CSL E-4, 31-03-2017, original enactment NGSL 2012-07) concerns specifically the Reviews[8].

Separate registration documents, the "Preliminary Information on Strange Lake Rare Earth Mining Project" dated May 2023 and the "Avis de projet d'une usine de séparation et purification des terres rares à Sept-Îles" dated November 2023, have been submitted to the Quebec government to initiate the environmental assessment processes applicable north and south of the 55th parallel respectively.

The Proponent understands that permits will be required from all jurisdictions independently from the environmental assessment process.

18.1 Government of Canada (Federal)

In addition to the Impact Assessment Act, Torngat Metals will ensure compliance with various regulations. Therefore they will apply for permits and authorizations necessary for the construction and operation of the project. Table 18-1 is a preliminary list of federal permits or approvals that might have to be obtained.

[7] Information notice of initiatives and requests for Environment Division's advice 19. A proponent may give the Environment Division written notice of an initiative and request the Division's informal advice on whether or not the initiative: ((f): may be the subject of a project-specific harmonization agreement

[8] https://www.nunatsiavut.com/wp-content/uploads/2018/12/E-004-Environmental-Review-Regulations31-03-2017.pdf

Table 18-1: Preliminary List of Federal Permits and Authorizations

Federal Authorizations/permits	Regulation
License for the manufacture and storage of explosives	Explosives Act (Natural Resources Canada)
Permit for the transport of explosives	Explosives Act (Natural Resources Canada)
Permit to carry out an activity involving a species at risk	Species at Risk Act (DFO and ECCC)
Permit for Migratory Birds Regulations	Canadian Wildlife Service (CWS) and ECCC
Authorization to carry on the work, undertaking or activity that results in the harmful alteration, disruption, or destruction of fish habitat, in accordance with the conditions set out in the authorization (if required)	Fisheries Act (R.S.C., 1985, c. F-14), art 35
Amendment of Schedule 2 of the MDMER, to permit deposit of mine residues into a new tailing impoundment area (if required)	Metal and Diamond Mining Effluent Regulations (MDMER)
Construction of the airstrip/ aerodrome/heliport	Canadian Aviation Regulations and Standards (Transport Canada)
Approval for a work that may interfere with navigation (if required)	Canadian Navigable Waters Act
The licensed marine shipping company appointed by Torngat Metals will navigate according to the laws, standards, regulations, and restrictions in place.	Oceans Act; Navigation Protection Act Migratory Birds Convention Act; Marine Mammal Regulations Canada Shipping Act;

18.2 Nunatsiavut Government

This Registration document addresses the requirements of the Nunatsiavut Government (NG) under the *Nunatsiavut Environmental Protection Act* (CIL 31-12-2012 N-5)[9], the Labrador Inuit Land Claims Act and Labrador Inuit Land Claims Agreement, and their Regulations Regarding the Review of Initiatives on LIL, as well as according to the Environmental Assessment process in Labrador Inuit Settlement Area[10] (LISA) and outside Labrador Inuit Lands (LIL). The LIL comprises 23 chapters, some of which are applicable to the project.

It is important to understand that a single document has been produced to satisfy the requirements of all three levels of government (NG, Federal and NL) due to the collaborative context of this project under detailed impact assessment (Detailed Review Process) and the processes under Section 4.14 of the Nunatsiavut Environmental Protection Act (ref. Harmonization of Environmental Assessments)[11]:

This Document is in accordance with Section 5 elements of the *Regulations Regarding Environmental Reviews of Initiatives on LIL* pertaining to the Project Notice filing (sections 25 à 40).

As stated in the Labrador Inuit Land Claims Agreement on the subject of Environmental Assessment process on Labrador Inuit Lands, an Environmental Assessment must contain a description of the existing environment (11.2.10 (d)).

In addition to the application of the *Nunatsiavut Environmental Protection Act* permits and authorizations will have to be obtained. Table 18-2 provides a preliminary list of applicable permits and authorizations. The Nunatsiavut Government's register of laws and regulations is available on their website.

[9] https://www.nunatsiavut.com/wp-content/uploads/2021/06/CIL-31-12-2012-N-5-Nunatsiavut-Environmental-Protection-Act.pdf
[10] https://www.gov.nl.ca/exec/iar/files/lilca_impplan_ch11.pdf
[11] NG: Nunatsiavut Environmental Protection Act : https://www.nunatsiavut.com/wp-content/uploads/2021/06/CIL-31-12-2012-N-5-Nunatsiavut-Environmental-Protection-Act.pdf

Table 18-2: Preliminary List of Permits and Approvals for the Nunatsiavut Government

Provincial Authorizations/permits	Regulation
Nunatsiavut Environmental Protection Act IL 2010-07	Environmental Assessment Registration and Certificate of Approval
Building Accessibility Act	Building and Accessibility Exemption Registration
Nain Inuit Community Government	Development Permits
Nain Inuit Community Government Municipal Plan 2016-2026, 2016	Municipal Plan amendment
Nain Inuit Community Government Development Regulations	Building Permits

18.3 Québec Government

In Quebec, project components located north of the 55th parallel (mine, concentration plant, aerodrome and portion of road located in Quebec) are subject to a separate process from that applicable south of the 55th parallel (Sept-Îles Separation Plant).

18.3.1 Mining Project (North of the 55th parallel)

In terms of the environmental assessment procedure, in accordance with the terms set out in the James Bay and Northern Québec Agreement (JBNQA), Chapter II of the Environment Quality Act - *Loi sur l'environnement du Québec* (LQE) (L.R.Q, c. Q-2) provides specific provisions applicable to the northern regions of Québec. The applicable environmental assessment procedures are different in that representatives of the Indigenous communities living there are directly involved in the decision-making process.

The Strange Lake Rare Earth Mining Project (Strange Lake Project) is located north of the 55th parallel, a region for which the JBNQA created the Kativik Environmental Advisory Committee (KEAC). The KEAC oversees the application and administration of the environmental protection regimes provided for in the JBNQA. On the other hand, the preliminary assessment and review of projects are carried out by the Kativik Environmental Quality Commission (KEQC).

Appendices A and B of the *Environment Quality Act* and the JBNQA specify which development projects are compulsorily subject as well as those which are compulsorily excluded from the environmental impact assessment and review procedure of the Environmental and Social Impacts Study (ESIS) and review. Any mining project, including the expansion, transformation or modification of an existing mining operation and any access road to a locality or road infrastructure for a new project are automatically subject to this ESIS and the procedure assessment and review of the *Environment Quality Act* and the *Réglement relatif à l'évaluation et l'examen des impacts sur l'environnement de certains projets* - Regulation respecting the assessment and review of the environmental impacts of certain projects.

In the case of the Strange Lake Project, the procedure is led by the representative of the *ministère de l'Environnement et de la Lutte contre les Changements climatiques, de la Faune et des Parcs du Québec* (MELCCFP), i.e., the Industrial, Mining, Energy and Northern Projects Environmental Assessment Branch. For its part, the KEQC carries out the analysis and the evaluation.

In addition to the application of the *Environment Quality Act* permits and authorizations will have to be obtained. Table 18-3 provides a preliminary list of applicable permits and authorizations.

18.3.2 Separation Plant (Sept-Îles)

Chapter I of the Environment Quality Act defines the environmental impact assessment and review procedure that applies in the southern part of Quebec (south of the 55th parallel). Under the “Regulation respecting the environmental impact assessment and review of certain projects”, the construction of a rare earth separation plant is subject to this environmental impact assessment and review procedure, regardless of the plant's capacity.

In addition to the application of the Environmental Quality Act, permits and authorizations will have to be obtained such as for the North of the 55th parallel (see Table 18-3).

Table 18-3: Preliminary List of Permits and Approvals for the Quebec Government (North and South of the 55th parallel)

Provincial Authorizations/permits	Regulation
Ministerial authorization for the construction and operation of the mine	Environmental Quality Act (MELCCFP)
Specific authorization for the construction and operation of an industrial establishment or the use of an industrial process that could modify the quality of the environment	Environmental Quality Act (MELCCFP)
Authorization for any activity involving the withdrawal of groundwater or surface water (dewatering, keeping dry, water supply, etc.)	Environmental Quality Act (MELCCFP)
Authorization for water management or treatment facilities	Environmental Quality Act (MELCCFP)
	Regulation respecting the quality of drinking water
Specific authorization for any work, construction or other intervention in wetlands and hydric environments covered by the Act	Environmental Quality Act (MELCCFP)
Intervention permits for activities required for public utility work	Sustainable Forest Development Act - (MRNF)
Compensation plan	Act respecting compensation measures for projects affecting a wetland or water body
Authorization for devices or equipment intended to prevent, reduce or stop the release of contaminants into the atmosphere	Environmental Quality Act (MELCCFP)
Authorization for the establishment and operation of a waste disposal facility [N]	Environmental Quality Act (MELCCFP)
Industrial sanitation certificate	Environmental Quality Act (MELCCFP)
Authorization to carry out an activity likely to modify wildlife habitat	Faune Québec (MELCCFP) via Act Respecting Threatened or Vulnerable Species
Authorization to construct or upgrade a multi-use path [N]	Sustainable Forest Management Act [N]
Permits for use of high-risk petroleum storage equipment	Safety Code and Building Code. These codes are governed by the Building Act. Permit are delivered by Régie du Bâtiment du Québec.
Approval of the mine residue management sites (waste rock and mine residue stockpile areas) and of the concentration plant	Mining Act
Redevelopment and Restoration Plan Approval	Mining Act
Authorization to use public land	Crown Lands Act
Explosives permit [N]	Explosives Act [N]
Sûreté du Québec permit [N]	Explosives Act [N]

[N]: Only for northern project components (North of the 55th parallel)

18.4 Government of Newfoundland and Labrador

This Registration Document also complies with the provincial government of Newfoundland and Labrador (NL) under the *Environmental Protection Act* and the Environmental Assessment Regulations[12].

As dictated by the Environment Protection Act (EPA) of the province, an Environmental impact statement (EIS) or Environmental preview report (EPR) may be needed for the road corridor. A description of the local environment that will be affected by the project would then be needed.

According to the Newfoundland and Labrador Regulations[13] anyone who plans a project having a significant impact on the nature, social and economic environment is required to establish the Environmental Assessment (EA).

In addition to the application of the *Environmental Protection Act* permits and authorizations will have to be obtained. Table 18-4 provides a preliminary list of applicable permits and authorizations.

Table 18-4: Preliminary List of Permits and Approvals for the Government of Newfoundland and Labrador

Provincial Authorizations/permits	Regulation
Access/ haul road construction	Urban and Rural Planning Act (Urban Planning and Protected Road Regulations - Municipal and Provincial Affairs)
	Protected Road Zoning Regulations (Urban Planning and Protected Road Regulations - Municipal and Provincial Affairs)
Wood cutting	Forestry Act – cutting of timber (Forestry Act - Fisheries, Forestry and Agriculture)
Permit & registration of new Petroleum Product storage tank	Environmental Protection Act. Storage and Handling of Gasoline and Associated Products Regulations, 2003. Fire Prevention Act (Storage Tank is NL Environment and Climate Change)
Development in wetlands	Water resources Act (Development in Wetlands is NL ECC – WRMD)

[12] NL : Environmental Assessment. Guide to the Process https://www.gov.nl.ca/ecc/files/GUIDE-TO-THE-PROCESS_Jan-2023.pdf
[13] GUIDE-TO-THE-PROCESS_May-2022.pdf (gov.nl.ca)

PART F – MAIN ISSUES AND POTENTIAL EFFECTS OF THE PROJECT

19 Potential Changes to the Environment

19.1 Description of the Main Issues

The main environmental and social issues specific to the northern and Sept-Îles components of the Strange Lake Rare Earth Mining Project that can be identified at this preliminary stage of project development are summarized in Table 19-1 and detailed in the following paragraphs.

The completion of pre-feasibility and feasibility studies will make it possible to validate or clarify these various issues, and eventually to identify new ones.

During the environmental impact assessment, the potential effects will not only be addressed for the study area where modifications are planned but will also be made at a larger scale, at the level of an enlarged study area, for addressing appropriately the potential effects of the different ecosystems and communities that might be affected by the project and others through time (see Section 25 Cumulative effects).

Table 19-1: Key environmental issues of the Strange Lake mining project

Development, construction	Operation	Closure, restoration	Issues	Physical environment	Biological environment	Social environment
X	X	X	Protection of human health and quality of life in communities	X	X	X
X	X	X	Protection of biodiversity, both flora and fauna, especially species at risk		X	X
X	X	X	Preservation of the quality and ecological functions of receiving environments, notably wetlands, bodies of water and soils, including permafrost in the north	X	X	
X	X	X	Maintenance, access and conciliation of land use			X
X	X	X	Climate change and the balance of GHG emissions	X		
X	X	X	Social acceptability			X

19.1.1 Issue - Protection of Human Health and Quality of Life in Communities

The human health and quality of life of communities residing or active in the study areas of the various project components could be affected by the implementation of the different phases of the project, in particular with regard to:

- risks associated with the potential release of contaminants (metals, radioactive elements) into air, water or soil, and their movement through the ecosystem and food chain ;
- socio-economic impacts of the project ;
- psychosocial effects of the project.

More specifically, a rare earth mining project raises issues of toxicity and radioactivity of the contaminants generated by the different phases of the project. These concerns have been expressed in consultations conducted in the communities closest to the project in Québec and Labrador. In the north, specific concerns relate to the consequences of mining activities on the quality of water, air, soil, or plants and eventually on the traditional diet of these populations (berries, caribou, fish). In Sept-Îles, concerns could be raised about industrial wastewater discharges and atmospheric emissions from the plant, as well as their effect on the environment and inhabited areas. Moreover, the presence of radionuclides in process residues stored on land adjacent to the plant could also raise concerns, even if these elements are naturally occurring radioisotopes. Therefore, a Human Health and Environmental Risk Assessment (HHERA) will be an integral part of the impact study that will be conducted for this project. This HHERA will identify not only the contaminants of concern but also the ecological and human receptors potentially exposed to the project activities and to identify the exposure pathways of the receptors retained for the risk assessment. The references used for this HHERA are those of the *Centre d'Expertise en Analyse Environnementale du Québec* (CEAEQ) on radiotoxic risks and other applicable guidelines from Health Canada according to *Guidance for Evaluating Human Health Impacts in Environmental Assessment: country foods,* the *Guidance for Evaluating Human Health Impacts in Environmental Assessment: Radiological Impacts* (Health Canada, 2016) and current *Interim Guidance Document for the Health Impact Assessment of Designated Projects under the Impact Assessment Act,* Impact Assessment Agency of Canada through *Analyzing Health, Social and Economical Effects under the Impact Assessment Act,* and Environment Canada.

19.1.2 Issue - Protection of Biodiversity, both Flora and Fauna, Including Species at Risk and Species of Importance to Indigenous Communities

In the north, the project's integration environment is both rich and fragile in terms of biodiversity. It includes sensitive habitats for species valued by Indigenous communities occupying or using the land, such as the caribou and the Arctic char. Species at risk are also likely to be found in the northern study area. In Sept-Îles, the projected plant site is overlapping some drainage of the Au Foin River, where the presence of American eel and a spawning ground of rainbow smelt are reported. The presence of wetlands is also suspected on this site.

The protection of biodiversity therefore concerns:

- protection of sensitive habitats of fish communities (such as salmonids in the North and rainbow smelt in Sept-Îles), benthic organisms, aquatic plants, and species at risk ;
- maintaining migratory corridors for caribou, Arctic char, American eel, and migratory birds ;
- protection and preservation of the territory's wildlife and flora resources valued by inhabitants, in particular by the Indigenous groups concerned (notably caribou, Arctic char, etc.).

19.1.3 Issue - Preservation of the Quality and Ecological Functions of Receiving Environments, Notably Wetlands, Bodies of Water and Soils, Including Permafrost

Due to the location of the project's northern components in a territory characterized by numerous watercourses and the presence of permafrost, the project's integration environment has specific characteristics that must be taken into account and preserved as far as possible. In Sept-Îles, the projected plant site is overlapping patches of wetlands, and the drainage of the Au Foin River, which is a tributary of the Bay of Sept-Îles. It is also possible, during extreme weather events, that the final treated effluent of the separation plant may be discharged in the the Au Foin River, which provides freshwaters with varying feeding resources and minerals.

Therefore, particular attention must be paid to the following characteristics of receiving environments:

- hydrodynamic conditions (water and sedimentary regime, drainage) ;
- wetlands, aquatic and riparian environments ;
- soils, including permafrost in the north that may be affected by the excavation of a pit at the mine site and along the road corridor.

19.1.4 Issue - Maintenance and Conciliation of Land Uses in the North

The possible disruption of land and resources use during the various phases of the project is a major issue for the project's northern components. Indeed, the northern areas where the mine, the road and the port storage area will be inserted is used by various Indigenous communities and potentially by Indigenous and non-Indigenous businesses. Maintaining access to the territory and reconciling current and planned uses is therefore an important issue for the project.

19.1.5 Issue - Climate Change and the Balance of GHG Emissions

The purpose of the project is to exploit resources that are essential to the transition of the economy to renewable energy. Indeed, the main rare earth elements targeted by the exploitation will improve energy performance both during the production of electricity (e.g., wind energy) and during the use of electrical energy (e.g., motors). In this sense, the project aims to contribute to the fight against climate change. Nevertheless, the balance of GHG emissions of each phase of the project, the strategies for reducing these emissions and their possible offsetting are important issues.

As a large part of the project is carried out in a northern territory particularly sensitive to climate change, the risks arising from these climate changes on the implementation of the various phases of the project also constitute a significant issue.

19.1.6 Issue - Social Acceptability

In accordance with the principles of sustainable development, social acceptability is an essential condition for the realization of any project likely to impact the biophysical and human environments. In the case of the Strange Lake Rare Earth Mining Project, acceptance of the project by the Indigenous and non-Indigenous communities directly affected will be particularly important, both in northern and Sept-Îles areas.

19.1.7 Taking into Account Environmental and Social Issues in Project Design

The nature and intensity of anticipated positive and negative impacts of the project on the receiving environment are largely associated with the characteristics of the project components, and therefore on their design. The following is a summary of the project phases and key activities of the Strange Lake Project which can be source of impacts (see details in Section 9):

- **Northern project components:**
  - **Development phase (preliminary work) and construction:** installation of temporary facilities (camp, road), site preparation, fuel storage area, use and movement of machinery, road construction and infrastructure and establishment of the mine residue stockpile and other mining materials stockpiles (stripping, excavation, grading, backfilling), water supply network, drainage of runoff water, mine water, domestic wastewater, etc. ;
  - **Operational phase (30-year operation):** transportation and processing of concentrate, presence, and use of related infrastructure (plant, etc.), presence of workers (living environment and travel), waste management;
  - **Closure and restoration phase**: closure of the mine site, appropriate remediation activities (progressive dismantling of project infrastructure; heavy equipment traffic, mobile and stationary equipment, materials; presence of workers (living environment and travel).
- **Sept-Îles project components:**
  - **Development phase (preliminary work) and construction:** site preparation, use and movement of machinery, rail siding / access road construction and infrastructure, establishment of the process residue stockpile (stripping, excavation, grading, backfilling), construction of plant and associated facilities, including industrial wastewater treatment plant, etc. ;

- **Operational phase (30-year operation):** transportation of concentrate from the port terminal to the plant, operation of the plant, wastewater and air emission treatment, residue management ; presence of workers;
- **Closure and restoration phase**: Closure of the plant and of the residue stockpile, appropriate remediation activities.

The potential environmental and social issues associated with these activities will be taken into account from the earliest stages of project design (pre-feasibility, feasibly) right through to detailed design, in order to eliminate or reduce potential impacts at source as much as possible, as well as to enhance the positive impacts.

19.2 Description of the Main Anticipated Impacts of the Project on the Receiving Environment, Planned Mitigation or Restoration Measures

The main apprehended impacts of the project on the receiving environment were considered by assessing the potential Valued Ecosystem Components (VECs) and analyzing the potential interactions with the project. The following list presents the most relevant criteria for the selection of potential VECs:

- the recognition of the importance of a component through legislation, regulation or policy;
- the sensitivity or vulnerability of the component;
- the uniqueness or rarity of the component;
- the sustainability (durability) of the component or ecosystem;
- the value or importance assigned to the resource by stakeholders;
- the risks to health, safety or well-being of the public;
- the ecosystem characteristics, both of the northern environment (beyond the forest line and in the presence of discontinuous permafrost) and of the Sept-Îles environment.

The VECs are selected while taking into consideration the above-mentioned criteria, which include the potential interactions with the project, presence within the spatial boundaries, Indigenous interests or rights, and priorities of the federal, provincial, territorial or municipal governments.

19.2.1 Construction and Operiational Phases

Here are some of the main activities likely to impact the receiving environment during each phase of the project:

Development and construction phase:

- Construction of the access road (and development of watercourse crossings)
- Mine site preparation (stripping, excavation, grading, backfilling, development of drainage systems, etc.)
- Circulation of heavy machinery
- Construction and development of industrial facilities and their buildings
- Construction of residue storage facility

Operational phase:

- Excavation of the pit and transportation of the mineral resource
- Treatment and concentration of the mineral resource by physical processes
- transportation by truck from the mine to the port
- Transport by ship from and to Sept-Îles Port
- Presence of workers
- Residue management

Closure and restoration phase:

- Progressive dismantling activities of the project infrastructures
- Site restoration
- Movement of heavy machinery, mobile and fixed equipment, materials
- Presence of workers (living environment and travel)

The various impacts anticipated on the receiving environment were divided into the four environmental components: physical environment, biological environment, marine environment and social environment. For each of these impacts, numerous mitigation measures were identified. This section will show the main mitigation measures for each impact. For a complete list of mitigation measures presented for each component and each phase of the project, see chapter 19 of the DPD.

19.2.1.1 Physical Environment

Six impacts were associated with the physical environment :

- Greenhouse gases (GHGs): sources of emissions associated with fossil fuels and, other sources of GHGs (e.g., explosives, refrigerants, etc.).
- Air quality: sources of atmospheric emissions (dust - particulate material, metallic dust, volatile organic compounds (VOCs), radioactive elements from the deposit, gases (CO_2, NOx, SO_2). At the mine site, it should be noted that considering the proximity of the site to the provincial border, the study area will cover the areas potentially impacted on the Newfoundland and Labrador side
- Acoustic environment: noise level and vibrations: blasting, use of machinery, equipment.
- Soil quality: soil disturbance caused by stripping, blasting, excavation, risk of contamination due to accidental spills, soil subsidence.
- Water and sediment regime: modification of surface water flow patterns, water regime, possible increase in erosion and sediment transport in watercourses, sediment transport when breaches are opened), sanitary wastewater discharge and potential contact water discharge.
- Water and sediment quality: potential detour of watercourses, erosion, risk of spills affecting the aquatic environment or groundwater, risk of increased suspended matter (SM).

The main mitigation measures for each of the six impacts mentioned above are listed below:

- Greenhouse gases (GHGs):
  - Establish a procedure for shutting down heavy vehicles when they are not in use.
  - Evaluate the feasibility of using renewable energy (e.g., solar, wind) to decarbonize the energy supply of operations and implement the best available solutions.
  - Study the feasibility and implement the best technologies for carbon capture and sequestration, such as carbon dioxide mineralization and revegetation of residue stockpiles.
  - Develop and implement a carbon management plan to reduce GHGs and eventually achieve net-zero goals by 2050, with a focus on renewable energy sources and non-fossil fuel transportation. In particular, promote air transport by airship instead of road transport, as soon as technically and economically feasible and approved by the authorities.

- Air quality:
  - Apply dust control measures according to the conditions (meteorology) and development activities that have an impact on dust generation (e.g., construction of seasonal access roads).
  - Use air treatment equipment to reduce dust emissions from industrial process equipment (mills, crushers, conveyors, furnace, etc.) or transportation.
  - Promote the use of low-emission (e.g., fuel-efficient) and zero-emission machinery and vehicles, according to the latest Environment and Climate Change Canada (ECCC) standards for on- and off-road vehicles.
  - Evaluate the feasibility of using renewable energy (e.g., solar, wind) to decarbonize the energy supply of operations and implement the best available solutions.
- Acoustic environment:
  - Use light vehicles that have effective mufflers to reduce noise level at the source.
  - Use sound barriers (e.g., walls, fences, soundproofing mound) around construction sites to limit the propagation of noise to sensitive receptors.
  - Develop and implement management plans for ambient noise according to the Best Available Technology (BAT) approach, while adhering to legal and regulatory requirements.
  - Carry out and update atmospheric and acoustic modelling to confirm compliance with provincial regulations at the property boundary (air quality) and at the surrounding sensitive receptors' location (noise, vibrations, etc.).
- Soil quality:
  - Construction of major infrastructure with measures to prevent thawing of permafrost
  - Conduct preventive inspections of fuel storage areas and make an emergency hydrocarbon and hazardous materials recovery kit available in machinery, vehicles and site facilities.
  - Dispose of excavated material in a manner that minimizes the dispersion of suspended matter.
  - Temporary mineral resource storage areas shall be constructed on a compacted gravel base surrounded by a collection ditch.
- Water and sediment regime:
  - Install a geomembrane downstream of crossings and around work areas to intercept SM particles, use culverts of sufficient size so as not to significantly narrow the flow sections at crossing points, prevent the transport of fine particles during work by installing sediment barriers around the edges of aquatic environments.
  - Develop and implement management plans for liquid effluents, mine and process residual materials, air emissions and ambient noise according to the Best Available Technology (BAT) approach, while respecting legal and regulatory requirements.
  - Optimize and control processes to maximize water reuse, reduce freshwater inputs and minimize discharges.
  - Locate parking, washing and maintenance areas for machinery at least 60 m from any watercourse. Refuelling of machinery shall be carried out under constant supervision and at a minimum distance of 30 m from a watercourse.

- Water and sediment quality:
  - Develop and implement management plans for liquid effluents, mine and process residual materials, air emissions and ambient noise according to the Best Available Technology (BAT) approach, while respecting legal and regulatory requirements.
  - Optimize and control processes to maximize water reuse, reduce freshwater inputs and minimize discharges.
  - Dispose of excavated material in a manner that minimizes the dispersion of suspended matter.
  - Temporary mineral resource storage areas shall be constructed on a compacted gravel base surrounded by a collection ditch.

19.2.1.2 Biological Environment

Five impacts were associated with the biological environment:

- Vegetation and wetlands: loss, fragmentation and degradation of terrestrial wildlife and plant habitats, deterioration and alteration of ecological functions of terrestrial habitats, wetlands and water bodies, potential input of contaminants into terrestrial and aquatic habitats (e.g., dust deposition on vegetation and in waterbodies);
- Aquatic fauna (benthos, fish, aquatic plants) and their habitats: permanent or temporary loss of aquatic habitats, modification of water and sediment quality (inputs to the aquatic environment), degradation of fish habitat, possible modification of aquatic communities, impediments to the free movement of fish, detour of waterways at the mine site, and water crossings along the access road (mine site, road corridor);
- Migratory and non-migratory birds: Loss of bird habitat, noise disturbance to breeding pairs, broods and migratory birds, potential nest destruction and risk of nest abandonment;
- Caribou: potential habitat loss, noise disturbance, disturbance linked to human presence and activities, dust deposits on vegetation and habitat quality, barrier effect on migration ;
- Fauna and flora species at risk: Potential loss of habitat or degradation due to the infrastructure footprint, dust/trampling, and noise disturbance.

The main mitigation measures for each of the five impacts mentioned above are listed below:

- Vegetation and wetlands:
  - Fencing to limit circulation outside of working areas.
  - Installing culverts in a manner that does not impede the flow of water.
  - Prohibit fording of streams (intermittent and permanent).
  - Avoid movement of any vehicle or construction equipment within 20 m of a permanent watercourse or 5 m of an intermittent watercourse and, if such movement is necessary, divert water flowing in ruts to a vegetated area at least 20 m from a watercourse.
- Aquatic fauna (benthos, fish, aquatic plants) and their habitats:
  - Localisation and preservation of all species sensitive habitats, including spawning grounds and rearing habitats for salmonids (Arctic char, Atlantic salmon, brook trout, lake trout).
  - Providing safe passage for fish for altered water bodies.
  - Install a geomembrane downstream of crossings and around work areas to intercept SM particles, use culverts of sufficient size so as not to significantly narrow the flow sections at crossing points, prevent the transport of fine particles during work by installing sediment barriers around the edges of aquatic environments.
  - Submit a Compensation Plan for fish and fish habitats if residual impacts cannot be mitigated at the planning phase.

- Migratory and non-migratory birds:
  - Avoid any tree and brush cutting and circulation on undisturbed soil during nesting period.
  - Light sources facing downwards.
  - Use of green light sources.
  - If new working areas are required, proceed to nest searches and avoid disturbing nesting areas before fledging if active nests found.
- Caribou:
  - Modify the shoulders of the road along migration paths so that caribou can easily cross over.
  - Adjust traffic level during spring and fall migration of caribou along the road to minimize disturbance.
  - Prohibit all movement of equipment and people towards caribou observed within approximately 250 m of work sites or road access.
  - Suspend noise activities (such as blasting) when a caribou is observed within 1 km, and drilling/crushing if a female with a calf is observed within 1 km. Wait 30 minutes before resuming suspended activities.
- Fauna and flora species at risk:
  - The mesures put in place for the other biological componants are also adequate for species at risk.

19.2.1.3 Marine Environment

The impacts associated with the marine shipping component of the Strange Lake Project are expected to be negligible as the annual number of transport vessels planned is between 5 and 10. Nevertheless, there are potential incidental risks and cumulative effects associated with marine transport that could have an impact on the marine environment. The known risks associated with ship movements on the marine environment are essentially:

- Noise disturbance: ship noise has been observed to mask the acoustic environment of fish species and affect the behavior of fish and marine mammals and may cause avoidance or attraction of certain species. Underwater noise can mask the auditory range of whales, diminishing their ability to perceive sounds in their environment.
- A source of pollution and a pathway for the introduction of invasive species: ballast water discharge can contain organisms, bacteria and various effluents present in the ballast from the water source. Ballast water can be a pathway for the introduction of invasive species, when not treated with an approved method, especially if the ship comes from overseas.
- Hydrocarbon spill: an oil spill is the main accidental event likely to affect marine mammals and seabirds, in particular. Seals and whales can be exposed to an oil spill either directly or by feeding on oiled prey. In most cases, they can avoid a spill. Harbour seals are the most vulnerable marine mammals, as they are the most likely to run aground on coastlines that could be contaminated by oil.
- Concentrate spill (failure of the container handling system or loss during transport): marine environment may be contaminated by metals at the location of the spill.
- Collision with marine mammals: Collisions occur primarily at high speeds when marine mammals are less alert, such as during surface resting, feeding, nursing, or breeding. Collisions with whales, seals and other marine mammals can lead to mortality. In fish, flight behaviour would enable them to avoid areas close to noise sources.

The mitigation measures associated with the marine shipping component of the Strange Lake Project are:

- The transport ship, if possible, would be fitted with propellers designed to reduce cavitation to minimize noise during travel.
- Speed reduction in bays will reduce the intensity and propagation of noise in the water and reduce risks of collisions (up-to-date Notices to Mariners will be followed) (Collisions occur primarily at high speeds when marine mammals are less alert, such as during surface resting, feeding, nursing, or breeding. Echolocation and communication between individuals are primarily affected by underwater noise).
- Required procedures for ballast water discharge /exchange will be followed (include mid-ocean ballast water exchange, and ballast water approved treatments).
- Distribution infrastructures and reservoirs will be designed in accordance with existing standards (including those of the American Petroleum Institute (API)) to reduce the risk of oil spills.
- An emergency plan will be put in place based on "worst-case" fuel spill scenarios.
- Vigorous standards will be applied to minimize the risk of spills into the environment.

19.2.1.4 Social Environment

The impacts of the Strange Lake Project on the social environment will be identified as part of the environmental assessment process. However, based on the information available, four impacts were associated with the social environment :

- Quality of life and human health: concerns and potential impacts of the Strange Lake Project on quality of life and human health in local and regional communities (such as reduced access to traditional food, contamination or fear of contamination).
- Social and economic aspects: socio-economic impacts of the project on local and regional communities (such as possible tensions, job creation, labour shortage, possible issues for the workers hired by the project and their families (fly-in fly-out at the mine site and at the separation plant), contracts for local and regional companies; housing scarcity and rising rental costs in Sept-Îles due to the arrival of outside workers).
- Cultural heritage: the potential disturbance of archeological resources.
- Land use: disturbance of the current use of the land and resources by Indigenous peoples and the general population, disruption of the components and resources of the land valued by the various stakeholders, particularly those valued by Indigenous groups (notably caribou, arctic charr and water quality in George River and Ikadlivik Brook, Konrad Brook and Kogaluk Brook), modification of the landscape (visual degradation).

The main mitigation measures for each of the four impacts mentioned above are listed below:

- Quality of life and human health:
  - Inform local and regional communities (Indigenous and non-Indigenous communities affected by the project) of the work schedule for both phases, and of potential risks to users. Throughout both phases, maintain contact with local and regional community authorities to enable them to identify any problems related to the use of the land by their population.
  - Inform Indigenous and non-Indigenous businesses and organizations (outfitters, adventure tourism businesses, protected area managers, etc.) of the work schedule and potential risks to users during both phases. Maintain contact with these people throughout the phases to enable them to identify potential problems related to their use of the territory.
  - Install signs indicating the presence of work zones close to travel routes, to inform users likely to travel there or engage in activities in the vicinity.
  - Fencing off work areas

- Maintain accessibility in areas not under construction.
- In the event of temporary or permanent traffic restrictions on travel routes used by local and regional populations, plan bypass or new safe routes in conjunction with Indigenous communities' authorities or other relevant stakeholders. Inform the population concerned of these alternative or new routes.
- Fund and support programs to promote healthy eating in communities.
- Plan for site restoration after development and construction phases.
- Implement an environmental monitoring program to ensure that mitigation measures are adhered to during both phases of the project.

- Social and economic aspects:
  - Preferential hiring of workers from local or regional communities, particularly within the indigenous communities concerned.
  - Implement proactive programs to increase the participation of women and community members in the workforce.
  - Give preference to local or regional companies that are competent to carry out the tasks requested in the call for tenders, before approaching companies based elsewhere in Quebec, Labrador or abroad.
  - Training of all Torngat employees, at all sites, to understand the cultures, history and strengths of Indigenous communities, in keeping with Torngat's values and objectives, while respecting the recommendations of the Truth and Reconciliation Commission.
  - Collaborate with local stakeholder to increase local infrastructure capacity, particularly in terms of housing.
- Cultural heritage:
  - Take appropriate measures to avoid disturbing known archaeological resources.
  - If archaeological remains are discovered, work must be halted, measures taken to protect the site, and the appropriate authorities informed.
- Land use:
  - Regularly inform workers of the potential presence of users in the area concerned, particularly along the travel routes used.
  - Implement measures to limit the impact of marine shipping on the activities (commercial, recreational, cultural, traditional, etc.) of Indigenous and non-Indigenous users in the bays concerned.
  - Restrict machinery traffic to work areas.
  - Avoid implementing measures to facilitate wildlife harvesting activities by on-site workers throughout both phases of the project.

19.2.2 Closure and Restoration Phase

19.2.2.1 Activities Likely to Impact Receiving Environment

At the mine site and at the separation plant, the main activities likely to have impacts on the receiving environment during this phase of the project will be:

- Progressive dismantling activities of the project infrastructures
- Site restoration
- Movement of heavy machinery, mobile and fixed equipment, materials
- Presence of workers (living environment and travel)

The restoration phase aims at restoring the site to its natural state and will mainly generate positive impacts on the receiving environment. The work that will be carried out during this phase will be like similar to the development and construction phases; the sources of impacts and mitigation measures will therefore be similar, with the exception that the vehicles and machinery used at this time should be mostly, if not entirely, of the zero-emission type (post-2050).

In addition, this work will aim to rehabilitate the receiving environment as well as the functions of the biophysical and social environments, i.e., air, soil, water and sediment quality, wildlife and plant habitats (plant recovery, end of disturbance), occupations and uses that prevailed before the project. However, socio-economic impacts resulting from the loss of jobs will require the implementation of relocation measures and support for the demobilized workforce.

Access road: after the mine restoration and rehabilitation phases, should the communities request it, the road might be either given to the communities for providing better access to their territories, or used as a basis for a future public road. If the reusing or upgrading of the road is not desired, the road corridor would be subject to restoration to its natural state.

Container storage and handling facilities (Vale's Port or Voisey's Bay Port): after the mine restoration and rehabilitation phases, this area could be transferred to the port operator or dismantled and restored, depending on the result of consultations with local communities.

19.2.2.2 Physical, Biological and Social Environments

The impacts and mitigation measures associated with this closure and restoration phase are generally similar to those of the construction phase.

19.2.3 Environmental Monitoring and Follow-Up programs

In parallel with the application of specific and general mitigation measures, the development of rigorous environmental surveillance and monitoring programs will make it possible to reduce the apprehended negative impacts of the project. In addition, the implementation of mitigation measures will make it possible to limit the disturbances.

Furthermore, additional studies during the development and construction phases and continuously during the operational phase will make it possible to identify and apply appropriate mitigation measures to adequately protect the sensitive components of the receiving environment (physical, biological, social). Finally, the consultations already initiated and those that will follow will make it possible to adequately consider the concerns of the Indigenous communities.

20 Potential Changes to the Environment (federal lands, other provinces or land)

The Strange Lake Project's mine site and separation plant will be located in Québec, while the seasonal access linking the mine site to port facilities will stretches from Quebec to the coast of Labrador, possibly crossing Labrador Inuit Land[14].

Effluent from the mine site in Quebec will not reach Newfoundland and Labrador. However, air emissions from the mine site may reach Newfoundland and Labrador due to proximity. Monitoring of various parameters, including contaminants, is necessary. Prevailing winds from the southwest were observed from 2011 to 2014, with new data to confirm wind direction and intensity. A sampling campaign in 2025 will establish contaminant concentrations. Potential impacts from the mine site over Labrador also include noise, vibration, as well as perturbation of animals and vegetal species, many of which, like the caribou, are important to Indigenous groups. In this regard, the construction and operation of the mine site in Quebec could result in reduced access to certain resources valued by Indigenous groups on territories they frequent near the mine site in Labrador. The presence of the mine site could also lead to a reduction of the frequentation to these same territories due to fears (proven or not) of contamination of the resources present there. Other trans-provincial socio-economic effects of the project also include job creation and contracts opportunities both in Québec and Labrador, but also impacts on workers and their families (due to the fly-in fly-out schedule) as well as tensions within communities (Indigenous and non Indigenous) concerning the project. Safety issues and lay offs post-closure are additional concerns. Overall, the project may have various environmental and social impacts on the local and regional communities and ecosystems.

Concerning the construction and the operation of the seasonal access road, it may impact soil quality, especially in the north where permafrost could be affected, leading to a risk of contamination from accidental spills. Water quality could also be affected by spills and quarries along the road, prompting thorough inventories of wetlands, watercourses, and bodies of water to document potential impacts. Air quality may be impacted by the transport of concentrates on the access road, which could have an effect both in Québec and Labrador. The construction and operation of the road could also disturb the acoustical environment, affecting the peace and quietness the areas crossed and potentially disturbing animal species, such as caribou and birds. Collisions with wildlife could also be an issue. As with the mine site, the construction and operation of the road could then contribute to a decrease in the use of certain areas by Indigenous groups (from both Quebec and Labrador), or to a decrease in the consumption of resources found there, thus limiting access to traditional foods. Visual disturbances caused by the presence of the road in the landscape and increased ease of access to the area due to the presence of the road are also issues to consider.

Impacts generated by the construction and operation of port facilities will mainly be felt in Labrador. However, socio-economic impacts similar to those generated by the construction and operation of the mine site could also occur in Quebec as well as in Newfoundland and Labrador for both indigenous and non idigenous communities.

The transport of concentrate to Sept-Îles will follow established marine shipping routes for similar vessels and comply with regulations. The number of vessels related to this project could be up to 15 (concentrate/container ships + fuel/tanker ships) per year, in addition to current maritime traffic, which represents about 3 to 4.5% of the total annual maritime traffic along the Labrador coast, and approximately 0.3% of annual maritime traffic along the St. Lawrence River (see section 9.4.2). If shipping is made from new port facilities in Voisey's Bay, this will require an environmental assessment for a new maritime route. Possible environmental impacts are related to water quality, such as invasive species from ballast water and oil contamination, as well the effect on marine fauna (such as the effect of ship noise, and the risk of collision). Impacts of marine shipping on commercial and traditional fisheries both along the coast of Labrador and Québec are also to be considered.

[14] Two road options (Option A and Option C) were chosen for further study, both ending on the eastern coast of Labrador.

All potential changes to the environment will be addressed on a large-scale study area and will be comprehensively detailed in the ESIA, including the mitigation measures and the environmental monitoring and follow-up programs for each phase of the project, accordingly, to reduce the significance of the adverse effects of the project. Both analysis and identification of mitigation measures will be carried out in collaboration with all parties implicated in the conservation of the protected areas

21 Anticipated Changes and Impacts on Indigenous Communities - Physical and Cultural Heritage, Use of Lands and Resources, Historical, Archaeological Significance

Since the Strange Lake Project has not yet been the subject of an impact assessment, its effects on Indigenous communities are not yet clearly defined. However, based on available data and experience from previous studies, certain potential impacts can be expected. Development, construction, operational, as well as closure and restoration phases might have different impacts on the social environment. For the mining site, the road corridor and the storage and handling / port facilities, most of these impacts would be felt by the Indigenous groups: the Nunavik Inuit (mainly from the communities of Kangigsualujjuaq and Kuujjuaq), the Naskapi Nation of Kawawachikamach (the community of Kawawachikamach), the Quebec Innu (mainly the communities of Matimekush - Lac John but also Uashat mak Mani-utenam), the Nunatsiavut Inuit (communities of Nain, Hopedale, Makkovik, Rigolet and Postville) and the Labrador Innu (communities of Sheshatshiu and Natuashish). For the construction of a separation plant in Sept-Îles, changes and impacts would be felt by the Innu of Uashat mak Mani-utenam.

The construction of the various components of the project could potentially impact the cultural heritage and could potentially destroy archaeological sites present in the affected areas. Similar effects on archaeological resources could also occur during the operation of the mining site (mineral resource excavation) and of the seasonal road (borrow pit mining). That will most probably be the case concerning the HbDb-b site, which is located within the B-Zone mineral deposit, where an archaeological excavation is planned for 2024-2025. Appart to that excavation, the same mitigation measures as those mentioned in Section 19.2 concerning archaeological resources could be applied in response to the impacts apprehended.

The different phases of the project could also cause a disruption of the current and projected use of the land and resources by Indigenous people. According to information obtained during the study conducted in 2012-2013, Indigenous land users are frequenting the area of the proposed mine site and its surroundings, as well as areas crossed by or located near the proposed seasonal road and along Edwards Cove / Voisey's Bay port facilities[15] .

In addition, the surroundings of the industrial port zone of Sept-Îles are likely to be used by Innu from Uashat mak Mani-utenam. It is therefore possible that the noise, dust and vibrations produced by the various works carried out as part of the preparation and construction phase, during the operation phase, and during the closure and restoration phase, could be perceived by Indigenous users, resulting in a disturbance of the peace and quietness of the site for them, as well as a potential deterioration in the practice of certain activities such as hunting. It is also possible that the noise, dust and vibrations produced during the various phases of the project could affect the resources (animals and plants) exploited and/or valued by Indigenous users, which again could adversely affect the practice of certain traditional activities, such as hunting, fishing, trapping or gathering. In this regard, it should be noted that concerns related to the effects of the project, but also to the effects of the field studies conducted as part of the ESIA process, have been raised by the various Indigenous groups concerned (in particular by the Naskapi Nation of Kawawachikamach) and taken into account by Torngat Metals and AECOM. It is also possible that Indigenous groups may reduce or even stop practising certain traditional activities because of fears of resource contamination (proven or not) linked to the project. It is also possible that access to certain areas could be restricted or interrupted as a result of the work carried out during the various phases of the project. This could have an impact on Indigenous users whose traffic routes and/or activity areas cross or are located within the affected areas. Safety issues (risk of collisions/accidents during the various phase of the project) could also be raised for these same users. In addition, Indigenous land users frequenting the surroundings of the proposed mining site, seasonal road, handling and storage facilities in Edwards Cove / Voisey's Bay port facilities and process and separation plant in Sept-Îles will be able to see these new elements, which could lead to a visual disturbance of the landscape during construction and operation phases.

[15] As indicated in section 15.1, a new study on land use and Indigenous Knowledge will need to be carried out to update the information gathered in 2012-2013.

Once again, the same mitigation measures as those mentioned in Section 19.2 concerning land and resource use could be applied to limit the impacts apprehended. Additional mitigation measures may also be defined at the time of the impact assessment, in conjunction with the Indigenous communities concerned, based on their expectations and concerns regarding the proposed project.

Table 21-1 lists the potential impacts of the proposed project on Indigenous communities concerning physical and cultural heritage, as well asuses of land and ressources. This list is based on the different phases of the project.

Table 21-1: List of Anticipated Changes and Impacts on Indigenous Communities - Physical and Cultural Heritage, Use of Lands and Resources

Preparation and construction phases
Potential destruction or alteration of archaeological sites during construction of the various components of the proposed mine site, the seasonal access road, the handling and storage facilities at Edwards Cove / Voisey's Bay port facilities, and the rare earth separation plant in Sept-Îles.
Disruption of the current and projected land and resources use by Indigenous people • Disturbance of the peace and quietness of used sites / areas (noise, vibration, dust); • Deterioration in the practice of certain activities due to the impact on used and valued ressources; • Interruption of access to certain areas used for activities • Circulation interruption on traffic routes routes (i.e. Snowmobile/ATV trails, navigation routes, etc.) intersecting with or located within the affected areas • Reduction or cessation of certain activities in or near the areas affected by the project due to concerns about resource contamination(proven or not) associated with the project. • Safety issues (risk of collisions/accidents).
Visual disturbance of the landscape
Operation phase
Potential destruction or alteration of archaeological sites present in on the mining site (mineral resource excavation)
Disruption of the current and projected land and resources use by Indigenous people • Disturbance of the peace and quietness of used sites / areas (noise, vibration, dust); • Deterioration in the practice of certain activities due to the impact on used and valued ressources; • Interruption of access to certain areas used for activities • Circulation interruption on traffic routes routes (i.e. Snowmobile/ATV trails, navigation routes, etc.) intersecting with or located within the affected areas • Reduction or cessation of certain activities in or near the areas affected by the project due to concerns about resource contamination(proven or not) associated with the project. • Safety issues (risk of collisions/accidents).
Visual disturbance of the landscape
Active Closure and restoration phase
Disruption of the current and projected land and resources use by Indigenous people • Disturbance of the peace and quietness of used sites / areas (noise, vibration, duss); • Deterioration in the practice of certain activities due to the impact on used and valued ressources; • Interruption of access to certain areas used for activities • Circulation interruption on traffic routes routes (i.e. Snowmobile/ATV trails, navigation routes, etc.) intersecting with or located within the affected areas • Reduction or cessation of certain activities in or near the areas affected by the project due to concerns about resource contamination(proven or not) associated with the project. • Safety issues (risk of collisions/accidents).

As mentioned and described in Section 15, appropriate studies will be conducted to assess the project's effect on the cultural and historical heritage of Indigenous communities, as well as on their land use and the resources they value. To date, the following communities have been identified for these studies :

- Nunavik Inuit : Kuujjuaq and Kangiqsulujjuaq;
- Naskapi Nation : Kawawachikamach;
- Quebec Innu : Matimekush – Lac-John and Uashat mak Mani-utenam;
- Nunatsiavut Inuit : Nain, Hopedale, Makkovik, Postville and Rigolet;
- Labrador Innu: Sheshatshiu and Natuashish;

22 Anticipated Changes and Impacts on Indigenous Communities – Health, Social or Economic Conditions

Potential impacts on Indigenous communities are not only limited to the traditional activities performed on the land but are also including impacts on socio-economic conditions, human health and quality of life among Indigenous communities. For instance, contracts could be awarded to Indigenous businesses as part of the various phases of the proposed project. Business partnerships could also be created between the proponent and Indigenous businesses, communities or groups. In addition, jobs (direct and indirect) could be created in the various Indigenous communities affected by the project, both in Quebec and in Labrador[16]. All of this could contribute to improving economic conditions in the communities concerned. However, the creation of new jobs and the influx of capital could also have negative socio-economic effects. One example is the worsening of the labour shortage that some communities are currently experiencing. Furthermore, some Indigenous workers hired as part of the proposed project will have to move away from home during their work periods (fly-in fly-out), including those who will be working at the mine site or the Edwards Cove handling and storage facility / Voisey Bay port facilities and who will be housed on site in a workers' camp. This situation could lead to changes in living conditions and habits for these workers and their families. In particular, workers will have to adapt to a new living environment and the distance from their community. Families, for their part, will have to cope with the prolonged absence of workers. A better income can also exacerbate certain problems already present among workers and their families, such as drug and/or alcohol abuse, or gambling problems.

There may also be impacts on health and quality of life, particularly in terms of access to quality food. Admittedly, by having a better income, the families of workers employed on the project could benefit from greater purchasing power, making it easier for them to buy quality food. However, for many northern communities like those involved in the present project, quality food often comes from the land and from traditional activities (hunting, fishing, trapping and gathering). It is therefore possible that by taking a job related to this project, people from Indigenous communities will have less time to devote to these traditional activities, which could lead to a reduction in the consumption of food from the land for them and their family. Furthermore, as mentioned in Section 21, it is also possible that the work carried out as part of the various phases of the project will have an impact on traditional activities, access to the land or even on the various animal and plant resources exploited by the Indigenous groups (such as movement of game due to the noise produced, change in surfacewater quality, potential contamination of resources). As mentioned in the previous section, it is also possible that Indigenous groups may reduce or even stop practising certain traditional activities because of concerns (proven or not) associated with the project. In any case, this could, once again result in a reduction in access to traditional food and therefore in the consumption of quality food.

Furthermore, the arrival of large-scale projects such as the proposed project is generally perceived in different ways by members of a same community. Some will be in favour, while others will be vehemently opposed. It is therefore possible that this project could fuel existing tensions or even create new ones within the Indigenous communities concerned.

To limit the anticipated impacts of the project on the socio-economic conditions, quality of life and health within the concerned Indigenous communities, the preliminary mitigation measures presented in Section 19.2 could be applied. As stated in Section 21, additional mitigation measures may also be defined at the time of the impact assessment, in conjunction with the Indigenous communities concerned, based on their expectations and concerns regarding the proposed project.

[16] Torngat Metals Ltd plans to hire more than 400 workers during the operation phase, including just over 200 at the mine site, nearly 200 at the separation plant and 35 at corporate level. Since the proponent intends to promote the hiring of Indigenous workers, we can expect that a certain number of workers from communities identified in the environmental assessment will be hired.

As mentioned and described in Section 15, appropriate studies will be conducted to assess the Strange Lake Project's effect on human health, quality of life and socio-economic conditions among the various Indigenous communities concerned. To date, the communities identified for these studies are the same as those listed at the end of Section 21.

As explained in Section 15.3, the first step in baseline studies is to describe the determinants of health, where possible, using a series of indicators that allow us to compare the regional or local situation with that of Quebec or Labrador as a whole. This will enable us to identify the main characteristics of the environments in which Torngat Metals's project components will be inserted.

Then, in a second phase, the impacts on human health, quality of life and socio-economic conditions will be assessed on the basis of the health determinants identified (in particular those for which concerns will be raised during the engagement activities held with the Indigenous communities concerned). Given the characteristics of the project and the environments in which its various components will be located, some preliminary determinants for which concerns could emerge could be: employment, income and employability of the population; modification of the living environment or territory; access to traditional food; alcohol consumption and risk behaviours; family environment; social cohesion; health and social services; housing; municipal infrastructures and services; demographic context.

Thereby, it is important to mention that the health and social impact assessment will be realized using GBA plus and the CRGBA (in the case of Indigenous communities), so that the health and social effects on Indigenous peoples, both positive and negative, will be assessed taking into account the various population groups. Indeed, as already said, women, girls, young people, the elderly and people with different gender identities experience development projects differently. Using a GBA Plus /GRGBA approach will ensure that negative effects for every population group can be identified and mitigated.

In addition, it is important to note that all "human receptors" likely to be impacted by changes to the biophysical environment, social (including cultural) or economic conditions will be identified and located during the impact assessment process. The term "human receptor" refers to all inhabited or used areas likely to be impacted, such as dwellings, camps, areas used for traditional activities, recreational areas, health and social services establishments, educational establishments, etc. To this end, the project components (proposed mine site, seasonal road, handling and storage facilities in Edwards Cove / Voisey's Bay port facilities as well as the rare earth separation plant in Sept-Îles), will be precisely located. Currently available information on those project components is presented in Section 9 of this document.

Table 22-1 lists the potential impacts of the proposed project on Indigenous communities concerning health social and economic conditions. This list is based on the different phases of the project.

Table 22-1: List of anticipated changes and impacts on Indigenous communities – health, social and economic conditions

Development and construction phases
Impacts on health • Better income may results in a better access to quality food coming from the store. • Reduced access to quality food coming from the land and from traditional activities. • Possible contamination of valued species. • Reduction or cessation of traditional activities because of concerns (proven or not) associated with the project. • Safety issues for people using the areas where the work will be carried out during development and construction phases.

Impact on social and economic conditions
• Job creation in local and regional communities, leading to increased income for those employed as part of the project.
• Contracts for local and regional businesses.
• Capacity building within the communities.
• Increased retention of youth and working-age population due to local employment opportunities and potential business development.
• Development of new training and education programs to prepare community members for employment with Torngat Metals or other organizations.
• Scholarship programs and funding community-led programs to increase graduation rates.
• Funding for community-led social, cultural and economic development programs and opportunities.
• Contributing to the problem of labour shortages.
• Social issues affecting the workers hired by the project and their families
  ○ For the workers: being away from family and friends, adaptation to a new living and working environment, exacerbation of social issues such as drug or alccol abuse.
  ○ For the family: prolonged absence of a family member, exacerbation of social issues such as drug or alccol abuse.
• Tensions in local and regional communities concerning the project.
• Increased pressure on infrastructure in Sept-Îles and the surrounding region.

Operation phase
Impacts on health • Better income may results in a better access to quality food coming from the store. • Reduced access to quality food coming from the land and from traditional activities. • Possible contamination of valued species. • Reduction or cessation of traditional activities because of concerns (proven or not) associated with the project. • Safety issues for people using the areas where the work will be carried out during operation phase.

Impacts on social and economic conditions
• Job creation in local and regional communities, leading to increased income for those employed as part of the project.
• Contracts for local and regional businesses.
• Capacity building within the communities.
• As a result of local employment and potential business development a higher retention of youth and working age population.
• Development of new training and education programs to support community members be prepared for employment by Torngat Metals or by other organizations.
• Scholarship programs and funding community-led programs to increase graduation rates.
• Funding for community-led social, cultural and economic development programs and opportunities.
• Contributing to the problem of labour shortages.
• Social issues affecting the workers hired by the project and their families
  ○ For the workers: being away from family and friends, adaptation to a new living and working environment, exacerbation of social issues such as drug or alccol abuse.
  ○ For the family: prolonged absence of a family member, exacerbation of social issues such as drug or alccol abuse.
• Tensions in local and regional communities concerning the project.
• Increased pressure on infrastructure in Sept-Îles and the surrounding region.

Table 22-1: List of anticipated changes and impacts on Indigenous communities – health, social and economic conditions (Cont'd)

Closure and restoration phase
Impacts on health • Better income may results in a better access to quality food coming from the store. • Reduced access to quality food coming from the land and from traditional activities. • Possible contamination of valued species. • Reduction or cessation of traditional activities because of concerns (proven or not) associated with the project. • Safety issues for people using the areas where the work will be carried out during closure and and restoration phase.

Impacts on social and economic conditions
• Job creation in local and regional communities, leading to increased income for those employed as part of the project.
• Contracts for local and regional businesses.
• Capacity building within the communities
• As a result of local employment and potential business development a higher retention of youth and working age population.
• Development of new training and education programs to support community members be prepared for employment by Torngat Metals or by other organizations.
• Scholarship programs and funding community-led programs to increase graduation rates.
• Funding for community-led social, cultural and economic development programs and opportunities.
• Contributing to the problem of labour shortages.
• Social issues affecting the workers hired by the project and their families
  ○ For the workers: being away from family and friends, adaptation to a new living and working environment, exacerbation of social issues such as drug or alccol abuse.
  ○ For the family: prolonged absence of a family member, exacerbation of social issues such as drug or alccol abuse.
• Tensions in local and regional communities concerning the project.
• Increased pressure on infrastructure in Sept-Îles and the surrounding region.

23 Greenhouse Gas Emissions and Strategic Climate Change Assessment

In order to enable consistent, predictable, efficient and transparent consideration of climate change throughout the impact assessment process, Environment and Climate Change Canada (ECCC) has developed the strategic assessment of climate change (SACC), as mentioned in Section 6. The latter is conducted under Section 95 of the Impact Assessment Act (IAA) and it applies to designated projects under the IAA. The SACC describes the greenhouse gas and climate change information that project proponents need to submit at each phase of a federal impact assessment and requires proponents of projects with a lifetime beyond 2050 to provide a credible plan that describes how the project will achieve net- zero emissions by 2050.

23.1 Greenhouse Gas Emissions (GHG)

The GHG emissions quantification allows the identification of carbon sources and their relative significance to give a better understanding of the most impactful mitigation strategies which may apply. The quantification of GHG emissions will consider the seven gases defined as GHGs under the United Nations Intergovernmental Panel on Climate Change (IPCC[17]) and by Environment and Climate Change Canada:

- Carbon dioxide (CO_2);
- Methane (CH_4);
- Nitrous oxide (N_2O);
- Hydrofluorocarbons (HFCs – a family of gases);
- Nitrogen trifluoride (NF_3);
- Perfluorocarbons (PFCs – another family of gases); and
- Sulphur hexafluoride (SF_6).

It is anticipated that GHG will mostly be emitted as CO_2, CH_4 and N_2O, but nevertheless, each gas will be quantified using an appropriate emissions factor based on the source of fuels and activities. These gas are converted into tonne of CO_2 equivalent (tCO_2-eq) using global warming potential (GWP) which is the heat absorbed by any greenhouse gas in the atmosphere, as a multiple of the heat that would be absorbed by the same mass of carbon dioxide. The scope of emissions inventory of the project will include all direct emissions associated to combustion of fossil fuels by stationery and mobility sources and any major indirect emissions.

The initial estimation of GHG emissions associated with the project includes the operational phase of the mining site, the road, the concentration plant and the northern port facilities since there's no details available at this stage for the construction and decommissioning phases. In addition, this estimation does not include the concentrate transport from the northern port facilities to Sept-Îles Separation plant, as well as the Sept-Îles' Separation plant (construction, operation, decomissioning) as data was not available at the time of the assessment. The estimation will be updated and completed as part of the impact assessment. Section 23.4 also details the current assessment's detailed limitations.

[17] Climate Change 2022: Impacts, Adaptions and Vulnerability, Working Group II contribution to the Sixth Assessment Report.

The GHG quantification assessment will be conducted using the key principles of relevancy, completeness, consistency, accuracy, transparency, and conservativeness. These principles are aligned with the CSA-ISO 14064[18] standards, the GHG Protocol[19] standards, and are defined below. It is also noted that the emission factors will be provided by National Inventory Report (NIR)[20] and additional recognized references (i.e.: Quebec standard for GHG quantification[21], US EPA).

23.2 Summary of Net GHG Emissions

From the available information, the estimation of the maximum net GHG emissions for the operation phase is 12.7 MT CO_2-eq over the entire 30 years of operation phase (2028-2058), which represent 422 ktCO_2-eq per year. Table 23-1 outlines the details on the methodology and calculations. As requested per SACC guidelines, each term of Equation 1 are presented in the Table 23-2.

Table 23-1: GHG Emission Values

Emissions type	Site	Fuel Consumption (L/yr)	tCO_2/yr	tCH_4/yr	tN_2O/yr	tCO_2-eq/yr	tCO_2-eq/operational Phase (30 years)
Direct	Mine & Plant – generators	150,000,000	399,450	19.95	60.00	416,387	12,491,598
Direct	Northern Port Facilities - generators	1,000,000	2,663	0.13	0.40	2,776	83,277
Direct	Fuel and concentrate transportation (Port to Mine/Plant site)	1,134,000	3,040	0.12	0.17	3,090	92,697
Total			**402,153**	**20.21**	**60.57**	**422,252**	**12,667,573**

Table 23-2: SACC[22] *Equation 1* - Net GHG emissions calculation

	Description	GHG Emissions	Unit
Net GHG emissions =	Direct GHG emissions	422,252	t eq.CO2 / yr
	+ Acquired energy GHG emissions	0	t eq.CO2 / yr
	- Avoided domestic emissions	0	t eq.CO2 / yr
	- Offset measures	0	t eq.CO2 / yr
	Total	**422,252**	**t eq.CO2 / yr**

[18] ISO 14064-1:2018 Inventaires des GES et mesure de l'empreinte carbone | Product | CSA Group
[19] Homepage | GHG Protocol
[20] Canada's official greenhouse gas inventory - Canada.ca
[21] guide-quantification-ges.pdf (gouv.qc.ca)
[22] https://www.canada.ca/en/environment-climate-change/corporate/transparency/consultations/draft-technical-guide-strategic-assessment-climate-change.html

23.3 Mitigation Measures, Net-Zero Plan

As per required by SACC guidelines, the federal requirements for developing and implementing a net-zero plan for 2050 will be included in the impact study. Stemming from the need to find innovative ways to reduce carbon within the infrastructure delivery process, a baseline will be established to set the goals and develop mitigation measures.

The development and implementation of mitigation measures will follow the principles outlined below:

- Emphasis on reducing the net GHG emissions of the project as early as possible during the project's lifetime;
- Based on the concept of energy efficiency, the BAT/BEP (Best Available Technologies / Best Environmental Practice) reduces energy and resource consumption at the source;
- A BAT/BEP will be performed over the project's lifetime, including any emerging technologies and practices that may become technically and/or economically feasible during the lifetime of the project.

At this stage in the project, the mitigation measures leading to the greatest GHG emissions reduction are listed below:

- Electric generators
- Energy-efficient and/or electric vehicles
- Energy-efficient, hybrid and/or electric machinery
- Use of biofuels
- Renewable energy production (e.g. – geothermal)
- Implementation of an energy management system (ISO 50 001)
- Renewable Energy Purchase Agreements (under Renewable Energy Certificates) – Off-site
- Carbon capture and offset

Additional mitigation measures considered include:

- Use of local materials
- Using repurposed or recycled materials
- Low-carbon materials selection
- Minimizing building heating and cooling requirements and associated systems
- Minimizing waste
- Minimizing site transport
- Efficient construction methods (e.g., modular systems, precision manufacturing and modern methods of construction (MMC)) contributing to better built quality, reducing construction-phase waste and need for repairs in the post completion and defects period (snagging)
- Lightweight construction which uses less material
- Encourage durable construction and flexible design

23.4 Limitations

It should be noted that the available data at this stage of the project is insufficient to provide a precise GHG emissions estimation for the project phase or activities below:

Direct GHG emissions:

- Construction and decommissioning phases activities
- Marine transport of concentrate from Labrador coast to Sept-Îles Plant
- Sept-Îles Separation plant's fuel consumption from machinery use (e.g. in the residue stockpile area)

Acquired energy GHG emissions:

- Sept-Îles Separation plant's electricity purchase

Upstream/downstream GHG emissions:

- Jet-fuel consumption for plane or helicopter use
- Maritime transportation of fuel to northern port facilities
- Maritime transportation of consumables to northern port facilities
- Chemical products and consumables transport (by train) between Sept-Îles Port and Plant

Therefore the current GHG emissions calculation has been developed using the data available to date and considering the maximum production rate over the entire 30 years of operational phase. The estimation will be reassessed as part of the impact study as the project moves forward.

23.5 Resilience to Climate Change

As part of the strategic climate change assessment, a climate change resilience analysis will be conducted. This will include a selection of weather-related risks that may change under current and anticipated climate change. in 2021, ECCC has published a technical guide that provides instructions and details on the level of information for the climate change resilience assessment. The climate change resilience analysis will be completed in accordance with this document and also the procedures contained in Canadian Standards Association published CSA 4011, "Infrastructure in Permafrost: A Guideline for Climate Change". This document provides guidance and practical advice on location and design for infrastructure in northern environments. The document describes the nature of permafrost, trends in climate change, foundation systems for community infrastructure, and presents a process for ensuring climate change is incorporated into design and location decisions. In that context, the following activities will be conducted:

- Assessment of the interactions of historical climate conditions with the project area, both in terms of trends in key climate variables (e.g., precipitation or temperature) and records of extreme events (e.g., heat waves, floods).
- Collect information and observations from the Indigenous peoples affected by the project;
- Analysis of projected future changes in the climate using climate model projections for five ranges of emission scenarios also called Shared Socioeconomic Pathways (SSPs). SSPs provide a range of plausible trends in the evolution of society over the twenty-first century (1-3 generations). The SSP families represent "sustainability" (SSP1), 'middle of the road' (SSP2), 'regional rivalry' (SSP3), 'inequality' (SSP4), and 'fossil fuel intensive' development (SSP5). SSP5 is part of the fossil fueled development pathway and is a high reference scenario that includes no climate policy. Radiative forcing reaches 8.5 W/m2 by the end of the century (three generations), resulting in a best estimate of global warming of 4.4 °C.

- Determination of climate indicators, which represents conditions or events that can cause loss of productivity, damage to the infrastructure, harm to employees or visitors, etc. The probability associated with an indicator will be calculated from observations at weather stations and climate simulations.
- Assessment of the potential climate change vulnerability. This screening determines the exposure, sensitivity, and adaptive capacity of project assets/components, the people and the environment to the selected climate indicators. Assets and operations that are exposed, sensitive and have low inherent capacity to adapt will go to the next stage of Risk Analysis. The latter will be conducted to evaluate the impacts of the climate indicators on each of the project components by evaluating their likelihood of occurrence and their potential consequences to the project, environment and people.
- Risk will be evaluated in order to rank them from unacceptable risks to acceptable levels. This risk evaluation will provide the basis for identifying when risk treatment and adaptation measures are necessary. These adaptation measures will be divided by the implementation stage:
  - Design: Measures to be incorporated during the design phase of assets for these to be resilient to future climate risks and to prevent costly revamps.
  - Operations and Maintenance (O&M): Measures to be incorporated over the lifespan of the assets during operation and maintenance to ensure resiliency.
  - Policy: Measures to be executed to always provide and maintain safe and healthy working

24 Waste, Emissions and Discharge

24.1 Waste Management

24.1.1 Solid Waste (domestic and non-hazardous wastes)

Solid wastes will be generated at the mine and concentration plant site, at the port facilities and container storage/handling facilities and at the separation plant. At the mine and concentration plant site, these solid wastes will be managed according to Quebec Residual Materials Management Policy and other guidelines. Reduction at source, recycling and recovery methods will be considered before disposal. In the north, wastes will be buried in a landfill that meets northern environmental standards. Options for the landfill location will be evaluated in the coming studies for the current project.

At the port and container storage facilities, the solid wastes will be managed according to Newfoundland and Labrador Provincial Solid Waste Management Strategy and applicable regulations, while considering the location of the project in an isolated northern territory. The type and quantity of waste produced in these facilities are not yet known but they are likely to be much smaller than at the mine site. However, according to Quebec laws and regulations, it is not permitted to import residual materials from outside Quebec for the purpose of disposing of them in Quebec, which would in principle prevent them from being brought to the mine site for disposal at the same time as those produced there. Options will be assessed and compared as part of feasibility study and impact assessment.

At the separation plant in Sept-Îles, the solid wastes will be managed according to Quebec Residual Materials Management Policy and in accordance with applicable guidelines. Reduction at source, recycling and recovery methods will be considered.

24.1.2 Hazardous Materials and Hazardous Waste

The list of chemicals used in the concentration process in the north and in the separation plant will be established based on the prefeasibility and feasibility studies, and considered in the impact assessment. The storage of all hazardous materials will follow applicable regulations and best practices.

Potential hazardous waste generated in the north, and at the port facilities (if any are produced) could include waste hydrocarbons from machinery, antifreeze, solvents, used oils and batteries, etc. They will be collected at the mine site and packaged in containers to be sent to port facilities. From there, the containers will be transported by ship and then by road to an authorized facility in compliance with applicable regulations. All transport operations will be carried out in compliance with federal and provincial regulations.

The management of hazardous waste at the Sept-Îles separation plant will be based on the prefeasibility and feasibility studies and considered in the ESIA. All hazardous wastes will be stored in containers and transported off-site to an approved disposal facility.

24.1.3 Residue from Mining Operation and Concentration Process

Residues from the concentration processes will be filtered, dewatered and mixed with a cementing agent, transported by truck or closed conveyor system and deposited at the mine residue storage area. Waste rocks, material and residues from the mining operations and concentration process will be sampled and characterized in accordance with the *Guide de caractérisation des résidus et du minerai* and the *Guide des Radionucléides Recommandés pour l'Analyse de la Radioactivité dans les Matrices Environnementales*, to support the design of the various storage facitilies. Between 2012 and 2013, rock samples were characterized following the Directive 019 as guidance only. Althought those samples didn't present a risk of acid generation, those conclusions will be revised following the updates of the guidelines and the new characterization mentioned above. The guide on the recommended radionuclide for analyzing radioactivity in environmental matrices will be used in all physical and biological baseline studies and mine and process engineering design.

24.1.4 Residue from Rare Earth Separation plant (Sept-Îles)

Those residues will be stored, a priori permanently, in a dry stockpile. In order to minimize their potential environmental impact, they will be thickened, filtered and mixed with cement before being deposited in the residual management area. Cemented backfill is usually inert, however further studies will be performed to verify potential risks of leaching and optimize water quality model. The dry residues will be covered progressively by a waterproofing system and a collection system will be installed underneath to gather any seepage. A study of the risks of failure will be carried out as part of the impact study to identify any corrective measures to be implemented during operations. Collection ditches will direct any seepage from the piles to the collection pond. The collected water will be treated and recycled to the process water system. Geochemical and geotechnical studies will help with the design of the residue stockpile area and retention basin. The environmental design will ensure groundwater protection and wastewater treatment based on *in-situ* conditions and Quebec's Directive 019. A part of the natural radioactivity present in the Strange Lake deposit will remain in the concentrate processed at the Sept-iles plant and will ultimately be found in the residues. Therefore, the guide on the recommended radionuclide for the analysis of radioactivity in environmental matrices will be used in all baseline studies, as well as in the process engineering design. Considering the concerns raised about long-term management of residue, Torngat Metals is examining possible storage alternatives that would allow for future uses of the stored residues. Torngat Metals will explore and evaluate potential recovery methods. These methods must meet applicable regulatory requirements and not compromise storage safety.

24.1.5 Super-bags (FIBC bags) disposal

Before final disposal of the FIBC bags, they will go through a decontamination process. The process selected will depend on the final ongoing testing results which are still ongoing. Current decontamination options include:

- Mechanical including adding surfactants, abrasion, jets etc.
- Chemical.

Final disposal will then depend on the final level of decontamination achieved, though will of course be subject to Regulation regarding the NORM levels and requirements.

24.1.6 Contaminated Soils

For the Northern component of the project, Torngat Metals will install platforms to collect and eventually treat contaminated soil at the mine and near the port. These platforms will receive soil that has been contaminated by spills of petroleum products or chemicals. The need for such facilities stems from the remoteness of Torngat Metals' facilities from service providers in this field. The location and technical details of these facilities will be decided during the feasibility study and impact assessment. The provinces of Quebec and Newfoundland and Labrador have clear regulations and guidance as to how assess and handle contaminated soils.

When it comes to remediation, the most common approaches are: bioremediation and/or relocation and disposal to a regulated and licensed facility/landfill. Bioremediation is an effective method for Petroleum Hydrocarbons, although it can be slower in northern environments. After remediation for hydrocarbons is completed, soils will be tested for remaining contaminant and managed according to their quality. If the quantity is too large for transport to be an environmentally sound solution, other solutions such as in situ treatment or containment could be considered, subject to prior approval by the competent authorities. Should the soil be sufficiently remediated, soils will be kept for future reclamation.

Such facilities are not planned for the Sept-Îles separation plant, given the more limited risk of spills and the presence of suppliers specializing in the management of such risks in the region.

24.2 Atmospheric Emissions Management

24.2.1 Air Emissions

The Strange Lake Rare Earth Mining Project can generate various air emissions by the different activities and project component (mine site, concentration plant, separation plant, road, port facilities) involved in the process. Emissions of contaminants will comply with both provincial (*Règlement sur l'assainissement de l'air* - Québec, *Air Pollution Control Regulations* - NL) and federal (*Canadian Ambient Air Quality Standards*) regulations. The potential sources of emissions, mainly generated by the construction and operation phases are:

- Excavation, drilling, blasting, loading, offloading of materials.
- Electricity generation by diesel-powered generators (northern sites).
- Transportation (all sites)
- Crushing, grinding and concentration processes (mine and concentration plant site):
- Acid baking of the concentrate (rare earth separation plant in Sept-Îles) and calcination
- Material storage (mine site).
- Waste materials and residue disposal (mine site and separation plant site).

Atmospheric emission modelling will forecast dust and contaminant dispersion from industrial project activities, including heavy machinery. This will help develop mitigation measures for each project component to reduce environmental impacts.

To control dust emissions from mining stockpiles containing non-crushed material, watering, dust suppressants, and tarpaulins will be used. In contrast, dome covering and conveyor covering will be used to control dust emissions from crushed material.

Mining operations will continue year-round, with most activity on access route occurring in winter for logistical and environmental benefits. Concentrate will be transported in sealed containers to minimize dust generation. Minimal maintenance will be carried out during summer. Haul roads dust emissions will be controlled by:

- Maximum speed limit enforcement of 55kph and;
- Possible application of biodegradable and non-toxic dust suppression agents: Torngat Metals may use biodegradable, non-toxic dust suppressants like lignosulfonates, subject to ESIA processes, for environmentally friendly dust suppression.

With regards to industrial processes (concentration plant, Sept-Îles separation plant), an emphasis is placed on the use of gas and air treatment technologies (e.g. wet scrubbers, electrostatic precipitators, dust collectors) enabling the majority of contaminants and dust to be treated upstream before being released into the atmosphere. The strategies and technologies used will be regularly updated in line with industry best practice (BAT/BEP).

An air quality management plan and dust management plan will be developed as part of the project impact study for each of the project components (mine site & concentration plant, access road, port infrastructures, Sept-Îles plant). These plans will be targeting all project activities (e.g. blasting) and phases (e.g. operation and exploitation).

24.2.2 Noise, Vibrations and Light

Noise could be emitted by machinery and trucks during all project phases of all project components. Blasting at specific locations may be required. During operation, noise will come from blasting, machinery, crushing operations, and electricity production at the mine site. Aircraft and truck movements will generate noise, as well as container

handling machinery and ship engines at the port facilities. In Sept-Îles, noise will come from transportation of materials by train and machinery movements at the residue disposal facility.

Noise and vibrations will be assessed in detail as part of the impact assessment, including the determination of baseline conditions, the establishment of future conditions (modeling), and the selection of appropriate mitigation measures.

Light emissions will be assessed in detail as part of the impact assessment and mitigation measures will be identified.

Green gas emissions are detailed in Section 23, the GHG emissions. GHG emissions will be assessed in detail as part of the impact assessment as per the SACC guidelines & requirements.

24.3 Water Management

24.3.1 Water Lifecycle and Discharges from the Mine Site

The mine water management strategy focus on reuse of water and minimising or eliminating discharges in the receiving environment. Discharge, if any, would only occur on exceptional occasions and, in such cases, the water will be analyzed and treated appropriately before being released into the environment.

Water sources will include precipitation, spring snow melt, groundwater, pit water and surface runoff. The layout and design of the mine prioritize separating water into contact and non-contact waters, with non-contact water remaining uncontaminated. A closed conveyor system will transport extracted minerals to the concentration plant, with water management and monitoring implemented throughout the process. The reuse of contact water in the concentration process will avoid the need to discharge this water. Water quality will be monitored throughout all stages of operation at the mine site to ensure environmental protection in the event of exceptional discharges.

Multiple ponds will be required to collect runoff water from different mine activity areas, such as pit and stockpiling areas, to prevent mixing of water from various sources. The water from these retention ponds will be reused in the concentration process, after prior treatment if required. Design of the water management pond will ensure it can handle floods without overflowing. Infrastructure design will consider climate change and applicable guidelines. Intense precipitation can overload water management systems, with IDF curves helping to study precipitation patterns. During heavy rain or spring melt, there may be excess water beyond the plant's capacity. A water management pond will handle these discharges.

Seasonal water management takes several factors into account, such as treatment types, discharge timing, climate, and water quality. Water will be stored in ponds during winter for use in the plant. No discharge will occur under ice conditions during winter. In responding to exceptional circumstances requiring water discharge in other seasons, three controlled discharge options are being considered and will be evaluated, as previously described in section 9.2.4 of this summary.

A sanitary wastewater treatment plant will also be built. Various treatment processes will be compared and evaluated. Treated sanitary wastewater could be discharged via a diffuser into the lake. The integration of artificial ponds into the treatment process and the recycling of grey water are alternatives that will also be evaluated (see section 9.2.4).

Hydrologic modeling is used to choose any discharge locations to minimize environmental impact. Monitoring at the discharge points will follow applicable regulations and guidelines including biological monitoring of fish tissues and benthic invertebrates, along with quarterly toxicity testing and monitoring of the receiving environment.

24.3.2 Water Cycle and Discharges from the Separation Plant

As for the mine site, the Sept-Îles separation plant water management strategy is focused on water reuse and minimizing or eliminating discharges to the environment. The industrial wastewater, which mainly originates from water leaching and rare earth extraction steps, is treated and recycled within the process.

No effluent from the process residue stockpile area is expected during normal operations. A water management pond will store contact water from this area for treatment before use in the plant's separation processes. In the event of extreme weather events causing excess water, treated water may be discharged. For this purpose, a discharge point into the Rivière au Foin is considered. Modeling to date suggests that discharges would be minimal. The characteristics and exact location of discharge point will be studied and assessed as part of the feasibility study and impact assessment. Water treatment technology will be selected using best achievable technology (BAT).

Domestic wastewater will be discharged to municipal sewer in compliance with regulations.

25 Cumulative Effects

Cumulative effects are defined as changes affecting the environment caused by an action combined with the effect of past, present or future activities. Cumulative effects therefore result from the combined effect of the present project and those stemming from other activities (past, actual or future) taking place on the same geographical location, or territory (study area).

These cumulative effects can occur over a certain time and at a certain distance from the project. The current section evaluates how the Strange Lake Rare Earth Mining Project activities, can exert cumulative impacts on Valued Ecosystem Components (VECs) in the territory (study area). The assessment of the cumulative effects therefore involves:

1. Identifying the VECs to be considered in the analysis of the cumulative effects
2. Identifying and justifying the spatial and temporal limits of the analysis, based on the intrinsic characteristics of the VECs and their distribution
3. Identifying past, present or future activities in the territory considered that may affect these same VECs
4. Determining whether the effects of the Stange Lake project on a VEC accrue with the effects of other project activities
5. Determining whether the combined effects of the Strange Lake Project and other activities risk causing current or future change to the VECs and whether additional mitigation measures should be deployed

Cumulative impacts will therefore be presented after the residual impact assessment, taking into account mitigation measures, so that the reader can clearly distinguish them from the direct or indirect impacts of the main project.

25.1 Identification of the VECs Considered

The VECs considered for the assessment of the cumulative impacts arise from the six environmental and social issues identified in Section 19.1 of this report. The most relevant criteria for the selection of potential VECs are as follows:

1. the recognition of the importance of a component through legislation, regulation or policy ;
2. the sensitivity or vulnerability of the component ;
3. the uniqueness or rarity of the component ;
4. the sustainability (durability) of the component or ecosystem ;
5. the value or importance assigned to the resource by stakeholders;
6. the risks to health, safety or well-being of the public;
7. the ecosystem characteristics, both of the northern environment (beyond the forest line and in the presence of discontinuous permafrost) and of the Sept-Îles environment.

In the case of biodiversity, the species or groups of species considered as VECs for the analysis of cumulative effects in the present study are those with an increased risk of being disturbed by the mining activities and collisions with road vehicles (ex. caribou) and those valued by Indigenous and non-Indigenous groups concerned by the project (ex. caribou, Arctic char, water quality). These VECs will be revised during the elaboration of the project. They will be enhanced if necessary.

25.2 Identification and Justification of the Spatial and Temporal Limits of the Analysis

For the northern activities (mine site, seasonal access road, containers storage at the port facilities), the spatial boundaries considered for this analysis extend beyond those of the proposed mine site and the identified corridors for the proposed seasonal road. The limits of the bio-physical environment will include projects likely to have had or will have an impact on valued VECs such as the George River caribou herd, as well as George River and Ikalivik Brook water quality. Concerning social environment, the spatial limits for the purposes of the analysis will be extended to include other projects that have had or will have an impact on access to land and resources, archaeological resources, socio-economic conditions, health as well as psychosocial condition of the Indigenous and non-Indigenous communities affected by the project.

For the separation plant in Sept-Îles, the spatial boundaries considered for this analysis also extend beyond those of the proposed plant and residue storage facility site. The limits of the bio-physical environment will include projects likely to have had or will have an impact on valued VECs such as the Au Foin River and the Bay of Sept Îles and their biological components. The spatial limits of the social environment for the purposes of the analysis will be extended to include other projects that have had or will have an impact on valued VECs such as socio-economic conditions, health, psychosocial condition of the Indigenous and non-Indigenous communities affected by the project, as well as landscape.

It is difficult to establish time limits at this stage. As a preliminary step, we propose to consider a period of 15 years for past activities. If necessary, this limit will be reviewed during the analysis. Concerning future activities, the anticipated operation phase of the Strange Lake Project extends to 30 years from construction, and includes the closure and restoration phase up to 2072. For the purposes of this analysis, the lifecycle of the projected mine will include the timelines from construction (starting in 2027) until restoration (2072). The temporal limit on the territory that will be considered for future activities is then approximately 45 years.

25.3 Effects of the Project on VECs Accrue with the Effects of Other Activities

Concerning biophysical components cumulative effects could be:

- atmospheric pollution due to the emission of dust particles of the project and other projects;
- maritime and port activities in Anaktalak Bay and Voisey’s Bay in addition to that already generated by other projects;
- caribou habitat fragmentation in addition to that already generated by other projects;
- additional light sources that might interfere with bird migration.

Concerning cultural heritage and the use of land and resources by Indigenous and non-Indigenous groups cumulative effects could be:

- increased pressure on archaeological resources in addition to that already generated by other projects;
- opening up of the territory due to the accumulation of road development;
- additional disturbance of land use activities performed by Indigenous and non-Indigenous groups (noise, dusts, vibration, restriction or interruption of access to certain areas or traffic routes);
- additional impacts on resources valued by Indigenous and non-Indigenous groups (such as the caribou, and Arctic charr);
- additional visual disturbance of the landscape.

Concerning quality of life, socioeconomic conditions and health conditions among local and regional communities (Indigenous and non-Indigenous), cumulative effects could be:

- accentuation of the effect on labour shortages due to the demand for employees for different large-scale projects in the same region;
- increased pressure on businesses and infrastructure (particularly accommodation infrastructure) if major projects are carried out at the same time in the same region;
- possible exacerbation of other socio-economic impacts associated with the implementation of other projects;
- possible exacerbation of tensions within communities regarding development;
- additional sources of potential contamination of consumed resources (animal and plant);
- increased reduction in access to traditional food.

25.4 Identification of Past, Present and Future Activities Potentially Affecting VECs

The analysis will identify other activities or development projects (past, present or future) that may have an impact on VECs of biophysical environment, like air quality (ex: atmospheric pollution coming from industries south of the site), caribou and other terrestrial wildlife, Arctic char, waterfowl (ex: fragmentation of the territory, creation of dams). It will also consider past, present and future activities that have had, are having or are likely to have an effect on the VECs of the social environment, such as land use activities performed by the Indigenous and non-Indigenous communities (ex: opening up of the territory due to road development by other mining companies), as well socio-economic and health conditions of Indigenous and non-Indigenous communities (such as the accentuation of the effect on labour shortages or other socio-economic impacts associated with the implementation of other projects).

Known projects (already completed, in progress or planned) likely to have an impact on the valued components of the environment include the following:

In the northern areas: Strange Lake Mine Site, road corridor, container storage and handling facilities:

- Mining activities in Voisey's Bay Area by Vale Inco and related maritime and port activities in Anaktalak Bay and Edwards Cove;
- Wind Micro-Grid project in Nain. The project construction was scheduled for July 2022 and the commencement of commercial operation is scheduled for October 2023.
- Activities related to the New Nain Airport project, for which baselines are ongoing (2022-2024), and construction is planned for 2027-2030;
- The projected construction of a road leading to Northern Labrador. The Government of Newfoundland and Labrador, Department of Transportation and Infrastructure, published a request for proposals under a Prefeasibility Study in October 2022, for a potential extension of the Trans-Labrador Highway into Nunatsiavut.
- Mining activities around Schefferville by Labrador Iron Mines Ltd and Tata Steel Minerals Canada.

In addition to these, other projects will be considered in the cumulative effects in the north given their proximity to the northern components of the project, as requested in the Summary of Issues:

- Crater Lake Mining project, Scandium Canada Ltd.;
- Joyces Lake Mining project, Joyce Direct Iron Inc.;
- Ashram Mining project, Commerce Resources Corp.

In the Sept-Îles area: rare earth processing and separation plant

- Alouette aluminum smelter refurbishment project;
- Any project (modernization, renovation) on the Port of Sept-Îles infrastructures;
- Possible Arnaud Mine project (phosphate and apatite);
- Mining activities around Schefferville by Labrador Iron Mines Ltd and Tata Steel Minerals Canada;
- Construction of housing units and infrastructures at Uashat and Mani-Utenam.

Again, in addition to these, other projects will be considered in the cumulative effects, as requested in the Summary of Issues:

- Kwyjibo Mining project, SOQUEM
- Iron Ore Company (IOC), Rio Tinto
- Minerai de fer Québec, Filiale Champion Iron
- Joyces Lake Mining project, Joyce Direct Iron Inc.

For both (north and south), for abandoned mines not yet rehabilated, they will be considered accordingly during the ESIA based on their locations, and timelines.

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